SEPTEMBER 1987 $2.95 NZ$3.95 Inc GST

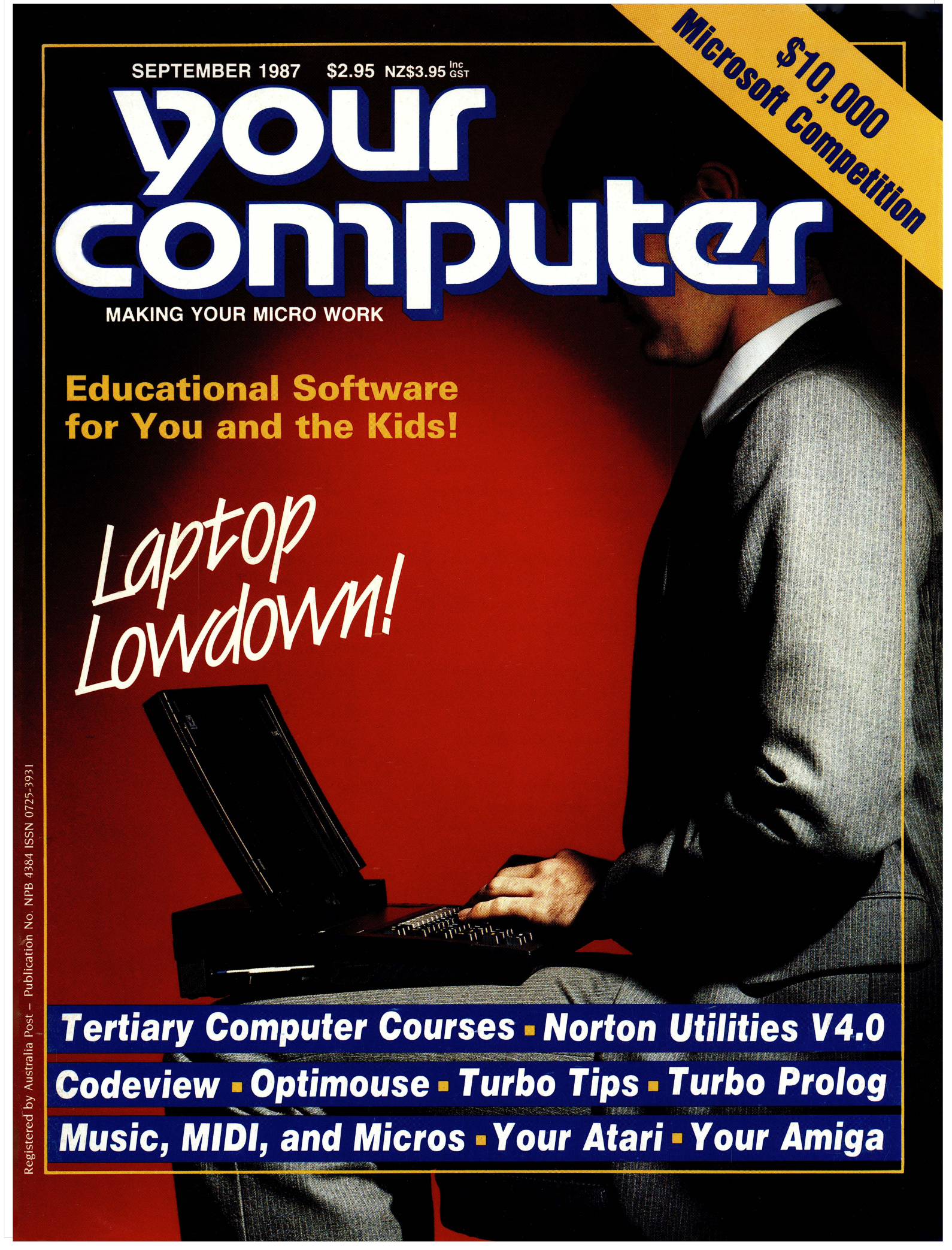
your computer

MAKING YOUR MICRO WORK

$10,000 Microsoft Competition

Educational Software for You and the Kids!

Laptop Lowdown!



Tertiary Computer Courses ▪ Norton Utilities V4.0

Codeview ▪ Optimouse ▪ Turbo Tips ▪ Turbo Prolog

Music, MIDI, and Micros ▪ Your Atari ▪ Your Amiga

Registered by Australia Post – Publication No. NPB 4384 ISSN 0725-3931

Which of these new words will give you the most zitboodle?

Remember the good old Anglo-Saxon days when *wig* meant *war*?

How about when *radio* was *wireless*?

Every year, new words creep into our language, giving us greater control of our ever-changing world.

In this list of recent arrivals you will find one new Word in particular that gives you power over all others.

anfo *[milit]* a type of home-made explosive used for terrorist bombs in Ulster.

bumblepuppy *[sport]* in bridge, a game played at random, with neither rhyme, reason nor sensible planning.

cocktail *[medic]* **1.** a barium enema. **2.** castor oil.

electronic smog *[audio]* non-ionising radiation – i.e.: radio or TV waves or radar – emitted into the air in such amounts as to threaten public health.

FIDO *[aerospace]* Fog Investigation Dispersal Operation: a method of dispersing fog above airports by using the heat from petrol burners.

fuff *[TV]* fake snow for wintertime effects.

googol *[science]* slang for 10 to the hundredth power.

humint *[espionage]* human intelligence: gathering of material by means of human beings – spies – rather than by electronic surveillance.

kludge *[computers]* **1.** an improvised do-it-yourself lash-up which may well work. **2.** a factory-made computer which still has some (endearingly) odd characteristics.

meg *[finance]* $1,000,000.

nodders *[TV]* the interviewer's reaction shots, often no more than nodding at the answers his questions receive, which are usually filmed after the actual interview and edited into the tape prior to transmission.

nuplex *[industry]* a complex of manufacturers all of whom use nuclear power within their factories or plants.

nybble *[computers]* half a byte or four bits.

operant conditioning *[business]* the persuading of one's workforce to do what you wish them to do – often by providing incentive schemes, productivity bonuses, etc.

psychic income *[econ]* **1.** aka: *psychic compensation*: the non-monetary and non-material satisfactions that ideally accompany an economic or work activity. **2.** the non-measurable mental and emotional satisfaction a consumer gleans from an item or a service that he/she purchases.

quasimodo *[sport]* in surfing, riding a surfboard in a crouched position; from the posture of the fictional 'Hunchback of Notre Dame' in Victor Hugo's *Notre Dame de Paris* (1831).

rep-tile *[maths]* aka: *reptile*: two-dimensional figures of which two or more can be grouped together to make larger scale models of themselves.

soup *[science]* the waste products of a chemical process.

space gun *[aerospace]* a hand-held instrument that propels the astronaut while he is working outside the capsule.

vidkids *[entertain]* youthful addicts of computerised arcade video games.

wargasm *n [milit]* a crisis that could lead to the outbreak of a war; the war that followed such a crisis: in both cases the image is of an escalating compulsion towards conflict that takes over from sense and restraint and must reach its nuclear climax.

white hole *[science]* a hypothetical source of matter or energy, posited as the 'other ends' of black holes and as such expelling all the matter and energy.

wormhole *[science]* a hypothetical passageway in space that connects a black hole and a white hole.

yumpsville *n [movies]* the unsophisticated rural and small-town audience whose favourite films mix sex and violence and keep the dialogue and intellectual stimulus down to a minimum.

zitboodle *[business]* power. (see *New Microsoft Word*).

New Microsoft Word 3.0 *[for the Macintosh]* is the last word in document processing.

You could say it's the new Word for Power: It is already acclaimed as *the most powerful* word processing program on *any* personal computer.

It is also the fastest.

Of course within the friendly graphic environment of your Macintosh, new Microsoft Word is an eminently simple program to fully exploit and explore.

It gives you the power to create and produce professional documents to a phenomenal desktop publishing standard.

One truly potent feature is integrated outlining which allows you to "brainstorm" your thoughts before filling in all the details.

You then juggle entire sections of a document by merely shuffling headings as they appear in your index.

To save valuable time, you can now preview the look of the whole page layout before printing.

Imagine side-by-side paragraphs which you create and edit on the screen (rather than with scissors and glue), snaking columns, automatic hyphenation, glossaries, even mixed graphics and text either within the same paragraph or side-by-side.

All with lightning speed.

You will especially notice vast improvements in scrolling and saving speed, *regardless of the length of document.* Plus, new Microsoft Word will help you out with the spelling of 80,000 words. (Naturally you can add new words to the list, especially newspaper-fresh new words, with a single keystroke.)

What's more, new Microsoft Word allows you to communicate *[indeed, co-exist]* with other computers and other programs. Need more words?

Why not call Microsoft now on (02) 452 5088 or toll-free on 008 226 850.

(Existing users of Microsoft Word for the Macintosh may upgrade for a modest fee.)

Otherwise pounce on your copy of new Microsoft Word at your nearest Microsoft dealer.

We know you'll find it a humungous success.

Microsoft® WORD 3.0.

For more tantalising words on the world's most powerful new Word, please send to Microsoft, Freepost 3, Forestville, New South Wales 2087.

Name .....

Title .....

Organisation .....

Address .....

.....

Postcode ..... Telephone .....

John Bevins MS7

* Definitions from *Newspeak. A dictionary of jargon* by Jonathon Green. (Except for *zitboodle*. We invented one great new Word so why not another?)

your computer

SEPTEMBER 1987



Laptop Lowdown

Jan Roberts continues her survey of portable computers — this month: a lot of ROM, *'tailor-ability' and a Winner!*

Editor
Jake Kennedy
Assistant Editor
Adrian Armitage
Production Editor
Allecia Kartu
Bulletin Board Sysop
Andy Farkas
Art Director
Rolf Hagenmaier
Designer
Kenneth Whipp
Production
Kylie Prats
Contributing Editor
Matt Whelan
Managing Editor
Cathy Gray

Consulting Editor
Les Bell
Publisher
Michael Hannan
Office Services
Sue Sukkar
Subscription Enquiries
Julie Plummer
Advertising Sales
National Advertising Manager:
Damien Prins
Advertising Production
Patrice Wohlnick

OFFICES
NSW
Craig Rowe,
180 Bourke Rd, Alexandria 2015.
Tel: (02) 693 6666, Tlx: AA74488
Fax: (02) 693 2842
Bulletin Board: (02) 669 1385

Victoria
Susan Earles,
221A Bay St, Pt Melbourne 3207.
Tel: (03) 646 3111, Tlx: AA34340
Fax: (03) 646 5494

Western Australia
Estelle de San Miguel,
John Fairfax and Sons,
454 Murray Street, Perth 6000.
Tel: (09) 481 3171, Tlx: AA92635

Queensland
Damien Prins
180 Bourke Rd, Alexandria 2015.
Tel: (02) 693 6666, Tlx: AA74488

South Australia
Michael Mullins, John Fairfax and Sons
101 Waymouth St, Adelaide5000.
Tel: (08) 212 1212, Tlx: AA82930
New Zealand
John Easton, J.E.S. Media
P.O. Box 8770, Symonds Street, Auckland.
Tel: (09) 39 6096, Fax: (09) 77 4826

YOUR COMPUTER
is published monthly by
The Federal Publishing Co Pty Ltd,
Printed by Hannanprint,
140 Bourke Rd, Alexandria 2015.
Distributed Nationally by
Newsagents Direct Distribution Pty Ltd

*Recommended and maximum price only.
ISSN 0725-3931.

CONTENTS

News 8

Microsoft Computer Art Competition 16
Here's your chance at $10,000 worth of prizes from Microsoft, Epson and Earth Computers! (All you've got to do is write a useless program.)

Features

Educational Software — an Overview 18
Choosing packages for educational value.

The Word 24
The Word is out — Learning to spell can be fun with this package from Logistics.

Springboard into Maths 28
An introduction to mathematics for pre-schoolers.

Stickybear Music 33
A music package that's a two-step in the right direction!

Computer Tutorial 34
Public Domain software and a disk for computer novices.

Music and Education 38
Bach to Basic (and a chemistry test).

Fastype 41
A typing tutor for arcade games players.

Computer Tutor 44
Learn about computers with cassette players, video disks, CD players (and even computers).

Courses for a Computer Career 54
A survey of tertiary computer courses.

Music, MIDI, and Microcomputers 64
This month, Andrew Symaniz gets into non-real time music composition.

Teach Yourself . . . 69
. . . it's better than trying to learn DOS from the manual or having a friend explain it.

Reviews

Intuit 70
An integrated package that's neither too complex nor too expensive for the home (and very small business) user.

Laptop Lowdown 74
The Toshiba T1100+ vs NEC's Multispeed vs The Gridlite.

Words, Words, Words 85
Micropro's Easy V1.5 and PFS:Professional Write — both easy to learn and suitable for casual use.

Norton Utilities V4.0 94
An enhanced version of Peter Norton's (lifesaving) file and disk manager.

Playing Around 98
Use your computer as a tool to build a catapult, an oracle, a steam engine, a helicopter, or design your own fantasies with Toyshop.

Optimouse 100
A sophisticated productivity tool that doesn't mind biscuit crumbs on his pad.

Instruction Set

Codeview Debugger 104
For all you C (and Fortran programmers), Larry Lewis has found an advanced debugging tool — and it's priceless!

Turbo Tips 118
Who but Peter Hill could offer a useful combination of Turbo Pascal and dBase? (And we've fixed that Window problem, too).

Public Domain

New Products 124
A 386 Apricot, an update to Digi-View, a C to dBase III+ translator, a job estimation package, and a handsome case for clones are just a few of this month's releases.

PAMS List 131
Is your list up-to-date?

Your Amiga 136
A graphics based adventure game and Image Format Files.

Your Apple 139
A plug in MS-DOS card and printer problems.

Your Atari 145
Mega ST Ataris, a 4 Mbyte upgrade board, and a shoot-'em-up with a plot(!).

Your C64 149
. . . of Amigas, modems and Russia.

Your BBC 150
Archimedes and Arthur.

Your IBM 152
Transferring files between formats.

Your Microbee 157
A new-fangled keyboard.

IBM Underground 159
ARC utilities.

Services 160
For Back Issues, Tutorials, and Letters to the Editor.

Cursory Glance 162
. . . at computer warranties, a new disease, and software for your teeth!

MicroWay Productivity Tools

Having the right tools, makes it easier to do the job...right!

Your time is valuable! MicroWay provides you with the tools to maximize your time. Programming tools which offer the latest and most advanced features available. The highest quality products are provided with the highest quality support.

If you use the highest quality programming tools, you can save yourself many months of programming time.

Why re-invent the wheel! MicroWay offers some of the latest and most advanced productivity tools available. You can be assured of a high standard of excellence, and service.

Your satisfaction is very important to us.

New from MicroWay are the Datalight C compilers and the supporting programs, LIGHT TOOLS, and LIGHTWINDOW/C. The DATALIGHT C compilers are among the fastest and most versatile, language compilers available today. With the DLC compiler program you can compile, link and even create COM files in one easy step.

LIGHT TOOLS is a natural extension to the Datalight package, providing an exceptionally complete, general purpose C function library. LIGHTWINDOW/C is an advanced, high performance graphics tool kit,which provides Datalight C programmers and application developers with a powerful easy to use comprehensive set of advanced graphics functions and utilities.

Datalight compilers are the perfect choice for developing high quality, professional C language programs. And when combined with LIGHT TOOLS and LIGHTWINDOW/C, the result is an MS-DOS program development system that is unsurpassed in price and performance.

When you need programmer's development tools. MicroWay is your best one-stop source. We've specialised in development software for a number of years, during which time we've built up a solid reputation for quality products and service for a variety of languages.

Now there is no need to change to C programming. Now MARSHAL PASCAL is here!

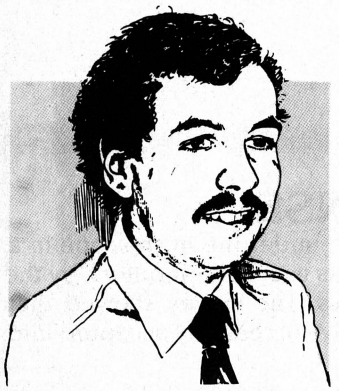
Marshal Pascal is one of the fastest and most highly code-optimised compilers available for the IBM PC and compatibles. You can address all of memory and a variety of memory models are supported. Some of its features are: separate compilation of modules (both Modula-2 and Pascal forms), structured constants and structured function values, and procedural parameters. A translator brings Turbo Pascal software over to an ISO/Marshal-readable format.

For Turbo Pascal programmers, the new TURBO OPTIMIZER helps squeeze down, rev up, and fine tune your compiled programs. Optimizer can remove the unused portions of the run-time library, your own code, and any unnecessary instructions – programs run up to 30% faster. and Optimizer can convert COM files into relocatable object libraries. Also available for Turbo Pascal, is a "must have" debugger called T-DebugPLUS, plus a program which overcomes Turbo's code-size restrictions – TURBO EXTENDER.

microway™
SOFTWARE & HARDWARE

292 Chesterville Road, Moorabbin, Victoria, 3189.
Telephone: (03) 555 4544. Fax: 555 9871.

DATALIGHT C, LIGHT TOOLS, LIGHTWINDOW C, TURBO OPTIMIZER, TURBO PASCAL, T-Debug Plus, MARSHAL PASCAL, TURBO EXTENDER are trademarks of their respective companies.



Hell and Operating Environments

I'VE BEEN THINKING a lot recently about operating environments — those programs such as Microsoft Windows and DR's GEM which control the operating system for us and allow us to do our work.

In designing these operating environments, the authors set out, first, to provide multi-tasking in the DOS environment, and second, to provide an 'easier' user interface. Generally, the user interface is either menu-driven or in more advanced systems, mouse-driven. Windows, for example, is completely mouse-driven and really doesn't function well without it.

But in informal surveys, I discovered that while many users have Windows, not many use it. I feel the same way myself; Windows is on my machine, but I don't use it all that often. I find that mostly I use the DOS command line, together with some tricky batch files for complex jobs.

Recently, I've been increasingly using Alan Holub's SH shell program, originally described in Dr Dobb's Journal and now reprinted in book form. In comparison with a programming *tour de force* like Windows, SH is a toy; why then am I using it?

I think the answer lies in something that is very fundamental to human nature: language. What sets us apart from the other animals is our ability to communicate complex concepts. Other species have evolved languages which consist of isolated grunts and squawks, but human language chains together grunts and squawks (words) into sentences with an infinite variety of meanings.

Mouse-driven, iconic, interfaces seem to me to be limited to single grunts; as soon as a program icon has been selected, it runs, with no opportunity to specify options such as input or output files, modes of operation or other options. In other words, each operation, each sentence consists of a single grunt.

The command-line interface of DOS, on the other hand, allows the user to construct an entire sentence on the command line before transmitting it to the operating system. The sentence can specify options on commands, multiple different subdirectories and files, and even allow programs to read their input from files rather than the keyboard. In particular, the DOS command lines can be stored in batch files to construct quite complex sets of procedural instructions for general-purpose procedures, and this is a natural next step for the experienced user.

With the addition of shells like SH, it becomes possible to save previously entered commands in a history buffer and recall or even edit them, refer to variables, place multiple commands on one line and construct even more complex batch files.

Complex procedures, such as running the various passes of an editor, C compiler, and linker which must find files in subdirectories scattered all over a disk, can be dramatically simplified. Of course, a system like this does not organise itself automatically. But here another interesting effect comes into play: the human enjoyment of game playing. Think of how many games are based on the use of words.

Some people enjoy writing; they write purely for the satisfaction of it. Programming is similar, for many people; the fun only goes out of professional programming because a lot of it is either boring hack-work or dealing with intractable problems (or intractable users). The mastery of language is a skill that gives immense satisfaction, and the mastery of a computer command language is one that provides immediate feedback.

The fact that many users have complained about the limitations of the point and grunt interface, have filtered through to the powers-that-be at Microsoft, and the company has decided to introduce a command-line interface into Windows II and Operating System/2.

It is easy for the skilled users, who have access to the power of language, to feel a certain superiority over the people who can only point and grunt. The separation of the personal computer world into those who create batch files and shell scripts, and use a command language, and those who use mouse-driven iconic systems, is symptomatic of the division of our world into the information-rich and information-poor.

We need operating systems which support both kinds of user interfaces, and which gently encourage the user to talk to his or her machine, to use the power of language, and communicate using the skills that made mankind what it is, superior to mere machines.

Les Bell

Next Month Includes . . .

Modems
Larry 'Prophet' Lewis has surveyed every modem he could lay his hands on and taken a close look at five of them — if you're thinking modems, don't miss this overview. And we've added reviews on three new offerings plus a *radio* modem.

On-Line Services
Did you know there are 70-odd On-Line Services in Australia your computer can talk to? There's on-line information covering everything from the Australian Art Index to World Bank Debt Tables.

Communications Packages
Communications software comes in most flavours and colours but which one best suits your need? Our indepth report will let you decide.

Desktop Publishing
Matt Whelan finally cut the mustard and HAMs it up with DTP offerings from HP, Aldus and Microsoft. Plus reviews on the latest laser offerings from Epson and TI.

Education
We conclude our Education Feature with a catalog of hundreds of educational packages, for a variety of machines, for all age groups, for a wide range of subjects.

COMPASS CORNER

WORD PROCESSING has been, and maintains to be, the dominant application of computers, taking up 32 per cent of the market.

Competition is intensifying in this market which has seen many updates of old popular packages, and the introduction of new packages, creating a very volatile and confusing market for purchasers. The classic example is WordStar with its releases of 3, 2000 and 4, all in the past year or so.

Number one word processing package at the moment is Word Perfect, which is distributed by Sourceware in Australia, closely followed by Displaywrite IV, Microsoft Word, Multimate, WordStar, MacWrite, Textcraft and Wordcraft. Word Perfect took over the sales lead in June after Multimate held the lead in May.

A purchasing spree by government departments and major corporations in June boosted the volumes of the major word processing packages. □

INDUSTRY ON TARGET

THE COMPUTER industry is on target for 1987 with an annual growth rate of between 14 and 15 per cent, at the half way mark, according to figures gathered by leading market research company, IDC Australia.

IDC, HOWEVER, warn that the end of year figures may be down, due to slowing factors such as the effects of the continuing shakeout in the industry and a continuing round of takeovers which will slow the industry in the short term.

The reason for the general slow down, as IDC managing director Len Rust pointed out, was the problems associated with the transfer of work from one company's DP facility to the parent company's after a taken over.

One of the other factors involved in the slow down could very well be the lowering of the average value of computer systems. About 80 per cent of the companies presently using computers, are expected to upgrade their machines, rather than buy new ones.

It is generally accepted that the industry will not go back to the heady days of the 70s and phenomenal growth rates, with companies doubling in size each year. At present the Australian economy is spending less on information technology as a percentage of capital investment, than our major trading partners. □

NSW POLICE HUNT HIGH TECH CRIMINALS

NSW POLICE have found it necessary to update their computer training to combat the increasing problem of computer crime.

THE THEME of the NSW Force's Eighth Commercial Crime Course was 'If you cannot compute, you can't compete with crime.' The course focused toward teaching detectives about the computerised commercial environment.

The three week course, costing around $17,000, concentrated on instruction in financial investigation methods, conspiracy and company law. □

TITANIC ALOGARITHM HEADS FOR WORLD MARKET

WORK ON new algorithms, developed by academic researchers in Melbourne, could be an export boom for Australia, and has already attracted a Federal Government grant of $500,000.

THE ALGORITHMS have been devised by a joint team from Melbourne University and the Royal Melbourne Institute of Technology (RMIT), which has lead to the development of a super fast data retrieval system for use on large scale computers and files.

The system has been developed under Unix and is perfectly placed to move into the world's scientific research centres, medical records, public access databases, and very large government databases.

Professor Peter Poole, head of Computer Science at Melbourne University, said the government grant would go toward developing a system for the retrieval of information from both formatted and unformatted data.

The Department of Information Technology and Commerce (DITAC) grant, the first to be awarded under the new Grants for Industrial Research and Development (GRID) scheme, will be providing 90 per cent of the new version Titan+ research budget. Under the previous scheme, finance was provided on a dollar for dollar basis. □

BUSINESS SENSE

SOUTH AUSTRALIA has come under the microscope in a recent survey of small business users of computers, by the Australian Bureau of Statistics. The survey showed that computers had been relatively successfully accepted into business practice.

AN ESTIMATED 15 per cent of the 37,640 small businesses in the survey use a computer of their own, while 2.4 per cent rely on a computer bureau to perform their computing processing, while 85 per cent did not use computers.

The highest estimated concentration of computers was 38 per cent in the wholesale trade industry, followed by 26 per cent in manufacturing, and a low of 5 per cent in the construction industry.

Considering the expectations made of computers these days, it is encouraging to find that 74 per cent of the companies using them found that they lived up to, or exceeded, their expectations in terms of more effective use of staff.

For distributors, the market seems to be loosening up with 14.9 per cent of the companies not using computers, yet indicating that they would be thinking of purchasing a computer within the next two years.

The survey was based on companies with 20 or less employees — these are generally the companies that have to think hard as to whether it is advisable to buy a computer for their company. (For businesses in the manufacturing industry a limit of 100 employees applied.) □

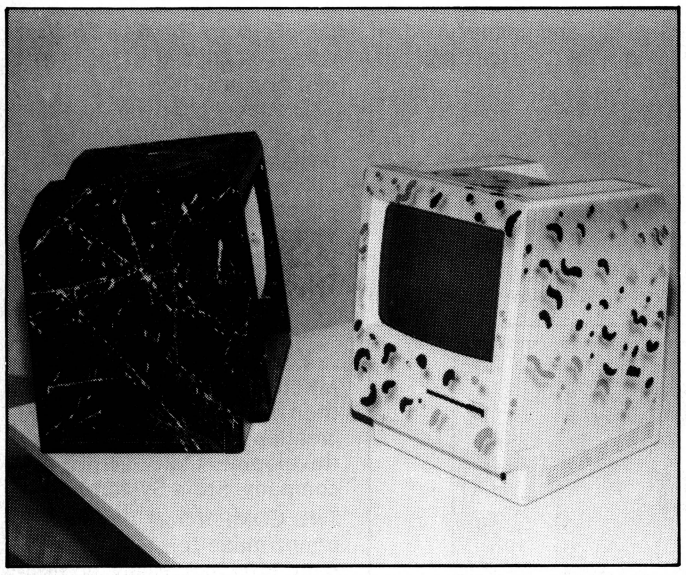
ADDING COLOUR TO COMPUTERS

HENRY FORD said that he didn't care what colour his model T cars were painted, 'as long as it is black'.

IN TODAY'S personal computer industry, IBM, Apple, and the hordes of clone manufacturers appear to have adopted the same policy of not minding what colours their computers come in, as long as it is grey or beige.

Jean-Louis Gassee, the executive vice president of Apple Corporation, is one of the many who have gotten tired of the current colour standard, so the Macintosh SE that sits on his desk appears to have been sculptured out of a solid block of granite.

Its granite appearance is the result of the entrepreneurial



initiative of a small Palo Alto firm that specialises in painting Apple computers for those who are fed up with the standard beige or grey.

Still working out of his apartment in Palo Alto, David Siegel is the founder of Aestetics Technology, one of a number of companies that transforms Macintoshes and IBMs into a variety of colourful objects, including blocks of granite or marble, or oak wood.

The colouring service doesn't come cheap ($US200 to $US800), but it's the perfect gift for the executive that already has everything. The cost covers the shell, keyboard and mouse, and can be colour co-ordinated with your hard disk or printer for an additional charge.

The other hidden advantages of the painting process are that companies can now colour co-ordinate one of the most visual pieces of their office or code them so they can't be easily stolen, by putting the company logo, or a specific design on each computer.

The draw back of the service is that the computers are taken away for two or more weeks to be painted with the several layers. □

Financial Package Wins ADA

AN AUSTRALIAN pioneer investment planner, Robert Morrison, has been awarded the Australian Design Award for his financial planning software program, Lifestyle Concepts.

WHAT MADE the package stand out from the competition was the development of the Lifestyle variable in the program which allowed the calculation of a financial plan for the rest of someone's life, according to consolidated environmental and financial variables. □

SHHH, Computers Can Hear

TALKING TO your computer is the first sign of . . . KVW, would you believe. That's the case since the Kurzweil Voiceworks (KVW) was released in Australia recently.

THE SYSTEM enables operators to read all commands and text into a personal computer, leaving their hands free. Words appear on the screen as they are spoken into the headphones.

After an initial training pro-

ASTC Looks At Computer Impact

AUSTRALIANS LOVE banking with ATMs, but the ATM revolution is only stage one in the growth of computer technology in our society, according to Marie Keir, Project Research Officer with the Australian Science and Technology Council (ASTC).

BANKS WILL eventually push customers out of their branches, said Keir. She maintained that in the future customers may have to buy a computer terminal just to do their banking.

The ASTC are about to release a report for the Federal Government which looks at the role of computers in our society and the effects they are having.

Keir suggests that expert systems will dominate some computer functions and, in some cases, assume the human skill in certain jobs.

This has already happened in many areas of business and industry. The classic example being at BHP where a foreman's skills in steel making were transferred to a computer which now produces better quality steel than the foreman.

How far this will continue is debatable, but lawyers and barristers may be using expert systems for rulings and interpretations, according to Keir. She said she knew of a welfare rights and legal centre in Canberra that has a program which informs people of what government benefits they could claim and how much they should get.

A variation of this program is being prepared for the Department of Social Security counter staff, who do not always have expert knowledge on all the regulations about benefits.

Future development in this field of expert systems and an area of greater impact on users is developing in Queensland with the Queensland Bond University (QBU), which according to Keir, is pointing new directions for education and computers.

The QBU undergraduates will need access to a personal computer to have any transactions, so without one they will not be able to do the courses. QBU will have no middle level lecturers, only professors and postgraduate student tutors.

The ASTC realises looking into the future is not always certain. For instance, when television first arrived many experts predicted TV would eliminate socialising. This has happened to a certain extent, but not nearly as much as was first predicted. □

gram where the computer is taught to recognise individual speech patterns, the machine can then be dictated to at the rate of 60 words per minute.

Research is nearing completion on getting the system to cope with speech at normal conversational speeds.

At present, the machine can call on a dictionary of 20,000 words, which is supplemented by a 1000 word technical vocabulary that uses the words to trigger phrases used in, for example, radiology or pathology.

The system was developed on an advanced pattern recognition basis, and employs artificial intelligence techniques. It is based on acoustic, phonetic, statistical, and linguistic expert systems, and is a real time process.

The hardware consists of a unit similar in size to a hard disk, and a telephone style handpiece that plugs into a compartment designed to sit under the PC.

Some of the problems that have arisen have been with people who have a varying voice — laryngitis spells the end of using the system.

The technology has reached the level of also being able to recognise inflections which proves helpful when using such phrases as 'right to write to Mr Write'. □

Australia's Finest C Compiler

main (argc, ar 00110101100

FROM $250 plus delivery

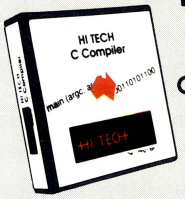
HI TECH C Compiler
- Complete production quality compiler
- Smallest, fastest code from any compiler
- High performance C Compiler for the Z80, 68000, 65816, and 8086 processors
- Runs on CP/M-80, PC-DOS, MS-DOS, CP/M-86, CONCURRENT CP/M, ATARI ST and APPLE II gs
- Now in use at thousands of sites worldwide, including Australian Government and large institutions.
- Excellent user interface
- ROM code is supported and it includes a macro assembler, linker, librarian, object code converter, cross reference utility and full library source code. The 8086 compiler supports large and small memory models and the 8087

FROM $300 plus delivery

Cross Compilers
- Run under MS-DOS, UNIX, and CP/M-86 and produce code for the 68000, 8086/286, 65816, 8096 and Z80 processors. Each compiler includes an assembler, linker, librarian, object code converter and cross reference utility.

HI-TECH SOFTWARE

The Cutting Edge



Order from: HI -TECH SOFTWARE
P.O. Box 103 Alderley 4051
Telephone (07) 366 6971

MICROSOFT SUPPORT STEIN SYSTEMS

MICROSOFT HAVE thrown their full support behind the creation of a national software development and distribution company, Stein Systems.

THE COMPANY is the first attempt made to create a company structure easily accessible to specialised software developers, on a large scale.

Stein will be acting as principal contractor or subcontractor for independent software developers, with its other roles encompassing tendering for contracts, liaison amongst the developers, and central agent for requests of customised software.

The developers will be connected by the use of Keylink, a bulletin board system, which will allow access to common information.

A proviso of the deal is the use of Microsoft products in all the development work, although it is restrictive to the developers, has the added advantage of full technical support from Microsoft and a common standard amongst the developers.

Microsoft will benefit from the future development of applications on its software while not having put forward any cash backing behind the new company.

As Stein said, 'Microsoft have put something more important than money behind the company and that is people through technical support.'

The new system has the advantage of cutting down on wasted time spent on a project especially when it came to the pooling of resources on similar

PHILIPS REVELATION

FOLLOWING THE work done by IBM on gallium arsenide and fiber optic chips, Philips have revealed their research advances in new materials for erasable optical recording of either analog or digital signals.

THE NEW material consists of gallium antimonide and indium antimonide doped with other elements, which is used in the manufacture of IC chips.

While most of the optical laser disks on the market at the moment are 'read only' or WORM (Write Once, Read Many Times), the new material by Philips looks like providing mass storage that can be altered up to 1000 times.

The process is still in the experimental phase at the moment, so it will be some time before it is commercially available on the new CD type systems.

Current compact disk type storage systems are pressed with the information, making it permanent. Other systems have been developed which allow recording of information with laser etching, but this is likewise permanent when burnt into the disk.

Under the new system information can be recorded by rapidly heating small areas in a thin layer of crystalline material to just above melting point, using a fairly powerful laser beam.

The small areas then solidify in a 'supercool phase' to provide a varying reflective surface which can be read in either digital or analog form.

Reheating the surface to just below melting point will return the crystalline material back to its normal crystalline state. □

projects, Stein said.

Stein Systems will also be operating as a quality control service doing any debugging before each product goes to the client. □

HACKERS HACK OUT A SECURE SYSTEM

STUDENTS AT the University of Sydney, have applied their 'hacker' skills to help develop a system that can't be broken into without someone knowing about it.

THE SYSTEM, developed by Dr Jennifer Seberry of the Basser Department of Computer Science, involves the programming of patterns for use by authorised users so that any deviations prompt the computer to ask questions or alert authorities.

The system was tested by the students trying to break into the system, and Seberry trying to prevent them from doing so.

The same process has been adopted by high security departments and corporations in the US to test systems by hiring hackers to break into them.

The system seems well designed to prevent breaking of security systems, and preventing fraud. Even if someone in a company has access to passwords, they still have to know an individual's procedures.

Interest has been expressed by the Police, the Reserve Bank, the Navy and Telecom in the system.

It is advanced enough that it can, in an example case, recognise if someone who logs on and then stops to light a cigarette, or sip a cup of coffee be-

CUSTOM MENU

The menu system used in hundreds of installations in banks, government, public utilities and many of Australia's leading companies

CUSTOM MENU is an easy-to-use, easy-to-update rapid access menu system specially designed for IBM PCs and compatibles.

CUSTOM MENU's in-built editor lets you write menus that include all of the software used with your Personal Computer/s.

Even the least experienced operator can quickly load programs automatically with just a few keystrokes. There is no longer any need to learn operating system commands or the concepts involved in disk directory structures. CUSTOM MENU replaces all those small batch files you have created to run programs.

CUSTOM MENU is based on a tree-structured, page-by-page approach — each menu and sub-menu can be updated at any time.

So CUSTOM MENU will handle your future as well as your present needs.

SPECIAL OFFER ONLY $69.95 WITH MONEY BACK GUARANTEE FREE POST & PACKING INCLUDED

CUSTOM MENU

CORPORATE LICENCING RATES AVAILABLE ON REQUEST

- An Australian system.
- No-copy protection.
- Suitable for hard or floppy disk.
- Password protection for menu alterations.
- On-screen menu path reminder for multi-level menus.
- Automatic screen blanking if the computer is inactive for 2 minutes.
- Constant display of date and time.
- Selectable colours for the menu display and moving highlight.

NB. A menu item can request entry of specific parameters or options and a listing of your menu structure can be printed.

CUSTOM MENU...simply the fastest, most economical way to make your Personal Computer/s easier to use.



MARTLET SOFTWARE

PO Box 336, Mulgrave North, Vic, 3170. (03) 560 3851

MSYC 009

YES! I want to make my Personal Computer easier to use.

Please send.....(please specify) copies of CUSTOM MENU at the special price of $69.95 including 5-¼" disk and 50pp User Manual plus the free demonstration disk. Money back if not satisfied.

I enclose cheque/money order for $.....(please specify) or charge to (please specify): VISA ☐ BANKCARD ☐ MASTERCARD ☐

Expiry date .....

Signature .....

Name .....

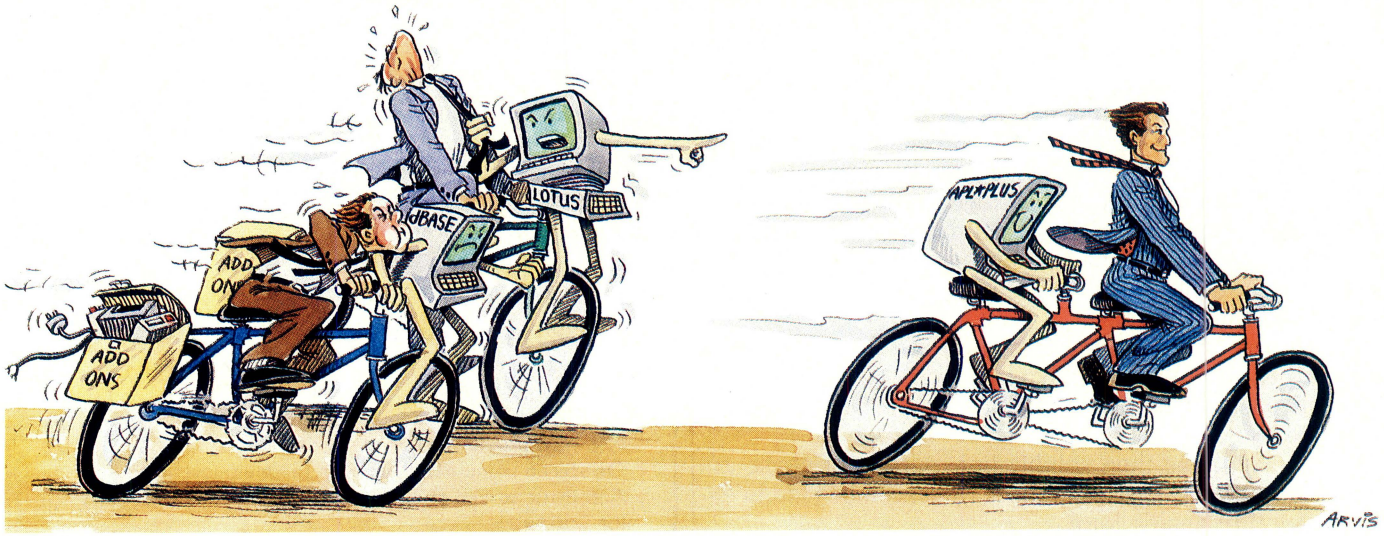
Company (if applicable) .....

Address .....

..... Postcode .....

Mail to: **Martlet Software,** PO Box 336, Mulgrave North, Vic, 3170.

No Sweat



The APL★PLUS LANGUAGE

Lotus,® dBase® and other popular PC software give you the basic tools necessary for survival in today's business environment. They provide you with an easy way to set up tabular data, enter numbers and compute simple model calculations. But, doing more with them is like pedalling uphill – difficult and time-consuming.

APL★PLUS® is different. Its unique analytical powers give you the ability to quickly solve complex business problems that packages like Lotus and dBase are simply not designed to handle.

APL★PLUS is also unique in that it is available for PCs, the Macintosh, and both mini and mainframe computers. APL★PLUS's standardisation means that programs and data can be easily transferred between systems.

Convenient interfacing

APL★PLUS has its own powerful file system and can read your native system files directly. The optional Spreadsheet Manager lets you import Lotus or dBase files, perform your calculations, and then return the results – all without reformatting.

Concise notation

A set of easy-to-learn symbols, which are at the heart of APL, condense complex operations into a handful of keystrokes. These form a concise notation that allows you to perform calculations with a few keystrokes, without all the loops, and other paraphernalia that other methods require.

Immediate results

APL is an interpreted language, so results are immediate. You can develop and debug programs so much faster because changes can be made immediately, without having to re-compile. Also, data can be manipulated directly, without writing any programs at all.

APL★PLUS, the software developers' tool

Numerous products have been written in APL★PLUS by many software companies, including financial and statistical routines, STATGRAPHICS, asynchronous and 3270 communications utilities, a relational database and an interactive debugger. These, and more, are available to the APL★PLUS user.

APL, computing at the speed of thought.

APL★PLUS is part of the STSC Inc family of PLUS★WARE products, and is marketed and supported throughout Australia by McMullan Kilvington Pty. Ltd. Demonstration disks and training are available.

Contact: Tom Mullin on (03)6904466.



McMullan Kilvington Pty. Ltd.
70 Bridport Street, Albert Park,
Victoria 3206. Tel. (03)6904466.

STATGRAPHICS and PLUS★WARE are registered trademarks of STSC, Inc. dBASE is a registered trademark of Ashton-Tate. Lotus 1-2-3 and Symphony are registered trademarks of Lotus Development Corp.

STSC A PLUS★WARE™ PRODUCT

Price & Payne 1736 MMK

fore going on with the use of the machine. If someone didn't do this, then the machine would recognise the difference and alert someone to check to see if it was an unauthorised user, or the user had quit smoking or given up coffee.

It is interesting to note that Dr Seberry has been appointed Australia's first woman Professor of Computer Science. She is based at the Defence Forces Academy in Canberra. □

EVENTS

The EDP Auditors Association will hold an international conference at Jupiter's Hotel on the Gold Coast, on April 27 and 28 next year. Papers have been called on the theme, Why Gamble With Security? Phone (02) 239 7598.

The Medical Computing Interest Group of NSW, will next meet at the Manly Pacific Hotel on September 1 at 8 pm. Contact Mary Allen on (02) 437 6455.

The Joint International Symposium on Information Systems is calling for papers for its meeting to be held in Sydney from February 29 to March 2 next year. Details on (02) 697 4413.

The Sydney PC Users' Group annual conference, APCON 87, will be held at the Masonic Centre in Sydney on September 22 and 23. Contact Geoff May on (02) 699 3518.

The UNESCO Seminar on Equity in Communications will be held in Sydney on September 7. Contact Ian Reinecke on (042) 27 0691, or Andrew Petheridge on (062) 83 7461.

The SAS Users' Group of Australia has extended a call for papers for its third annual conference to be held from October 7 to 9 in Canberra. Papers should describe real-world applications of software in the SAS System. Phone (02) 211 5855.

The 1987 AFR New Product Expo will be held in Melbourne from November 11 to 15. Phone (03) 266 4424.

ACE '87. The Australian Computing Exhibition and Conference, will be held in Melbourne from September 8 to 11. Themes cover manufacturing, banking and artificial intelligence. Contact Karen Hucks on (02) 211 5855.

A Conference on Australian Computers in Education will be held at the Adelaide Convention Centre on September 28 to 30, with the theme of Tomorrow's Technology Today. Phone (08) 227 1824.

The Computer Measurement Group of Australia will hold its annual conference at the Lakeside International, Canberra, from September 8 to 10. Contact Charlie Doherty on (062) 571 444.

The International Spectrum Australia Pacific Conference and exhibition will be held at Centrepoint, Sydney, from October 26 to 28. Phone (02) 439 5488.

The Comtec Committee is holding a series of software exhibitions in Melbourne from September 28 to 30. Phone (08) 363 1757.

The Institute of Personnel Management Australia (Vic) is holding a conference and users' fair on Human Resource Management Systems from September 9 to 11. Phone (03) 387 9955.

Infotec '87, the computer and communications exhibition for government, will be held in Canberra from November 3 to 5. Contact (02) 959 5555.

IREECON '87 will be held from September 14 to 18 at the Sydney Showground with the theme, The Digitisation of Communications. Contact Sherie Morris (02) 327 4822.

The Australian Society for Computers in Learning in Tertiary Education is holding its annual conference, in Sydney on November 30 and December 2. Details (02) 697 3175.

Deltak Training Corp, is holding courses on DP, information systems, industrial and manufacturing areas. Contact Stephen Hughes (02) 957 2622.

Phoenix Computer Systems of Newcastle (NSW) is holding courses on dBase, Lotus, MS/PC-DOS, Decmate Wordprocessing, Symphony, Reflex and HAL. Contact Jenny (049) 26 3388.

Oracle Systems is planning courses in Sydney and Melbourne on database administration, programming utilities, and introduction to SQL. Contact Evelyn Schultz (02) 959 5080.

International Spectrum Australia/Pacific Conference and Exhibition, Centrepoint Convention Centre, Sydney, October 26, 27, 28, specifically addressing the Pick operating system based marketplace. Further information from IDBA, 133 Alexander Street, Crows Nest, NSW 2065. Phone (02) 439 5488.

OVERSEAS EXHIBITIONS

The Swiss Federation of Infomatics is seeking papers for the European conference on Computers in Education in July 1988. The deadline is October 30. Address inquiries to ECCE 1988, Professor Bernard Levrat, Centre Universitaire d'Informatique, 12 Rue du Lac, CH-1207 Geneve, Switzerland.

An Industrial Vision by Computer seminar will be held in Singapore from October 26 to 30. The English language seminars will be conducted by French researchers, engineers, and managers. For further information, contact the French-Singapore Institute, 12 Science Centre Road, Jurong, Singapore.

CommuniTech and Computer '87 Malaysia: The second Malaysian International Electronic Communications, Office Technology and Business Computer Show, will be held at Kuala Lumpur from November 10 to 14. For more information contact Australian Exhibition Services on (03) 267 4500.

The EDP Auditors Foundation Conference: The 18th Conference is to be held in Atlanta, Georgia, US on the 10th to 15th of April, 1988. Submissions to talk on areas concerning audit, control, and security are welcome and must be received no later than September 11, 1987. Write to The Program Chairman, The EDP Auditors Foundation, Box 88180, Carol Stream, IL 60188-0180 or telephone 312/653-0950. □

FREE

IBM SOFTWARE

Demented Tim Hartnell is offering you a virtual library of IBM software, all in exchange for six itty-bitty 37¢ stamps!!!!!!

Here's what you get in your free software library: **PC-WRITE (acclaimed word processor); arcade games P-BERT, PANGO and SPACE INVADERS; a RAMdisk; machine code OTHELLO; PIANO (with 'record' and 'piayback' of your own tunes); a number of great utilities including BANNER (to print big advertising signs); COVER (to print a directory-cover for each of your disks); BIORHYTHMS; CALENDAR; PRINTCHAR (to design characters for your FX-80 or compatible printer); plus CONVERT, DSKDRV and SQUEEZE. Finally, this crammed collection ends up with PC-DISK which gives you incredible power when manipulating the contents of your disks!**

Just send us your six 37¢ stamps, plus your name and address, and ask for *'FREE HARTNELL SOFTWARE LIBRARY'* and we'll get it to you el pronto. We'll also include our latest catalogue of IBM PC and Apple II software. Send today to: *Tim Hartnell, Interface Publications (Aust.) Pty. Ltd., Chelsea House, 34 Camp St., Chelsea, Vic., 3196.*

No. 1 AT in Australia

NEC

POWER MATE '80286'

$3,850

INCLUDING SALES TAX

20Mb

and 1.2Mb drives, 640K RAM, 6 slots and superb high resolution large amber monitor totally 'AT' compatible.

NEC P7 $995 inc. tax. if purchased with Powermate

FREE 12 MONTH WARRANTY with replacement on loan during breakdown period.

A.T.S. COMPUTING

"Advanced Technology + Service"

(Since 1971)

SHOWROOMS: 109 Alexander Street, CROWS NEST 2065 • Phone: (02) 439 2277
1039a Victoria Rd., WEST RYDE 2114 • Phone: (02) 858 5999

AGENCIES: Gosford: (043) 28 1859; **Newcastle:** (049) 265484; **Wollongong:** (042) 289990; **Tamworth** (067) 667959; **Canberra:** (062) 573420; **Albury:** (060) 411244; **Adelaide:** (08) 513947; **Melbourne:** (03) 6909196; **Hobart:** (002) 311757; **Perth:** (09) 3282972; **Brisbane:** (07) 2216198; **Townsville:** (077) 724112.

MEDICAL/DENTAL

Our "A.T.S. Practice System" is the fastest and most comprehensive software for these professions. It includes Patient Accounts, (with bulk billing, third party and instalment billing), Appointments, Recalls, Letters, Forms, Estimates, Address Labels, Bookkeeping, Payroll, Stock Control, Patient History, Clinical Notes, Tooth Charts, Research, Practice Analysis and Statistics. Single or Multi-user with tutorial: $2,400 incl. tax.

(Dealer enquiries welcome)

WE SERVICE THROUGHOUT AUSTRALIA — YOU SAVE!

FREE! (with Powermate) 13-module 'A.T.S. Management System' (normally $495) including Letter Writing, Bookkeeping, Payroll, MS DOS Tutorial, Filer, Diary, etc.

AMERICAN GRAFFITI

By Howard A. Karten

I'VE GOT A funny feeling about laptops. Progress in downsizing and miniaturization looks all well and good on the surface, but I've got a hunch that there are some issues that have to be thought out a bit more if this laptop thing is to really get going.

I first began thinking about portability around 10 years ago. What happened was that I had gotten myself involved with a clever variation of the old Tom Sawyer whitewashing-the-fence ploy: I was graciously allowed to carry a 'portable' terminal, if I wished, for the purpose of speeding insights back to my office. (An organization of technophobes performed some creative accounting with the coffee fund and hired me. In exchange for a modest stipend, I was expected to attend various meetings in the digital trade. My task was to summarize the words and opinions of assorted corporate speechifiers and report same to my editors.) The terminal, about the size of a phone book for a major city, had an interesting peculiarity. During the short walk from an airplane gate to a luggage carousel, the terminal increased in weight until it seemed to weigh at least 30 kilograms. A protracted period on my back, following one such outing, gave me the luxury of thinking about downsized technology.

A few years later, one of those devilishly talented Japanese electronics conglomerates discovered consumer uses for microchips. We were deluged with exceedingly clever products — wristwatch TVs, wallet computers the size of credit cards, capable of storing 4 Kilobytes worth of names and phone numbers (previously scribbled on the back of a slightly dog-eared business card). Of course, its minimum of 40 or so buttons on the thing (26 alpha + 10 numeric + a few function buttons) meant you had to have the finesse and steadiness of a jeweler to be able to use the thing; still, if you were dead sober, it was possible to press the right keys, and the clever device really worked.

From there, it was a natural step — a mere 'page down,' as it were, to portable computers. (Well, not really portable. As we all knew, 'portable' was a euphemism for 'less expensive and moveable if you really insist.') Now portables have begat laptops. Around five years ago, this was a hot topic amongst us inky wretches and among manufacturers, so this is it's second try. Perhaps this time, if some of the subtle aspects of portability are addressed, things will get off the ground.

First off, of course, there's the issue of power. Laptops need batteries; batteries need to be recharged; rechargers need to be where the batteries are. Let's say you go to someone else's house or office, ask to use their recharger to fill up your batteries, and find that they don't have one. Will you cause them techno-embarrassment because they're so backward, computer-wise, that they don't need one? Consider, too, that a proper host sees to the needs of his or her guests. Will it permanently blemish a host's escutcheon because he or she was too thoughtless to have bought a recharger, even if they had no use for same?

A similar issue is compatibility. Will you embarrass the people you're visiting if they can't connect their computer to yours?

And what about keyboard noise? By now, only the most misanthropic among us object to the gentle scratching made by manual note-taking. Some folks have already objected to the keyboard clicking caused by the few portables one sees in public. When they become more widespread, the issue of public key-clicking will no doubt assume the same importance as public belching.

(Today, one of the most socially delicate questions you can ask in America — 'Do you mind if I smoke?' — often results in stares, looks of disapproval, and worse. What will one risk by asking, 'Do you mind if I compute?')

Laptops have enormous potential, too, for seriously disrupting the political process. Envision this scenario: Senator Blowhard, campaigning for re-election, tells an audience at a political rally, 'My friends, I favored the bill to allow everyone to have more fun." In the audience, curious Laptop Larry fires up his hardware to do an on-the-spot check of Blowhard's claim — and finds that although he *did* favor it, he voted against it! And worse, further methodical checking of newspaper databases across the country finds an article in an obscure newspaper about the raid on a bordello and subsequent arrest of one 'B. Blowhard, of Washington, D.C.'! Can you imagine the havoc on-the-spot checking of political claims could wreak?

Another problem that will have to be solved is a style issue. In particular, how will users carry their laptops, since they'll surely go everywhere, like Walkmans? A laptop will have to be carried somehow. The belt-loop device used years ago to carry slide rules (remember them?) marked you permanently, indelibly, as a *nerd*. In their reincarnated form, they're unlikely to catch on. You women's pocketbook manufacturers out there, pay attention — this is a double opportunity for you. Not only will you have to redesign women's purses, but this will probably create a market for carrying devices for men.

I don't mean to be totally down on laptops. There are plenty of good things about them. Take, for example, the pocketability of their minidisks. That will be a wonderful thing for people who like to keep their data warm; we all know lots of people like that. And, of course, the endless ingenuity of our species means they'll be used in countless new applications. We ought to start thinking now about some kind of award for the first person who unknowingly uses one as a coaster under a hot coffee cup or sugary drink. (Given what passes for smart copy in the advertising business these days, some minidisk vendor will no doubt seek publicity by sponsoring a contest to find the most 'creative' non-computer use for a minidisk. Remember, folks, you read it here first.)

I think you get the picture: serious social issues relating to laptops must be solved to pave the way for their wider use. Till then, I plan to make do with the portable wetware I carry with me everywhere, and my trusty pencil-and-paper.

NEWS

CAN BEING A computer hacker ever help you in real life? It helped Admiral John Poindexter, formerly the President's National Security Advisor and a central figure in the 'Iran/Contra' scandal here.

Poindexter is a Ph. D. in nuclear physics, an introvert, and uncontestedly bright — in other words, almost a stereotypical (if somewhat older) computer jock. In introducing him recently, one lawyer offhandedly mentioned that the Admiral 'is a computer hobbyist.'

As the scandal developed, various of the President's men tried to erase documents from the office automation system, IBM's PROFS. Apparently, most of them forgot that the files were backed up every night! Only Poindexter was successful in deleting memos.

□ IBM recently announced the 'official' death of the PC, XT, XT 286, and AT 339 — at least, from a manufacturing point of view. IBM announced (in early June) that it would accept no more orders for the first two machines in the PC family. Demand for the AT remains strong, IBM said. □

The Microsoft Computer Art Exhibition is a programming competition — a competition for useless programs whose only purpose is to amuse the eye. The winning programs will be artistic algorithms that relax (or hypnotise) the mind. They should also be eminently suitable for distraction during important meetings or to throw in as a beguiling aside when the boss asks an unanswerable question.

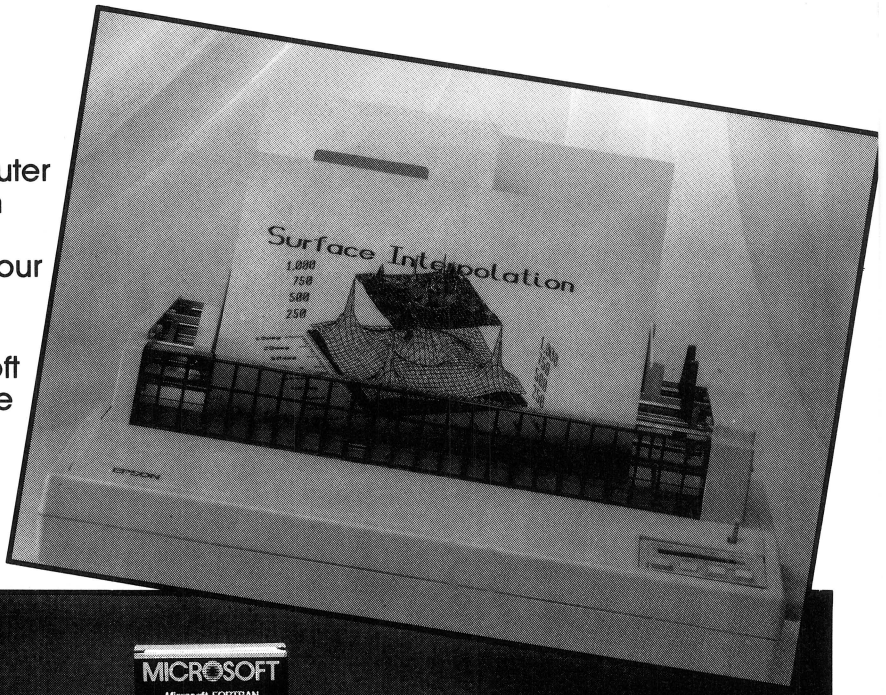
For judging purposes, there are two divisions to the competition — a Junior (under 18) and Open Division. Programs will be judged on technical merit, programming style, and artistic appeal. (There is only one set of prizes, but Junior Division entrants will be given special consideration by the judges.)

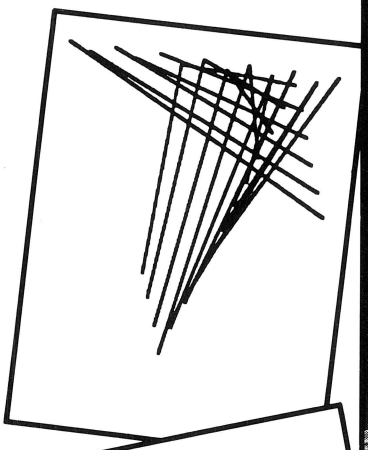
Prizes

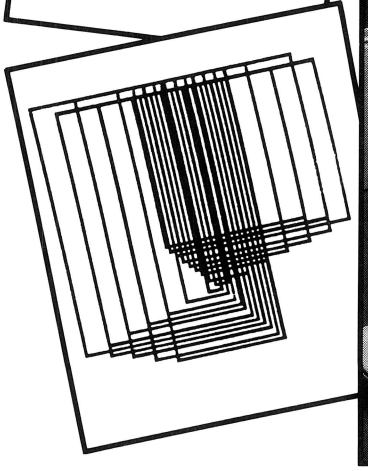
First Prize An Earth Computer System (valued at $6000), an Epson LQ2500 Colour Printer (valued at $3000), and Microsoft software of your choice to the value of $2000.

Second Prize Microsoft software of your choice to the value of $2000.

Third Prize Microsoft software to the value of $1000.









MICROSOFT COMPUTER PROGRAM ART EXHIBITION



The Earth Computer System comprises a 10 MHz, 0-wait state 80286 CPU with 2 Mbytes of memory, a 1.44 Mbyte floppy drive and a 40 Mbyte voice coil, hard drive.
Plus- an NEC Multisync monitor!

How to enter

1. The competition is open to all MS-DOS/PC-DOS programmers using IBM (or compatible) equipment and writing in ANY programming language (and happening to live in Australia).
2.The TOTAL size of the source code must be less than 200 lines.
3.Entries will only be accepted on disk in executable form. The source code must be supplied on the disk with the entry. Programs written in interpreted Basic must be supplied in unprotected form.
4.Entries must not require the presence of an 8087 or 80287 numerical coprocessor. Only IBM (or compatible) CGA or EGA graphics cards may be used.
5.Forward entries to Art Competition, Your Computer, PO Box 227 Waterloo 2015. The competition commences on 1 Oct.'87 and closes with the last mail on 5 Nov.'87.

CONDITIONS: (1) Employees of The Federal Publishing Co, Microsoft, Epson and Earth Computer Systems (and their families) — wherever they live — are not eligible. **(2)** All winning entries will be placed into the Public Domain via the Your Computer Bulletin Board. **(3)** Descriptions of the competition and instructions on how to enter, form part of the competition. (*That's the legal department's contribution.*) **(4)** The prizes are as described here; there will be no cash alternatives or exchanges. Entrants for the Junior Division must supply proof of age if requested by the promoter. **(5)** Entries will be judged entirely on the skill of the competitors (with allowance for age if entrants are made in the Junior Division); every entry will be given fair and equal consideration. Entries will be judged by the Editor of Your Computer magazine and a nominee of each of the other sponsors, and and an independent artist. **(6)** The panel's decisions will be final and no correspondence will be entered into regarding the entries. **(7)** The competition sponsors will forward the prizes (remember, you're all living in Australia) within one month of the winners' being notified. **(8)** Winners will be notified by telegram and announced in the January 1988 issue of Your Computer. **(9)** The promoter is The Federal Publishing Co, 180 Bourke Rd, Alexandria 2015.

Educational Software

An Overview

Jeff Richardson, a lecturer in computer education, gives his views on optimising software choices in an educational context.





AN OVERVIEW OF educational software is largely an overview of education. However, drill and practice, while undeniably a part of education, play a very small role in my overview: this is not intended as a guide to drill and practice applications. Rather, it is a guide to optimising software choices in an educational context. And it is an educational context that is shaped by a vision of what the curriculum *could* be. A vision that is partly formed by the promise and challenge of the computer.

Computers in education can be accepted in three ways. In the first two, the machines are a simple prosthetic. First, they can be an aid, allowing us to do things faster, more easily or more efficiently (but these are things we are already doing). Second, they can enable us to teach in ways that seem desirable, but are difficult to attain, yet which are possible with the aid of computers.

The third way that computers can be used in education is to create possibilities, and ways of teaching, that we could not have thought of without the computer as the means for their realisation. Educational software requirements can be increasingly well met by a relatively small selection of robust and flexible general purpose software. This is software that is generally not specific to any of the traditional subjects, or curriculum areas. Such a selection is in marked contrast with the bulk of educational software titles currently on the market. The best value in educational software, or in educationally applying software, can be gained from pieces which can be used across the curriculum.

Such a selection of general purpose software needs to cover several categories or areas of work. Some pieces of software will be able to span more than one category, and it is the purpose of this overview to help select an optimal number of soft-

This month's overview of Educational Software *and the reviews of* The Word, Stickybear Music, Stickybear Maths, Springboard Maths *and the public domain disks* Touchtype, Music and Education, *and* Computer Tutorial *were written by* AMSEC *consultants* Jeff Richardson, Colin Fox, *and* Alison Cassidy *and by* AMSEC's *directors* Brian Davey *and* Sid Morris. AMSEC *is a Melbourne based software evaluation group which has consultants in the workplace, in primary and secondary schools and in various tertiary institutions around* Australia. AMSEC *may be contacted at* PO Box 360, World Trade Centre, Victoria 3005.

ware pieces in order to cover these general purpose categories —

Wordprocessing,
A General Purpose Programming Language,
Databases and Information Handling,
Spreadsheet,
Simulations,
Art and Graphics, and
Music.

These categories have some overlap with the traditional subjects, but in the broadest sense they are all cross curricular, both vertically and horizontally. That is to say, horizontally across classifications of knowledge within the curriculum, and vertically up through the school from kindergarten to year 12. What is uppermost in applying these categories to choosing educational software is a commitment to the notion of computing across the curriculum and a minimisation of subject specific software.

The categories are *not* intended as a taxonomy of software, with a preferred piece to be selected for each. They *are* intended as ways in which software can most fruitfully work — a thorough suite of software should be able to range across them.

Wordprocessing

Wordprocessing is the the most obvious and also the first priority. The idea of 'across the curriculum' first gained currency with the 'language across the curriculum' movement. Although the debate has ebbed and flowed, and the term itself has gone in and out of fashion, the principle remains as cogent as ever. And the advent of affordable, easy to use wordprocessors has made language across the curriculum a more appealing aim, and at the same time, easier to achieve. There is a wide range of word processors to chose from. They can be divided roughly into two categories — software that is dedicated to wordprocessing, and wordprocessors that are part of an integrated package.

There are dedicated wordprocessors available that were created specifically for educational use, as distinct from general personal wordprocessors. Dedicated wordprocessors have special relevance for younger children — particularly packages such as The Magic Slate, which allows for very large typefaces, is extremely straightforward to use, with a constantly available help menu, and screen icons for option choices.

Wordprocessors that are part of an integrated package can be good value. In one software package several of the above function categories can be spanned. But in addition, they can provide a friendlier, easier entry for students, as they can move from running one program to another all within the familiarity of the one computer environment. Probably the most well known example of such a package is Appleworks, which incorporates a wordprocessor, database and spreadsheet. Although Appleworks is not designed for educational use, it is highly applicable.

Several other similar packages are also available, for example; The Mini Office for the BBC, which also incorporates communications and graphics, and Microsoft Works for the Macintosh. Newsroom is an integrated wordprocessor, graphics, and page setup program which simulates the production of a newspaper. This program runs on Apple, IBM, and Commodore, while Fleet Street is a similar program for the BBC. LogoWriter, available for Apple, IBM, and Commodore, is a wordprocessor integrated with graphics, all incorporated into a rich and easy to use programming environment.

A General Purpose Programming Environment

The provision of this category serves several purposes. Familiarity and fluency in a programming language is a worthwhile pursuit in itself. At the most unlikely level, programming is as much a part of the language curriculum as foreign or classical languages. The ability to write, structure and interpret computer programs is a means to approach computer awareness in a profound way. It can allow the student the role of software designer, and enable them to be a more critical software consumer. A general purpose programming environment is much more, however, than simply a programming language. It can incorporate a wordprocessor, graphics, music, and relational data handling. Used intelligently, it provides a medium for thinking about thinking. Imaginative and creative use of this category in teaching the curriculum can be a key to the vexed questions that the computer revolution is posing. Above all it is fun. The best piece of software in this category is LogoWriter (*reviewed in* YC, *Aug.*'87). Its word processing capability is mentioned above. This is a major advance over previous versions of Logo. While, at the same time, it retains all the features that have made Logo in its



various embodiments so highly recommended by educators, and so successful in classrooms.

The addition of the powerful and easy to use wordprocessor immensely increases the classroom usefulness of Logo, but the revolutionary feature of LogoWriter is the software licensing arrangement under which it is purchased. The Site License allows each student to be provided with their own personal copy of the software, for home and school use. Also, Site License holders are automatically provided with upgrades to the software. One purchase buys all versions of LogoWriter, and one disk per student is all that is required to run the program and store files. A lot of power is available in a very compact form, and compatibility problems between the machine in the home and those in the school are overcome.

Databases and Information Handling

Databases are a relatively new topic in themselves, but their application can be truly cross curricular. Students can consult a number of ready made databases which are relevant to particular subject areas and, in so doing, complete substantive work in these areas. At the same time, they can familiarise themselves with the functions of a database. The database shells can be used in almost any curriculum area to enhance the collection storage and ordering of knowledge. In addition to providing this utility function, the

ONE STOP computer shop

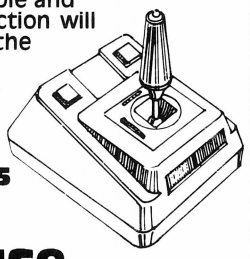
More Modem —

The NEW Bit Blitzer Modem is loaded with features and comes at a LOW,Low price!! 1200/1200 or 300/300 Baud, auto dial, answer and disconnect, Hayes AT command set compatability, fully keyboard controllable and some of the best instructions we've ever seen! All this and more!!
Cat X-3306

$399

IBM/Apple Joystick

Get the most from your computer games with this great value IBM/Apple Joystick! When the action is fast and furious you'll want the quickest response. Lightweight, comfortable and smooth action will give you the edge!
Cat X-3570



$49.95

Budget DSE Diskettes



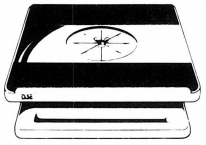
Why pay more? Top quality computer media at a realistic price, made exclusively for Dick Smith Electronics by one of the world's leading disk manufacturers. They're so good we use them ourselves! Soft sectored, disks in 5¼" (13 cm) standard size.

Single sided: Box 10 disks **$27.50** Cat X-3500

Double sided: Box 10 disks **$29.50** Cat X-3501

Budget Swivel Base

Nylon slide assembly and non-skid feet for positive action. Allows full 360° rotation and 25° vertical adjustment. Suits all monitors (or even your home telly!) **$24.95**
Cat X-1190

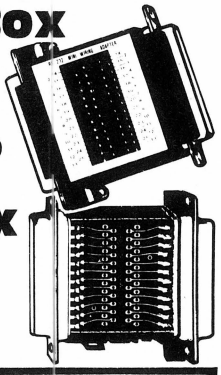


Deluxe Swivel Base

Similar to above, offering same degree of rotation and angle, but this one has knurled knob on front for locking or freeing monitor. Cat X-1191 **$34.95**

RS232 Breakout Box

Ideal for modems and other serial applications where connections need changing. DB25 male to DB25 female, pin 1 permanently wired, all others with wire links supplied. Cat X-3568 **$27.50**



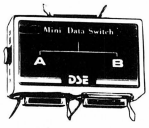
Permanent RS232 Jumper Box

Similar to above, but connections made internally and soldered for permanent applications. All 25 pins open. Wire links supplied ready for soldering.
Cat X-3569 **$17.50**

Save on Peripherals

Just because you have two computers it doesn't mean you need two printers. The Parallel Switch box lets you run one printer off two computers or vice versa - and there's no leads to change!
Saves time and hassles.
Cat X-3571

$59.95



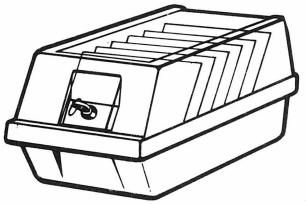
Female/ Female Gender Bender

Adapts male serial cables without resoldering or reconnecting. Simply plug in — twin female DB25 sockets with all 25 pins wired pin to pin. Cat X-3566 **$15.95**

Male/Male

As above, but twin male plugs permanently wired.
Cat X-3565 **$15.95**

Protect those disks!



Your disks need help... and protection. Look after your data and software properly by storing your disks in a disk box. Almost everything can be stored with this range.

3½" (9cm) format — 40 disk hinged box, lockable, with 4 movable dividers. **125 x 130 x 250mm** **$28.95**
Cat X-3533

5¼" (13 cm)
50 disk hinged box, lockable, with 5 movable dividers. **180 x 160 x 250mm** **$22.50**
Cat X-3531

5¼" (13 cm)
100 disk, hinged box, lockable, with 9 movable dividers **180 x 160 x 380mm** **$29.95**
Cat X-3534

DICK SMITH ELECTRONICS COMPUTER SHOP

• NSW • Albury *21 8399* • Bankstown Square *707 4888* • Blacktown *671 7722* • Blakehurst *546 7744* • Bondi Junction *387 1444* • Brookvale (Warringah Mall) *93 0441* • Campbelltown *27 2199* • Chatswood Chase *411 1955* • Chullora *642 8922* • Gore Hill *439 5311* • Gosford *25 0235* • Hornsby *477 6633* • Liverpool *600 9888* • Maitland *33 7866* • Miranda *525 2722* • Newcastle *61 1896* • North Ryde *88 3855* • Parramatta *689 2188* • Penrith *32 3400* • Railway Square *211 3777* • Sydney City *267 9111* • Tamworth *66 1711* • Wollongong *28 3800* • ACT • Fyshwick *80 4944* • VIC • Ballarat *31 5433* • Bendigo *43 0388* • Box Hill *890 0699* • East Brighton *592 2366* • Coburg *383 4455* • Essendon *379 7444* • Frankston *783 9144* • Geelong *43 8804* • Melbourne City *670 9834* • Richmond *428 1614* • Ringwood *879 5338* • Springvale *547 0522* • QLD • Brisbane City *229 9377* • Buranda *391 6233* • Chermside *359 6255* • Redbank *288 5599* • Rockhampton *27 9644* • Southport *32 9863* • Toowoomba *38 4300* • Townsville *72 5722* • Underwood *341 0844* • SA • Adelaide City *232 1200* • Darlington *298 8977* • Elizabeth *255 6099* • Enfield *260 6088* • Salisbury *281 1593* • WA • Cannington *451 8666* • Fremantle *335 9733* • North Perth *328 6944* • Perth City *481 3261* • TAS • Hobart *31 0800* • NT • Stuart Park *81 1977*

process of designing and using a data management system provides a genuinely new site for intellectual growth.

Like wordprocessors, databases that have been custom built for educational purposes are available. This particularly applies to the type of ready made database mentioned above. Examples include The First Fleet, The Bushrangers Database, Hounds and History, and What's in a Name?. But there is also a range of database shells that are specifically designed for classroom use. Quest, and Factfile, both for the BBC, are two such examples. Also in common with wordprocessors, databases can be a part of an integrated package, with similar advantages in both cost saving, and the ease of use of a multipurpose environment. This kind of package is available for most machines commonly used in schools. Choice is a matter of taste, but bear in mind the demands that might be made on such software as time goes by, so simplicity and price may be offset by versatility and expansion potential.

Spreadsheets

Electronic spreadsheeting has revolutionised accounting. It has also made accounting procedures available to more and more people. Like databases, spreadsheets are a new topic in themselves. But also, like databases, spreadsheeting offers genuinely new ways of organising and processing knowledge and ideas across a range of curriculum areas. Spreadsheeting, even when restricted to the accounting field, offers the possibility of conducting experiments, of speculating, changing formulas or parameters and asking 'what if?' — a methodology that is not restricted to any particular subject.

Furthermore, spreadsheets are increasingly bundled with a wordprocessor and a database (and even communications and graphics) in an integrated package. Such packages represent excellent value, and have the added advantage of requiring familiarity with only a single computer environment. The considerations for choosing a spreadsheet should be taken in hand with the similar considerations for a database, or an integrated package.

Simulations

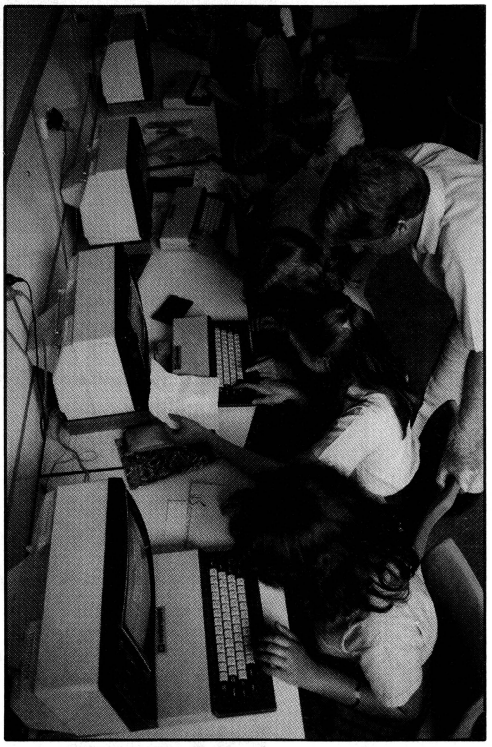
Simulations is the area of educational software with the greater potential. Already it is the area where the most worthy programs designed specifically for educational use have emerged. Although there are many general simulation programs, it is within specific subject areas that simulations hold out the greatest promise.

In both the Sciences and the Humanities, easy to use simulations are able to embody concepts and ideas that can be otherwise very difficult to expound or conceptualise. Processes or experiments that are prohibitively expensive, require lengthy timespans, or extreme, unattainable physical conditions, can be experienced vicariously and at leisure. A range of highly formalized concepts can be cast into structures that are more appropriate, and easily understood, than the specialised language it takes to describe them. The spreadsheet, in the hands of a creative teacher, becomes a simulation.

Simulation software interfaced with the external world can allow discovery and exploration in physics, mechanics, electronics, robotics and control technology. Many simulations are designed for group work — this, over and above the substance of the program itself, fosters co-operation, patience, shared planning, and decision making. Programs which make a feature of this aspect are Gold Dust Island and Raftaway River. Other more content specific simulations are Balance of Power (global strategy), Standing Room Only (demographics), Catlab and Birdbreed (genetics); Legoline and some versions of Logo provide for the design of control technology, interfacing with Lego materials through a few specifically made accessories. There are many more good simulation programs, particularly in the physical sciences. Good general simulations are available that are suitable for younger children — for example, Granny's Garden, Flowers of Crystal, and Dragonworld.

Graphics and Art

This is an area that computers already indisputably handle well. But can computers expedite the acquisition of visual literacy? One answer to this question has a direct, if unexpected, link to the advantages offered by the wordprocessor. A tremendous advantage of the wordprocessor, in the early acquisition of literacy, is that it can completely remove handwriting as an impediment to written composition. Young children, fully capable of forming complex utterances can be liberated from the tyranny of their own limited ability to form written characters. Ability in the skills of inscription falls unevenly, and is in no relation to linguistic competence. It



is a similar case with the dexterity required to create pleasing and readable visual images.

Computer graphics, which do not necessarily have to rely on draftsmanship, can have a similarly emancipatory effect for students and, particularly, beginners, in the visual arts. The very fact of animation, the wide range of skills and knowledge (mathematical, logical, narrative and so on) which can be used to create computer images, and to provide ways to think visually, makes the computer a revolutionary addition to the artist's range of media. It also provides entry points to the visual arts for those who have been previously disadvantaged by a lack of skill. Computers such as the Macintosh and the Amiga are best able to deliver this kind of power. Especially when they are combined with a mouse, lightpen, graphics tablet, digitizer, or video. But there are software solutions for most of the computers common in schools (Apple, Commodore, Microbee, BBC, and IBM). Logo, and the graphics available on the integrated packages mentioned above, are good places to start. Dedicated drawing and printing programs, such as The Printshop and Printmaster are also available. Of course Logo, through its easy to use turtle graphics, is an automatic entry point to a cross curricular exploration of art and design.

Kaypro Computers Announces the KAYPRO PC-30.

With an Extra Ten Million Bytes – Free.



Kaypro has added ten million bytes of storage capacity to the hard-drive KAYPRO PC – but not one penny to the price. That means you get IBM compatibility, American-made durability, and the convenience of a 30-megabyte hard drive. All at a Kaypro price that's easy to take.

Get two-speed processing (4.77/8.0 MHz), AT-style keyboard, and free software that includes WordStar Professional Release 4. MS — DOS 3.21, GW-BASIC & MORE . . .

KAYPRO®
COMPUTERS
The Future's Built In

made in U.S.A.

For more information on Kaypros complete line — PC, XT AT and 386 micro-computers, or the location of your nearest dealer, phone (03) 597 0133 or (02) 542 3866

Trademarks: IBM, AT, International Business Machines, Inc.; WordStar Professional Release 4, MicroPro International.

Educational Software

Music

The case for computers in the visual arts is even more salient in music education. But firstly, it may seem strange that music is granted its own category in a scheme of classification intended to aid the selection of general purpose, cross curricular educational software. Both graphics and sound are cross curricular in the computer sense, in that all software exploits them to some extent. And the best software makes use of graphics and sound in creative ways, which enhance the educational purpose. But this is to see music and computer graphics from a narrow and utilitarian perspective.

However, the utilisation of music and graphics within this new interactive medium that the computer makes possible, points the way for the restoration of the arts to a rightfully equal place in the curriculum. The use of computers in the curriculum offers the chance to take such disparate areas as calligraphy and mathematics, and placing them in the Art and the Music domains — domains from which they originated (and perhaps where they still belong). Music, along with the visual arts, is a constant and important part of our culture, and yet neither occupy a concomitant position within our curriculum — which is surely intended as an enculturation process. The best music software available offers creative participation in music, even to those who are late starters, or not instrumentally gifted. At the same time, such software need not be seen as a threat to instrumental technique, ear training or the skills of composition.

This kind of software can be a revolutionary aid to all three. Integrated in educational multi-purpose packages, music on the computer can be music playing a role in the curriculum beyond its often narrow confines. Musicland, currently only available on the Burroughs microcomputer is a superb example. And as with graphics, the Macintosh and the Amiga perform best in this field. For users of smaller machines, the place to begin attempting this kind of work is within the Logo environment.



Conclusion

The selection of a suite of software for educational use could be time consuming, if these guideline categories are followed. But going through such an exercise could be extremely instructive as to the range of educational software available, and what does and does not represent value for money. My final choice, or shortlist would consist of just one or two integrated packages, supplemented with simulations. As with any other tool, so with educational software, its how you use it that counts. □

A Guide to Educational Software

The software packages mentioned in Jeff Richardson's overview of educational software are listed below in the order that they occur in the article. The list of distributors is not intended to be exhaustive and the prices, which can vary between distributors, are approximate and do not include the 14 percent sales tax. Versions for machines not listed here, may be available. Please do not regard this as *the list* of recommended software. It is simply a guide and many of the programs listed here could have been replaced by other, equally appropriate ones. Phone numbers are given for distributors who will be able to give you the name of a dealer in your area.

The Magic Slate by Sunburst Communications; distributed by Edsoft, (03) 878 4746. For the Apple ($129).

Appleworks by Apple Computer Inc; distributed by Edsoft and Softime, (03) 209 0255. For the Apple ($250).

The Mini Office by Database Publications; distributed by Softime. For the BBC ($65).

Microsoft Works by Microsoft; distributed by Edsoft. For the Mac (Education price $328; otherwise $595).

The Newsroom by Springboard Software; distributed by Dataflow (02) 331 6153, Dataworks and Softime. For the Apple, Commodore, IBM PC ($90) and IBM JX ($95).

Fleet street by Mirrorsoft; distributed by Dataworks, Edsoft and Softime. For the Amstrad ($185), BBC ($145) and a professional version for the IBM PC ($545).

Logowriter by Logo Computer Systems; distributed by Softime. For the Apple, Commodore, IBM PC and IBM JX ($235 up to $725 for a site licence).

The First Fleet; distributed Dataworks and Edsoft. There are different versions by different authors available for the Apple, BBC, Commodore and Microbee (from $49 to $95).

The Bushrangers Database by Know Ware; distributed by Dataworks, Edsoft and Softime. For the Apple ($95 or $200 for a site licence).

Hounds and History by Prologic; distributed by Softime. For the Apple, IBM PC and IBM JX ($79).

What's in a Name? by Prologic; distributed by Softime. For the Apple, IBM PC and IBM JX ($79).

Ques by A.U.C.B.E.; distributed by Softime. For the BBC ($65).

Factfile by Longman; distributed by Softime. For the BBC ($50).

Gold Dust Island by Jacaranda Wiley; distributed by Dataworks and Edsoft. For the Apple, BBC, Commodore and Microbee ($49).

Raftaway River by Jacaranda Wiley; distributed by Dataworks, Edsoft and Softime ($49).

Where in the World is Carmen San Diego? by Broderbund; distributed by Dataworks, Edsoft and Softime. For the Apple, Commodore ($80) and IBM PC ($85).

Catlab by Serpl; distributed by Softime. For the Apple ($100).

Birdbreed by Serpl; distributed by Softime. For the Apple ($70).

Legoline by Lego. Available from major Lego dealers. For the Apple and BBC ($200).

Granny's Garden by 4Mation; distributed by Edsoft and Softime. For the BBC ($35).

Flowers of Crystal by 4Mation; distributed by Edsoft. For the Apple ($75) and BBC ($69).

Dragon World by 4Mation; distributed by Dataworks, Edsoft and Softime. For the Apple ($75) and BBC ($69).

The Printshop by Broderbund; distributed by Dataworks, Edsoft and Softime. For the Apple, Commodore ($80), IBM PC ($85) and Mac ($154).

The Creative Printmaster by Unison World; distributed by Dataflow, Dataworks, Edsoft and Softime. For the Amstrad, Apple, Atari, Commodore, Microbee ($60), IBM PC ($85) and IBM JX ($90). □

The Word is Out!

Learning to Spell Can Be Fun

After trying out The Word on his own children and the students at the Hurstbridge Learning Cooperative Primary School, Brian Davey rates it as highly recommended.

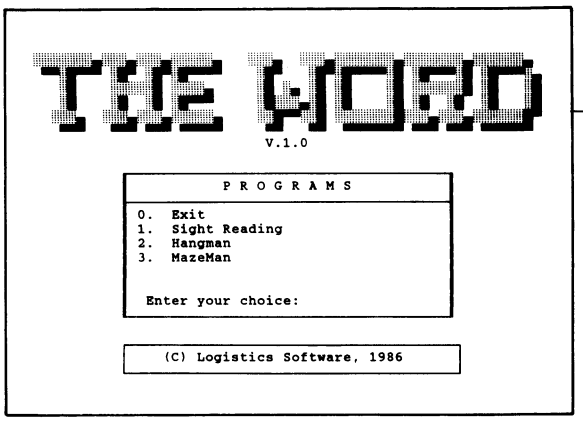


Figure 1. *The Main Menu of The Word from Logistics Software offers an Exit to DOS or one of three word games.*

FOR SOME children, usually the avid readers, spelling comes naturally. But for many, our non-phonetic language presents hurdles which only a good dose of drill and practice will overcome. If your children are in the latter group, or if you simply wish to help them improve their sight vocabulary, The Word from Logistics Software may be just what you need.

On starting up the disk, we are given a choice of an exit to DOS or one of three word games: Sight Reading, Hangman or Mazeman. After choosing one of the games, we enter our name and then use the up and down arrows to select a Word Group to work on. (There are 50 Word Groups on the disk. These may be edited, or new groups, such as the names of family and friends or this week's spelling list, may be added.) A brief description of the game is given and then we are away. At any time we may return to the main menu by pressing Esc.

Sight Reading

A randomly chosen word from the selected word group is displayed briefly on the screen. We are then asked to enter this word. If we are correct, then another word is displayed but for a shorter time. If we are incorrect, then the correct word is given and the next word is displayed for a longer time. Words which were misspelled reappear until all words have been spelled correctly.

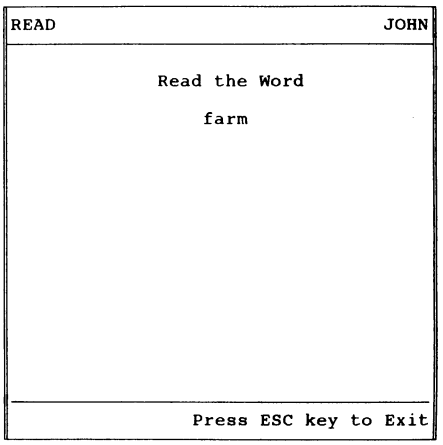


Figure 2. *In Sight Reading, a randomly chosen word is displayed briefly on the screen; the user is then asked to type it in. If it's entered correctly, another word is displayed, but for a shorter time. If it's entered incorrectly, the correct word is given and the next word is displayed for a longer time.*

Hangman

This familiar game hardly needs description. The computer chooses a word from the selected list and we are asked to guess a letter within the word. The clue given is the number of dots each representing a letter of the word. As usual after each correct guess of a letter we may try to guess the word. After an incorrect guess a body part is drawn on the gallows. A list of the letters tried so far is constantly on the screen. Ten guesses are allowed before the man is hanged and the word shown. Hangman's appeal seems to be universal.

MazeMan

The letters of the chosen word are scattered through a maze on the screen. By using the arrow keys we move a 'man' through the maze to 'eat' the letters in the correct spelling order. Three levels of difficulty are available: either the chosen word, the first letter of the word or a blank is displayed in the top left corner of the screen. For this game the first six function keys are active. Via them we access a Help Screen, show the top ten scores for the selected word group, turn the sound and the timer on and off and make the MazeMan move faster or slower. This one was voted the best game on the disk — especially by the younger children.

I found only one minor bug while playing the games: If you don't enter a name when requested to, the program is supposed to refer to you as Fred Bear. However in MazeMan your score will be entered on the Top 10 Chart against the surname of the previous player rather than Fred Bear — since you didn't care enough to enter your own name, I suppose you can hardly complain.

The real strength of The Word lies not in these three games, which while fun and challenging to play are fairly standard, but in the sound theoretical base on which the games and particularly the Word Groups are built. Indeed, 9 of the 56 pages in the manual are devoted to an explanation of the theory.

A 13 page appendix gives a complete listing of the 50 Word Groups which contain 1000+ words chosen on the basis of research findings about reading and sight vocabulary. Groups 1 to 20 contain words occurring with high frequency in English literature while Groups 21 to 25 are more difficult words of moderate frequency. The next 12 groups constitute the Edwards Quick Word Reading Test of graded sight vocabulary to determine a student's approximate grade level in reading ability from pre-prep through to grade 10.

Groups 38 to 42 contain words relating to colours, size, shape, quantity and time. Finally, Groups 43 to 50 contain 178 of the most frequently misspelled words. These Word Groups may be edited or new groups created on any word processor in non-document mode. A screen editor specifically designed for this purpose is included on the disk.

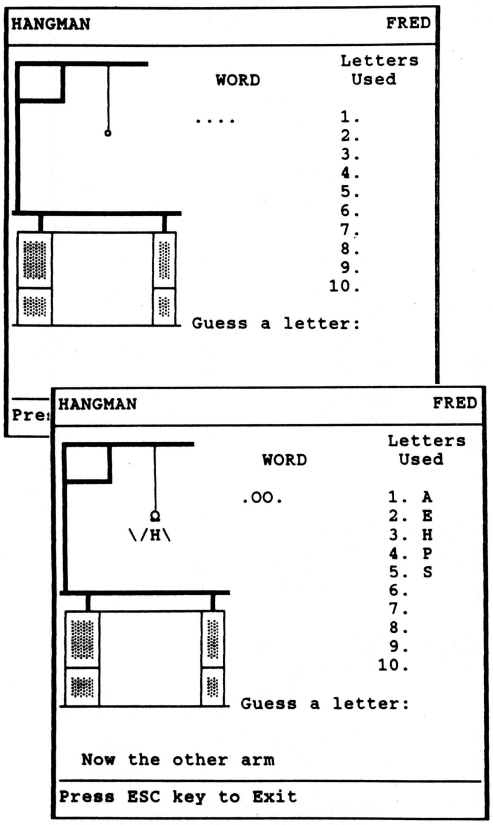


Figure 3. *Hangman uses words chosen from one of the 50 Word Groups on the program disk. These Groups can be edited or new Groups can be added.*



Figure 4. *In MazeMan, the letters of the chosen word are scattered through a maze on the screen. The arrow keys are used to move a 'man' (not shown) through the maze to 'eat' the letters in the correct spelling order.*

The Editor

Exiting to DOS and entering 'ed' brings up the Create/Edit/Print/Exit menu of The Word Editor. Choosing Edit or Print yields an alphabetical listing of the files on the disk (or the current subdirectory) and a further choice of Edit/Print/Rename/Delete. A choice of Create gives a blank screen with a summary of the editor commands at the bottom.

The commands, available via the arrow keys, function keys and certain natural key combinations, are the usual cursor moves (including beginning/end of line, top/bottom of file, page down/up), delete to end of line, directory, exit, get file, overwrite/insert mode, paste, print, save, search, search and replace, and select.

Twenty-two pages of the manual are devoted to a clear explanation of the editor commands and their use when editing an existing Word Group or creating a new one; these are tasks for which The Word Editor is both convenient and adequate.

Because of the limitations of the Editor, I can't recommend its use as a general purpose editor (as suggested in the manual). In fairness, though, it was designed as a simple facility for creating and editing the word lists. An example of the limitation is that Select, Cut and Paste only work to move whole lines. A problem I discovered was that during a Search and Replace through a file created with another wordprocessor, the summary of the Editor commands disappeared from the bottom of the screen — caused, I learned, by the other wordprocessors control characters. However, I must say that despite its limitations don't detract from the purpose for which The Word was designed. In fact, a student can happily use the disk without ever knowing that The Word Editor exists.

Assessment

The Word is highly recommended for anyone seeking a spelling, reading and vocabulary tutor which is fun and challenging to use, built upon a sound theoretical base and easily customized. While The Word will find its biggest market at home and in primary and secondary schools, it is also well suited to use in Special Education, Adult Literacy, Foreign Language, and English as a Second Language courses. □

Product Details

Product:	The Word
From:	Logistics Software
Distributor:	Logistics Software PO Box 64 Glen Iris 3146 Vic.
Price:	$65 for IBM JX/PC/XT/AT $55 Apple II

Star Printers. When you feel the need for speed



Star's new range of dot matrix printers gives your personal computer a triple-hit

- High quality output in draft or near-letter-quality mode
- High-speed output – up to 300 characters per second
- Fingertip control to select pitch, typeface, print mode, margins, paper feed

Whether you need quality output of word processed documents or full-width spreadsheets and graphics, you will find a Star printer that meets your exact needs.

Choose from the economy of the Star NX-10 with 120 cps draft and 25 cps NLQ, through to the top-line NB24-15 printer which boasts 15-inch carriage, a 24-pin print head, 300 cps draft output, and true letter-quality at 100 cps.

Add competitive pricing, interfacing with a range of PCs (Commodore, Apple II, Macintosh and IBM), a buffer that has twice the memory capacity of our competitors and a reputation for reliability second to none in the printer business.

Now ask yourself why you would look beyond Star. Phone now for the name of your nearest dealer.

star micronics

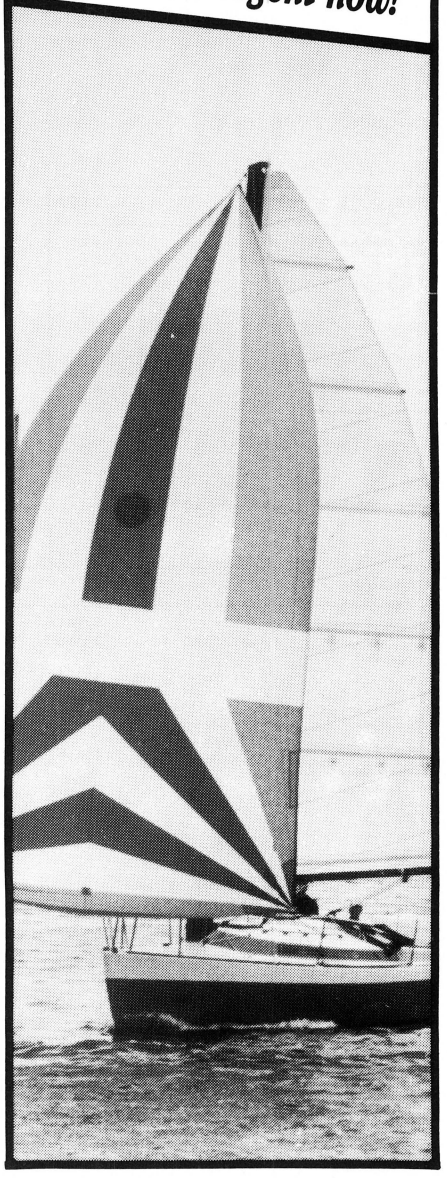
Phone: (02) 736 1144
7/25 George Street
Homebush, NSW 2140
Telex: AA73872 Fax: (02) 736 1032
Melbourne: (03) 544 6676
Brisbane: (07) 875 1551

SM 4208 B

modern boating

First with boating's best Powercraft and Sail news, views and interviews

At your newsagent now!



PC-SIG AUTHORIZED DEALER

Pay-If-You-Like Software

Why pay hundreds of dollars for software? There is an inexpensive alternative for your IBM PC or compatible - and it's not illegal.

Just a couple of software packages could cost more than your clone. Unfortunately many users faced with exorbitant software costs resort to illegal copying. Now there is a legal way to acquire software for little more than the cost of a diskette.

The concept is known as User Supported Software. This approach to software marketing bypasses the high publishing and distribution costs associated with most software. For a nominal fee you can obtain high quality software and if you like the software you are encouraged to send a donation to the author, usually between ten and one hundred dollars. In other words you pay if you like the software. If the software is not to your liking you may still keep it. Manuals are supplied on the diskette and are printed out by the user.

PC-SIG is the world's largest distributor of user supported software with a library which now contains over 800 disks. Anybody can purchase disks or join as a member. Members receive our Directory, discounts and a bi-monthly magazine with descriptions of the latest additions and reviews of the more popular disks. Our magazine is not just a few photocopied pages but a professional publication of over 60 pages.

A full listing of the library is available in our 400+ page directory. The directory specifies any system requirements and is categorised into various applications.

The following is a small selection from the library...

☐ **#5 & #730 PC-FILE +**
Jim Button's very popular database filing system now easier to install and use and it runs faster. Reports can be prepared or set up for your word processor.

☐ **#10 CHASM**
A CHeap AsseMbler useful for those wishing to learn about assembly language.

☐ **#90 & #594 GENEALOGY ON DISPLAY**
Written with concern for the novice Genealogist. As well as expected features eg printing family trees, family group sheets, and descendents charts the program creates parent/child indexes and prints ID numbers.

☐ **#105 PC PROFESSOR**
A tutorial on the BASIC programming language which increases in complexity.

☐ **#184 DISKETTE UTILITIES AND UNPROTECT**
Create disk sized directories to store with the disk, create RAM disks and run popular software on your hard disk.

☐ **#199 PC-CALC**
Complete with tutorial and many advanced features. Similar to Visicalc. Able to import data from PC-FILE.

☐ **#254 PC-DOS HELP**
Just type help for an on-line help on DOS commands - very convenient for hard disk users.

☐ **#273 BEST UTILITIES**
A collection of utilities from earlier PC-SIG disks - RAM Disk, selective copy and delete, backscroll, browse, spooler and more.

☐ **#320 TOUCHTYPE**
Colourful way to improve your typing - PC keyboard.

☐ **#403 PC-TUTOR**
Ideal for new users to gain a basic understanding of their PC and how to use it. An interactive introduction to the IBM PC and DOS.

☐ **#455,681,682 PC-TYPE +**
Jim Button's WP - Mailmerge which works with PC-File, Wordstar, and ASCII files, spelling checker,whoops key and on-line help.

☐ **#457 ARCADE GAMES**
An assortment of arcade games including Flightmare and Spacewar.

☐ **#476 PATRICK'S BEST GAMES.**
An assortment of five games which will run on the Mono monitor.

☐ **#478 HARD DISK UTILITIES**
A collection of utilities for the hard disk user from earlier disks in the library.

☐ **#480 PC OUTLINE**
Can outline and organise documents point by point - ideal for typing essays and ads like this.

☐ **#505 PC STYLE**
Analyses text files for readability, - considers number of words per sentence, % of words of specific length, personal words, action words. Make your writing read better!

☐ **#523 SIDEWRITER**
Your spreadsheet too wide to print? This program turns your printout 90 degrees and prints down the page.

☐ **#528 NEW YORK WORD**
A full function word processor even including automatic hyphenation (and de-hyphenation). Unlike some WP it can edit large documents.

☐ **#599-601 DREAM**
A three disk set much like dBASE - can custom design database applications, which include reports, sorting and querying abilities, and data retrieval abilities without writing code.

☐ **#618 MAKE MY DAY**
A complete time management system with appointment calendar, job scheduler, time log and expense manager. All that is needed to organise your business and personal schedule.

☐ **#641 MAHJONG**
A fascinating game with extraordinary graphics. Excellent documentation for beginners with play levels from beginners to excellent.

☐ **#646 AMY'S FIRST PRIMER**
Six games to teach basic reading skills to a pre-reading child - positive reinforcement promotes "learning is fun" attitude.

☐ **#669-670 GRAPHTIME II**
Business presentation graphics with line, column, and pie charts. Works with dBASE Multiplan and Lotus. Has help key.

☐ **#683 BUTTONWARE ADVENTURES**
Two text adventure games - be a Castaway or travel to South America on a spy mission. Runs on Mono.

☐ **#687-689 IN-CONTROL**
Comprehensive business contact filing system with on-line documentation, high speed search, electronic Rolodex, and appointments with tickler file.

☐ **#705 CHILDREN'S GAMES**
A straight forward approach to making fun educational with mono graphics. Geared for 2 to 10 year olds.

☐ **#708 BACKGAMMON**
At last Backgammon for your PC - keeps track of points, games, gammons and backgammons. An instant opponent.

☐ **#710 INSTACALC**
A memory resident spreadsheet which you can call up at any time. In one step you can add a table of figures from the spreadsheet into a letter you were typing on your WP.

☐ **#718 LQ PRINTER UTILITY**
Enables your matrix printer to print a variety of fonts in near letter quality. You can even create your own fonts plus print large letter banners.

☐ **#723 SUPER PINBALL #1**
Become a pinball wizard with these five great pinball games. Uses your shift keys as flippers.

☐ **#726 GOALSEEKER**
Work your LOTUS, Multiplan, Supercalc4, VP Planner backwards with Goalseeker.

☐ **#727 POWERMENU**
Relieve yourself of the worry of sub-directories. All your applications can be just one keystroke away.

☐ **#728-729 HOMEBASE**
A second generation desktop organiser. PC Magazine said "it delivers the most bang for the buck among desktop organisers."

☐ **#741 PURCHASE ORDER SYSTEM**
Keep track of outstanding orders and print them by account, supplier or purchase order.

☐ **#751 AsEasyAs**
A spreadsheet with ability to plot graphs. Has range formatting, does block copies, block moves, file extension is .WKS.

☐ **#754 UVESTER**
Track your investments and calculate Internal rate of Return.

☐ **#756 MEMOIRS**
A diary system with encryption of the diary or an ASCII file.

☐ **#760 MINIGEN**
Turbo Pascal screen code generator - paint screens, open and close windows and create pull down menus.

☐ **#761 The IMP Shell**
A Powerful expert system - has utilities to develop and test new expert systems. Good for classification tasks, troubleshooting and choosing from alternatives.

☐ **#765 GALAXY**
A fast RAM based WP. Very easy to use with choice of menus or keyboard commands.

☐ **#763 FINGERPAINT**
One of the very few good paint programs that will run on a Hercules card, with variable drawing functions and text.

☐ **#780 BRIDGEPAL**
Looking for up to three partners to play Bridge with? A great way to practice.

☐ **#800 THE BAKER'S DOZEN**
A collection of 13 useful utilities from Buttonware.

The PC-SIG Library is not only growing but it is regularly updated - many alternate sources of User Supported Software have very old versions. Beware of the apparent bargains!

Yes, I would like to try PC-SIG software.
Please forward me these disks: ____ ____

____ ____ ____ ____ ____ ____ ____ ____

TOTAL 5.25"____ @ $13 ____

3.5"____ @ $15 ____

(not JX 360kb drive)

Annual membership . . . . .@ $28 ____

Starter Pack Six disks
& Membership 5.25". . . . . @ $85 ____

3.5" . . . . . @ $95 ____

Postage and handling $5.00

TOTAL ____

Payment by ☐ Cheque ☐ Bankcard
☐ Visa ☐ M/charge

Card No. ____

Expiry ____ Signed ____

Name ____

Address ____

____ State ____ Code ____

Mail to MANACCOM Pty Limited
PO BOX 381,
Pennant Hills, NSW. 2120.
Call on 02 875 3538
Fax on 02 875 2810
Viatel *49000#

Look for PC-SIG's logo on grey diskettes

© PC-SIG/Manaccom 1987

7075

Springboard into

Colin Fox discusses three maths teaching packages — two for very young children, and one to ensure that older children don't grow up to loathe fractions the way their parents did.

IN ADDITION to the program diskette, each of these three Springboard packages contain an instruction booklet with suggestions for parents wishing to help their child use the program. The booklet also has some suggestions for related activities away from the computer.

These programs are menu driven in two ways. Children can choose the activity they want from a series of pictures that appear one after the other on the screen, or a written screen menu can be used.

Make a Match

Recommended for ages 2½ to 6 years, this program has the child match objects by colour, shape or size. This is done by pressing any key when the matching objects are next to each other on the screen. One object is kept moving around the screen, so making an incorrect match is possible. When this happens, the chosen objects are merged, or in some way highlighted, to indicate that the chosen shapes are not a matching pair.

The program adjusts the difficulty level according to the success that the child is having. If the child seems frustrated by the slow rate of increase in difficulty, a parent or older child can adjust the difficulty level. Also, the speed at which the program operates can be changed to suit the individual needs of the child.

Careful reading of the manual is required to discover how these adjustments are made. My children, who are all older than 6 and who were passing judgement on these programs, found that they needed the manual right from the start. Sensibly, the picture menu contains no written directions, having been designed for non-readers. However, this does mean that reading the manual first can save a lot of bother when using the program for the first time.

As the program relies largely on colourful graphics, its effectiveness is minimal on a monochrome monitor.

Although the program as I have described it sounds very simple, there is plenty in it to challenge and stimulate children in the recommended age range, and their spatial abilities could be enhanced in the process. However, one of the aims of the authors is 'to help accelerate your child's ability to learn how to read.' Whether this will be achieved is debatable.

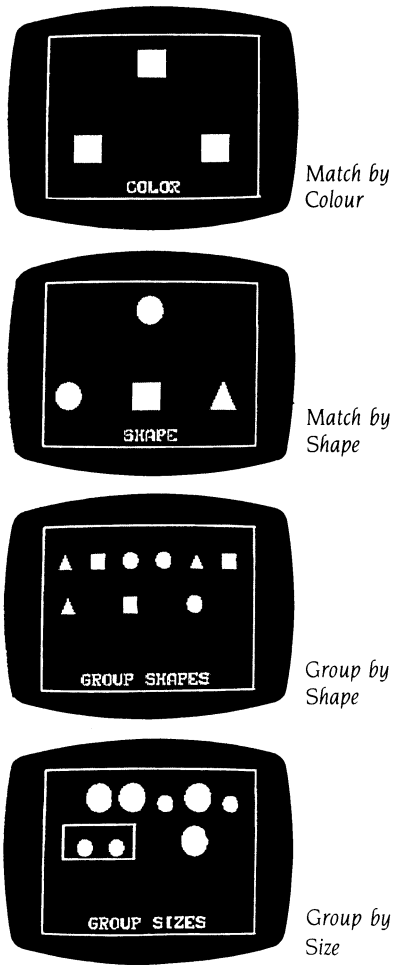


Figure 1. *Make a Match, which has the child match objects by different methods, has a Picture menu of the four games that can be selected. One at a time, four pictures will come up on screen, representing the games.*

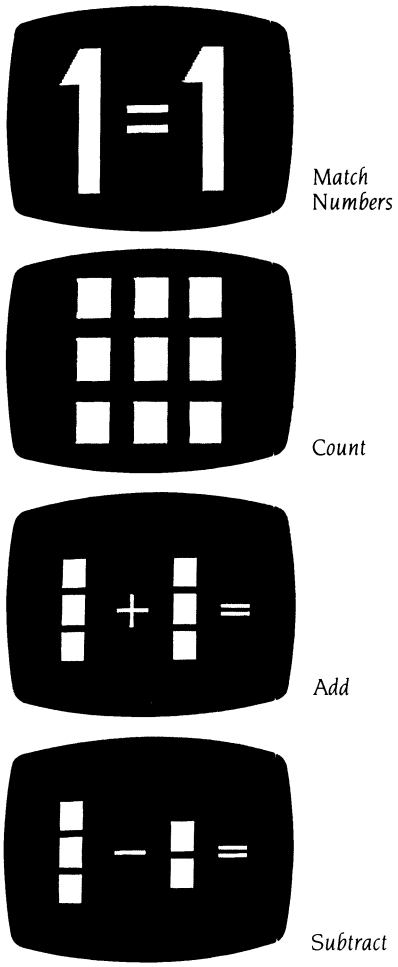


Figure 2. *Early Games has numbers, language, and shape games and a picture drawing utility. The numbers games involve number recognition, counting, adding and subtracting.*

Maths

Early Games

This program contains nine activities recommended for ages 2½ to 6 years. There are four number games, three language games, a shape game, and a picture drawing utility.

The number games involve number recognition, counting, and adding and subtracting numbers. The first two are harmless enough, but the arithmetic games call for some comment. The screen representation of 3+3 looks rather like 1+1. This problem occurs because 3+3 is one column of three squares plus another column of three squares. The child who learns 'three plus three' this way will, at some stage, have to transfer this knowledge to '3+3.' Plenty of parental involvement will help here. Subtraction, also, will require a parent's, or older child's, assistance. Using coloured blocks or counters to mimic the screen display could help the child develop the concept of subtraction.

The language games include letter recognition, the alphabet, and typing a single name. The graphics are colourful and, especially in the name game, entertaining. The shape game involves identifying the one shape out of four that is different, while the drawing utility is a reasonably effective, but primitive, Computer Aided Design tool.

With the two programs considered so far, it is essential that you try before you buy! Preferably, your child should be involved in the trying.

Fraction Factory

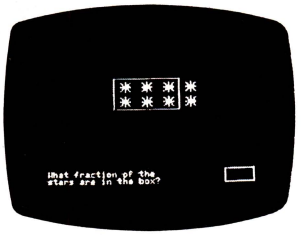
Children, and others, traditionally have problems with fractions. This program (for ages 8 to 12) is a valiant attempt to aid understanding of the concepts of equivalent fractions, fraction of a number, and addition and subtraction of fractions. The program has one or two glaring faults more than counter-balanced, I believe, by a couple of excellent ideas.

The first part of the program, Fractions and Sets, puts a certain number of objects on the screen with some fraction of these objects enclosed in a box. The user is asked to enter the fraction of objects that are in the box. Let's suppose that there are 24 trees on the screen and 16 of them are in the box. That is, the required fraction is 16/24; but the computer doesn't like this (absolutely correct) answer. It will accept 2/3, 4/6 and 6/9, but not the equally valid answers 8/12, 10/15, 12/18 or 14/21. This is a most unfortunate situation which the authors ought to have avoided. Apart from this, the idea is good and well presented on the screen. An incorrect attempt is met with a useful hint for the correct fraction in lowest terms.

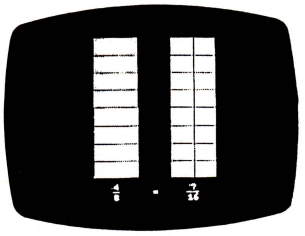
The Equivalent Fractions section is very good, provided you are using a colour monitor. The concept of equivalent fractions should not present the problems it often does. This program provides some useful images with its clever use of colour graphics.

Fractions of a Number is the least successful part of the program, because the questions can be answered very simply by counting objects. That is, no thought about fractions is required.

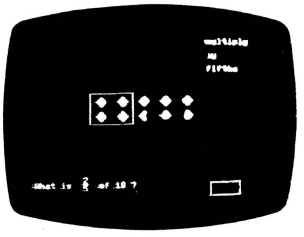
The sections on adding and subtracting fractions are *excellent*, and alone worth the price of the package. The use of number lines on the screen provides an image that will help any student who is struggling with these difficult, and often loathed, areas in mathematics. The prompts that follow incorrect responses are particularly useful. It's worth getting a couple of wrong answers just to see them. My youthful program testers, none of whom would claim to be maths whizzes, rate this program very highly! □



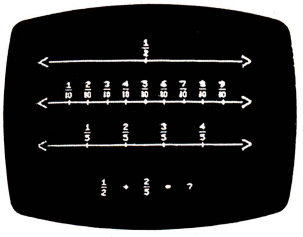
Fractions and Sets



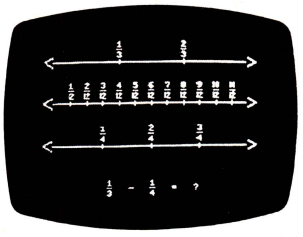
Equivalent Fractions



Fractions of a Number



Adding Fractions



Subtracting Fractions

Figure 3. *Fraction Factory is a valiant attempt to aid the understanding of the concepts of fractions for children aged 8 to 12. A number of games help to explain the different types of fraction calculation.*

Product Details

Products:	Make a Match, Early Games and Fraction Factory for the IBM PC and JX, Commodore 64 with disk drive and 48K Apple II
From:	Springboard Software Inc. Minneapolis, Minnesota, USA
Distributor:	Dataflow Phone: (02) 331 6153
Review Copies From:	Edsoft 5/2 Apollo Court Blackburn 3230 Vic. Phone: (008) 33 8873
Price:	$49.95 each, untaxed A back-up copy of the diskette can be obtained from the Australian distributor, Dataflow Computer Services, for $14 ($18 for Make a Match).

DISCWARE

The Empire Strikes Back

Clearance Sale – All Products Latest Versions

Lotus 123 ..... $ 560

Clipper ..... $ 799

Toshiba P 341 ..... $ 990

IBM SOFTWARE

Ability	$150
Above Disk	$240
Clipper	$799
Coda	$575
Copywrite	$ 95
Crosstalk XVI	$170
dBase III plus	$799
Fastback	$180
Fox Base+	$550
Fox Base+ Multiuser	$760
Framework II	$930
Freelance Plus	$680
Harvard Professional Publisher	$1150
Harvard Total Project Manager	$669
Javelin	$350
Lotus HAL	$220
Lotus 123	$580
Lotus Manuscript	$680
Microsoft Word	$680
Mirror	$ 49
MultiMate 3.3	$615
MultiMate Advantage II	$690
Norton Advanced	$219
Norton Utilities ver. 4	$140
Paradox	$850
PC Alien	$ 99
RapidFile	$490
Reflex 1.1	$229
Silk	$270
Super Calc 4	$599

IBM SOFTWARE

Supercom	$150
Symphony	$899
Timeline	$615
Turbo Basic	$169
Turbo C	$169
Ventura Publisher	$1495
VP Planner	$150
Word Perfect	$590

MODEMS

NetComm 3+ 12 modem	$229
NetComm Smart 123A	$875
NetComm Smart 1234A	$1075
NetComm In/Modem	$360
NetComm In/Modem 1234	$859
NetComm In/Modem 123	$705
NetComm In/Modem 1200	$529
NetComm Smart 2400	$855
NetComm Smart 1200	$579
NetComm Trailblazer	$Call

PRINTERS

Brother M1709	$999
Brother M1509	$827
Epson LQ1000	$1325
Epson RX 100+ incl. csf	$650
Impact L800-1	$4950
Impact L800-2	$6900
Impact L800-2+	$7300
NEC P5 Pinwriter	$1769

PRINTERS

NEC P6	$880
NEC P7	$1190
Toshiba P351	$1695
Toshiba P341	$990

STORAGE SYSTEMS

Archive 45 MB	$1525
DSDD floppies (10)	$18
DSDD floppies (100)	$150
Irwin 10MB tape internal	$1150
Miniscribe 30MB	$850
Plus HardCard 20 MB	$1290
Plus HardCard 40 MB	$1990
Seagate 30 MB Kit	$750

IBM HARDWARE

Hercules Ram Font	$499
Hypertec Multifunction 512 KB	$399
Intel Above Board	$599
Microphonics Voice Command	$999
Microsoft Mouse	$299
NEC Multisync	$1299
Qubie 6 Pak 384KB	$429
Sigma Color 400	$990
Tall Tree JLaser+ AT	$1100
Taxan Super Vision IV	$1350
TVM EGA MD7	$950
8087	$279



DISCWARE (02) 212-6933

5th Floor, 3 Smail St., Broadway, NSW 2007. TLX: AA23509

ALL PRICES INCLUDE SALES TAX. AVAILABILITY MAY BE LIMITED AT PRICES ADVERTISED. PRICES APPLY TO STOCK HELD AS AT 27/7/87.

DISCWARE

The Best Amongst the Best

Clearance Sale – All Products Latest Versions

Toshiba T 3100/20 MB . $6550

AT-286/40 MB $3995

Kaypro PC 20 ..... $2300

THE DISCWARE AT-286 – MADE IN USA

INTRODUCTORY PRICE $2995



CPU:	80286, 8/10 MHz
RAM:	1 MB RAM
ROM:	IBM AT compatible.
DISK STORAGE:	1.2 MB Floppy Drive, 20 MB Tandon Hard Disk.
EXPANSION:	6 x 16 bit slots. 2 x 8 bit slots.
INPUT/OUTPUT:	Parallel/Serial.
POWER:	180 watt power supply.
OPTIONS INC:	Mono or Colour Card. Key Lock 12 months warranty. 45 MB option.

LIMITED QUANTITY AVAILABLE AT THIS PRICE

TOSHIBA T3100

THE AT FOR THOSE ON THE GO

CPU:	8 MHz 80286
RAM:	640 KB expandable internally to 2.5 MB
ROM:	IBM AT compatible
DISK STORAGE:	720 KB 3.5" floppy disk drive, one 20 MB hard disk, connection for external 360 KB 5.25" floppy disk drive.
EXPANSION:	Internal expansion slot
INPUT/OUTPUT:	Serial and parallel ports.



KAYPRO

THE PERFORMANCE SETTERS

Kaypro 386

CPU:	16 MHz 80386.
RAM:	2.5 MB 32 Bit wide RAM, expandable to 16 MB.
ROM:	IBM AT compatible.
DISK STORAGE:	1.2 MB floppy, one 40 MB High Speed hard disk.
EXPANSION:	One 32 Bit, three 16 Bit and two 8 Bit slots.

Kaypro 286i

CPU:	10 MHz 80286.
RAM:	640 KB expandable to 15 MB.
ROM:	IBM AT compatible.
DISK STORAGE:	1.2 MB floppy, one 40 MB High Speed hard disk.
EXPANSION:	Eight expansion slots.

Kaypro PC/PC30

CPU:	8.0 MHz 8088/V20.
RAM:	768 KB
ROM:	IBM PC/XT compatible.
DISK STORAGE:	2 x 360 KB/1 x 360 plus 30 MB hard disk.
EXPANSION:	Nine expansion slots.

DISCWARE

DISCWARE (02) 212-6933

5th Floor, 3 Smail St., Broadway, NSW 2007. TLX: AA23509

ALL PRICES INCLUDE SALES TAX. AVAILABILITY MAY BE LIMITED AT PRICES ADVERTISED. PRICES APPLY TO STOCK HELD AS AT 27/7/87.

COMPUTER SUPPLIES

QUALITY STYLE VALUE

BY MAIL ORDER

DISKETTES FROM $1.20 EACH

HIGHEST QUALITY DISCS FOR BUSINESS AND HOME USE.

• Double Sided — Double Density • Life Time Warranty
• Complete With Envelopes, Labels and W/P Tabs.

	10+	100+	1000+
Price per disc	$1.20	$1.10	$1.00
Supplied in Deluxe Storage Box	—	$1.29	$1.19

COLOUR DISKETTES

BRIGHT ATTRACTIVE COLOURED JACKETS ON THESE 5¼" DISKETTES MAKES THEM DISTINCTIVE AND EASILY RECOGNISABLE, IDEAL FOR KEEPING SEPARATE RECORDS FOR CLUBS, COMPANIES OR DEPARTMENTS.



Supplied in FREE Plastic Library Case.

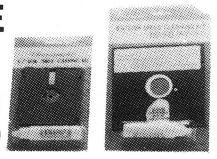
	10+	100+
Price per disc	$1.95	$1.70

Choose from RED, YELLOW, GREEN, ORANGE or BLUE jackets or available in RAINBOW PACK of 10.

DISC CARE

Disc Cleaning Kits — with cleaning fluid

3½" discs ~~$12~~ $9
5¼" discs ~~$12~~ $9



DISC NOTCHER

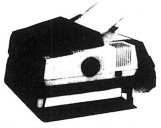
• Converts 5¼" SS discs to DS
• Doubles disc storage capacity

DNI . . . . . ~~$12~~ $9



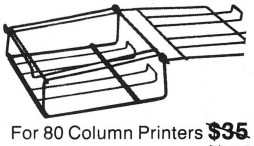
PRINTER STANDS

SMOKED PERSPEX STAND
With paper storage



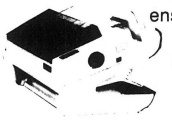
For 80 Column Printers ~~$25~~ $19

WIRE PRINTER STAND
Stacks, print out in document tray. Made of safety coated steel wire.



For 80 Column Printers ~~$35~~ $29
For 132 Column Printers ~~$40~~ $35

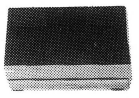
THE SPACE SAVER
Paper feed and refold positioned to save space. Dial controlled paper feed with adjustable deflectors ensures smooth flow and automatic refolding.



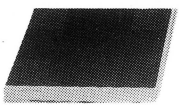
$69
For 80 Column Printers ~~$90~~

MONITOR SWIVEL STANDS

• Full 360° rotation • 25% tilt capability
• Handy control for adjustment and lock
• Reduces back, neck and eye strain



SS1-14" ~~$28~~ $25



SS2-12" ~~$27~~ $24

ADJUSTABLE COPY HOLDER

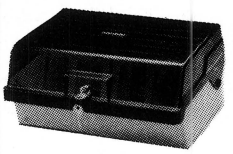
• Easily positioned and adjusted
• Slide line guide
• Size 9½ x 11½

CH1 . . . $36



DELUXE DISKETTE STORAGE BOXES

• Anti Static Protection
• Smoked Lid and High Impact Plastic Base
• Easy Access Handle for Opening and Carrying
• Hinged Lockable Lid

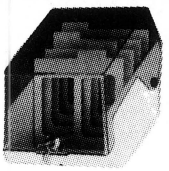


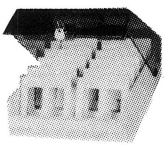
Holds 120 x 5¼" diskettes
New Double Row Filing System
DD120L
$25.00



Holds 100 x 5¼" diskettes
DD 100L ~~$20~~ **$18**

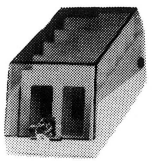
Holds 50x5¼" diskettes
DD 50L **$15.00**
~~$18.00~~



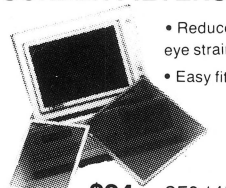


Holds 80x3½" diskettes
Will accept 3" diskettes
DD 80L **$20.00**
~~$24.00~~

Holds 40x3½" diskettes
Will accept 3" diskettes
DD 40L **$14.00**
~~$16.00~~



SCREEN FILTERS

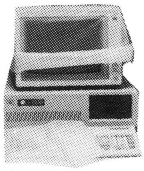


• Reduced eye strain
• Easy fitting

SF1 12" ~~$35~~ **$24**
SF2 14" ~~$40~~ **$29**

DUST COVER

Suits IBM PC + look alikes



DC1 ~~$20~~ **$18**
For 84 key keyboard
DC2 ~~$20~~ **$18**
For 100 key keyboard

DUST COVER AND COPY HOLDER

• Combines two functions in one set
• Flexible clamps for easy fitting



HH1 **$20**

DISK ORGANISER

• Keep your disk and desk organised
• Display up to 15 discs
• Disk index
• Compartment for labels, rulers etc



HH2 ~~$20~~ **$15**

PLASTIC LIBRARY CASES

HH3 Holds 10x5¼" Diskettes
HH4 Holds 10x3½" Diskettes



$5

Order to: **HALCOLM HOLDINGS PTY LTD.**
P.O. BOX 106, Wahroonga, NSW 2076
24 hour answering service for orders

☎ **(02) 489-0106** MasterCard VISA

Prices include sales tax but exclude delivery

Order Value	Postage
$5 +	$2
$10 +	$3
$25 +	$4
$50 +	$6

Purchase Orders Over $50 accepted from Govt. & Educational Books & Listed Co's.

Tax Exempt Prices available

Enquiries (02) 487-3781

Stickybear Music

Because of the dearth of music processors available for home computers, Colin Fox recommends Stickybear Music for ages 7 and up — a two-step in the right direction.



STICKYBEAR MUSIC is just one of the many colourfully produced programs in the Stickybear series of educational software designed for use by children at home. In addition to the program diskette, the package contains Stickybear stickers and a poster, and adequate instructions for using the programs. The instruction booklet contains some music theory which may be of use to the non-musical user.

Although the program is menu driven, the instruction booklet is indispensable from the outset. Stickybear Music does most of the things that one could hope a home computer music processor would do, but it does them in a rather cumbersome manner.

What are the basic requirements of a micro-computer music processor? There are four —

1) It should be easy to place notes on a music stave, either via the computer keyboard or, ideally, using a piano-like keyboard.
2) It should be just as easy to edit a tune as it is to write it on the stave originally. Indeed, one ought to be able to make corrections while entering the original.
3) There should be the ability to reproduce (at least) four voices simultaneously.
4) It should be possible to print out a copy of a score created using the music processor.

These four requirements are, surely, minimum requirements. I have not mentioned such things as varying the nature of the sound produced or transposition.

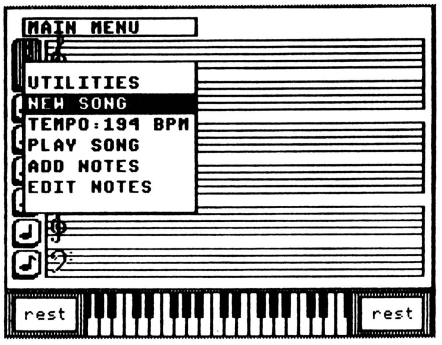
The Stickybear Music program partially satisfies the first requirement. Placing notes on the stave using the computer keyboard is reasonably easy. However, there is no provision for the attachment of a music keyboard. The second requirement, making corrections, is not at all straightforward with the program; corrections cannot be made in the original stages of writing a tune, and the EDIT mode is awkward.

The Apple II range is not, on its own, capable of producing more than one voice; so, because of the computer, the program misses out on the third requirement. The fourth? If you have a printer attached to your computer, it should be able to print your tunes.

The authors claim that 'Stickybear Music lets you create, edit, play, and save your own songs while practising your music notation skills.' While I feel this claim is true, the experience is not wholly satisfying. The only advantage this music processor gives the user over writing tunes by hand is that the tune can be played exactly as it is written. Even here, there is a complaint caused, I suspect, by the computer's (not the programmer's) sense of pitch. The pitches produced are not exactly in tune. This is particularly noticeable with octave leaps; they tend to be a fraction wide.

Another problem is that there is no provision for printing the flat sign. This means that one of the examples provided (a Bach minuet, unaccountably transposed from G major down to F major) is full of A sharps and A naturals. It looks most inelegant!

Despite all these complaints, and possibly because of the dearth of music processors available for home computers, I have to commend the Stickybear people for their efforts. Perhaps the Apple II, single-voiced computers were not the ideal instrument for this endeavour? □



Stickybear Music's main menu — Songs are written by choosing the type of note from the left side of the screen and the pitch from the keyboard.

Product Details

Product	Stickybear Music for 48K Apple IIs
From:	Weekly Reader Family Software Middleton, Connecticut, USA
Distributor:	Edsoft 5/2 Apollo Court Blackburn 3130 Vic.
Price:	$59.95 untaxed

Computer Tutorial

The Public Domain is an excellent source of 'good value' self-education software, as the following three articles will show. In the first, Sid Morris, of AMSEC, *tells of* PD *software and then describes a disk for computer novices.*

IT'S HARD TO believe that today you can get something for nothing ... but you can! There are literally hundreds of disks containing thousands of programs which you can obtain for nothing (and not because they fell off the back of a truck). Once you start using a computer you run into annoying problems of all sorts. If you're ingenious enough, you'll solve them; having done, so you can share your solutions with others by making the programs available via the public domain.

Lots of people have done this and these programs are available to you. You can *legally* copy them from your friends or get them from bulletin boards or pay a nominal charge to a group like PC-SIG. Some people offer their programs as shareware.

Shareware is a little different from other public domain software. If you like a shareware program you are asked to send a small donation to the author. This is often to register your copy so that you can receive updates, information about bugs, and sometimes even a manual. Public domain software contains numerous invaluable utilities, some much better than those commercially available. There are also some excellent wordprocessors, communications packages, and languages. Here, and in the following two articles, we'll examine some public domain self-educational software.

Computer Tutorial

Computer Tutorial, a PC-SIG disk, is designed to introduce the novice to the IBM PC (and compatibles) and its operating system, PC-DOS. It's public domain shareware; if you like it, you are asked (but not obliged) to register your copy for US$12 or to send US$25 to obtain the manual as well.

Why use such a tutorial when you can read the manual supplied with your computer? There are various reasons. First, some manuals are atrociously written. Second, it is possible to use the fact that you are learning on a computer to make the learning more interactive. For example, from time to time Computer Tutorial asks you questions; you are asked to type the answer. If you give an incorrect answer you are given a second try, and then a third. If are still wrong, you're told the answer. On the other hand, if you give the correct answer, the computer responds 'Congratulations ... you are right.' This is not something a manual can do.

To begin the tutorial, you type GO. This brings up an explanation of what is on the disk, a discussion of shareware, and then how to get down to the tutorial itself. You do this by typing TUTOR. After being asked whether you are using monochrome or colour (my version had a bug and asked for a colour even though I said I was using monochrome) and whether you want sound (awful beeps when you give an incorrect answer!) the menu in Figure 1 appears.

You start at (2) to learn about the keyboard. After typing 2, the screen says 'Decoding' and after a few seconds presents you with a page of text. When you have read the page you press the Plus-key on the numeric keypad. If there is something you wish to revise you press the Minus-key and the previous page reappears. In some parts of the tutorial, you

```
                    ***     T U T O R . C O M     ***

                            M a i n   M e n u

Following are up to nine tutorials that can be accessed from this menu. To
start the one of your choice, simply press the appropriate number on the
keys found at the top of your main keyboard. No carriage return or other
keystroke is necessary after the number. On exiting any tutorial you will
be brought back to this menu.

Tutorial     Subject

   1. . . . Description of the TUTOR.COM program (Ver 4.31)
   2. . . . Description of the IBM-PC keyboard & special keys
   3. . . . A short history of computers
   4. . . . Intro to the computer, Part 1 (basic terms and CPU)
   5. . . . Intro to the computer, Part 2 (input/output and storage)
   6. . . . Elementary IBM-PC DOS (commands)
   7. . . . Advanced IBM-PC DOS (subdirectories)
   8. . . . DOS batch files
   9. . . . Not presently assigned

   0. . . . Exit TUTOR.COM and return to DOS
```

Figure 1. *The Main Menu from Computer Tutorial, a public domain shareware program designed to introduce the novice to the* IBM PC *(and compatibles) and its operating system,* PC-DOS.

can also type M and you are presented with a menu of that portion of the tutorial so that you can skip bits you already know or continue from where you left off last time.

Section (2) also describes what the keyboard buffer is and how to use the function keys to edit the buffer. (I wonder at the wisdom of including this use of the function keys. I, myself, have long since forgotten how to do this, as I use the public domain utility DOSEDIT. This beaut little utility allows me to call up, not just my last command, but ones prior to that as well. In the process it redefines the function keys and hence invalidates their use as described in Computer Tutorial.)

The description of the keyboard is just what you would expect, except that a couple of keys have very obscure definitions; for example, the control key: 'The control key is often used to produce codes many programs recognize as valid commands'. . . . not very enlightening. It might have been better to say it is used in conjunction with other keys in a similar way to the Shift-key. The keyboard description takes about 10 minutes to go through.

Having completed (2) I was returned to the menu and proceeded to type 3. This took me to a five minute history of computers. This was slightly interesting, but newcomers would probably feel that this was irrelevant to their immediate needs.

Next I typed 4, and proceeded to an introduction to computers. This section like, (5), (6), and (7) took about 10 minutes to run through. It covers terms like input, output, CPU, memory, nibble, bit, and a discussion of binary arithmetic. The descriptions are quite clear. At the end of this section I was advised to take a rest and come back to the tutorial later. Having nerves of steel and stamina to match I pressed on without even stopping for a cup of coffee!

Section (5) continued the introduction covering topics such as sector, track, pixel, alphanumeric, mouse, serial and parallel ports, impact printers, and even laser printers. At each stage I was presented with questions which allowed three attempts at an answer. At one stage I was asked which holds the most data, floppy

```
                    ***     T U T O R . C O M     ***

                            U s e r    M e n u

Following are up to nine items defined by the author of this tutorial. To
access the one of your choice, simply press the appropriate number on the
keys found at the top of your main keyboard. No carriage return or other
keystroke is necessary after the number. You will be transferred to the
item of choice.

Item num     Subject

   1. . . . Restart this tutorial at the title.
   2. . . . Introductory terminology quiz.
   3. . . . Discussion of hardware elements.
   4. . . . Discussion of time applied to computers.
   5. . . . Definition of a byte.
   6. . . . Introduction to binary numbers.
   7. . . . Addresses as a way of finding things.
   8. . . . Introduction to the Central Processing Unit.
   9. . . . Pictorial of the CPU/computer interface.
   0. . . . Continue on the page following where you left off

   S. . . . Change quick scan mode - currently OFF
            OFF is normal - ON skips all questions for fast review
```

Figure 2. *Selecting 'Intro to the computer, Part 1' from the* Main Menu, *brings up the* User Menu.

disks or hard disks? I was given three attempts even though there were only two to choose from! Just to annoy the computer I made sure I got the answer wrong each time, but the ever forgiving machine did not say I was a fool but just presented me with the correct answer.

Section (6) gets down to the serious business of DOS, explaining the way to name files, use * and ?, and execute commands such as copy, diskcopy, cls, rename, and type. As an aside I mention that I never use 'type', as any decent size file flashes before my eyes too quickly. I know I can pipe it through 'more' but this is still unsatisfactory as I can't move up and down through the file. Instead I use the public domain utility LIST. This allows me to type a file and move up and down as though I were using a wordprocessor. LIST is a real gem!

Section (7) is on advanced DOS and includes material on pathnames and subdirectories. This section is quite thorough and sufficiently interactive for you to check that you are understanding the topics. My experience is that directories and subdirectories do cause newcomers much heartache, and this section should prove most helpful.

Section (8) is, in my opinion, somewhat out of place on this disk. It covers topics much too advanced for the novice and could destroy any confidence built up in the earlier sections. A warning to this effect should be given. Having said this, I have to add that it does contain useful material on batch files including those involving GOTO and IF. One criticism is that it gives a simple batch file for attaching passwords. In practice such an approach is useless as you can simply type (oops, I mean LIST) the batch file and see what the password is . . . then use it.

To sum up, Computer Tutorial contains much of what the novice user needs to know, and by and large the information is presented in simple straightforward English (I mean American.) It is recommended to those who refuse to read manuals and who don't want to pay about $100 for commercially available products. ▷

Product Details

Product:	Computer Tutorial PC-SIG Disk 403
From:	Public Domain
Distributor:	Manacomm Pty Ltd PO Box W42 West Pennant Hills 2120 NSW
Price:	$13



Dear Dele

Conducted by Geoff May
For the Sydney dBASE Users Group

dLouse!

dBase III Bug Reports

dBugs

dBase User Groups

dLETTER

The Newsletter for dBase II and III Users. Volume 2 Issue 11

dCoder

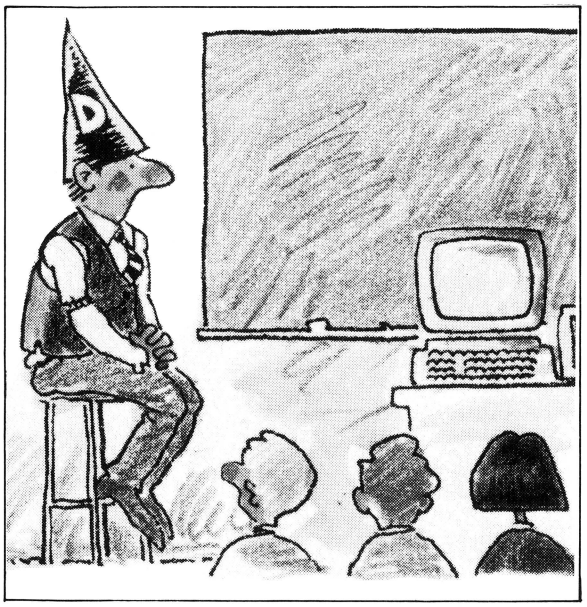
Tips For The Weary dBase Traveller (or,) EmBELLishing Your Programs

By Les Bell

dLetter – the 8-page monthly newsletter for serious users of dBase II and III.

Available *free* every month, with subscriber's copies of *Your Computer*

Computer Tutorial



```
                What is the computer best at?
                MMMMMMMMMMMMMMMMMMMMMMMMMMMMMM

Many things can be done with a computer; some, however, are more
efficiently done by hand or four-function calculators. In the following
areas, think of what computers can do...then press any key to see examples.

Paperwork                          Education
  Repetitive typing/record keeping   Record keeping/training devices

Money                              Health
  Banking/cashless economy           Business/diagnosis

Commerce                           Science
  Control plants/monitor energy use  Data analysis/experiment modeling

Transportation                     Government
  Airline control/rapid transit      Everything! - Largest user

Agriculture                        Human welfare
  Crop and weather information       Helping disabled/studying society

   Press: + to move ahead, - to move back, ESCape to end, M for menu

                        What computers do
                        MMMMMMMMMMMMMMMMM

A common misconception is that computers can do anything. Actually, they
are quite limited. Most computers are limited to four mathematical
operations and three comparison operations.

  The four basic mathematical operations are:

      Addition      Subtraction      Multiplication      Division
         +              -                  *                /

  The three comparisons are:

            Equal to        Less than        Greater than
               =               <                 >


Everything the computer does is done with one or combinations of the above.
Programming ingenuity makes the computer seem "intelligent".

   Press: + to move ahead, - to move back, ESCape to end, M for menu
```

Figure 3. *Two of the screens from 'Intro to the computer, Part 1' tutorial. Each tutorial takes about 10 minutes to run through.*

5¼" DOUBLE SIDED DOUBLE DENSITY

NEW

Now, for the very first time, you can have DOUBLE SIDED DOUBLE DENSITY 5¼" flexible disks at a really amazing price. (Note: we said DSDD not SSDD).



10 pcs for $10.00 ONLY

That's right! DOUBLE SIDED DOUBLE DENSITY disks supplied by a leading manufacturer of disks made to exacting industry standards for only $10 per box of ten disks plus postal charges.

Why only $10?

We are entering our 70th year in business and our 21st year as a manufacturer and supplier to the Australian computer industry...so, to celebrate, we are giving you this amazing offer. But hurry! This price is valid only until 31st October, 1987.

FAX ORDERS AND CREDIT CARDS ACCEPTED.

Wilbroprint & Computer Supplies
P.O. Box 56, Chippendale N.S.W. 2008.
Telephone: (02) 699 9933 Fax: (02) 699 4152
Shop: 134 Abercrombie Street, Chippendale
(Cnr. Cleveland Street)

QLD Distributor:

SWIFTFORMS
PRINT & COMPUTER SUPPLIES PTY LTD
Unit 2/49 Logan Road (Entrance Jurgens St)
Woolloongabba QLD 4102
Phone: (07) 891 5515 Fax: 891 5506

ORDER NOW

Sydney City 699 9933
Brisbane City 891 5515
Brisbane Country (07) 891 5515 (reverse charge)

TOLL FREE 008 225 542

The DataPerfect brand is backed by Wilbroprint's 70 years of service and commitment to Australian industry.

Music and Education

Programs from the Public Domain

A couple of sight reading programs, a chemistry test, and the Bach to Basic music processor make this Public Domain disk good value, as Brian Davey reports.

```
OCTAVE=04                    Caitlin                                          TEMPO=T120
--Possible Notes and Values--Rests--Octaves--------Tempo---------Misc. Syntax
|  A   A-   A+  |  1 = Whole = P1 | 07  high |  T255 (fastest) |  MS = staccato
|  B   B-   --  |  2 =  1/2  = P2 | 06   ^   |    ^            |  ML = legato
|  C   --   C+  |  4 =  1/4  = P4 | 05   ^   |    ^            | L # = length
|  D   D-   D+  |  8 =  1/8  = P8 | 04 mid C |  T120 (medium)  |  .  = dot note
|  E   E-   --  | 16 =  1/16 = P16| 03   ^   |    ^            | N # plays any
|  F   --   F+  | 32 =  1/32 = P32| 02   ^   |    ^            |of the 84 notes
|  G   G-   G+  | 64 =  1/64 = P64| 01  low  |   T32 (slowest) | N 0 = rest

 Ex: 3 Blind Mice = E D C /fast= T190 EDC or E16 D16 C16 /slow=T40 E1 D1 C1
C4 D4 E2. C4 F2.C4 E1.
|_____________________________________________________________________|
|_____________________________________________________________________|
|_C4 D4 E2. C4 F2. E4 D1._____________________________________________|
|_____________________________________________________________________|
|_____________________________________________________________________|

          DO YOU WANT TO CHANGE WHAT YOU JUST HEARD (Y/N)? N
                ENTER A  ?  FOR A LIST OF MORE OPTIONS
```

Figure 1. *Bach to Basic is an aid for rewriting music using the Basic Play statement. Note the summary of the subcommands for Play covering note names, their lengths, pauses, tempo and octave settings.*

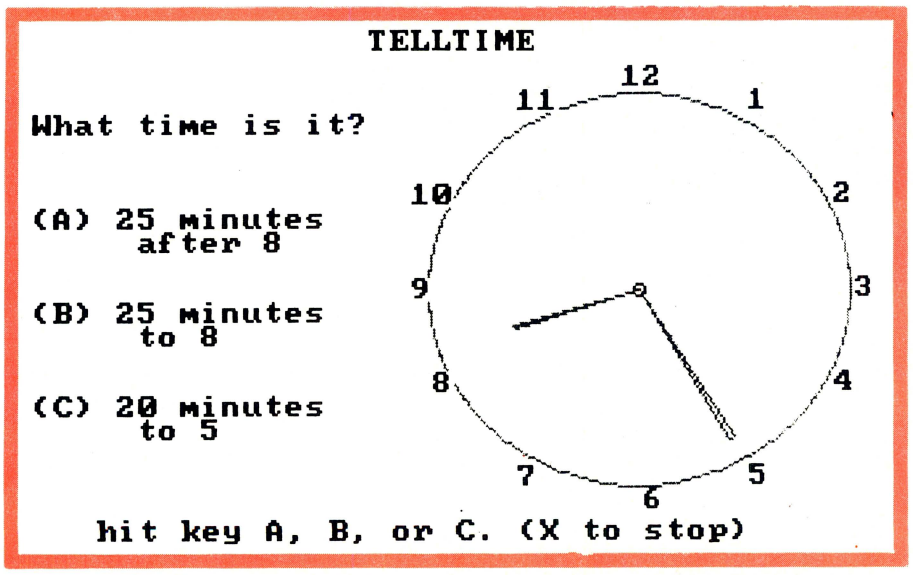


Figure 2. *Telltime.bas uses a multiple choice format to teach young children how to tell the time. (The American 'after' instead of 'past' is easily changed.)*

THIS DISK contains thirteen unrelated programs covering such diverse topics as spelling, telling time, music algebra, and chemistry. As is usually the case with such collections of public domain software, the quality is variable. I'll only report on the best of them.

Music

The file called Bach2.bas contains the program Bach to Basic Version 1.2. As the name implies, this program is an aid for rewriting music in terms of the subcommands of the Basic Play statement. To use Bach2, you certainly need to know something about music notation, and having your Basic manual open at the Play statement, while not essential, would certainly help since the program is undocumented. At all times there is a summary on screen of the subcommands for Play covering note names, their lengths, pauses, tempo and octave settings.

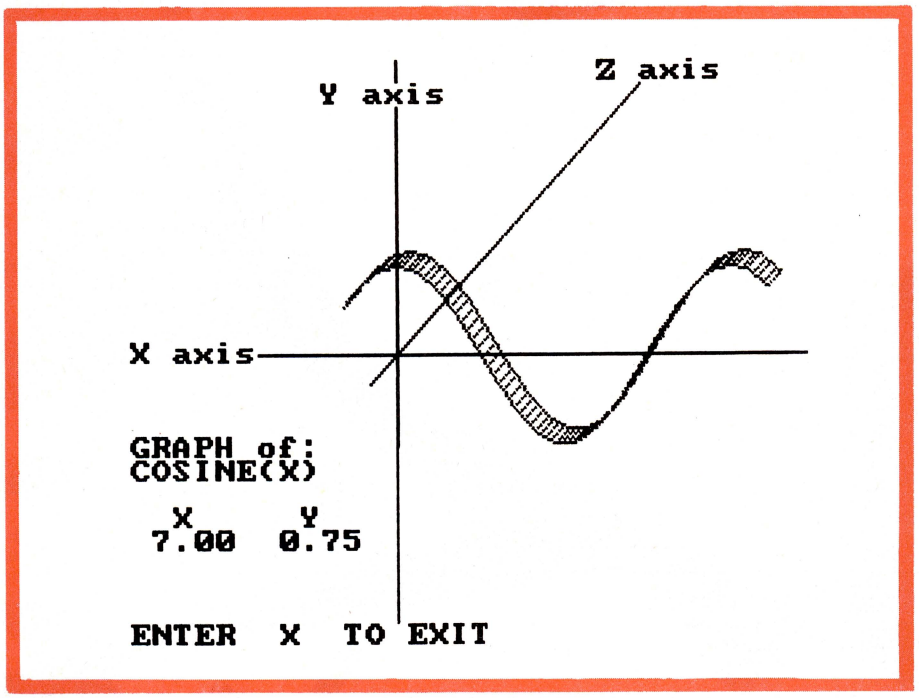


Figure 3. *Algebra.bas produces a 3-dimensional graph of 8 mathematical functions, including sine, cosine, tangent and square root.*

Unfortunately the program does not allow editing a line which has already been entered: it must either be accepted as is or redone from the start. I found this rather frustrating. Nevertheless, a tune, once written, can be saved and added to later on. The disk comes with 6 tunes on it. Bach2 would be a good place to begin to learn about the use of Play before you start to use it in your programs.

Spelling

There are two sight reading programs on the disk: Spellbee.bas and Spell.bas. In Spellbee you select one of four levels, from beginner up to speed reader, and then nominate the number of words to be spelled. A word flashes briefly on the screen and you then spell it. If correct, a smiling face appears on the screen. At levels 1 to 3 you are given more than one chance, with up to 5 chances at level 1. If you still get it wrong a sad face with a dunce's hat appears and the correct spelling is shown. (Those who don't go for this sort of negative reinforcement might like to do a little program editing at this point.)

After you have attempted all the words, a scoreboard comes up showing the number and percentage of correctly spelled words. The words for each level are stored in separate data files and could easily be altered to suit the user's purpose. The inbuilt words are suitable for middle primary onwards.

Spell is similar to Spellbee. Unlike Spellbee, it uses some colour graphics to enhance the presentation and asks for and uses the student's name to make the interaction more personal. The main advantage of Spell is that it aims to teach, not only test, and uses positive reinforcement. It does this by showing on the screen, before the spelling bee begins, all the words which are to be spelled. Moreover, when a word is spelled incorrectly the correct spelling is left on the screen while the student copies it; the program will not continue until this has been done. The student is asked again to spell that particular word. The process continues until all words have been spelled correctly.

Unfortunately, the word lists in Spell are not separate files but are built in as data lines. This makes it a little harder to alter it to suit your personal needs. Although there are only 350 words, they are aimed at younger children and so complement the word lists in Spellbee.

Chemistry

The two chemistry programs on the disk, Chemtest.bas and Chemique.bas, could be of use to teachers of year 11 and 12 chemistry. Both require a printer and generate random tests in the areas of chemical formulae, molar mass calculations, mass to mole problems, gram/mole relations and the concentration and dilution of solutions. Both programs claim (within the remarks at the start of the program listing) to generate solutions for the teacher. This was true of Chemique, but not of Chemtest even though Chemtest contains lines of code for generating solutions of some form.

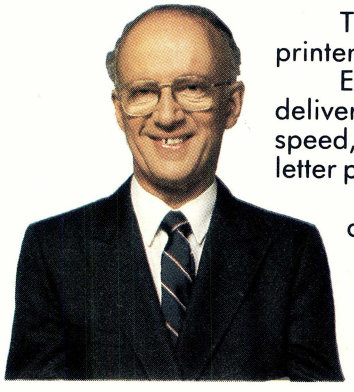
Other programs

Of the other programs on the disk only two deserve mention. Telltime.bas uses a multiple choice format to teach young children how to tell the time. (The use of the American 'after' instead of 'past' is easily changed.) Algebra.bas produces a 3-dimensional graph of 8 mathematical functions, including sine, cosine, tangent and square root. □

Product Details

Product:	Music and Education PC-SIG Disk 168
From:	Public Domain
Distributor:	Manacomm Pty Ltd PO Box W42 West Pennant Hills 2120 NSW
Price:	$13

At last, laser print technology has an affordable price.



The new Epson GQ3500 laser printer is here.

Epson Laser technology delivers an unbeatable blend of speed, quietness and incredible letter perfect quality.

To these virtues, the fully compatible Epson GQ3500 adds the legendary reliability that made Epson the world's number one name in printers. And the backing of both a twelve month warranty and national service facilities.

However, all these pluses are likely to be overshadowed by the Epson GQ3500's amazingly low price. A price that's sure to result in laser printers being found in a lot more offices. To make yours one of them, telephone Epson today.

In computers and printers your number one choice.

EPSON®

Sydney (02) 436 0333; Melbourne (03) 543 6455; Brisbane (07) 832 5400; Adelaide (08) 373 1377; Perth (09) 325 1744.

EPS 0222 YC

Fastype

A Public Domain typing Tutor for the IBM PC

Twenty years ago, AMSEC consultant Alison Cassidy learned to touch type the 'traditional' way. After trying Fastype, she decided that this is a program better suited for the arcade game generation.

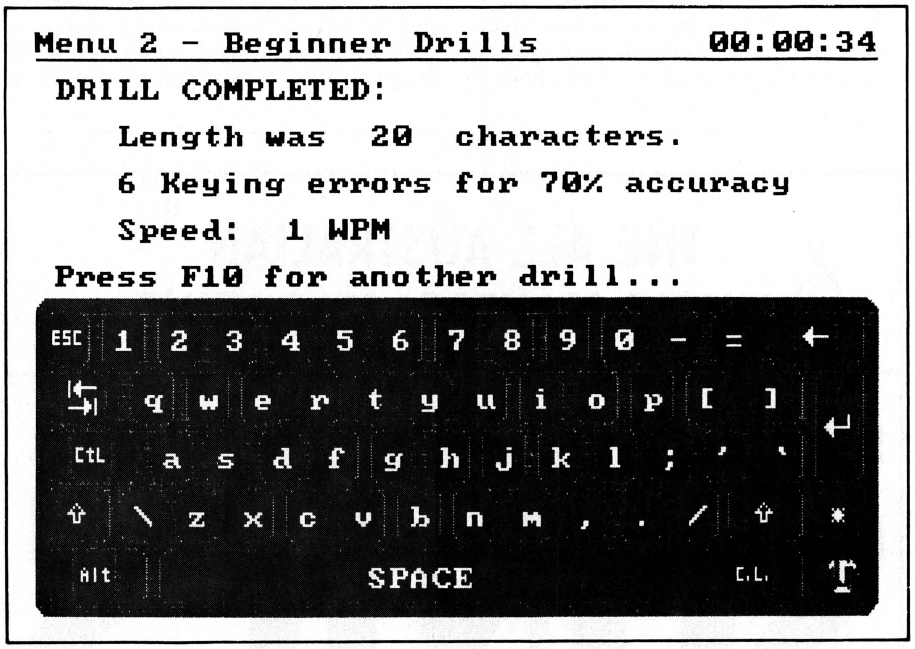


Figure 1. *Fastype is aptly named — with your fingers poised above the home keys, press* F10 *and the screen randomly flashes up characters on the simulated keyboard for you to strike: Ready, start, stopwatch ticking, a colourful* X *and little buzzer showing every blunder you make.*

A COMPUTER COURSE in typewriting — is that a good idea? Well, it depends on how good it is, and what is 'good' is not simply a question of its effectiveness measured by end results, although these are obviously important. 'Good' can also be a positive judgment about the way something or somebody teaches a skill. It also depends on what else is available — what the competition is. The very least that any system should be able to do is to communicate its 'How to . . . ' as simply as possible. Even though Fastype may be an effective means of training somebody to type, it has problems and some of them are serious enough to make the potential user say 'why bother?.'

The traditional techniques of acquiring typing skills are straightforward: you either go to a typing school and be taught, or you buy a book and teach yourself. This Fastype option tries to provide the best of both worlds; unfortunately it seems to fall between the two schools.

With the good old book, all you have to do is turn the page and there are the instructions, drills and so on. Admittedly it's not a very exciting presentation — no bells and whistles or visual rewards for actually succeeding to turn the pages — but it's simple and easy to follow. If you attend a typing school, you still rely on a textbook and follow much the same regime as if you were teaching yourself, only under supervision (you have someone to ask); at least that was the case twenty years ago when I learnt to type.

Before starting Fastype you are asked to read 48 pages of documentation which must be printed from the disk. After printing this users' guide and working through the main menu into the beginners' drills, the first thing you run into is a teaching technique which would have Pavlov's dog salivating. Fastype is aptly named. With your fingers poised above the home keys, you press F10 and the screen randomly flashes up characters on its simulated keyboard for you to strike: Ready, start, stopwatch ticking, a colourful X and a little buzzer showing every blunder you make.

Wait a Minute!

You struggle in vain to obey the commands given by the machine and then, the final judgment, as the machine shows what a miserable disaster you are under

Product Details

Product:	Touchtype PC-SIG Disk 320
From:	Public Domain
Distributor:	Manacomm Pty Ltd PO Box W42 West Pennant Hills 2120 NSW
Price:	$13

stress — '65% accuracy, 1 WPM.' But you say, 'Wait a minute! I don't want to learn to be fast yet, I just want to get it right!' Alas, it doesn't hear; it's not like a reasonable human being dealing with a nervous student's first tentative efforts. It sits in judgment on you from the beginning. True, you can turn the sound down (keyboard prompting key F5) and it doesn't do it quite so aggressively, but it still does it.

Some may disagree about the value of learning under stress. Certainly the examination system functions along similar inflexible lines. But — isn't this *training* rather than *learning*?

Having struggled through the early beginners drills, you finally get to characters and symbols. Here, I ran into a problem because my keyboard was not the original IBM PC keyboard but rather the PC/AT keyboard, which is standard today on most machines. Using a program like Smartkey to redefine certain keys may overcome this problem. But otherwise you reach an impasse every time you encounter certain characters, with the program and you disagreeing over the key you have struck.

Fastype will probably appeal to the games player, for it employs much the same sort of challenge and reward psychology as your average arcade 'shoot 'em before they get you' game.

Fastype will probably appeal to the games player, for it employs much the same sort of challenge and reward psychology as your average arcade 'shoot-'em before they get you' game. It may also appeal to those who can't afford a typing course and want something more interactive than sitting down to do exercises from a book.

Touchtype

Fastype for the IBM PC is one of two programs on a public domain disk entitled Touchtype. The other program, Typerite, converts the keyboard plus printer into a correcting electric typewriter and allows easy setting of some of the print modes on the Epson (IBM Graphics) family of printers. □

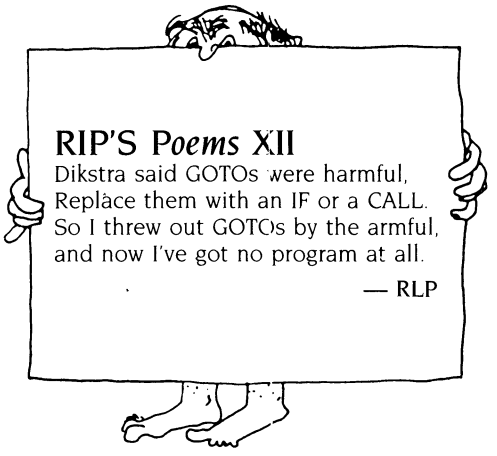
THE ALL AUSTRALIAN MUSIC MAKERS' MAGAZINE

MUSIC SOUND RECORDING STAGE LIGHTING

SONICS

THE MAGAZINE FOR MUSIC-MAKERS

Taking you behind the scenes of the exciting world of today's music making.



RIP'S Poems XII

Dikstra said GOTOs were harmful,
Replace them with an IF or a CALL.
So I threw out GOTOs by the armful,
and now I've got no program at all.

— RLP

How 'paper parking' and 24K buffer makes this printer faster than any other in its class.



Brother M-1709 $1,245 r.r.p.

The Brother M-1709 is faster than all other printers in its price range. 240 cps in draft mode, 50 cps in Near Letter Quality — real NLQ.

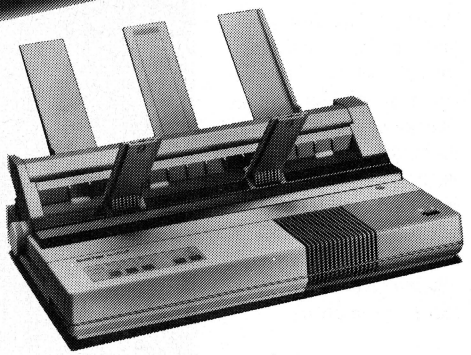
But that's only part of the speed story.

Paper Parking

This remarkable Brother feature, eliminates all the time wasting that would normally occur when you change between fanfold and cut sheet paper (even with the optional cut sheet feeder). You just 'park' one while you use the other. Think of the time you save!

24K Buffer

Brother's 24K bytes buffer memory means even more time saving. It holds the equivalent of about ten pages of typing, so, for most applications, you can still use your computer while the printer goes about its business.



Brother M-1509 $999 r.r.p.
Speed, looks and performance.
(Shown with optional extra, cut sheet feeder SF-40)

Plus quiet operation, auto paper loader, graphics capability, IBM and Epson compatability, front panel font and function selection, dual interfaces (Centronics and RS-232C).

The Brother M-1709 has every feature you've ever wanted in an office printer. Including speed.

For trade enquiries, a demonstration or further information, call Brother or post the coupon.

To: Brother Industries (Aust.) Pty. Ltd.
P.O. Box 398, North Ryde, NSW, 2113.

YES, I would like a demonstration of the new Brother M-1709 printer.

Company_____

Address_____

_____

_____ Postcode_____

Telephone_____

Contact Mr/Mrs/Ms/Miss_____

_____

CSO 4543

brother

The Affordable Printers

Brother Industries (Aust.) Pty. Ltd.,
7-9 Khartoum Rd, North Ryde, NSW, 2113.

- Sydney: (02) 887 4344
- Melbourne: (03) 873 3655
- Brisbane: (07) 52 5257
- Adelaide: (08) 42 6373
- Perth: (09) 478 1955.

Computer Tutors

Merv Beamish discovered that if you want to know about 'computing', you can learn with cassette players, videos, CD players, and even computers.

THE DEVELOPMENT OF the personal (and home) computer has generated an infrastructure of associated industries. I've often thought how the traditionally poor quality of hardware and software manuals fosters the associated publishing and tuition industries. Now, in the photography market a basic component (film), is given away to stimulate the developing and printing industry. Does that mean we will see free commercial software stimulate the sales of computer manuals, books and training aids? (Bootleggers won't like it as it costs more and is harder to copy a book than a disk.)

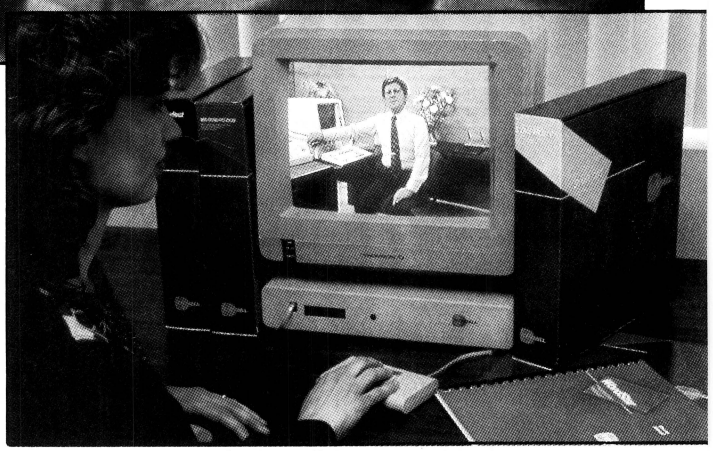
With the advent of home computers, notably the Commodore Pet (I've still got one!) and the Apple, a rash of 'Educational Software' hit the market. It seemed that almost every self respecting maths teacher had to write a program on teaching primary school maths, while English teachers, came out with 'Learn to Spell' programs. Most were recommended by some school or institution, but the majority proved not worth the oxide they were stored on. In a McLuhan age of 'The Medium is the Message,' computer tutors were full of the message but very limited in the vocabulary of the medium.

Today, the computer tutors have vastly improved their message, having expanded into a range of media. The computer consumer can now purchase a vast range of courseware.

The 5¼ inch diskette is the most convenient magnetic media for the computer tutor software. All the equipment required is already housed within the student's own computer. Designers and programmers can work to known standards and predictable study environments.



A single videodisk holds over 54,000 individual images which can be called up as sharp single images or combined into animated (video) segments. Each individual image or segment can be selected at random which makes videodisks an ideally interactive medium to use with computers.



The Comsell Learning Centre courseware comprises a videodisk player, computer interface, manuals, videodisks, and a viewer with its own simple keyboard.

Learning Centre

THE CLOSEST most of us have ever been to videodisk technology is the video game machines at the local theatre or games parlour. But, increasing numbers of universities and businesses are using this technology to store information and train staff. The available 'generic videodisk' training courses range across selling, personal motivation, welding and other manual skills, but mainly concentrate on the computer software area.

A single videodisk holds over 54,000 individual images which can be called up as sharp single images or combined into animated (video) segments. Each individual image or segment can be selected at random which makes videodisks an ideally interactive medium to use with computers. The maximum selection time, first to last image, is 2 to 3 seconds, depending on the machine used — with proper planning selection time is as good as instantaneous. If you consider video and image production, voice, software, planning and other production costs, it stands to reason that to cut the first disk is a very expensive exercise. However, subsequent disks are relatively inexpensive to produce. This is why the market is adopting the 'generic videodisk' as opposed to individually produced disks.

Of course questions arise about the flexibility of the medium. Within the con-

fines of the generic videodisk, there is a surprising amount of flexibility. A MIC System 2000 Interactive Video Card is available for IBM PCs, or clones — it allows you to control the sequence of the images and segments via a computer program. You can use it to turn off the video image and call up computer graphics and to adapt course material on the run. There's also a flexible program to edit the course material, in real-time; or, if someone is having difficulty, revision and clarification segments can be called up without the student realising what is going on.

Graeme Redman has become Australia's leading advocate of videodisk technology; his company is Syslink, a marketer of videodisk training courses. Graeme claims, obviously with a little bias, that the optical disk (videodisk) '... is perhaps one of the most significant products of our time, with the ability for the compression of vast quantities of data coupled with an ease and effectiveness of retrieval previously unattainable. This is achieved through the combination of laser, video and computer technologies.'

Syslink market the Comsell Learning Centre courseware in Australia. Comsell hardware comprises a videodisk player, computer interface, manuals, videodisks, and a viewer with its own simple keyboard. All this equipment is set-up beside your own computer. Some courseware requires the student to operate the computer and viewing unit separately, while others operated entirely from the computer keyboard. The range of course material covers most of the popular databases, spreadsheets and wordprocessors.

I believe the manufacturer's claims that the medium currently offers the next best alternative to a live tutor. My brief play with the Multiplan disk was entertaining and educational, though I must admit, at the time, I had a greater fascination with the technology than the subject.

Videodisk training is out of the reach of most individuals, unless you have $500 for one week's rental. However, in the case of a group, or business, a week should be sufficient to train 5 people. I'm quite excited about the medium but feel it may need a little more development of the message and this will only happen as more people get their hands on the technology. If you are a trainer I believe you will be very impressed with videodisk courseware. □



The mechanics of Listen and Learn are straight forward. You play the cassette, when a bell sounds you carry out some action, refer to the manual to double check what you have on the screen is correct, and move on. The tutorials themselves are presented in a very comfortable fashion — a little chatty with the occasional hints or tips outside the standard operating method.

Listen & Learn

THE MOST unlikely way, I would have thought, to successfully teach anybody anything about computers would be via an ordinary audio cassette. On hearing of them I was a skeptical about the Listen and Learn packages. Even when the beautiful and professionally packaged tutorial kit on dBase III+ arrived, along with suitable press clippings and glossy leaflet, I was doubtful of its worth.

Now, you're expecting me to shout 'Hallelujah! I've seen the light!' ... well not quite: but, I must admit that it is an excellent use of what must be one of the oldest methods of electronic tuition.

A Listen and Learn pack contains (based on the dBase III+ kit) four C60 audio cassettes and an instruction manual. All of this is neatly contained in a plastic case, not unlike a video cassette holder. There is also a deluxe pack which adds earphones and a Walkman size cassette player to the package.

The developers and designers, Listen & Learn from Subiaco, Western Australia, have taken four years to develop the product for the international marketplace. Everything about the pack is professional, precise and well thought out. Everything within the pack is held firmly in place, looks as if it belongs and gives a nice crisp feeling. It actually urges you to get started as soon as possible.

You might feel the packaging is irrelevant to the purpose, but the design, and packaging, is important, not only to sell the product, but also to have the user feel comfortable and confident with it.

The Instruction Manual is wire bound, can lay flat, become its own stand or fit on a document holder. The lessons are colour coded to match the relevant cassette. Primarily, the manual is used to show you the screens associated with the various exercises on the tapes. It has 90 pages which include some very useful appendices on (in this case) dBase III+.

The cassettes themselves, while being colour coded and numbered, do not give any indication about the exercises recorded on them.

The mechanics of Listen and Learn are straight forward. You play the cassette, when a bell sounds you carry out some action, refer to the manual to double check what you have on the screen is correct, and move on or back up, all at your own pace. The tutorials themselves are presented in a very comfortable fashion — a little chatty with the occasional hints or tips outside the standard operating method. It was almost like a tutor looking over my shoulder. Along with his voice, the click of a keyboard carrying out the exercises can be heard in the background. The tutor did have a habit of asking a question and presuming an answer — if you don't get it right, you're left scratching your head. This, however, was only a minor flaw in an otherwise excellent script.

Limitations of this method of tuition seem to be based more on the technology than the actual product. By its very nature, the audio cassette is a linear medium which allows only limited interaction between courseware and student. Designers are at the mercy of the cassette playing equipment each student has and students will need to note cassette counter numbers at the start of each lesson, to avoid a lot of fast forwarding and reversing when searching for lessons to revise.

TML Pascal

for the Macintosh
for the Apple//GS

Version 2.5 of the Macintosh Compiler now provides interfaces for the new Mac SE and Mac II Toolbox routines and direct access to the 68881 floating point co-processor.

The availability of complementary products such as the Source Code Library, Database Toolkit, MacExpress and Invention Programmer's Helper gives the programmer/developer a head start in developing applications.

Registered Users have access to Firmware Design's technical support, regular newsletters and will always have access to the latest version of the Compiler.

TML Pascal is now also available for the //GS. The compiler creates standalone ProDOS16 applications, shell applications as well as desk accessories. Complete access is available to all GS ROM Tools.

Just released: **TML Modula-2 for the Macintosh.**

Implemented as a Macintosh Programmers Workshop (MPW) tool, exploiting the full power of MPW.

At last a fast, complete and compatible Modula-2!

DEVELOPMENT TOOLS FROM FIRMWARE DESIGN:

TML Pascal (Mac)	$198
TML Source Code Library (Mac)	$180
TML Database Toolkit (Mac)	$198
TML Modula-2 (Mac)	$198
TML Pascal (//GS)	$252
TML Source Code Library (//GS)	$108
TML Speech Toolkit (//GS)	$144
Consulair MacC jr	$168
Consulair MDS	$168
Mach2	$240
MacScheme	$276
MacTran77	$420
MacExpress	$420
Invention Progr. Extender	$198
Invention Comms Extender	$210
Fedit Plus	$84
QUED/M	$192
MacNosy	$180
TMON	$228
MacTutor (per issue)	$9.50
MacTutor (12 issues)	$95
The best of MacTutor vol 1	$54.95
The best of MacTutor vol 2	$54.95

Our efficient mail and phone order system will give you the latest in languages, utilities, books and other products for software development on the Macintosh. Ask for our free regular newsletter/catalogue.

BankCard and MasterCard welcome.

FIRMWARE DESIGN

6 STATION STREET, BLAXLAND. P.O. BOX 9, BLAXLAND, NSW, 2774. TELEPHONE: (047) 39 4267.

A nice thing about this medium is, in the case of revision, you can play the tapes, say, in the car on the way to work. The script is such that you can go through the exercise in your mind's eye. It is also portable enough to use both on the office and home computer. Presentation is clear, understandable and enjoyable.

This particular course is aimed at beginners new to dBase III+. If the other courses are of the same standard as this one, I highly recommend them — they also include packages for Lotus 1-2-3, Multimate, WordStar, DisplayWrite3 and many other popular programs. □

Introducing C

THE INTRODUCING C package consists of a 345 page paperback manual with an IBM DOS 2.0+ diskette in a pocket on the inside back cover. Any updates or amendments are noted within the READ.ME file on the diskette.

Introducing C assumes the user is learning C as a first language, and, as such, the initial stages of the course cover some elementary computer basics. (These initial units read a little like a Choose Your Own Adventure book —

If you are not in command mode, go back to Unit 13.
If everything checks out, go to Unit 15.)

Someone familiar with computers can scan through these sections. I said scan through, not ignore, because some primary comments on C itself are hidden in there. In actual fact the initial 21 units (only 24 pages) are a little confusing and somewhat disjointed.

The tuition method the author, Thomas A. Gibson, has taken is time honoured and proven. The course is a structured step-by-step approach, where each module is based around a series of small programs that are dissected and explained. This hands-on method of training is an excel-

MODULE 6. An arithmetic program

Run this program:

```
/* ARITHMETIC */
main()
{
        int a, b;

        a = 7;
        b = 3;

        printf ( " \n %d plus %d is %d.", a, b, a + b );
        printf ( " \n %d minus %d is %d.", a, b, a - b );
        printf ( " \n %d times %d is %d.", a, b, a * b );
        printf ( " \n %d divided by %d is %d.",
                a , b, a / b );
}
```

It should print four sentences, with the answers 10, 4, 21 and 2.

Exercise

6.1 Change the assignments of a and b to other numbers and run the program again. Try negative values, too. For now, stick to small numbers, four digits or less. Sometimes numbers with five or more digits give surprising answers. We'll explore this later, too.

6.2 Write a program that assigns values to three integer variables. Put their sum in a fourth variable. Print a sentence with the values of all four variables. [*See exercise 2.1*]

Introducing C takes a structured step-by-step approach, where each module is based around a series of small programs that are dissected and explained. Shown above is an example program from the manual. The accompanying diskette contains a C interpreter, a full screen editor, and full colour graphics capabilities.

COST SAVING SELF-TEACHING VIDEO TRAINING COURSES



THE EFFECTIVE ALTERNATIVE

Have you heard anyone say "I forgot most of the things that I learned in that training seminar" or "I haven't got time".. "That disk or book tutorial is more confusing than the software itself".

Then video training may be the solution. You'll have the benefit of seeing, hearing and doing at your convenience.

A video course can train an entire staff for the cost of sending one person to a seminar. In addition the course is always available for revision, new staff and as a permanent record.

Courses Available:
- Lotus 1-2-3
- Advanced Lotus
- Multiplan
- dBase II
- Using Your IBM PC
- Mastering DOS
- Wordstar
- Multimate
- Desktop Publishing
- dBase III plus
- Symphony
- Displaywrite 4

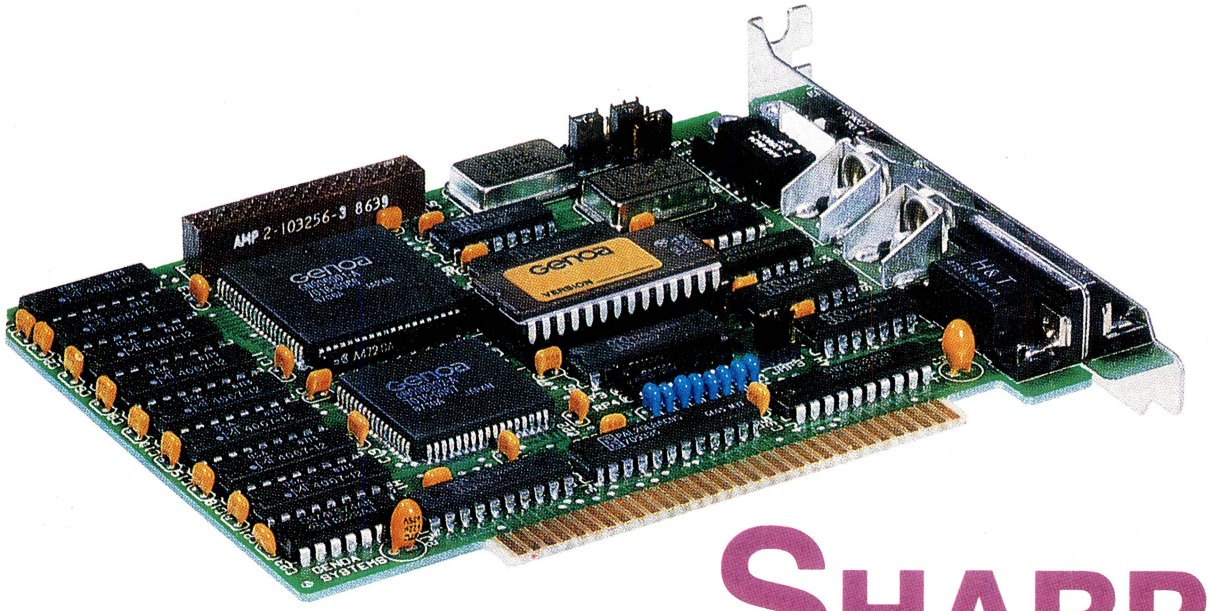
and more....

RENT or BUY

Call for **FREE** *Catalogue*

Micro Management Services Pty. Ltd.

15 Woolrych Crescent, Davidson. N.S.W.
Phone: (02) 452 5966.



SHARPEN YOUR IMAGE

800 x 600 EGA

- *100% Multisync Compatible*
- *CGA DoubleScan (just like IBM's new VGA!)*
- *Drivers for AutoCAD, Windows, GEM, Ventura, Pagemaker and more.*
- *100% IBM EGA Compatible*
- *132 Column Drivers for Lotus 1-2-3 and Symphony*
- *80 x 66 for Desktop Publishing*

*Genoa's SuperEGA™ board is the easiest way to get the best out of your high-resolution monitor—and the popular CAD/CAM and desktop publishing programs. And, SuperEGA also supports CGA, CGA DoubleScan (to 640 x 400), MDA, Hercules, and EGA, thanks to Genoa's exclusive AutoSync™ capability. So now you can get **high performance at a reasonable cost**—and look sharp!*

SUPER PACKAGE DEAL

NEC Multisync + EGA
640 x 480
Genoa Board
$1450 + tax

NEX Multisync + EGA
800 x 600
Genoa Board
$1650 + tax

©1987 Genoa Systems Corporation
Super EGA and Autosync are trademarks of Genoa Systems Corporation. Multisync is a trademark of NEC Home Electronics. Lotus 1-2-3 and Symphony — Lotus Development Corporation; Hercules — Hercules Computer Technology; windows — Microsoft; GEM — Digital Research, Inc; AutoCAD — Auto Desk, Inc; Ventura — Xerox Corporation; Pagemaker — Aldus Corporation

HYPEC ELECTRONICS
HYPEC ELECTRONICS PTY. LTD.,
21 Ryedale Road, West Ryde NSW 2114
PO Box 483 Ryde, Sydney NSW 2112
Tel: (02) 808 3666 (4 lines)
Cable: LAMRON SYDNEY. FAX: (02) 808 3596
Telex: AA71551 HYPEC
TELEPHONE ORDER HOTLINE:
(02) 808-3666
Bank cheque, money order, Visa, Bankcard & MasterCard accepted.

Genoa
SYSTEMS CORPORATION

lent method of learning a topic such as a computer language through the printed page.

The accompanying diskette contains a C interpreter, a full screen editor, and full colour graphics capabilities. The package is published by Computer Innovations, Inc of the US.

A package of this type offers advantages to the user by being an efficient and *readable* revision and reference source — and it's a C interpreter and editor. Clear, understandable and readable. Also, it requires no additional equipment other than the bare bones of a computer. □

***All the tutorials I have worked with claim to be interactive, but none have met the standards achieved on diskette by* TYPE*quick*.**

TYPEquick

THE TYPING tutor, TYPEquick, is a fine representative of computer diskette based tutorials. TYPEquick is now sold all over the world in Dutch, Japanese and English. It won *Your Computer's* Australian Software Commendation in 1985; and IBM and Digital have bought the rights to release versions of it under their own name.

If you're looking for tips on how to write interactive computer tutorials, TYPEquick is a text book on how it is done. The courseware package consists of a diskette and a slim, hard cover manual. In fact you don't buy the pack — you purchase a licence to use the software, a reasonably common practice.

The software will only train one individual at a time, it is of little use to anybody else until that individual has completed their 10 unit course then it may be used to train another person. There are multi-user

PERFORMANCE REVIEW FOR LESSON 2

Bridget — Bridget McIntosh — 11-DEC-86

Typing accuracy: 96%
Total keys hit this lesson: 474
Errors this lesson: 18
Average speed: 28 WPM Your aim: 30 WPM
Based on 5 keystrokes per word and correction of errors you made.
Considering the number of errors you have made,
you will do more work on: dhHK
Keep up the good work!

KEY SPEED ANALYSIS

KEYS TYPED AT LESS THAN HALF YOUR AVERAGE SPEED:

KEYS TYPED FASTER THAN HALF YOUR AVERAGE SPEED:
. H I J K L f h j
KEYS TYPED AT YOUR AVERAGE SPEED OR FASTER:
; a d e i k l s
YOU HAVE ACHIEVED YOUR TARGET SPEED ON THE FOLLOWING KEYS:
; e i k l s

KEY FREQUENCY AND ERROR ANALYSIS

Bridget — Bridget McIntosh — 11-DEC-86

key	hits	errs	key	hits	errs	key	hits	errs	key	hits	errs	key	hits	errs
a	38	1	q			G			W			<.	14	1
b			r			<H	6	1	X			;	7	0
c			s	45	1	<I	3	0	Y					
d	33	4	t			<J	6	0	Z					
<e	55	0	u			<K	5	1		98	0			
f	29	1	v			<L	9	0	1					
g			w			M			2					
<h	29	6	x			N			3					
<i	32	1	y			O			4					
j	14	0	z			P			5					
k	11	0	A			Q			6					
l	40	1	B			R			7					
m			C			S			8					
n			D			T			9					
o			E			U			0					
p			F			V			.					

< indicates keys learned this lesson

*TYPE*quick *builds up a database of the user's weak and strong keys, error ratios, hesitations and a number of other items. It then generates exercises that strengthen weaknesses and maintain strengths. At frequent intervals the user is given a report on their progress, such as the sample shown above.*

Details . . .

□ **Introducing C** — a tuition manual supported by diskette based software, $325. Review copy from The Computer Factory, 214 Harbord Rd, Brookvale 2100 NSW; (02 938 2522. Distributed by The Computer Factory.

□ **TYPEquick** — a diskette based typing tutor. Personal use copy, $87, corporate training for 75 courses and 10 manuals, $995 plus tax, college licence, $1500 . Review copy from TYPEquick, 16 Cecil St, Gordon 2072 NSW; (02) 498 7433. Distributed by TYPEquick.

□ **Listen & Learn** — a range of audio cassettes (with instruction manual) covering dBase III+, Lotus 1-2-3, Multimate, WordStar, DisplayWrite3, and many other popular programs. PC MSDOS Pack, $99; Executive Pack, $129; Professional Pack, $199. Review copy from Listen and Learn, 68 Coghlan Rd, Subiaco 6008 WA; Distributed by Dick Smith Electronics, 396 Lane Cove Rd, North Ryde 2113 NSW; (02) 888 3200, or contact your nearest store.

□ **Macros & Advanced Functions** — video cassette courses (plus a work book) for Lotus 1-2-3 and a wide range of other applications; costs $840 taxed, or they can be rented. Review copy from Micro Management Systems, 15 Woolrych Crescent, Davidson 2085 NSW; (02) 452 5966. Distributed by Micro Management Systems.

□ **Comsell Learning Centre** — video disk courses (that include a videodisk player, computer interface, manuals, videodisks, and a viewer) covering Multiplan and a range of other popular databases, spreadsheets and wordprocessors. Priced at $9870, including sales tax, or $2 to $3000 per course; rental $520 per week. Review copy from Syslink, 54 Lexton Rd, Box Hill 3128 Victoria; (03) 898 9401. Distributed by Syslink. □

packages available for schools and corporate trainers. The first thing the course does is to personalise itself to the user by asking for their name and helping them to set personal achievement goals. Such a goal might be to obtain the speed of 20 words a minute by studying for 30 to 60 minutes a day. Throughout the course these goals are positively reinforced by screen messages and reports.

A user's first exercise might be the keys ASDFJKL;(space)(return). After some elementary keyboard practice the user chases a dot over a screen graphic of the keyboard then copying combinations of characters of the screen — all the time the computer is adjusting to the user's speed and pushing just that little bit faster. Other programs have similar exercises; what's so special about this one?

TYPEquick builds up a database of the user's weak and strong keys, error ratios, hesitations and a number of other items. It then generates exercises that strengthen weaknesses and maintain strengths. At frequent intervals the user is given reports on their progress which tabulate the numbers of errors on individual keys, their speed/error ratios, their strengths and weaknesses. These reports are all done to positively reinforce the lessons and, like the bedside manners of a good doctor, the reasons for various exercises are explained.

All the tutorials I have worked with claim to be interactive, but none have met the standards achieved on diskette by TYPEquick. □

Macros & Advanced Functions

THIS IS AN Arthur Young Self-Teaching Video Course, part of an interactive video and computer based training program,' or at least that's what the manual tells us. The kit consists of a VHF video cassette (3 hr), and a manual, referred to as a work book. Within the manual, a plastic sleeve holds three 5¼ inch diskettes. The course is for intermediate and advanced users of Lotus 1-2-3.

Video cassette technology suffers from the same linear format as the audio cassette. It requires fast forwarding and reversing to view individual units out of the sequence. There are no video players standards, so the program designers are unable to build search cues into the courseware. The designers of this course have made a genuine effort to overcome this problem firstly by including a unit index page within the manual with space to add video counter reference numbers. Also, at the beginning of each individual unit, on the video, in the bottom left hand of the screen a large unit number appears long enough to enable a user to pick it out while fast forwarding.

This course originates from the US — It seems to have taken a long while to get across to the Americans that the evangelical crusade approach to training and its associated intense American accent can be quite counter productive when used outside of the US. The producers of this cassette have made a successful effort to neutralise that approach, leaving the student free to study the subject at hand.

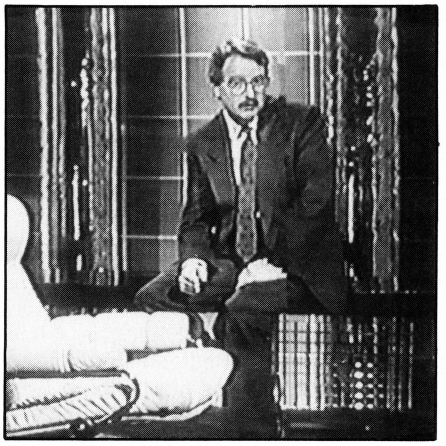
Although it was all filmed in the same studio (much like a set from a Dave Allen Show), the video cleverly uses slow zoom, the occasional change in camera angles and the like to break up monotonous head and shoulders monologue. A monologue this course is *not* — there is very nice timing and presentation of sequences and sample screens with an intelligent and lively narrative.

Although designed as an intense two day training course, the material can be used for self tuition and spread out to fit the time available. The manual suggests that the most effective manner to use this courseware is in teams of two students with an instructor to oversee.

The course is divided into 18 sections, most of which have a video segment, and an introduction and a summary of the key points in the manual. There are hands-on, computer based training exercises which are either directly entered via the key board or contained on the diskettes supplied. (It's assumed you have a copy of Lotus 1-2-3.) This particular course covers 1-2-3 macros and advanced functions, but a wide range of other topics are available including an introduction to Lotus called the Lotus 1-2-3 Proficiency Video Course. These courses can be purchased at around $850 or rented. The material I looked at came from Micro Management Services in Sydney.

The video cassette is the most convenient audio visual training technology available. Its linear image retrieval is a limitation which good design and production can minimise. A major asset is the ability to record images, but I've seen no courseware that truly makes use of this advantage. □







The Arthur Young Self-Teaching videos cleverly use slow zoom, changes in camera angles and the like to break up monotonous head and shoulders monologue. A monologue this course is not — there is very nice timing and presentation of sequences and sample screens with an intelligent and lively narrative.

All prices include sales tax

"The Australia-wide mail-order software and board supplier for computer professionals . . ."

PROGRAMS PLUS

dBase III + **$875**	Lotus 1-2-3 **$599**	**Specials**	Wordstar 2000 + **$345**	Turbo Pascal **$139**
Windows **$99***	Javelin **$295**	Microsoft C **$780**	Multimate Adv II **$795**	Word 3.1 **$549**

IBM Software

MS Access	$399
MS Chart	$495
Chartmaster	$585
Clickart Personal Publisher	$289
Clipper	$875
Copy II PC	$89
Copywrite	$89
Dac Accounting	$199
dBase III Plus	**$875**
Desqview	$169
Diagram Master	$595
Fastback	$189
Fastgraphs	$395
First Choice	$299
MS Flight Simulator	$99
Framework II	$999
Graphwriter	$695
Harvard Presentation Graphics	$595
Harvard Project Manager II	$699
Icontrol UK	$99
Javelin	**$295**
Lotus 1-2-3	$599
Lotus Hal	$270
Lotus Manuscript	$795
Multimate Advantage II	$795
MS Multiplan	$369
Norton Commander	$139
Norton's Utilities 4.0	$139
Paradox	$995
Printshop	$103
Printworks DM	$129
MS Project	$649
Q&A	$629
Rbase System V	$1195
Reflex	$185
Sidekick NCP	$109
Sideways	$148
SignMaster	$395
Silk	$299
Superkey	$119
Super Calc IV	$650
Symphony 1.2	$895
Timeline	$595
MS Windows/Mouse	**$369**
MS Word 3.1/Mouse	**$799**
MS Word/Windows/Mouse	$899
Ventura Publisher	$1095
WordPerfect 4.2	$625
Wordstar 2000+	**$345**
X-Tree	$99
and much more . . .	Phone

IBM Hardware

Hyperace 286+	$880
AST Sixpak Plus (Desqview)	$495
AST Fourport/Xenix	$925
AST Rampage	$1250
DCA IRMA	$1795
Hercules Graphics Plus	$595
Intel Above Board AT	$965
Intel Above Board PC	$725
MFAX96 PC/FAX Card	$1599
Paradise AutoSwitch EGA	$795
Persyst BOB 16	$860
Quadram EGA+	$725
STB EGA	$549
Logitech Mouse	$199
Microsoft Mouse	$269
Xidex DSHD Diskettes (IO)	$49
and much more . . .	Phone

* When purchased with Word

Macintosh Corner

Filevision	$159
Flight Simulator	$99
Jazz 1A	$455
Dbase	Phone
MegaFiler	$269
MS Chart	$189
MS Excel	$699
MS File	$359
MS Works	$499
MS Word	$669
MS Multiplan	$349
Overvue	$399
Ragtime	$625
Reflex	$169

Programmer's Corner

Microsoft	C Compiler	$780
	Cobol Compiler	$1099
	Fortran Compiler	$780
	Macro Assembler	$330
	Quick Basic	$169
Borland	Eureka	$149
	Turbo Basic	$149
	Turbo C	$145
	Turbo Database	$109
	Turbo Editor	$109
	Turbo Lightning	$149
	Turbo Pascal	$139
	Turbo Tutor	$59
	Turbo Prolog	$149
B-Trieve		$550
BRIEF		$315
Dan Bricklin's Demo Program		$149
Modula 2/86 Plus		$315
Multi Halo		$605
P-link 86 Plus		$825
Large library of programs . . .		Phone

SEPTEMBER TOP 10

1. Lotus 1-2-3
2. Microsoft Word
3. dBase III+
4. Multimate Adv. II 1.0
5. Borland Turbo C
6. Borland Turbo Pascal
7. Mac Overvue
8. Microsoft Excel
9. Turbo C
10. First Choice

☎ HOTLINE: (08) 326 1313

8 / 230 South Road Morphett Vale SA 5162.
PO Box 80 Morphett Vale SA 5162.
Facsimile: (08) 326-1644

Phone now for our special Government and Corporate Price Lists for even bigger savings!

* All prices ***include*** sales tax and full factory warranty.
* Australia-wide delivery extra.
* Phone us first for any item.
* All software is latest release.
* Dealer enquiries welcome.

VISA MasterCard

All prices subject to availability E & OE.

PP-04-PCW PP-05-AUS

FREE SOFTWARE?

SPECIAL SELECTIONS OF PUBLIC DOMAIN AND USER-SUPPORTED SOFTWARE

Out of the thousands of Public Domain and User-Supported programs we have collected, for a small service charge of $15 we bring you a SELECTION OF THE BEST that have been carefully tested and documented. Suit IBM-PC and compatibles, 5¼", DOS 2 or greater.
Please note that in those instances where Basic is required, users should have Basica/GW Basic (not Basic2) or our shareware compatible version on disk M9001.
There is a separate catalogue for MacIntosh, CP/M and Amstrad (3"), Apple II and Commodore 64.

MS-DOS

Disk No.

GAMES

M1020+: MORE GREAT TRIVIA. A two disk set. Categories for science and nature, entertainment, sports and recreation, and general. $30.

M1022: SUPER COMPILED GAMES (3). Arcade type games. Includes Kong, Striker, Spacevade, Life2 and Frog. Needs CGA.

M1023: GREAT BASIC GAMES. Over a dozen, including Wizard, Xwing, Combot, Mars, Racecar, CIA. Requires Basic.

M1025: AMULET OF YENDOR — Adventure with graphics. 20 levels of play against many monsters and powerful magic. Choose your roles.

M1026: 5 TEXT ADVENTURE GAMES —of different types, including murder mystery, horror, pirate, etc.

M1027: SUPER HANGMAN. Challenged with quotations, riddles, music, words. Fascinating and educational.

M1028: SUPER COMPILED GAMES (4). Another excellent selection of compiled games, ready to run. Includes Flightmare, Solitare, Jumpjoe and more. Needs CGA.

M1030: PROVOCATIVE PICTURES (1). Collection of hi-res digitized naughty pictures.

M1041: GAMES OF STRATEGY (1). Match wits in a Naval Battle Simulation, Big Truck Haulage Business, and the Stock Market.

M1042: GAMES OF STRATEGY (2). Has Empire (War Simulation), Golf Tee, and Bermuda Triangle Sailing.

M1043: PROVOCATIVE PICTURES (2). Pin-up type posters to enliven the office. Needs Epson compatible printer.

M1044: MARTIAL ARTS. Match your skills against all sorts of villains and dangers.

M1045: EGA GAMES. World Domination for those with Enhanced Graphics Board.

M1046: SUPER COMPILED GAMES (5). With World Domination (Risk), Beast, Locust, Rockets, Subchase, etc. Needs CGA.

M1047: SUPER COMPILED GAMES (6). With Wheel of Fortune, Forest Fire, Zoarre Dungeons, Quarterback, etc. Needs CGA.

M1048: GOLDEN WOMBAT. Fine British text adventure searching for Lost Empire. Needs CGA.

M1049: MURDER MYSTERY. Puzzle your way through suspects and clues.

UTILITIES

M2007+: UNPROTECTION METHODS. Hints and programs that help you to back up a variety of copy protected programs. 3 disk set for $30.

M2012: DISK DOCTOR COLLECTION. Excellent debugging and file repair programs.

M2016: MENU SYSTEMS. Create your own menus. Contains Sysmenu, Automenu, EZMenu.

M2021: UNIX COMMAND SHELL. Control your programs with commands like those in Unix.

M2022: TSHELL DOS MANAGEMENT. Efficient environment for managing DOS. Help screens.

M2023: BATCH LANGUAGE ENHANCEMENT. More features and control in creating bat files.

M2027+: EXCEPTIONAL UTILITIES. With fast format, clock, alarm, disk wipe, colour as shades of grey, create files from memory, cursor speed-up, many more. $30.

M2038: DIAGNOSTIC AND TESTING UTILITIES. Extensive collection to test and report on performance of equipment and software.

M2040: HARD DISK MENU SYSTEMS. Comprehensive. Excellent choices for managing files.

WORD PROCESSING

M3007: SPELLING CHECKER. Works with most word processors. We've added thousands of new words incl. business/computer terms.

M3008: OUTLINER FOR WORD PROCESSING. Considered by many to be best ideas processor available.

M3014: SIDEWRITER. Generates printed output sideways to fit wide reports on to a page.

M3016+: WORDSTAR UTILITIES. Alternative and customer designed character sets, strip/alter text, number paras. 2 disks $30.

M3018: DIAGRAM AND TEXT EDITOR. Combine text with simple diagrams.

M3020: EXCELLENT WORD PROCESSOR. Galaxy is compatible with Wordstar, has clear, easily followed commands on screen.

M3021: QUALITY MULTI FONT PRINTING on dot matrix, incl Courier, Greek, Helvetica, Palatino, Roman, Italics, etc.

M7032: BEGINNER'S WORD PROCESSOR. Many good features plus a built in tutorial.

GRAPHICS

M4001: SELECTED GRAPHICS. Some of the best, including picture graphics of commercial standard.

M4009+: GRAPHICS FOR 123/SYMPHONY. Convert figures into business charts. $30.

M4011: ICON CREATOR. Prepare symbols and logo-type characters.

M4012: TALK ILLUSTRATOR. Easy to use special features for slide presentation.

M4014+: COMPUTER-AIDED DESIGN. Dancad3d will do complex drawing, 2 or 3 dimensions, print sharp lines for mechanical drawing, illustration, animate parts. We've squeezed 4 disks on to 2. $30. Needs CGA.

M4015: FULL FEATURES PRINT PACKAGE with pull down windows, icons, hires, 4 colours.

M4016+: GRAPHICAL ANALYSIS. Inputs data directly or from DBASEIII. Does statistical analyses, reports, charts. 2 disks. $30.

M4017: ONE-PAGE DESK-TOP PUBLISHING. Suits preparation of flyers, notices.

LANGUAGES

M9001: BASICA/GWBASIC COMPATIBLE INTERPRETER. Runs Basic programs written in industry standard Basic. Suits Amstrad 1512.

M5002: WINDOWS FOR BASIC & C. Gives windowing capability to your programs.

M5025: TURBO PASCAL DEBUGGER. Interactive, with pop-up help, formatters, etc.

M5026: MACRO ASSEMBLER. If you didn't get one, this is an excellent choice.

M5030+: TURBO PASCAL SELECTION. 3 disks with source code for windows, pass 64k limit, time/data, copy, format, interrupts, spell check, editor, random nos. etc. $30.

GRAPHICS

M61: GRAPHICS. Some of the best programs, including picture-graphics set of commercial standard.

M62: SLIDE PRESENTATION. Prepare transparencies for overhead slide projector. Great for illustrating your next talk.

M66: EXTENDED FONT CHARACTERS. PC-Font will give you the opportunity to produce existing documents in various font sizes and styles using a single command. Works with EPSON compatible printers.

M4009+: GRAPHICS FOR 123/SYMPHONY. Converts figures into business charts. Set of two disks — $30.

M4012: TALK ILLUSTRATOR. Easy to use special features for slide presentation.

M106: TERMINAL EMULATION. This program provides terminal emulation and communications facilities.

M109: COMMUNICATION — Kermit vers. 2.3. Excellent program for communication with bulletin boards and other computers.

M108: QMODEM. Can be used in multitasking environments. Qmodem can run efficiently from a window screen.

GENERAL, HEALTH, ETC

M9504+: RECIPE MANAGEMENT. Contains hundred of recipes and excellent searching facilities. Add your own recepies.

M9505: WORD FACTS AND FIGURES. Details of population, income, capitals, area etc.

M9507: NUTRITIONAL MEAL PLANNING. Plan varied meals, nutrition, substitutes, evaluate recipes.

M9508: GOLF SCORE. Keeps track of scores, putts, courses. Shows progress and averages. Needs BASIC.

BUSINESS/CALCULATION

M122: SPREADSHEET. Freecalc. Substantially upgraded vers. 2.0 suitable for home and business. Full documentation. Needs enhanced graphics board, such as Hercules or colour monitor.

M127: SPREADSHEET: PC/CALC. An extensive spreadhseet program by the author of PC-File III. Easy to use and well documented.

M130+: MATHS & STATS. Extensive collection of statistics functions eg: integration, binomial/quadratic/simultaneous equations and much more. Menu driven. Requires BASIC.

M134+: DEBTORS BILLING. A comprehensive system for maintaining debtors records, issuing notices and analyses, etc. two disk set $30.

M135+: FARM MANAGEMENT. A useful collection of BASIC programs to aid farm management in decision making. Includes computations for gestation and feeding, harvest and yields, live stocks diets, budgetting and loan calculation and more. 3 disks disks $45.

M139: PROJECT QUOTATION. Prepare EGA. Has worksheets for trend lines in diquotations for projects combining materials, parts, labour. Profit margins, etc.

M7019: POINT OF SALE. A system for point of sale control of stock/debtors/invoicing. Needs hard disk.

M7020: STATISTICAL TOOLS. A two disk set of utilities that contain the most used statistic routines.

M7021+: LOTUS UTILITIES — WORKSHEETS. A two disk set for printing formulae, installing EGA. Has worksheets for trend lines interest calc. Printing special characters, calc loans etc. $30.

M7022+: INCOME AND EXPENSE TRACKER. A reporting system with many nice features that show expenses and how much is left for you. Two disks $30.

M7023+: SINGLE ENTRY ACCOUNTING. A simple way to approach and handle general ledger, A/C's receivable, A/C's payable inventory payroll. Good documentation. Two disk set 30.

M7024+: PAYROLL SYSTEM. A versatile payroll system, contains sales and purchase ledger.

M7025+: LOTUS 123 UTILITIES & WORKSHEETS. Two disk set. Allows easier access to worksheets, contains cheque book, loan instalments, printer utilities, financial application, etc. $30

M7026+: SYMPHONY TIPS AND WORKSHEETS. A collection of 6 disks. Includes tips on using sidekick, transfering Multiplan data; applications for banking, insurance and medical. $60 instead of the usual $90.

M7027: PROJECT MANAGEMENT. Gantt charts. Produces presentations — quality Gantt charts.

M7028: MANAGING MONEY. Useful program that assists you managing your money and see your capital grow.

DATA BASE MANAGEMENT

M141: PC-FILE III. Very popular Dbase; suitable for sales, inventory, personnel, mailing lists. Will total columns and has excellent documentation.

M144: DBMS. A relational data base that allows more than one file to be open at a time.

SHAREWARE REQUIRED FOR INTERNATIONAL DISTRIBUTION

We have extensive marketing and distribution facilities locally and overseas and require quality software for international distribution. Adequate documentation should be on the disk. Please forward submissions to our Chief Executive at the address below.

CPM, APPLE II, MACINTOSH, COMMODORE 64

Call or write for free catalogue.

PUBLIC DOMAIN NEWSLETTER

For news, reviews, views and how to use public domain and user-supported software subscribe to our bi-monthly newsletter and keep informed on the free programmes that help your computer to serve you. Only $15 per annum. Includes updates to catalogue.

ORDERS: Each disk costs $15 (Macintosh $18). The price of sets is specified in adv. Add 20% Sales Tax to cost of disks plus $3 post/pack.

ORDERS MUST BE PREPAID

PAYMENT BY MAIL TO:
SELECT SOFTWARE,
Box C343 Clarence St PO Sydney,
NSW 2000
(Office: 3 Barrck St, Sydney)

TELEPHONE ORDERS:
(02) 29 2866, (02) 29 3810
Pay by Bankcard, Mastercard or Visa.

NZ ORDERS: (054) 84 622

MORE PC PROGRAMMES FOR ONLY $3!

From the thousands of programmes we have collected from public-domain and user-supported software we bring you a special selection of the best utilities available – special purpose programmes that you may choose in any combination that you wish.

Choose any number for only $3 each (service charge), with a minimum of five programmes, and we transfer them on to one (or more) of our disks for you.

We include source coding where possible. The programmes are documented, where required. Disks are formatted for MS-DOS ver 2 or greater. 360k 5¼" and 3½" disks.

Programmes are intended for IBM-PC or close compatibles. If Basic is specified then Basica or GWBasic is required. Most programmes are compiled.

EFFICIENCY WITH FILES AND COMMANDS

U14. FAKE A KEY to provide the input expected when batch processing.
U15. MULTI-CHOICE MANAGER. Very cleverly apportions memory so that you can switch between three files.
U16. SOUND A TUNE that lets you know a stage has been completed in batch processing.
U17. REQUESTS INFORMATION in batch file processing. A timed ask utility.
U18. MULTIPLE FORMATTING of disks. Lets you format a lot at same time.
U19. SMALL, FAST SUPER DIRECTORY. Lists directory in 2,4, 6 columns, sorts, etc.
U20. SORTED DIRECTORY. Screen listing that automatically shows hidden files and offers 2 or 4 columns. Various sorts.
U21. PERMANENT DIRECTORY SORT. Resorts your directory and saves it to file. Will work on subdirectories and hard disks, as well as floppies.
U22. SUBDIRECTORY LIST. Shows subdirectories in a given directory.
U23. SPACE ALLOCATION. Combines Dos Tree and Dir commands to show amount of space to be allocated when files transferred to hard disk.
U24. FILE MANAGER with execution facility for running programmes. Will also copy, view, delete, etc.
U25. MEMORY-RESIDENT FILE MANAGER with multiple windows, variable size. Needs CGA card.
U26. BATMAKER. Creates bat files containing all matching files. This is great when using Find in a text search.
U27. MENU PROGRAM. Allows for tailor made menus. Good screen appearance.
U28. GO TO DIRECTORY directly on a hard disk. Reduces amount of keyboard work.
U29. SECONDARY DOS. Lets you suspend currently executing application and invokes a secondary Dos command processor so new commands can be executed.
U30. ALLBUT the programmes you specify can be acted on. Eg, delete, copy, etc.
U31. MEASURE the time your computer takes to execute commands.
U32. DISK ERROR MONITOR. A resident programme that monitors disk errors and gives more information than the abort/retry/ignore message.
U33. REMEMBER COMMANDS. Remembers last 50 commands which may be edited or executed.
U34. RENAME A DIRECTORY.
U35. DISPLAY COMMENTS FROM CONFIG.SYS file when booting up.
U36. BUILD DIRECTORY FILE WITH COMMENTS. Has asm source code so that you can tailor to own needs. Produces list of files with size, crc, file no. and space for comments.

FILE PRINTING/EDITING

U130. PRINT ITALICS. Set printer for output in italics. Epson compatible.
U131. PRINTER RESET. Resets printer to power-up mode.
U132. GRAPHIC SCREEN DUMP for Epson compatibles.
U133. SET 51 LINES PER PAGE on Epson compatible computer.
U134. SET 132 COLUMNS PER PAGE on Epson compatible computer.
U135. SET UNDERLINE MODE on Epson compatible printer.
U136. SET COMPRESSED PRINT on Epson compatible printer.
U137. SET ENLARGED PRINT on Epson compatible printer.
U138. SET WIDE PRINT on Epson compatible printer.
U139. SET EMPHASISED PRINT on Epson compatible printer.
U140. SET EXTENDED CHARACTERS on Epson compatible printer.
U141. PRINT SPOOLER. Creates a 16k buffer in memory, which allows you to do other work whilst printing.
U142. DISK-BASED PRINT SPOOLER. Uses capacity of disk as buffer for printing, allowing you to continue with other work.
U143. SEND ESCAPE (ESC) SEQUENCES as part of command, such as for printing.
U144. WORD FREQUENCY. Counts number of times each word is used in a text file.
U145. FAST WORD COUNT. Provides count of words, characters, lines, plus a mathematical check sum, which allows you to compare text files for changes.
U146. APPOINTMENT REMINDER. Stores data on disk like a daily appointments diary. Prints details of next 7 days.
U147. PRINT WITH NUMBERED LINES. Great for listing source coding.
U148. SIMULTANEOUS EDIT of multiple text files. Lets you make the same text changes to several files at once.
U149. WORD LENGTH ANALYSER. Checks the length of words in text and compares with readers' level of schooling.
U150. TEXT CHECKER. Examines Wordstar files for typing errors such as missing brackets and quotes.
U151. TEXT FILE SORT. Fast and works with very large files.
U152. LIST NON-ASCII BASIC FILE without loading Basic. Also helpful for listing if you don't have Basica/GWBasic.
U153. PAUSE LISTING so that printer will produce 55 lines on a page.

EQUIPMENT HANDLING

U406. CONTROL BACKGROUND/FOREGROUND COLOURS as displayed on your monitor.
U407. HARD DISK PERFORMANCE TEST. Checks the running of hard disks.
U408. COMPUTER LOG to keep track of amount of time of computer usage, how time spent.
U409. ELECTRIC TYPEWRITER. Converts computer into electric typewriter (for notes, envelopes, etc.).
U410. KEYBOARD OPTIMISER that will set cursor size, give type ahead buffer, more. Easy to use command line editing.
U411. MAP RESIDENT PROGRAMS. Shows program addresses, possible conflict.
U412. TRACK MEMORY as programs are running. Has windows and more.
U413. MEMORY ORGANISER. Determine, mark, release, allocate, display memory. Shows how files are loaded in memory.
U414. MULTI-SCREEN. Allows output to be directed to more than one screen. Needs CGA. Multitasking features.
U415. NEW ANSI.SYS that may aid screen presentation and allow faster execution of many functions.
U416. BLACK & WHITE MODE can be switched on colour graphics card.
U417. TIMEPARK HEAD of hard disk after a specified time has elapsed.
U418. SET 40 or 80 screen columns BW mode on colour systems.
U419. STATUS REPORT on system, including information about drives, memory available.
U420. SPEED TEST (1) checks processor speed and compares with IBM-PC. Similar to Norton test.
U421. SPEED TEST (2) checks computer speed in two areas, including Sieve calculation and track to track access time, and compares with IBM-PC.
U422. SPEED TEST (3) comprehensive checks on processing, including block write, register/memory, multiply, divide, stack operations, far jumps, etc, and compares with IBM-PC.
U423. RAM TEST. Tests and tests and tests ram. Identifies faulty memory.
U424. DOS ENVIRONMENT VARIABLE EDITOR. Make changes to edit path, prompt, etc.
U425. EXPAND DOS ENVIRONMENT SPACE TO 1K.
U426. FLIP ON/OFF (TOGGLE) DOS PARAMETERS. Works on several standard Dos parameters.
U427. WHAT PROCESSOR? Examines and identifies the processor/s being used, such as 8088, 8086, etc.
U428. WHAT DEVICE DRIVERS? Examines and reports on devices (eg ports) installed in your computer.
U429. WHAT DOS CONFIGURATION? Examines and reports on memory, vector addresses, and statistical information about version of Dos you are using.
U430. WHAT EQUIPMENT? Examines your equipment and reports on the installed drives, type of cards (eg, printer, colour, mono, RS232) etc.
U431. EDIT RAM STORAGE in your computer.
U432. DRIVE STATUS. Reports on no. of bytes, sectors, clusters-what capacity is and how much is free.
U433. DIAGNOSTICS. Performs large number of computer diagnostics and reports on serial, parallel ports, video, etc.
U434. DRIVE TEST. Floppy disk test drive utility.
U435. SLOW AMSTRAD 1512 Programs e.g. games that run too fast.

FILE MOVING

U511. HARD DISK UNERASE. Exceptional features. Most unerase utilities don't work on hard disk – this one does!
U512. DELETE ALL BUT those programs you identify.
U513. INTELLIGENT COPY PROGRAM that creates sub-directories as part of the transfer. Also renames rather than over writes.
U514. SUPERIOR COPY PROGRAM that checks and evaluates target before copying. Eg, copies last dated version.
U515. UNIQUE COPY PROGRAM with same function as £.£ but does not copy those already on target disk.
U516. TREE SURGERY. Prune files unwanted/ duplicated on hard disk. Has source code and compares files with the same name.
U517. KILLDIR. Delete a branch of a directory. Reduces steps and saves time.
U518. MOVE DIRECTORY around if you prefer it stored in different location.

FILE ORGANISATION & CHECKING

U611. BOMB ALERT. Examines new files for malicious intent and reports on possible danger to other files.
U612. BASIC MENU GENERATOR. Better access to your Basic files through a menu. For Basica/GWBasic.
U613. UNSQUEEZE ARC FILES. Small, efficient utility that occupies less space and is simpler to use than Arc.Exe.
U614. HARD DISK OPTIMISER. Related group of files that optimise hard disk usage and eliminate file fragmentation. Helps pack the disk.
U615. FILE RE-ORGANISER. Regroups a fragmented file into contiguous sectors on a disk for more efficient disk access.
U616. RECOVER BAD SECTORS. Re-records data on disk. Does 12 retries and thus may recover bad sectors.
U617. COLLECT BAD SECTORS. Marks bad sectors for collection into a separate file that will not be used. Works with floppies and hard disk.
U618. ADVANCED COMPARE facility that can save as edlin script, generate and update deck.

SPECIAL FEATURES

U805. PREPROCESSOR FOR "C" COMPILERS. Has "C" source and helps organise coding into efficient form for compiling.
U806. VOICE EMULATION. Compiled with Basica source module which allows extensions, revision or use as tutorial.
U807. DEMONSTRATION OF COMPUTER GRAPHICS for those who have CGA.
U808. DAYS SINCE JAN 1ST. Calculate no. of days elapsed since beginning of year. Needs Basica/GWBasic.
U809. BINARY FILE CONVERTER. Converts files from machine language to hex equivalent for examination and modification.
U810. CAPTURE BIOS contents and store in a separate file.
U811. EXPLORE FAT (FILE ALLOCATION TABLE). Shows the table entries, starting clusters of files, etc.
U812. MINICALC. A small, easy to use spread sheet with 11 x 22 cells for quick every day use.
U813. PROGRAMMER'S CALCULATOR which does special hex and other calculations for those writing programs.

ORDERS:

The service charge for each programme is $3. There is a minimum charge of $15 (five programmes). Add 20% Sales Tax plus $3 for postage and packaging.

ORDERS MUST BE PREPAID.

PAYMENT BY MAIL TO:
SELECT SOFTWARE, Box C343, Clarence St, PO, Sydney NSW 2000 (Office: 3 Barrack St., Sydney, NSW)

TELEPHONE ORDERS:
Pay by Bankcard, Mastercard or Visa. (02) 29 2866, (02) 29 3810, Fax (02) 262 1290.

We cannot guarantee the suitability of programmes for users needs or equipment.

CIRCLE NUMBERS BELOW AND SEND TO US WITH PAYMENT AND YOUR NAME AND ADDRESS. OR TELEPHONE US WITH THE PARTICULARS. SEE ABOVE.

14 15 16 17 18 19 20 21 22
23 24 25 26 27 28 29 30 31
32 33 34 35 36 130 131 132 133
134 135 136 137 138 139 140 141 142
143 144 145 146 147 148 149 150 151
152 153 406 407 408 409 410 411 412
413 414 415 416 417 418 419 420 421
422 423 424 425 426 427 428 429 430
431 432 433 434 511 512 513 514 515
516 517 518 611 612 613 614 615 616
617 618 805 806 807 808 809 810 811
812 813 435

Are you interested in a career in computers? Will combining your degree help you specialise in a computer application? Then, our survey of tertiary computers courses will help you choose a course . . .

Courses for a

SO YOU WANT to study about computers? Well, the industry is still crying out for programmers, so job prospects look good for a while. This does not mean, though, that it's easy to get into a computer course since there is still an acute shortage of funds for computer equipment, so only the most studious will get into the courses.

The most interesting, recent development on the education front is the establishment of the Computer Technology Advanced Certificate in New South Wales at Technical and Further Education Colleges (TAFE's). The certificate will provide students who leave high school in year 10 with programming training and could lead to university entrance to one of the computer science courses. The course will run for two years for full time students, and four years for part time.

It will be augmented with the Associate Diploma in Electrical Engineering (Computers) again for Colleges, for HSC leavers or graduates of the Certificate course.

The Computer Technology Advanced Certificate will allow entrance for the Associate Diploma — a Diploma which is set up to be standard across the country — or on to an institute, or eventually, a university computer degree.

A word of warning to those choosing their courses or deciding to leave school in year 10 — check to see if the college has the Certificate or Diploma, which are starting next year. To run the courses, the Colleges have to satisfy a minimum standard of facilities, such as hardware, software and lecturer knowledge.

Many Colleges have had to specialise, and since a computer course costs a lot in equipment, they can only offer limited degrees. Sydney Technical College, which has been heavily involved in the establishment of computer courses in NSW, offers the first two years of the four year Diploma, while St George Tech offers three years, Meadowbank one year and Granville the whole course, but with restrictions.

For NSW, North Sydney is the only College to offer the whole course and the Computer Service Certificate, which is designed for companies like Telecom which need Technician type people trained on computer equipment.

The Royal Melbourne Institute of Technology has a similar set up to North Sydney Tech and provides a full comprehensive course.

Another interesting development for NSW is the setting up of a Computer School of Information Processing, which will specialise solely in computer studies. It is to be located in Crows Nest, in Sydney's North Shore district.

Segregation

The difference between the colleges and the institutes is found in the segregation of courses. The colleges tend to link their courses to the hardware and practical electronics side, although the new course will tie computers closer to each lesson.

The institutes are more specialised in computers, and offer full computer based training, in a programming oriented course.

For students looking at going to university, they will find the courses very theory orientated. But — if you are into the 'heavy' side of programming, specialised applications and research and development, then universities probably offer what you need.

Universities

Most universities aim to develop elementary programming skills in the first year of their courses. This encompasses everything from learning programming languages to, in the case of Sydney University, analysis of problems and problem specification, design of solutions, testing and evaluating programs, and writing technical descriptions of programs and other documentation.

Algorithms and their function are covered early in the courses at most universi-

Sydney University

Address: Sydney University
Broadway, Sydney 2001 NSW
Phone: (02) 692 2222
Prerequisites: The NSW Higher School Certificate 2 Unit maths. (In 1988 a knowledge of 3 Unit maths will be assumed by lecturers.)

Australian National University

Address: Australian National University
Canberra 2606 ACT
Phone: (062) 49 5111
Prerequisites: Varying score in the university entrance exam for final year students.

University of NSW

Address: University of NSW
Anzac Parade, Kensington 2033 NSW
Phone: (02) 697 2222
Prerequisites: Computer Science students need a pass mark of 71 per cent of the NSW HSC strand of 2 unit mathematics, 3 unit of 21 or better, or 4 unit mathematics. For Electrical Engineering you need the addition of 2 unit Science (Physics) 31 or better, or 4 unit Science (Multistrand) 31 percent.

University of New England

Address: University of New England
Armidale 2351 NSW
Phone: (02) 211 5030
Prerequisites: An understanding of maths

University of Adelaide

Address: University of Adelaide
North Tce, Adelaide 5006 SA
Phone: (08) 228 5333
Prerequisites: Not supplied

Murdoch University

Address: Murdoch University
South Street, Murdoch 6377 WA
Phone: (09) 332 2211
Prerequisites: Courses for specialising in Computer Science cover the major areas of programming, hardware, systems applications and the role of computers in society.

Computer Career

Computer Science is 'the study of design, construction and uses of computer systems.'

ties, providing the framework for later courses.

Put simply, Computer Science is 'the study of design, construction and uses of computer systems.' — according to the University of New South Wales' Handbook on Computer Science Courses. Most universities use a similar definition, although each one will emphasize a different aspect of computing, depending on its facilities.

In Western Australia the universities provide basic studies that are assumed to have been thoroughly covered in high school by most other universities; for example, they do not put much emphasis on having done maths in high school. Instead they provide various courses that are 'advised parallels' to Computer Science.

Some Universities specialise in pragmatic and theoretical topics of computers rather than the specific applications. This can sometimes be difficult to judge from handbooks, so, if you're considering a course, *talk* to someone at the university to find out exactly what is offered — better still talk to graduates, especially those who have joined the workforce. They'll be able to offer some perspective on the relevance of the courses they took.

Sydney University

Students with only 2 Unit maths are required to take a bridging course to help them understand the computing stream. A parallel stream of Mathematics courses is required to complete the professional Computer Science course.

The principle computer courses are Computer Science I to Computer Science III. Economics students have a separate, three course branch, Computer Science IIIE.

Computer Science I is an introduction to Computer Science. First year students learn on a bank of Macintosh computers. The programming language is Pascal, like other universities.

Computer Science II is an intermediate course which can be linked to the Faculties of Science, Economics and Engineering. It can also be taken as a second year course for students doing Arts. Computer Science I is a prerequisite.

The course comprises Programming, Digital Logic, Machine Principles and Operating Systems, Theoretical Computer Science, Numerical Methods, and Languages and Translators.

Computer Science III covers Database Systems, Software Engineering Theory, Computer Architecture, Communication and Networks, and Operating Systems.

For those who only want 'a level of competence' in computing, there is the one year General Computing Studies course which provides an understanding of software packages in use on microcomputers.

A Diploma in Computer Science is offered for students who have not passed their third year of Computer Science but have an adequate background in computers or only finished two years of a Computer Science course at another university. Pre-requisites are Computer Science II and Mathematics II, or their equivalent.

Computer Facilities at the University of Sydney are extensive, and include — two 4 Megabyte DEC Vax 11/780s with 1 Gigabyte of disk storage, a tape drive and a large number of terminals, a PDP11/84 with 160 Mbytes of disk storage and 1 Mbyte of memory, a Burroughs B1985 twin processor with 434 Mbytes of disk and 2 Mbytes of memory, a Sun Workstation with 134 Mbytes of disk and 1 Mbyte of memory, and black and white colour bit mapped displays (used for VLSI design). Plus, 75 Macintoshes (used for first year students), an Apple Lisa 2/5 with 5 Mbytes of disk and 1 Mbyte of memory, Imagen Laser printer and Apple Laserwriter, Puma 500 computer controlled robot arm (used for fourth year robotics), and access to Csironet and the ACSnet (the interstate university link up system).

University of NSW

The University of NSW has five undergraduate courses which involve the study of computer science. The courses are Science and Mathematics, Electrical Engineering, the Combined Course in Science and Engineering, the Combined Course in Science and Law, and Arts. ▷

University of Tasmania

Address: University of Tasmania
GPO Box 252C, Hobart 7001 Tas.
Phone: (002) 202 101
Prerequisites: A pass in at least six HSC subjects in a maximum of two sittings. Four of these have to be level III passes from an approved list.

Flinders University

Address: Flinders University
Sturt Road, Bedford Park 5042 SA
Phone: (08) 275 3911
Prerequisites: A good final year pass, with maths preferred.

University of Western Australia

Address: University of Western Australia
Mounts Bay Road, Crawley 6009 WA
Phone: (09) 380 3838
Prerequisites: Maths is not a prerequisite, although the logical training the maths gives is considered helpful to understanding the course and computers. Mathematics I is advised, although II and III are preferred.

Monash University

Address: Monash University
Wellington Road, Clay 3168 Vic.
Phone: (03) 541 0811
Prerequisites: A varying good pass in maths

La Trobe University

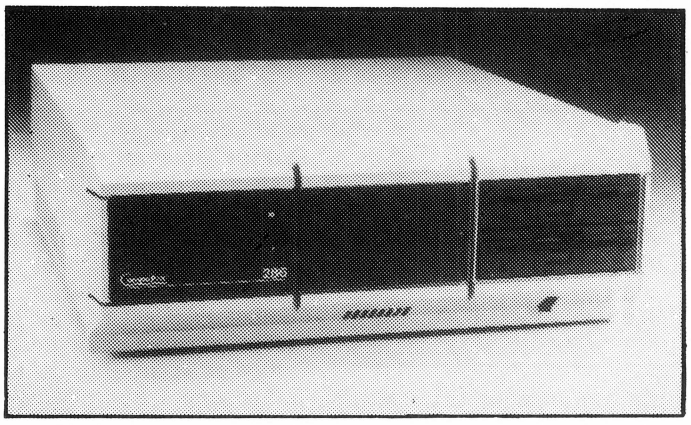
Address: La Trobe University
Bundoora 3083 Vic.
Phone: (03) 478 3122
Prerequisites: A grade D or higher in four approved group 1 subjects, in one sitting of the Victorian Higher School Certificate. The subjects must include English and at east one mathematics subject. If General Mathematics is chosen then a grade C or higher is necessary.

University of Queensland

Address: Dept of Computer Science
University of Queensland,
St Lucia 4067 Qld.
Phone: (07) 377 1111
Prerequisites: Senior Maths I

The Ultimate Concurrent Engines

PERFORMANCE
QUALITY
RELIABILITY



MP14:	• *11 Processors* • *5 megabytes of RAM* • *2 megabytes of MDRIVE® (solid state disk emulator)* • *18 Ports*
286/80:	• *4 Processors* • *1.25 megabytes of RAM* • *.5 megabyte of MDRIVE®* • *11 Ports*
286/40:	• *2 Processors* • *1 megabyte of RAM* • *.5 megabyte of MDRIVE®* • *11 Ports*
MP4:	• *6 Processors* • *1 megabyte of RAM* • *8 Ports*
ARCNET:	• *Novell® Certified! "Net Ware® Tested"* • *Digital Research DRNET Tested and Certified* • *PCNIOS available for use with DRI's Concurrent DOS* • *CPLINK available for use with PCDOS/Concurrent* • *License and training available*

All CompuPro Systems include CompuPro Concurrent DOS 5.0.

AUTOMATION STATHAM PTY. LTD.
47 BIRCH STREET
BANKSTOWN 2200
PHONE: **709 4144**

CompuPro™

Computer Courses



Most computer science students are enrolled in the Science and Mathematics course. Computer science is part of the core of their course. The Computer Science course, which is common to all students with computers as a component of their course, is conducted over two semesters.

Students in the Electrical Engineering course have the option to add a year, if they have performed well in the first three years — this will give them two degrees, a Bachelor of Engineering and Bachelor of Science. The Science/Law and Arts students can also take Computer Science as a strand of their studies, while the Bachelor of Commerce course has the computer element taught by the Department of Information Systems within the School of Accountancy.

Session one entails Computing 1/11, Operating Systems, Design and Analysis of Algorithms, Computer Applications, Business Information Systems, and Digital Systems.

The second session comprises Computing 1 (for Electrical Engineering students only), Computing 11, Computer Organisation and Design, Databases and Networks, Compiling Techniques and Programming Languages, Computer Science Elective (VLSI design), and Computer Organisation and Architecture.

The Electrical Engineering students have a branch course which consists of Computing, Digital Logic and Systems, Microprocessor Systems and Applications, Computing Application and Software, Computer Systems Engineering, Data Communications and Computer Networks, and Operating Systems and Compilers.

The University is very well provided for with a Vax 11/780 computer (6.5 Mbytes of main memory, and 528 Mbytes of disk storage), two PDP11/70 computers (640 Kbytes of main memory, and 256 Mbytes of disk storage, and the other with 1 Mbyte of main memory and 176 Mbytes of disk storage). There are now also more than 100 interactive video terminals.

To augment this, there is a PDP11/34, PDP11/35 and a Pyramid 90X. The Pyramid is for research and development projects by the staff and senior students of the Department of Computer Science, and the PDP11/34 provides software support and file storage for the School's Digital Systems Laboratory and contains more than a dozen microcomputer application development systems.

Languages used include Pascal (principal language), C, Modula-2, Lisp, Prolog, Macro Assembler Fortran, and Cobol. For students using Simula and APL, there is the university's central computer system, a Cyber model 171, and four Vax systems running under VMS.

The university is set up primarily for full-time students, devoting most of their resources to producing graduates who can settle in large computer installations, or software development houses. The part-time student has to be able to vary working hours in the final years of the course to accommodate day courses.

University of New England

At the University of New England, the Computer Science course is closely linked to the Bachelor of Science course.

The Computer Science course takes three years. The first year covers Pascal Programming, Design of Algorithms, Computer Architecture, Numerical Analysis, File Manipulation and Fortran. Second and third year students are treated to a more indepth look at those topics, as well as data structures, system software, compilers, Unix and C, operating systems, Cobol, business data processing, theory of languages and automata, complexity theory and intractability.

Eight science units must be completed before enrolling for the Diploma in Computer Science. Other prerequisites are the Second year Computer Science course, and courses counting 12 units towards the degree of Bachelor of Science.

University of Western Australia

First years students start their course on one of 40 512K 'Fat Mac' Macintosh computers, and move on to IBM PCs (linked to a Vax) in the third year. Minis and micros are spread throughout the university, which has access to the large machines of the Western Australian Regional Computing Centre.

Computer Science 100 is a full unit and is split into two segments, the first dealing with programming in Pascal. The complete language is covered with an emphasis on practical work using the 40 Macs in the MacLab. The course requirements state that students must complete three projects including graphics projects during the year.

The second part of the course deals with the hardware and software interaction of computer systems. The course is broadly based covering everything from logic gates, through essential software such as compilers and operating systems, to a wide range of current and future applications.

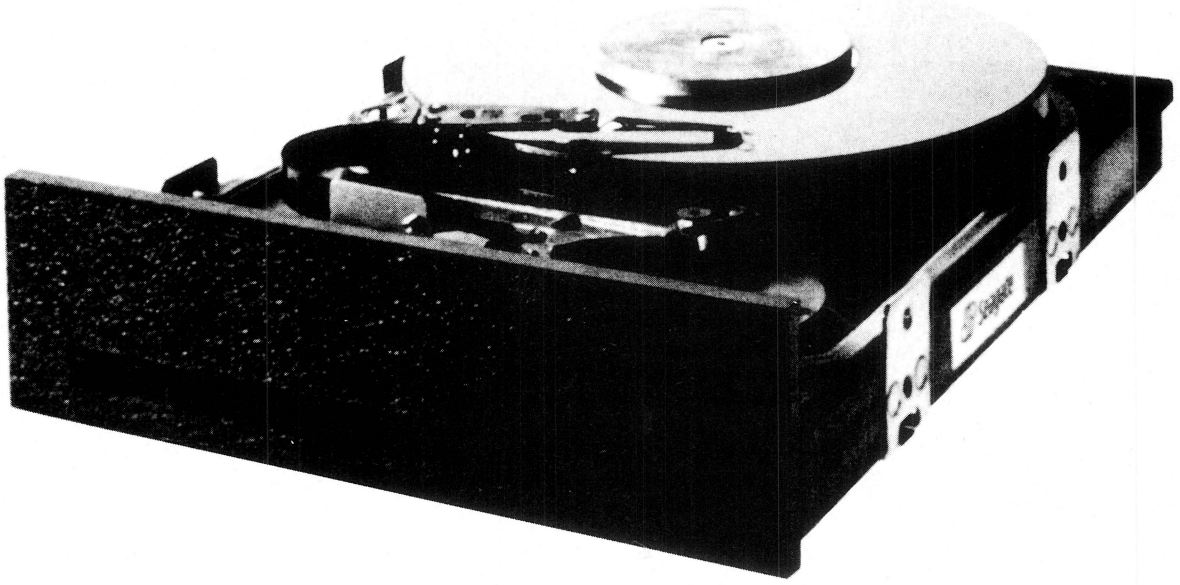
The University also runs the Computer Science 105 course which is a half-unit, intended for students who want to learn to program and to use computers effectively, but who don't intend to major in Computer Science.

This course can also be combined with various Maths half-units to form the Mathematical Science Courses. The course covers word processing, spreadsheets, and graphics as well as Pascal programming.

Australian National University

The first year of the computing course covers practical topics such as data structures, programming languages, machine architecture and organisation, operating systems, and networks. The theoretical side of the course covers discrete mathe-

THE ONLY DRIVE WORTH ASKING FOR BY NAME.



We'll let you in on a secret. If the small computer you're using has a hard disc drive memory, chances are that drive was made by Seagate.

There's a reason for this—actually over 2½ million reasons. (That's the number of hard disc drives Seagate has shipped to quality-conscious customers throughout the world.)

Why are we telling you this?

So you can be sure you get Seagate quality in your new computer, disc memory upgrade or add-on.

The name on the outside may be different, but now that you know the difference, make certain that the name on the inside is SEAGATE.

20 MBYTE (FORMATTED SIZE)
WITH CONTROLLER & CABLES
$650.00 TAX INCLUDED

30 MBYTE (FORMATTED SIZE)
WITH CONTROLLER & CABLES
$725.00 TAX INCLUDED

HYPEC
ELECTRONICS
HYPEC ELECTRONICS PTY. LTD.,
21 Ryedale Road, West Ryde NSW 2114
PO Box 483 Ryde, Sydney NSW 2112
Tel: (02) 808 3666 (4 lines)
Cable: LAMRON SYDNEY. FAX: (02) 808 3596
Telex: AA71551 HYPEC
TELEPHONE ORDER HOTLINE:
(02) 808-3666
Bank cheque, money order, Visa, Bankcard & MasterCard accepted.

Also suppliers of: NEC — MAXTOR — MINISCRIBE — TANDON — Phone for prices

Seagate

matics, analysis of algorithms, theory of automata, system theory and formal languages. ANU has set up its courses with the aim of providing theory, design and application of computers.

The Computer Science Department at ANU emphasises the pragmatic and theoretical topics of computers, rather than specific applications. For students considering study at ANU, most other courses at the University can be linked with Computer Science to create specialised fields.

The course itself, and combined courses, include one and two semester introductory courses, the three year degree course, and a four year honours program, and post graduate diploma. The university also offers its facilities to Master and Doctorate students for research work.

The undergraduate course is primarily programming based, with students having to pass many programming assignments to progress. To move through to the second year of Computer Science, students must also pass the Mathematics and Statistics prerequisites.

Second year students, who are specialising in Computer Science, have their course broken up into three Computer Science subjects and two Mathematics subjects. The course consists of Design and Analysis of Algorithms, Computing Structures and programming languages (a prerequisite to go onto the final year in computer studies), and the Architecture of Computer Systems.

Third year is varied — Numerical Computing, Information Systems (necessity for students specialising in Computer Science), Functional Programming and Denotational Semantics, Operating Systems, Software Engineering, Compiler Construction, Computability Theory, Computer Graphics, and Computer Networks.

An interesting feature of the university is the availability of a non-degree enrollment course which allows students with an 'adequate' background in computing access to the course on a non-degree basis.

Students doing the Honours course, can combine it with a Bachelor of Science, Arts and Economics.

The ANU Computer Centre comprises a Univac 1100/82, a Facom M160, a Vax-11/780 graphics system, and a Pyramid 90X Unix system with a PDP11/45 configured as a controller for the ANUNET network. Access can be had to the Univac and a terminal and plotter linked to the Graphics Vax, in a room that houses a remote batch station and terminals.

The Centre is also responsible for two Vax11/780s NS Pyramid 90X computers, while the Computer Science Department has its own Burroughs B1860 which is used for research into computer architecture, a Pyramid 90X used for support of teaching laboratories, and a network of Sun workstations used to study advanced program development environments.

Flinders University

First year students are introduced to methods of designing algorithms and data structures for information processing tasks. Pascal is used and there is an introductory course for those who don't know it. Second Year comprises Data Structures, Information Systems, and Program Structures.

The final year covers Artificial Intelligence, Program Language Concepts, Database Management and Applications, Language Translators, Computer System 2 and Theory of Computation.

Terminals connected by a Primenet network to four Prime 2250 computers are used in first year. Each Prime has the Primos operating system, 2 Mbytes of memory, and a 68 or 128 Mbyte disk cartridge tape drive.

Second year students have the benefit of a Sun 3/280 Unix operating system, 16 Mbyte memory, 830 Mbyte disk, 9 track tape drive, connected to the Pyramid via Ethernet. Third year students are provided with a Pyramid 90X Unix operating system, 8 Mbytes of memory, an 830 Mbyte disk 9 track tape drive with Ethernet connection to a Sun.

University of Tasmania

First year students in the Computer Science course are treated to a heavy emphasis on programming, mainly Pascal. The University has taken the general approach in treating first year students as having no knowledge of computers, and starts from the basics.

The students attend 40 lectures with the aim of making them competent programmers. First year students have the chance to try out their programs on equipment in the Department's First Year Computing Laboratory. Hardware lessons are conducted over 25 lectures which include a simple programming lesson in a programming language called Mini-11.

The final part of the first year course is a look at logical thinking and theory. The course introduces abstract logic in such a way as to encourage the methodical thinking required for more advanced parts of the course. For students looking to advance, there is a prerequisite of completing certain Mathematics courses.

The first year course takes up a quarter of the students' time; it's suggested that another quarter be given to Mathematics. The remaining time is spent studying subjects which will be combined with computing to create a specialised application.

For the Bachelor of Arts Information Studies Course, you must pass Level III Mathematics. Combined courses are available.

The University has invested in a variety of computer systems which are grouped depending on their functions. The general purpose computer systems include a Digital Vax 11/750 running Berkeley Unix 4.2, an Olivetti 3B2/300 running Unix V.2, 23 Digital Rainbow PCs running the UCSD p-System, 10 Apple Macintoshes (including 3 XLs) with AppleTalk.

The main systems, installed in 1986, consist of a Prime 9955 running Primos and Primix, and a Prime 750 running just Primos which are connected by Primenet.

The Computer Centre operates a Micom terminal exchange to which terminals are connected. There are dial in ports on the exchange and the network is connected to Csironet and Austpac. There are node facilities on ACSnet and Spearnet allowing electronic mail exchange with other computer science departments in Australia and overseas.

University of Queensland

The first year course comprises an Introduction to Computer Science, Programming Principles, Introduction to Fortran Programming (for Bachelor of Economics students only), Introduction to Information Systems 1, and Introduction to Information Systems 2.

Second year students study Computer Organisation, Software Development, Data Structures, Information Systems Analysis and Design, Data Base Management Systems, Theory of Programming Languages, Systems Programming Languages, Declarative Programming, Computer Logic, and Theoretical Foundations of Computer Science. ▷

EARTH

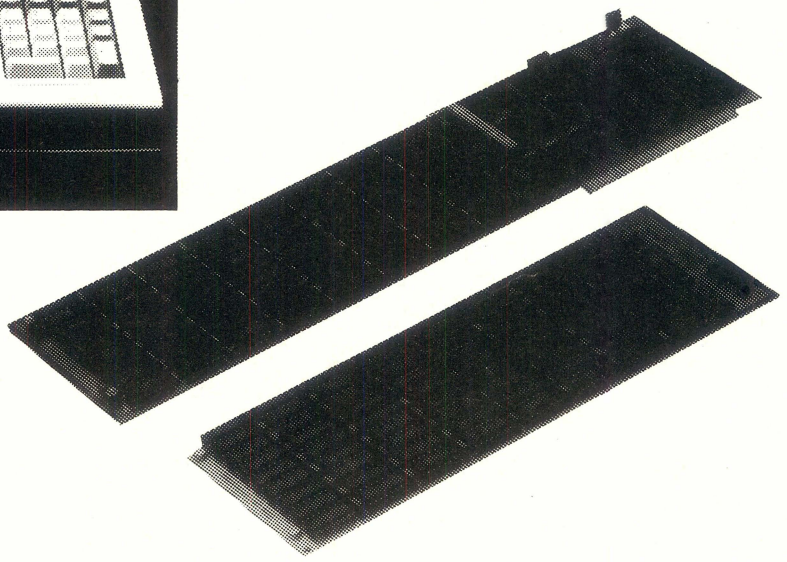
Earth Computer Systems ECS range are the fastest XT compatible computers available. The user is provided with the ultimate in processing performance with access to the very wide range of XT usable software available, yet processed at speeds far greater than that of AT type computers. This performance is available from just $3995 ex tax.*



The Earth Computer Systems Extended Memory Module (EMM) and Expansion Card (EMMX) allow for 4 Mbytes of EMS compatible memory in one PC/XT slot.

By conforming to the LIM-EMS specifications, 100% compatibility with LOTUS-123, MICROSOFT WINDOWS and many other applications is assured.

Configurations from 1 to 8 megabytes are available, prices start at $650 ex tax for 1 megabyte.



EARTH
COMPUTER SYSTEMS

2/15 Brisbane St, Eltham, Vic. 3095.
Ph (03) 439 4900 FAX (03) 431 1425

***ECS 286-20, 25 Mbyte Hard Disc, 10 Mhz 80286, 640 Kbyte RAM, 2 serial, 1 parallel, 1 F.D.D., MSDOS, GW BASIC**

Year three consists of Operating Systems Principles, Operating Systems Programming, Computer Systems and Architecture, Information Systems Implementation, DBMS Construction, Applications Programming, Compilers, Computer Subsystems, Networks and Communications, Microcomputers, Computer Graphics, Principles of Artificial Intelligence, Modelling and Simulation, Computational Complexity, Semantics and Correctness, and Software Engineering Project.

For students entering the diploma course, the subjects encompass Computer Organisation, Software Development, Data Structures, Information Systems Analysis and Design, Database Management Systems, Theory of Programming Languages, System Programming Languages, Computer Logic, Introduction to Information Systems 1 and 2, and Theoretical Foundations of Computer Science.

A broad range of languages are used in the course comprising Pascal, Fortran, Modula-2, Assembly Language Programming on the PDP11, SQL, Cobol, and Artificial Intelligence.

Murdoch University

To specialise in specific applications, Murdoch has set up elective courses which provide students with a chance to apply computers to their others studies, similar to other universities.

Courses linked to Computer Science can be mathematics, physics, psychology and mineral science. Programming is carried out using Basic, Fortran, and Pascal. General electives can be taken with the course; for students not aquainted with computers, there are two advisable courses called Introduction to Computer Science, and Computer Usage.

The other required courses comprise Data Structures and Databases, Computer Languages and Compilation, Systems Analysis, Operating Systems, Systems Programming, Software Engineering, and Computer Architecture. There are also general electives subjects which can fine tune a course.

For students not wanting to specialise in the Computer Science course, but needing computer knowledge in their fields, they can take the Diploma in Computer Studies.

The Diploma could be of particular interest to scientists, mathematicians and teachers who are having to deal with computers in their jobs. The external availability of the course is aimed at students in the country areas who don't have access to on-campus facilities.

Prerequisites for the Diploma are a degree in any discipline from a recognised university or college, mathematical knowledge equivalent to Discrete Mathematics, and a basic knowledge of computer programming equivalent to Introduction to Computer Science or Principles of Computer Science and Computer Usage.

The Computer Services Unit incorporates a Sperry 1100/71 E1 mainframe for teaching and research and dual Perkin-Elmer 3240/3230 systems for the library and administration. Like the University of WA, Murdoch has access to the West Australian Regional Computing Centre's Cyber computer. A number of DEC LSI-11, MicroVax and other microcomputers are located in the schools to provide locally controlled computers for laboratories. The whole system is linked to the Austpac network to allow external access.

Monash University

The introductory year of Monash's three year course in Computer Science takes up a quarter of the year's workload, but should be combined with first year mathematics, which brings the work up to half the year's total. The remainder should be filled with other university electives.

The main areas that are stressed in the first year course are Algorithms, Data Structures, Computer Hardware, and Logical Reasoning (constructing, analysing and giving correct solutions to problems).

Second year Computer Science majors have to take both A and B streams of a split stream course. The A stream deals with high level programming languages, techniques for the design and manipulation of large external data files, and a section on software engineering. The B stream covers topics such as assembly language, numerical computing techniques and the internal structure of computers. Most work through this year is conducted on the Vax, although the B stream is conducted on small digital logic

THE COMPUTER PAPER SPECIALISTS

For QUALITY Computer Paper in Cartons or Micro Packs

★ Word Processing Paper. 279mm x 241mm — 70gsm Bond with Micro Perforations.
★ Now available in BLUE, PINK or YELLOW Bond Paper.
★ Also 2 Part & 3 Part White Carbonless Computer Paper.
★ True A4 Word Processing Paper. 297mm x 241mm — 70gsm Bond with Micro Perforations.
★ Listing Paper. 279mm x 381mm — 60gsm Bond. Available in Blue Half Shadow, Fineline or Plain. Also 2 Part, 3 Part & 4 Part BHS or F/line Carbonless Listing Paper.

COMPUTER PRINT & PAPER CO. PTY. LTD.

Also available • COMPUTER ADDRESS LABELS • COMPUTER PRINT-OUT BINDERS • CUSTOM PRINTED COMPUTER FORMS

COMPUTER PRINT & PAPER CO. PTY. LTD.

141 HERALD STREET, CHELTENHAM, VIC. 3192. PHONE: (03) 553 2100

Software On The Cheap

Quality Software for
IBM and Compatibles
IBM JX
IBM Laptops and compatibles
Commodore AMIGA
Commodore 64/128
Macintosh
Apple II series
Atari ST
CP/M

All the latest public domain and user supported for a LARGE range of computers at VERY LOW PRICES!

We do not charge for our software. All we ask is a small sevice fee to help us cover the costs.
Commodore 64/128 and Apple II disks only $8 each
IBM 5.25 inch only $10 each.
All our 3.5 inch format disks are only $15.
We take BANKCARD, VISACARD, AND MASTERCARD, as well as mail orders.

For your FREE catalogue call
(02) 51-3615 Now!
24 Hours 7 Days
Or Write to

Software On The Cheap
P.O. Box 63
Erskineville NSW 2043

Please Specify your Computer type!

design kits, available through Monash University.

For those students who have not taken the first year Computer Science course, there is the Computing Methods course which provides experience on computer applications in fields specific to the students major study, while also giving training in software tools and applying computing techniques using Fortran.

The final year of the Computer Science course is again split, with students being able to select an all Computer Science course which entails choosing eight selective units, and working out two major projects; or a combined course with science, the arts, economics, or politics and four elective units.

Students of Computer Science have their own computing laboratory. The main computers are a DEC 2 Mbyte Vax 11/750 and a 4 Mbyte Pyramid 90X. These machines are configured with 1800 Mbytes of disk storage, and several minicomputers around the campus. The University has access to Csironet, Australian and international Unix networks and a number of computer centres.

The Computer Centre operates a dual-processor Burroughs 6700 computer for research, while undergraduates use one of the many Vax 11/780 systems running under the VMS operating system.

La Trobe University

If you are interested in delving into artificial intelligence, then La Trobe could be the place to look at. The university has set up the relatively new School of Mathematical and Information Sciences (LMI) which specialises in mathematical and computer science courses.

Several Bachelor courses are available through the school, covering such areas as Computing and Accounting; Mathematics, Statistics and Computer Science (CS); Electronics and CS; Physics or Chemistry and CS; and the Bachelor of Science (Honours) combined with a Bachelor of Communications Engineering.

A specialist course offered by La Trobe is the degree in Cognitive Science which deals with the study of intelligent performance, whether by humans or machines. The first year of the Cognitive Science course comprises two half-units of Computer Science and Mathematics, and three full units of Mathematics IA, Linguistics I and Psychology I. Second and third year subjects include Computer Science, together with a selection of subjects, from psychology, Linguistics, Logic and Philosophy. This is also the case with the fourth (honours) year.

The syllabus for the first year Computer Science course includes; An Introduction to Computers, Algorithms and Data Structures, Programming in Pascal and C, Introduction to Discrete Mathematics, Numerical Concepts, Logic, Analysis of Algorithms, Induction, Recursion, and Graph Theory.

Second year students study Advanced Data Structures and Algorithms, Sorting and Searching, Introduction to Artificial Intelligence (including Lisp programming), Compilers and Operating Systems, Computer Logic and Architecture, Microprocessors, and Assembly Language Programming.

The final year gets everyone together in a Software Engineering project carried out by a team, plus three components from the list of Artificial Intelligence, Concurrent Computing, Advanced Programming, Human-Machine Interface, Theoretical Computer Science, Design of Programming Languages, Mathematical Software, Computer Architecture, Data Communications and Networks, Workload Analysis and File Structures, Database Management Systems, and Systems Theory and Analysis.

University of Adelaide

The University of Adelaide's Computer Science course is studied in conjunction with the Science Faculty. The undergraduate degree program requires mathematics to be studied, and consists of a standard three year course which looks at Programming, Algorithm Development, Programming Languages, Artificial Intelligence, Data Processing, Theory of Computer Science, Systems Software, Hardware and Numerical Methods.

Apart from the standard Masters degree and Honours course, found throughout all the universities, there is also the Diploma in Computer Science.

Other Universities

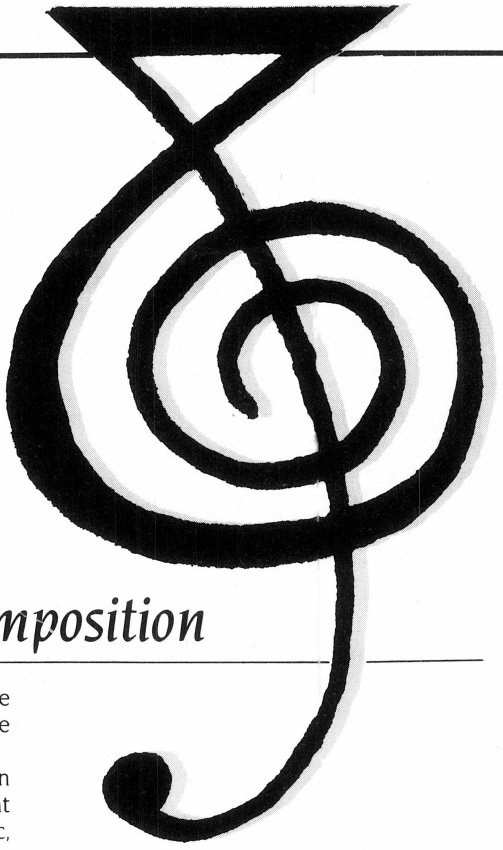
Deakin and Melbourne Universities in Victoria, and Wollongong, Macquarie and Newcastle Universities in NSW were unable to supply us with information regarding their courses. □

DIGICARD
Computer
Products
PROUDLY AUSTRALIAN

DIGICARD
TOP OF THE CLASS IN SCHOOL NETWORKING
Now you can connect up to 60 computers (mixed Apples and IBM's) for the
CLASSROOM
STAFF ROOM
LIBRARY and
ADMINISTRATION
***Features** of the Digicard Network:*
- Hard Disk Storage 20-70 mb.
- Two Parallel Printer Outlets.
- One Serial Printer Outlet.
- Classroom Network for the computer lab.
- D-Net local area network for computers throughout the school.

Locally supported by the Designers and Manufacturers
MACLAGAN WRIGHT AND ASSOCIATES
123 McEwan Road,
WEST HEIDELBERG 3081
Phone: (03) 458 1211

Microcomputers, MIDI, and Music



Non Real-Time Music Composition

In the previous two parts of this series we compared two complementary methods for producing sound via computer. One method uses sound sampling techniques, the other involves Fourier principles — these can be used, either independently or in combination, to generate a vast and variegated harvest of interesting new timbres.

ANY SOUND imaginable (maybe even some that are not!) can be represented as an ordered string of digital information and stored in waveform tables in computer memory. These sounds — whether they are digitised derivatives of 'environmental' recordings, or are artificial — lend themselves easily to extensive mathematical manipulation.

We'll continue our investigation of algorithmic methods for creating waveforms in a future article. For now, let's examine a few of the early computer music packages — many of which included additive sound synthesis as a major feature . . .

Bolt-ons

1983 was the year 'MIDI' was proclaimed Buzzword of the Year at music trade shows and similar venues. Until that time, most 'Pro' music composition systems mainly used a computer to either generate waveforms and other musical data which could then be stored in libraries on disk, or as an intelligent controller (sequencer) for driving conventional 1V per octave analogue synthesisers, via multi-way interface cables and plug-in cards.

These 'bolt-on' computer packages can be subdivided further into systems that need to be programmed to play music, using a special music composition language, or offer real time recording and playing capabilities using additional performance hardware such as a musical keyboard.

Perhaps the first inexpensive apparatus that generated sound digitally was an item produced by MTU (Micro Technology Unlimited). Originally designed for the Commodore PET computer, MTU's Instrument Synthesis software required no hardware addition to the computer other than a simple D/A converter board that clipped directly into the 8-bit parallel port.

Using simple additive synthesis routines, the program could be used to build up a variety of complex waveforms in RAM. However, sounds delivered via the 8-bit converter were limited in bandwidth to around 3.5 KHz.

This system was aimed more at the 'techno' musician. It assumed some familiarity not only with the arcana of Fourier synthesis, but also machine language programming. The user was required to enter note pitch and duration parameters in hexadecimal code, without the assistance of menus or even a user-friendly manual.

The Apple II

The open configuration of the Apple IIs changed this situation. These flexible, 8-bit machines have always been a popular choice for computing experimenters, musical or otherwise, as the 8 expansion slots on the motherboard enable very fast data communication between the internal microprocessor and interface cards (or peripheral devices) attached directly to the computer's busses. Many external accessories for the Apple employ special hardware that assists the central processor with secondary logic or maths coprocessing. For an 8-bit computer, the II series is upgrader's heaven.

Early music merchandise for the Apple II made do with simple PSG-style digital oscillators in conjunction with programmable amplitude enveloping. In those days, composers had to be content with using the alpha-numeric keyboard for non real-time entry of performance data.

One of the first significant composition packages for Apple machines was called the ALF music system. It employed 3 inexpensive squarewave oscillators on each plug-in voice card. Composers were able to test out multi-voiced melodic arrangements, and, depending on how many of these cards were installed, the system could drive as many as 9 independent melody lines.

The software included a menu that offered various musical icons. One set of symbols represented a range of note durations from whole-notes (semi-breves) to 1/16 th notes (demi-semi-quavers). Using a pair of standard games paddles, individual notes, rests and other performance parameters could be entered onto a conventional musical staff displayed on the screen.

ALF also provided envelope shaping according to values entered for each ADSR parameter. However, some of these numbers proved to be ludicrously cumbersome to work with — the value specifying the fastest Attack for example, was 655351! Not very musician-friendly at all.

The ALF system relied mainly on run-time calculations, using several oscillators in combination to produce more complex waveforms. It did not support any method for real-time entry of performance data via a musical-style keyboard. Consequently, the ADSR-Release parameter was defined as a Gap function. This setting specified at what point in time the release stage of a particular note should begin (prior to the onset of the next note in a musical sequence).

Mountain Hardware

At the turn of the MIDI-Revolution, there were at least a few prophets who cried 'The MIDIs are a-coming!...'. But for some time after that, systems incorporating Mountain hardware were considered to be the ultimate music composition peripheral available for a personal computer.

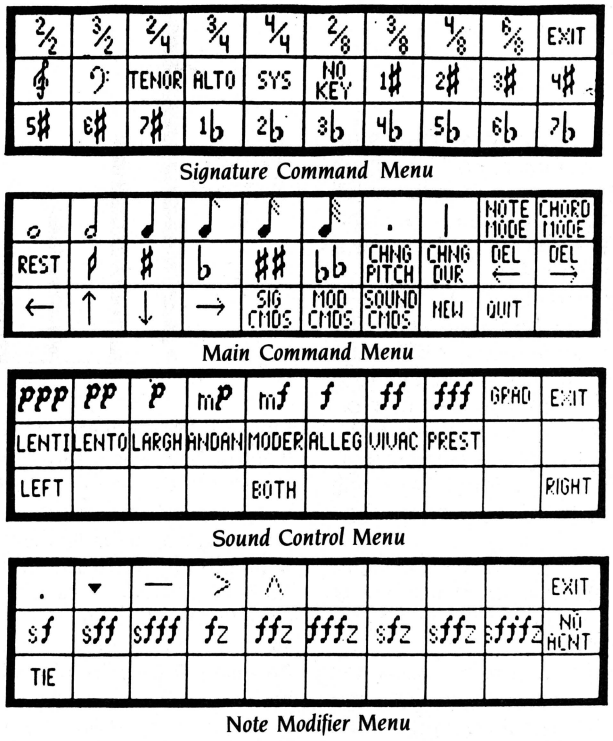
Primarily a non real-time composer's tool, Mountain's initial music package enabled the musician to construct an entire score from the Apple keyboard. It also featured an 8-bit, poly-timbral digital synthesiser. *Note*: although packages such as this one and others made by third-party developers such as Soundchaser and alphaSyntauri (which use Mountain equipment with their own software and hardware), may no longer have distributors in Australia, there are still a lot of these 'preloved' units in existence. Therefore, I'll continue to describe them in the present tense.

Mountain hardware consists of two plug-in cards: a processing card and another for output. The latter card contains the digital to analogue converters, filters and audio interface. Together, this circuitry provides digital synthesis for up to 16 individual voices. Typically, the 16 digital waveform generators (called Logical Oscillators) are configured as 8 oscillator pairs for stereo output.

Each logical oscillator has software loadable registers that contain information on current waveform table address (in RAM), amplitude (for ADSR-enveloping) and frequency (for pitch-enveloping of FM effects).

DMA (direct memory access) is the key to the whole system — this is how Mountain can support this many unique voices with an 8-bit computer. A waveform table of 256 bytes is used to store the data for the periodic waveforms generated by each oscillator. With the help of very rapid DMA processing, each of the 16 digital oscillators receives a waveform update around once every 32 microseconds. Consequently, each voice has a theoretical frequency response of 15.6 KHz.

Mountain software can only accept input from either the Apple keyboard, games paddles or a sector-oriented light pen. The light-pen (provided) greatly assists the beginner in programming waveform harmonic levels and other musical data directly onto the screen. Also included in this package is a well-documented user-manual.



Signature Command Menu

Main Command Menu

Sound Control Menu

Note Modifier Menu

Figure 1. *Mountain Hardware's nested menus.*

Song-Files

The software is contained on two double-sided diskettes that provide various program options, pre-recorded sounds and sequences. There's a Music Player program which allows the user to play songs stored on disk and change the arrangement of instrumental sounds in the composition. However, only music loaded in as a 'song-file' can be heard — there is no way to play a piece of music in *real-time* using this package.

Song-files can be created or modified using the Music Editor. With this program you can display and print scores, or, by using the light-pen, select the durations of individual notes, rests and chords, change pitches, erase musical segments, scroll to other sections of music and much more...

Only one voice at a time can be displayed in standard music notation on the hi-res screen. However, automatic measure-numbering (bar numbers) and other programmed information assists in describing which part of the composition is currently being examined.

Menus are nested — so you first select clef, time and key from the Signature Command menu. Then, notes or chords can be entered using the Main Commands menu. Later, various dynamics and expressions may be inserted using the Sound Control and Note Modifier menus — see Figure 1.

Gaps in Parts?

MISSED PARTS of any of our YC Tutorials? Well, you've got a second chance — We'll forward photocopies of one to five parts for $4 including postage and handling, and six and over parts for $8 (overseas postage additional). Please identify the Tutorial by its complete name, the issue it appeared in and the Part number (if applicable). All but the latest of our Tutorials are listed in YC's Annual Index, published with our July 1987 issue: refer to the Services page on how to obtain Back Issues. □

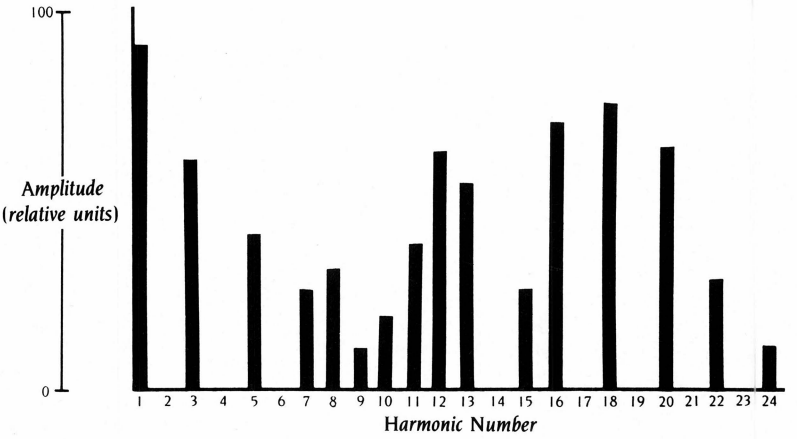


Figure 1. *The Instrument Definer program in Mountain Hardware uses a bar graph for specifying the first 24 harmonics to develop an 'original' waveform. A suitable envelope can then be constructed to determine the ADSR characteristics for this new 'instrument'.*

The second disk contains the Instrument Definer program plus a library of pre-defined instrumental sounds, called presets. This disk is used mainly for creating new sounds according to the principles of additive synthesis.

To facilitate this process, a bar graph is used for specifying and displaying the relative levels (in increments of 100 units) of the first 24 harmonics — see Figure 2. The resulting waveform can then be plotted onto the screen in high-resolution graphics. It may also be combined with as many as 16 different waveforms, in varying degrees of intensity, to cultivate an original waveform.

Having defined a new waveform, a suitable envelope can be constructed that determines the ADSR characteristics for this new 'instrument'.

Now, according to acoustical theory, the Attack period of a sound is generally considered to be its most important feature with regard to our perception of timbre. Consequently, this is the ADSR parameter which receives the most attention. Fifteen points can be used to define the contour of amplitude versus time during this critical period (the first few milliseconds) of a sound's production. Mountain's provisions for shaping the Decay, Sustain and Release portions are much less controllable, however (defined by simple linear, logarithmic or exponential functions).

When the Mountain system first became available in 1981, it was considered a quantum leap ahead of any other microprocessor-controlled music system. It incorporated the most powerful features, delivered a surprising performance, and its audio quality was really quite superb.

Before long, however, several independent musical developers began producing improved software and hardware devices that either worked in conjunction with or supported this 'orogenic' innovation — We'll look at these next month. □

Do You Sometimes Feel Like Joe . . .

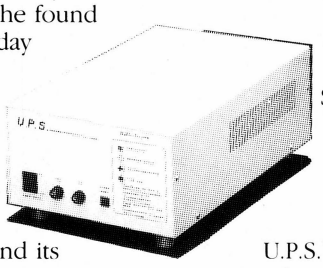
Keyboard hangs-up . . . why?



files corrupted . . . why?

Joe's got a real problem. Last week his keyboard just hung-up on him and this morning he found that the files he was working on yesterday were somehow corrupted.

He works in a busy office, full of typewriters, photocopiers and other automated office equipment. But there's another type of noise in his office that he doesn't know about.



Joe's office is also electrically noisy and its this electrical noise in the form of power surges and spikes caused by the use of office machines that disrupts Joe's computer equipment.

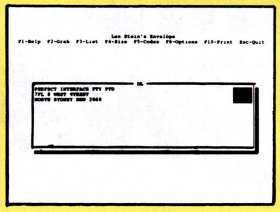
So he's had enough. Joe's investing in an Uninterruptable Power Supply (U.P.S.). His friend recommended "Perfect" U.P.S.'s. Starting at $625, they can switch-in within 4 milli-secs of the power disruption and provide up to 30 minutes of protection at full load.

For more information on Perfect U.P.S.'s and how they can save you time and money, call Emona at (02) 519 3933. Or write: Emona Computers P/L, PO Box K720, Haymarket 2000. Fax: (02) 550 1378.

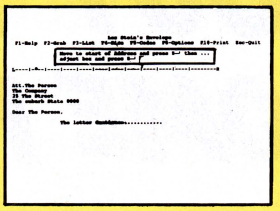
EMONA
COMPUTERS & PERIPHERALS

Les Stein's Envelope

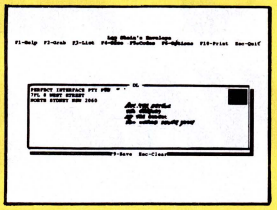
PRINTS LISTS OF NAMES & ADDRESSES ENVELOPES AUTOMATICALLY



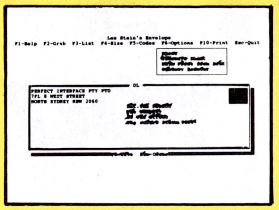
1. Hit ALT +



2. Point to the address.



3. Hit F2 — position address on envelope.



4. Hit FIO print.

A time saving investment for Offices, Mailing Companies, P.R. Consultants, Legal Offices, Investment Companies — all companies who regularly use mailing lists and type envelopes.

SAVES TIME, $$$ and WRITER'S CRAMP

Les Stein's Envelope is a ram resident program that pops up in your word processor and prints your envelope. Point at the address in the letter and it will jump into an envelope on screen — then print.

■ Any address can be stored into an address list for use next time.

■ Type directly onto the sceen envelope, grab an address from the screen or get one from your address list.

■ Use any size envelope; A4, DL, etc., or a set of labels 1, 2 or 3 across.

■ Do a bulk addressing from part or all of your address list.

■ Look up any Postcode in Australia in a second.

■ It will print your return address, it will print on an envelope or any printer. You can put the envelope in normally, or on some printers sideways.

Les Stein's Envelope makes envelope addressing another chore which the computer does better.

IBM PC XT, AT Compatible — any Daisywheel, Dot Matrix or laser printer.

ONLY $59

FULL PRICE BUY 10 AND GET ONE EXTRA FREE!

THIS IS AN AUSTRALIAN PRODUCT.

Perfect

PERFECT INTERFACE (Aust.) Pty. Ltd.
7th Floor, 8 West Street, N. Sydney NSW 2060
Phone (02) 957 6686

Please send me _____ Les Stein's Envelope, $59 each

I enclose my cheque for $ _____ or please debit my American Express, Diner's Club, Visa, Mastercard or Bankcard plus $6.50 freight.

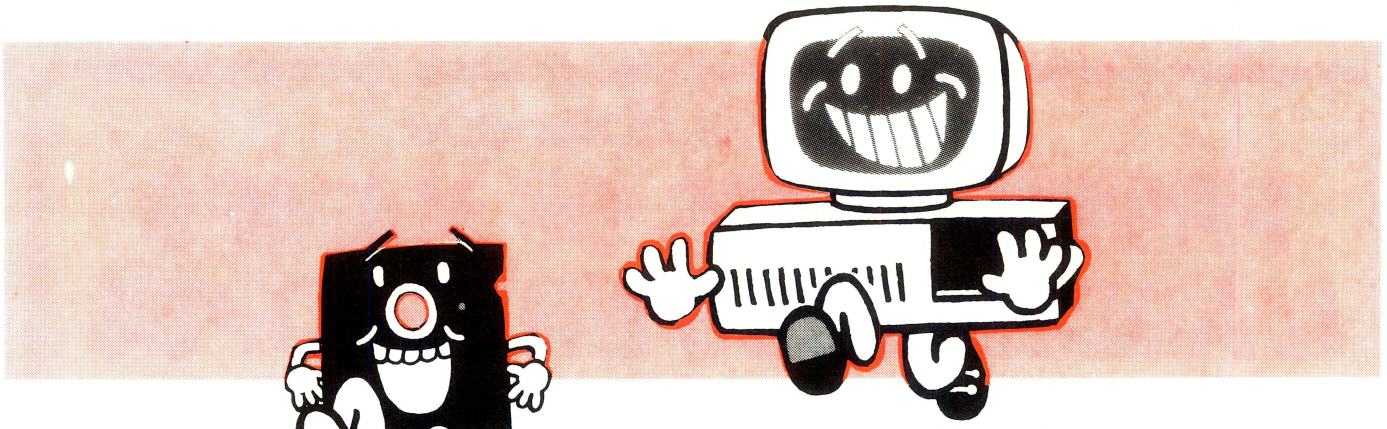
☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Card expires _____ Signature _____

Name _____ Company _____

Address _____

Phone No. _____



IT'S ABOUT TIME YOU HAD SOME FUN!!

HITCHHIKERS GUIDE TO THE GALAXY $79
Take on the ridiculous logic of our humble Galaxy. Try this if you can handle an imaginative challenge.

JET $114
Fly an F-16 Fighting Falcon or a carrier-based F-18 Hornet. Jet lets you fly either of these fast manouverable machines.

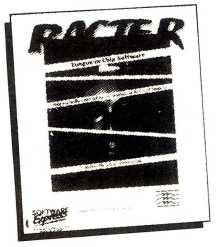
KARATEKA $68
After years of study under a Master of Karate you return home to find your village burned to the ground. Alone, you must out-fight vicious warriors to eventually confront the cruel Akuma.

CHAMPIONSHIP BASKETBALL $68
Draft your teammate from a list of ten players whose styles are patterned after real professional superstars and go all the way to the GBA Championship.



MICROSOFT FLIGHT SIMULATOR $115
MS Flight Simulator is a second-generation real-time flight simulation program for microcomputers, incorporating 35 important aircraft characteristics.

FLIGHT SIMULATOR SCENERY DISKS 1 TO 5
The famous MS Flight Simulator is made even more entertaining when you can fly around some of the famous sights in America.



RACTER $79
Racter is a superlative conversationalist, and this program allows you and Racter to hold dialogs on nearly any conceivable topic.

CROSSWORD MAGIC $68
Create, edit, play, print or choose the words. If you're a crossword puzzle fan, create some Crossword Magic.

KINGS QUEST $79
Become Sir Graham, bravest of Knights. Locate and return to King Edward the lost treasures of the Kingdom of Daventry, so that you may inherit the throne.

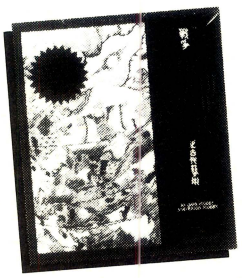
LEATHER GODDESSES OF PHOBOS $79
Can you stop the Leather Goddesses of Phobos fiendish plan to turn all earthlings into sex slaves?

CHAMPIONSHIP GOLF $89
Championship Golf challenges you to play the same 18 holes that the pros consider to be some of the most beautiful and toughest in the world.

SARGON CHESS III $99
Sargon Chess III provides multiple playing levels, problem solving, a large opening book and advanced chess playing techniques, including an advanced end game capability.

TURBO GAMES WORKS $139
Brush up on your Turbo Pascal technique, learn game programming by example or just sit back and enjoy playing.

WHERE IN THE WORLD IS CARMEN SAN DIEGO? $89
Explore the great cities of the world as you "the daring detective", stalk a Master Thief to the far corners of the globe.



ANCIENT ART OF WAR $96
Enter the ranks of history's greatest military strategists, apply Sun Tzu's teachings, and your own insights, to the most realistic game of strategy and tactics ever created.

BALLYHOO $79
Learn how easily sweet dreams can turn into nightmares. Behind the Big Top lies a seedy world of deception and crime.

BLACK CAULDRON $79
From the makers of Kings Quest and the Walt Disney personal computer software staff, enjoy this 3-D animated adventure game.

SOFTWARE Express

48 A'BECKETT ST, MELBOURNE. 3000. PHONE (03) 663 6580

FOR THE SERIOUS PERSON

BUSINESS!

FLOWCHARTING II+ $439
Designed specifically for flow and organisational charts. Incredibly simple to use. Type in or outside shapes, with automatic centring. Define modules for reuse. Work in 40 column, 80 column or shrink screen mode to see complete 14" x 11" chart. Charts can be linked together to form long charts printed sideways on continuous paper. Supports Laserjet.

THE ANALYST $249
Combination spreadsheet auditing and debugging tool, comparison utility, and macro documentor. Works with Lotus and Symphony. Scan for 25 error types, cross reference cells and probe the trail created. Check for circular references.

PIZZAZ $100
Capture and manipulate screen images from any program and dump to printer. Enlarge, rotate, flip. Smoothing of rough outlines is possible. 30 monochrome shades and colour printer support in 16 colours.

STATS-2 $299
Complete statistical package with 8087 support. t-tests, correlations, crosstabulations, comparisons of distributions, significance tests, Anova etc.

LANGUAGES

DBASE TO C TOOLKIT $599
Complete implementation of dBASE III+ functions and commands in C source code. Interfaces for dBC and c-tree. Complete source. Supports all popular C compilers.

C FUNCTION LIBRARY $199
Sterling Castle functions. ANSI standard. Small medium and large memory modules, 350 functions, source code included.

VISIBLE COMPUTER $150
The ideal assembly language programming learning tool. Produces an animated simulation of the PC's processor. Full tutorial with demonstration programs and 350 page manual. A bargain.

BASIC DEVELOPEMENT TOOLS $199
Screen Builder System, B+tree file management, help message system , pop up window manager. Can be used with Quickbasic, Basica, Turbo basic.

PC_LINT $299
Finds bugs glitches and inconsistencies in your C programs.

UTILITIES

QUAID ANALYSER $159
The tool that was used to create copywrite. Diagnoses programs designed to thwart this kind of analysis.

FILE GENIE $239
Convert data files from one format to another. Inspect files for errors, create scripts for alterations and conversions. Convert wordprocessor or database files files from one format to another, or extract data from files.

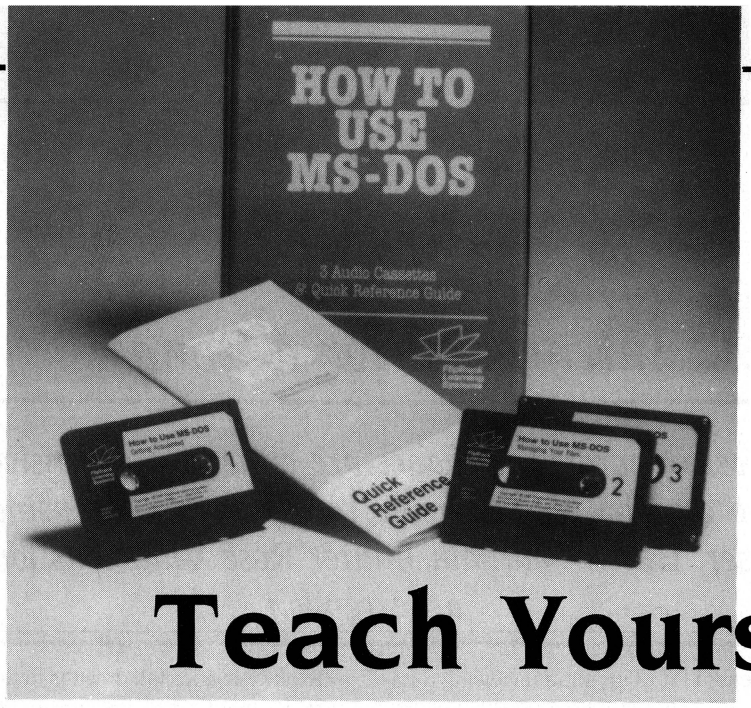
THE WATCHER $99
Speed problems with your software? Implement the watcher and get a full operational profile of your program's operation so you can concentrate on speeding up slow sections of code.

SOURCE PRINT $150
Clean up your source code with this valuable aid. Analyses your source and prints out a readable version with cross references etc. Works with BASIC, Pascal, C and Dbase.

TREE DIAGRAMMER $110
Assistant to source print . Reads source files and produces an organization chart.

DOUBLEDOS $125
Run two programs at once, compile in background, edit in foreground etc. Coming soon.

MICROSOFT MOUSE $249



Teach Yourself . . .

Ever tried to learn DOS from the manual? Or have a friend explain how a computer works? Tim Hartnell found a method that combines both of those — but this one works.

I RECENTLY discovered a series of 'teach yourself' guides on basic computer topics, consisting of two, or three, cassettes and a booklet. Created in America, the tapes (naturally enough) use American voices, but if you can ignore that, you're in for a worthwhile experience. The pace is fairly gentle, and because you can work at your own speed (and keep your eyes on the keyboard and the screen, while listening to the tape), you can absorb the material just as quickly, or otherwise, as you like.

The series of tapes cover a range of subjects including —

How to Operate Your Computer under CP/M
How to Operate the Apple IIe
How to Operate the IBM XT *and* AT
How to Operate the IBM *Personal Computer*
How to Use MS-DOS

In addition, there are learning packs for many major software products, including Lotus 1-2-3, WordStar (with or without MailMerge), Framework, Multimate and Symphony.

I spent some time becoming DOS wizard with the assistance of *How to Use* MS-DOS — I found that, so long as the process was taken slowly (like splitting it into sections to be run over a week, and not being hesitant about going back and doing some bits twice or more), it was an extremely efficient way of learning.

To give you an idea of the depth of the cassettes, the subjects covered in the MS-DOS course were broken into three major areas (one to each cassette) - Getting Acquainted, Managing Your Files, and Using Special Features.

The first tape of the three started off with rudimentary material such as 'starting your computer', 'booting a floppy disk' and 'starting DOS'. From there, the cassette went on to show how to interpret the results of using the DIR command, using DISKCOPY and verifying the results of using DISKCOPY. Things rapidly became more complex when I moved on to the second cassette, with commands like CHKDSK, COPY *.*, copying to the console, renaming and erasing files and so on. By the end of cassette three, I felt pretty confident about such things as tree-structured directories, making, naming, changing and removing sub-directories, using the SORT filter and piping.

A feature of these tapes is what they call the FlipTrack system. If you turn the tape over at various points, it gives additional (non-essential) information on the topic at hand. The flip side of cassette three, for example, gave a summary of directory commands, explained how to customise DOS prompts, gave advice on creating AUTOEXEC.BAT files, and discussed backing up hard disk files.

The course I worked through was very well produced, with a clear approach which led easily from one topic to the next. Doubtless, the other products in the range cover their subjects just as thoroughly.

The products seems ideal for personal use, or for purchase by a company to use for their staff. The prices vary, from $57.00 for How to Operate the Apple IIe, with mid-range prices around $100.00 (my MS-DOS course, for example, is $109.25) to higher prices of $137.05 for the Lotus 1-2-3 course, and up to $152.38 for the Symphony course.

For further information, call the importers, Barrington Corporation, for the name of your nearest dealer and further information. If you've decided it's time you stopped being a dummo, and became a genuine wizard-person on your computer and software, the FlipTrack way seems virtually guaranteed to assist you. □

Product Details

Product:	FlipTrack Education System
Distributed by:	Barrington Corporation 303 Pultney St, Adelaide 5000 SA (08) 232 1333
Price:	$57 to $153 (Refer to text)

Intuit *Integration for a Song*

Most integrated packages are either too expensive or too complex for the home (and very small business) user. But — bargain hunter Rose Vines has found an exception.

A FEW YEARS BACK knowledgeable computer types threw the term 'integrated' into the conversation whenever given the chance. Integrated software was the way we were all headed and three packages were showing the way — the neat-but-over-rated Open Access; the neat-but-under-rated Framework; and the colossus, Symphony.

Now, we don't hear much about integrated software — most of these packages are simply too big for the ordinary mortal to learn in a reasonable time and the degree of integration is not always satisfactory. Each package tends to have strong elements and weak ones, which means a dedicated package has to be bought to compensate for the integrated package's deficiencies; and they all cost around a thousand dollars.

However, the concept of integration remains a good one: it'd be great to buy one product which covers all your software needs, has consistent and easy to learn commands, and lets you move information from database to spreadsheet to word processor and so on with ease.

Integration for the People

Enter Intuit, a combination directory and file management system, word processor, database, spreadsheet, line-graphics generator and forms generator. It combines these applications in a way which makes it extremely easy to learn and use. It does so with a really high level of integration. It does so for $139.

Intuit is not the most powerful integrated package on the market by a long shot. But then, how many of us *need* the most powerful integrated package? If you need a good word processor and spreadsheet and a simple database for managing things such as mailing lists, Intuit has it all. If you would rather not have to learn anything about DOS, Intuit protects you from the operating system.

I spend a lot of my time reviewing databases and other software products which cost between $800 and $2000. Some of them are 'good value', but almost all of them are beyond the means of most home users, clubs, community organisations, schools and very small businesses. If you need a word processor plus a database plus a spreadsheet, you either have to fork out a fortune or plunge into the tricky depths of public domain software. Or, you can buy Intuit.

A Co-operative System

Intuit is more than an integrated package — it's a 'co-operating system'. That means it can function as an operating system or work with another operating system (MS or PC-DOS), so you can run Intuit as you would any other program under DOS, or you can run it in Native mode. If you put the Intuit program disk in drive A: and start your computer, instead of DOS being loaded, Intuit itself is loaded in Native mode. This means Intuit really can be the only piece of software you buy — you don't even have to buy DOS. In native mode, Intuit only needs 256 Kilobytes of memory to run.

However, it's recommended you use Intuit in DOS mode. It takes more memory (about 384 Kbytes), but gives you access to DOS functions, makes it easier to exchange data with other DOS users, and let's you take advantage of Intuit programs deliberately designed to access DOS.

Using Intuit

The Intuit package consists of two disks, a remarkably slim bound manual and keycap stickers. Unlike many programs these days, Intuit will run on a computer with two floppy disk drives, so you can use it even if you can't afford a hard disk.

The manual is good. It's clear and easy to read, with good use of diagrams, useful cross-referencing and a usable index. The one place it does fall down is in describing how to install and use Intuit on a hard disk. However, the local distributor recognised this failing and has produced an automatic installation procedure with full instructions which you can get for an extra five dollars. If you're new to computers, it'll be money well spent.

The publicity for Intuit claims '10 command keys do it all!' This is pretty close to the truth. The keycap stickers for the 10 function keys each have a shifted and unshifted command. This command set works in a consistent way throughout Intuit: Select, Previous, Line Mark, Character Mark, Move, Copy, Print Explain, Left, Right and (shifted) Main, Exit, Line #, Sort, Find, Clock, Calculator, Format, Home and DOS. Once you've become accustomed to using the commands in one part of Intuit, it's remarkably easy to apply the same commands in other parts. It really is intuitive.

When you start Intuit, you're placed in the main directory of the root volume. Intuit works with terms such as volume, directory, sub-directory and subject. To a DOS user, this is a little confusing (as is the use of the terms drive 0 and drive 1 for the A: and B: drives). To a computer newcomer, it should be no more difficult than learning the absolute basics of DOS.

With Intuit directories, you can give your files (subjects) descriptive names, such as 'Payroll Spreadsheet for July 1987' or 'Letter to Aunt Gemima, 6/6/87'. Renaming a file is just a matter of overtyping the old name, while copying, deleting and moving a file or group of files is a matter of pressing one or two keys. I did it the first time almost without thinking — and with no need to look it up in the manual. The keys you use in word processing and spreadsheets also work in manipulating the directories.

Intuit Subjects

Each file or subject has a subject type. The main types are Text, Record, Form and Table. To enter a new subject, type its name on a blank line and enter its type in the type column. If it's a Text subject, you can skip the second step. To use your new subject, press the F1 key — Select. If you find yourself stuck at any stage or Intuit beeps at you because you've made a mistake, F8 — Explain gives a help screen.

When you Select a Text subject, you're placed in Intuit's word processor. This lets you edit documents up to 500 characters wide by 3999 lines (almost 2 Megabytes). If you need to create larger documents, you can split them between a number of Text subjects. The top line is a status line, which I found less than informative. When I mentioned this to the distributor, he said the author had already upgraded the word processor to include a more informative ruler line.

The cursor keys and PgUp and PgDn let you move around the document. You can use the Ins and Del keys for insertion and deletion of characters and lines. Blocks of text are moved, copied and deleted with the Line Mark and Character/Column Mark keys with the Move, Copy or Del keys.

You can also Find or Find and Replace words throughout the document. However, you must match exactly on case and if you're looking for a phrase, it won't be found if it's split over two or more lines in the document.

It's possible to work on two documents at once by Selecting a second document from within the current subject. Pressing Select will switch you between the two documents, and copying information from one to another is very quick.

If you press Shift-F8 — Format when in a directory, the System Preferences Screen appears, letting you decide word wrap, whether you want the printer enabled, various printer defaults, and the communications protocol for your communications port. I would have preferred the word wrap and printer-enable options to be accessible immediately from the text subject, rather than going through the directory. Also, if you have the printer disabled, the output goes to the screen and whizzes past before you have a chance to read it. You can use Ctrl-NumLock to stop it, but it'd be nice if it was shown a screen at a time.

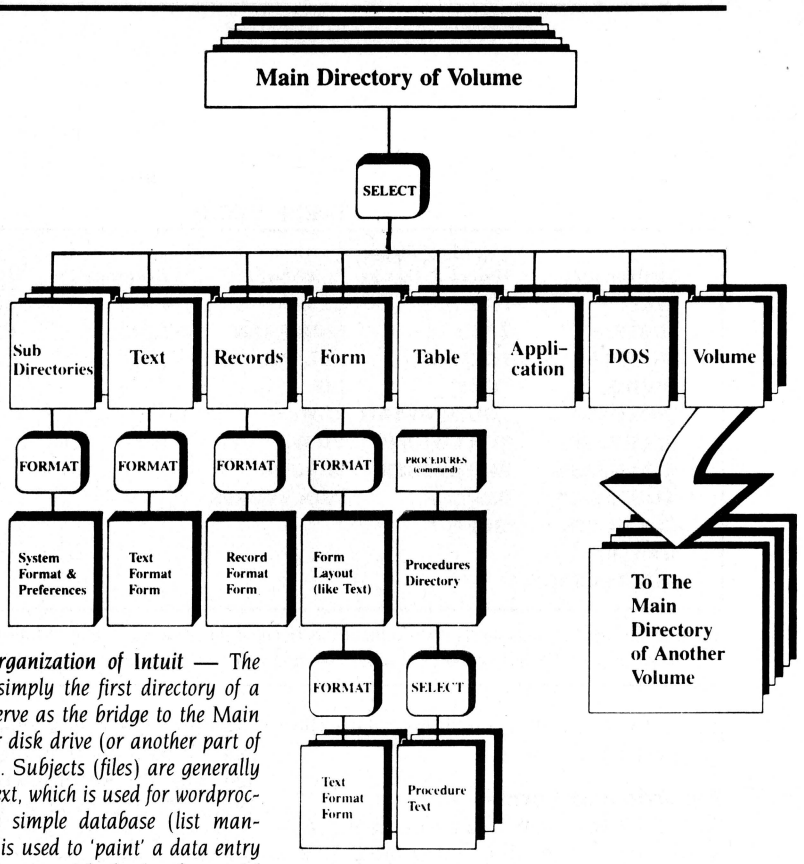


Figure 1. *The Organization of Intuit* — *The Main Directory is simply the first directory of a Volume. Volumes serve as the bridge to the Main Directory of another disk drive (or another part of the hard disk drive). Subjects (files) are generally one of four types: Text, which is used for wordprocessing; Record, the simple database (list manager); Form, which is used to 'paint' a data entry or retrieval screen for use with the database; and Table, the spreadsheet.*

By pressing press Format within a text subject, you're placed in the formatter. Word Processing in Intuit consists of editing a document and then formatting it before printing it. Depending on how you type in your document, the on-screen appearance can be far removed indeed from the final printout. No what-you-see-is-what-you-get here.

You can print a document without formatting it for rough drafts, but using the formatter gives you a lot of control and more flexibility in producing documents. Apart from standard page numbering, footers, headers, page size and margin settings, the formatter lets you define different formats for chapters, sections, paragraphs, sub-paragraphs, and lists which are automatically invoked at print time. You can also insert local commands which will override these universal settings and use backslash commands to produce bold, italic, underlined, superscripted, and subscripted text (you can also define your own backslash commands). I found the formatter very powerful, although I prefer to be able to edit and format at the one time.

My main complaint about word processing in Intuit is that you can't exit without saving your changes. So, if you Select an existing Text subject and start editing it, then find you've really messed it up — too bad, you're stuck with the new version. The only way around this is to copy the subject before you start editing and then

Product Details

Product:	Intuit
From:	Noumenon Corp. Alameda, California
Distributor:	Noumenon PO Box 28 Carlingford 2118 NSW (02) 871 7170
Price:	$139 taxed $5 Automatic Installation Procedure $10 Upgrades

TABLE VERBS

Mathematics	Cell Manipulation Format & Display	Procedures	Conditionals	Loops
ADD	FILL	LEARN:	IF	SCAN
SUBTRACT	ZERO	ENDLEARN	ENDIF	ENDSCAN
MULTIPLY	FORMAT	RELEARN:		
DIVIDE	COPY	DO:		
INCREASE	COLUMNWIDTH	EDIT:		
DECREASE	TITLEWIDTH	VIEW:		
%INCREASE	PAPERWIDTH	FORGET		
%DECREASE	DISPLAY	PROCEDURES		
CUMULATE	SHIFT			
%RATIO				
%DIFFERENCE				

Figure 2. *Table (spreadsheet) operations are performed by entering simple command sentences; the first word of a command sentence is a verb — the verbs Intuit 'understands' are shown above.*

delete the copy if you're happy with the new version.

Records and Forms

Record subjects are Intuit's database. As with most of the other integrated packages on the market, Intuit has its weak link, and this is it. Admittedly, I'm used to the power of dBase III Plus, Knowledgeman II and other programs of that ilk. Intuit doesn't pretend to have relational capabilities; the Records are simple list managers. But if all you want is simple list management, then it couldn't be easier to use than in Intuit.

A Record subject can have 3995 lines (records) and 65 columns (fields). You can have 1000 characters per record and 80 characters per field. These are the limitations you have to keep in mind when working out whether Intuit will meet your needs. Common uses for simple databases are mailing and membership lists, class lists and simple catalogue systems. If you have fewer than 3996 people on your lists, then Intuit should handle any simple application.

To create a Record subject, you type in the subject name in the directory and its type, Select it, then Format the Record by typing the name of each field, followed by a T or an N, indicating whether the field is text or numeric. The formatter only lets you define a maximum length of 25 characters for text fields; however, you can create a related Form subject which will let you make the fields longer. Records can be used their own, but they become much easier and more flexible to use if you combine them with a Form.

Once you've designed the basic Record structure, creating a related Form lets you paint a data entry and retrieval screen for use with the Record subject. A Form displays one record at a time and lets you determine exactly how it will appear on screen or when printed. You can create calculated fields in Forms and produce reports, form letters, envelopes and mailing labels. A Form can be 3995 lines long (the mind boggles), and this excludes information displayed for each individual record.

In both Record and Form subjects, you can sort on up to two fields (in ascending order) and do complex find operations to retrieve records matching up to 10 conditions. Also, it is possible to enter, change, delete and print records in both Records and Forms.

A report is a special type of Form, with initial text which is displayed once at the top of the form, then repeating information bounded by the two commands .REPORT and .END, followed by text which is displayed once at the end of the report. You can produce totals, averages, maximums and minimums, and insert formulae in reports.

Information can be easily transferred from the Form or Record to Text, letting you integrate statistics and lists with text, and design complex form letters.

The first few times I printed a report, it bore little relation to the design I'd created on screen. This is because, on top of designing how a form looks, you can use the Format key to include the same formatting tools available when in text. If you want to stop these format styles applying, you must either disable formatting, or enter a local .NF (no formatting) command in your form. Once I'd worked this out, it was a breeze creating reports.

Tables

If the Record subjects are Intuit's weak link, Tables are the real powerhouse. A Table is a spreadsheet, a computer application which I find less than fascinating. However, I found Intuit's spreadsheets incredibly simple to learn to use and enormously flexible.

Lotus users would find the 200 rows by 65 columns allowable in an Intuit spreadsheet wimpy, but for most home and small business users, it's more than adequate. Getting information in to the Table is just a matter of moving the cursor to the cell you want and typing in the information. You can jump down to the command line with Shift-PgDn. At the command line, you can enter commands to change the format of the spreadsheet (such as cell size, decimal places displayed, hiding information) and manipulate the data (Add, Multiply, Cumulate and so on).

By typing the command LEARN < procedure name >, you can create a procedure which includes a series of commands that will run automatically when you DO the procedure. For example, I could enter LEARN THE TOTALS, followed by the commands —

```
ADD WIDGET THRU GADGET = TOTAL UNITS
ADD JAN THRU JUNE = YTD
ENDLEARN
```

Now, to recalculate my totals, all I have to do is type DO THE TOTALS. The macro can be changed at any time with the command EDIT THE TOTALS and then RELEARN. You can have 46 procedures per Table, and they can include conditional commands which you can use to create procedures that perform goal seeking and other complex functions.

Macros can be written using a Text subject and then copied into a Table and RELEARNed and you can copy data in from a Record.

Other Features

There are a number of other features and tricks in Intuit which make the program more attractive and useful.

The most delightful is the line graphics program for drawing simple graphics on the screen and sending them to the printer. By pressing 7 on the numeric keypad, you can turn the Graphics mode on and off. Once in Graphics mode, the cursor keys can be used to create boxes, outlines and other line drawings. The I key changes the style of the line-drawing

'paintbrush' from single to double lines, light to dark shading, or stripes. When in Graphics mode, the whole keyboard is redefined to give easy access to the extended graphics character set.

This must be one of the easiest systems of line drawing I've used in a program. Creating boxed text and snazzy form designs was simple and I could incorporate foreign language characters into my text. You can use the characters in forms and reports as well as text subjects.

Another bonus is the Typewriter application, which lets you type directly to the printer. Lines are sent to the printer only when you enter a carriage return, so you can edit text before you print it. This is very useful for typing envelopes or producing a short document on the fly.

Intuit also has a calculator and clock. The calculator is fairly limited, letting you add, divide, multiply and subtract, with one memory and an accumulator, though it does let you copy the results into another subject.

Overall Impression

Intuit is not a pretty program. If you're wondering how the people at Noumenon could afford to create such a comprehensive package for such a competitive price, it's because they haven't wasted too much effort on making the program itself look terrific. There's no flashy sign-on screen, and fairly terse ***PENDING*** messages are displayed when the program's busy and routines sometimes seem to take shortcuts, which make no difference to the program's operation but results in unnecessary displays. However, the program was always helpful when it came to vital things such as letting you know the disk was 'almost full', or checking whether you really wanted to delete that subject.

It's also not the world's most powerful program. If you do need power (and you've got money to spend), buy Framework or one of the other integrated heavies. Or buy a dedicated product for each application.

What Intuit can claim to be is one of the easiest to learn and most comprehensive integrated products around. Perhaps it could do with a communications program (although the best ones all seem to be in the public domain). But the major elements, combined with the little extras provided, make Intuit a great choice for anyone with light to middleweight processing needs. The speed of operation was more than satisfactory and the consistency of the commands across all Intuit's functions sets it above many of its higher priced competitors.

Intuit is currently selling for $139 (the regular price is $175). There is an attitude which pervades a lot of the business community that if it doesn't cost an arm and a leg, a product must be a loser — don't believe it. If you are an enlightened business person with limited processing needs, or you're one of the more humble computer users with limited financial resources,Intuit offers you incredibly good value — at either price. □



You can make the connection with your hands in less than a week simply because the computer makes it quick and easy.

*(MS DOS Only)

Once you can touch type you will be able to transfer your thoughts and information through this connection at an incredible rate – faster than hand writing.

Typequick V. The way to feel totally at ease with your computer.

Voted top keyboard trainer (PC World Dec. 1986)

Typequick – the professional keyboard training course; a proven success with thousands of people • In hundreds of large corporations, colleges and homes. • By executives, managers, students and professionals. Sold throughout the world! Winner of "Top Australian Software of the Year 1985."

Runs on most computers – PC DOS, MS DOS, APPLE IIE/IIC, CP/M. Distributed by IBM, DEC and Tandy and sold by considerate dealers.

TYPEQUICK™

Make the connection – Order today.

Send coupon to Typequick Pty Ltd, 16 Cecil Street, Gordon 2072 or phone 498 7433. Please include $87. Please attach your Business Card.

☐ Enclosed is a cheque/money order for $_____ Payable to TYPEQUICK

☐ Please credit my Bankcard/Mastercard_____

Signature

Expiry Date of Credit Card_____

Card No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Name_____ Title_____

Address_____ Postcode_____

Computer Type_____ Operating System_____ Disk Size_____

YC 9/87



Lowdown on Laptops

Toshiba T1100+ vs NEC Multispeed vs The Gridlite

Jan Roberts continues her look at portables, to further discover why some people like to kid themselves that the machines are docile pets to travel with or sit by in humble homage to the mighty chip machine.

THE KEY QUESTION for most readers is always the price. Most authors force you to read right through before you discover whether the latest technology is really for you (and your bank manager). Rather than keep you waiting, the Multispeed retails for around $3,300, the Toshiba T1100+ is $3890 (tax included), the Gridlite costs about $5,400. All machines were tested in their 640 Kilobyte configuration. Keep in mind these prices as you read this article. Now let the trials begin!

Speed and Memory

The Gridlite runs at a standard 4.77 MHz, while the other two are PC/XT compatibles with speed toggles. The Toshiba T1100+ can be changed with the keyboard from 4.77 to 7.1 MHz at any time. The NEC Multispeed goes from 4.77 to a wonderfully high 9.54 MHz, either by means of a dip switch or from the keyboard — there are few desktops that can equal that speed.

But speed is not just a matter of clock speed. Programs can be speeded up enormously if memory is used effectively. Programs stored in a RAM disk run much faster than programs on a floppy or hard disk as disk caching can speed up a program by up to 50 percent. (Caching is the automatic, temporary storage of data in RAM so it can be instantly accessed if wanted again.)

The Toshiba T1100+ has no ROM to speak of, no provision for ROM to be installed and no extended or permanent RAM disk. You can connect an expansion box to the Toshiba that will hold five full size IBM type cards — but this and its necessary connector is $1860 (tax included) plus the cards.

The Gridlite doesn't come with an extended RAM disk — nor with much ROM. But it can be souped up with relatively cheap ROM chips without need to buy an expansion box. The Gridlite carries eight empty sockets for 64 Kilobyte or 128 Kbyte ROM chips, which means you can have up to a whole megabyte of ROM software permanently accessible. (Vicom will 'burn' programs onto ROM for about $150 a program.)

This is one of the best features of the Gridlite. I wish more companies made use of ROM chips as they make a machine so much more flexible and useful. However, the ROM program I tried out on the Gridlite (WordStar) was strangely slow; I am told that this is because the machine always checks the disk drive first to see if there's a later version of the program there.

The RAM on the Gridlite can be boosted beyond the usual 640 Kbyte maximum — a whole megabyte can be added internally. The added RAM isn't restricted to use as a RAM drive; it can also be used with the Lotus-Intel Extended Memory Specification as pure operational RAM. This gives the machine great speed and data-churning ability.

Fully loaded with RAM and ROM, the Gridlite would pack an amazing punch of 2688 Kbyte. However, the ROMs (except for the supplied MS-DOS one) and Extended Memory are extras.

Finally, despite its slow clock speed, it boots up faster than the other two machines — in about 10 seconds (without any obvious RAM check) as against 35 seconds for the T1100+, and 22 seconds for the Multispeed.

The least expensive machine in today's sweepstakes, the Multispeed, not only has the fastest clock speed, but it also comes with half a megabyte of programs stored away on builtin ROMs. These are not extras — they are included in the basic price. All the ROMs are easily accessible under a cover in the base.

But there are also two empty ROM sockets designed for two 256 Kbyte or 1 Megabyte ROMs. If you had these installed, the

Laptop Lowdown

LAST MONTH Jan Roberts reviewed Pulsar's Bondwell 8 with its backlit LCD screen and 512 Kilobyte of RAM, operating at 4.77 MHz; it's a non-expandable IBM compatible laptop at a bargain price. Also reviewed was Sotec's PHC-16 with a gas plasma screen; it's easily (and cheaply) expandable to 1250 Kbyte of RAM. The 4.77 MHz Sotec (which can be turbo-ed) is available with a single 5¼ inch drive, or with two 3½ inch drives or with an internal hard disk plus a single small floppy drive. □

machine would have a total 3190 Kbyte of memory! However, 1 Mbyte ROM chips are not yet very common. Bayside Computers, who lent me the machine, will burn 256 Kbyte ROM chips for customers for about $60 a program plus the cost of the chip — about another $60.

The Multispeed also has an excellent (but small) RAM disk. Static RAM (which doesn't blank itself when the machine is switched off or reset) normally takes 128 Kbyte of the 640 Kbyte RAM disk — you can vary its size from 5 to 128 Kbyte or disable it entirely. However, there is no provision for the installation of extended memory. Nor is there currently any provision for an Expansion Box.

But, as supplied, the NEC Multispeed wins the speed trials hands down — and the memory stakes as well. It is supplied with a total of 1152 Kbyte of RAM and ROM (plus the usual 16 Kbyte video RAM) as against 640 Kbyte on the other two machines.

Beauty Trials

All three candidates present themselves in a neat, sober style calculated to appeal to neat, sober business types.

The T1100+ is dressed in a light coloured plastic suit and she is small — just 6.5 x 30 x 30 cm, and weighs just 4.5 kg. Despite her tiny height she has two 3½ inch disk drives. This gives her (and the Multispeed) a very useful advantage over the Gridlite which only has one drive.

Her screen lifts up on a stiff hinge that holds it in any position. If you try to shut it without switching her off, she beeps (the other contenders can be shut up with the screen switched on, and opened again with no apparent harm). The screen is 20 x 10 cm and is a pleasing light green with clearly visible blue lettering making it easy to read and is the brightest of the three.

Her keyboard is a neat rectangle with the QWERTY keys nicely distinguished in a light colour; the others, including the 10 function keys, are grey. There's an odd key called Sys Req but without a manual, I never discovered what it does. The cursor pad is fitted into the lower right corner quite conveniently and a section of the QWERTY keys can be assigned as a numerical keypad. The touch of the keyboard is pleasing; the F and J keys are marked by a small knob to aid in placing the hands.

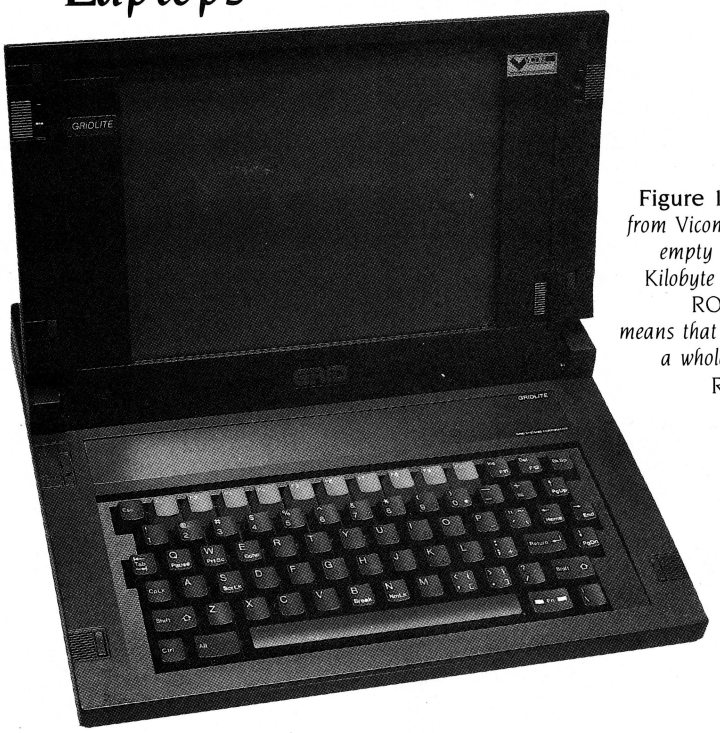


Figure 1. *The Gridlite from Vicom carries eight empty sockets for 64 Kilobyte or 128 Kbyte ROM chips. This means that you can have a whole megabyte of ROM software permanently accessible.*

At the back are four ports and the power switch. Under the power switch, a plate covers the site for the expansion box socket. Two of the ports are for external monitors — RGB colour (a colour card is built-in) and composite monochrome. The other two are a 9-pin COMMS port and a port that can either serve a printer or an external disk drive.

She scores badly here — the other machines allow both a printer and a disk drive to be connected simultaneously.

A small switch on the left side of the machine switches an external drive, if used, to be either the A: or the B: drive; alternatively it assigns the port to the printer. (A 5¼ inch drive with a separate power supply that can be purchased for a rather steep $765.)

An internal Sendata modem card is available for $986 taxed, but it wasn't installed on my test machine. A bisync card can also be purchased enabling her to talk to large 'mini' IBM systems for $267. A car battery linkup is available, enabling her batteries to recharge while her owner goes from appointment to appointment.

An over-slim handle folds under the front of the machine — it could be uncomfortable if used to carry the machine for any length of time. Otherwise it is a well designed portable.

The Gridlite presents himself in an elegant slim black casing. He is the lightest contestant, weighing in at 4.2 kg; he measures 7 x 34 x 29 cm.

His lightness betrays his space-ship origins. The Grid company boasts of being selected for use in the USA space shuttle program. Although the model used there has bubble memory, which is less susceptible to shocks than disk drives, the Gridlite is still very tough. His shock tolerance in operation is equal to 5 G (five times gravity); when switched off he can stand 60Gs. No similar details are given for the other contestants.

Mind you, I wish this astronaut had a handle in his equipment. The other contestants have.

When you lift his lid, the screen is the largest of all the contestants at 23 x 17 cm. His enhanced LCD seems a little dark — it needs to be used in a well lit place. I also

Product Details

Product:	Toshiba T1100+
From:	Toshiba (Australia) Pty Ltd 92 Talavera Rd Nth Ryde 2113 NSW (02) 887 3322
Price:	$3890 RRP inc. tax *(Refer to the text for options.)*

AMPOL Refineries ■ Arthur Young ■ Australian Associated Press ■ Australian Federal Police ■ Australian Gas Light Company ■ BHP ■ BNZ Australia ■ Capita Financial Group ■ CIG ■ Citicorp ■ Clemenger Australia ■ Commonwealth Bank ■ Custom Credit ■ Department of Defence ■ Dow Chemicals (Australia) Ltd. ■ Electricity Commission of NSW ■ EMAIL ■ Fujitsu ■ HFC Finance ■ Honeywell ■ IBIS ■ ICI Australia ■ John Fairfax ■ Kelvinator Australia ■ Lindemans Wines ■ LM Ericsson Pty. Ltd. ■ Moore Paragon ■ Myer Information Services ■ Northern Mining ■ Olivetti Australia ■ PA Consulting ■ Pioneer Concrete ■ Plessey ■ Price Waterhouse ■ Ranger Uranium Mines ■ Readers Digest ■ Rothmans ■ Streets ■ Telecom ■ TNT Transport ■ Touche Ross ■ Tubemakers ■ Volvo (Australia) Pty. Ltd. ■ Wang ■ Westfarmer Rural ■ Westpac

THEIR PROJECT MANAGER IS WAITING TO WORK FOR YOU.

All these companies use the same Project Management software to stay competitive. Time L. is Australia's (and the world's) top selling Project Management software for IBM PCs and compatibles.

Here are some of the ways Time L. can get your business running more efficiently:

- It can handle an unlimited number of tasks (over 1,000 on a standard 640K PC).
- It can help you manage resources better. Single or pooled resources or costs are catered for. Time L. tells you when you're 'overbooked' and then helps you rework areas. You can level your schedule, and even delay tasks until resources come available.
- Time L. will provide costings and estimates in the ways *you* need. Fixed, variable and unit cost types can be easily set up for an unlimited number of cost fields.
- Time L. will send out its costing report to your favourite spreadsheet or database.
- Do you have complex multiple schedules to manage? Time L. can handle it. You'll be able to control several projects that share information, then summarise and combine information.
- Time L. is flexible. Combine Fixed, Span, As Soon As Possible and As Late As Possible tasks. Units of time may be minutes, hours, days, weeks or months.
- Time L. handles 'leads' and 'lags'. You can even overlap tasks or put gaps of time between them.
- The powerful new GRAPHICS OPTION is now available. Time L. Graphics extends Time L.'s reporting with Time-scaled PERT, standard Gantt and Actual-vs-Plan Gantt charts. Time L. GRAPHICS supports most popular plotters in up to 8 pen colours.

TIME L.*

FROM

Breakthrough™

SOFTWARE

Phone us now on (02) 319 2155 or fill in the coupon for further information. Send to: the Australasian distributor:

PC Extras
Suite G03, The Watertower,
Rosehill Street,
Redfern Hill 2016

p.c extras

Please send me further information on Time L.

Name _____

Company _____

Position _____

Address _____

_____

_____ P/Code _____

Phone _____

*Outside Australia Time L. is sold as Time Line. Time Line is a registered trademark of Breakthrough Software Inc.

found the character set on-screen to be slightly too elongated for my taste. But otherwise the large size — the same as that on many desktop monitors — has a wonderful uncluttered feel.

The stiff hinge holds the screen t any angle, back to about 60 degrees. It will not go further back, so it would be difficult to actually use it as a *lap*top.

The keyboard is an elegant black apart from the grey function keys. (I prefer the way the other contestants mark off their QWERTY keys in a lighter colour.) I dislike the small Return Key (it's no bigger than the Shift key) — and even more dislike the unconventionally positioned Ctrl key. It's in the lowest left hand position so I found myself hitting the Shift-Lock key instead (it's where Ctrl should be). A very bad mark for the Gridlite!

However, the touch of the keyboard is superb with a good springy action — the best of the three.

A new key, FN, toggles the right hand cursor pad to Page Up and Down, Home and End, while the B and N keys become Break and Numerical lock; E becomes Echo; S, Scroll lock; W, Print Screen; and Q, Pause (the keys are marked with these words in blue).

The only control on the sides of the machine is an unmarked, sliding power switch on the right.

The back of the machine has a hinged panel covering the ports. (The hinge can function as legs to put the keyboard at a better operating angle.) The Gridlite scores top points here in properly protecting the ports (many machines leave the ports uncovered, which pretty well renders them unsuitable for field use). There are four ports: a Centronics printer, a serial RS-232C, an RGB, and a port for a tiny, optional ($650) external disk drive which draws its power fro the machine.

When you slide the Gridlite's cover off, you find four sockets into which ROMs fit very easily, and four more sockets in which ROMs can be fitted by a technician, or by anyone who can follow the clear instructions in the manual.

The final contestant in the beauty stakes is the NEC Multispeed. She comes in a light coloured, sturdy plastic case with an excellent slide out handle. She is the widest and tallest of the machines: 9 x 30 x 34 cm and weighs 5 kg.

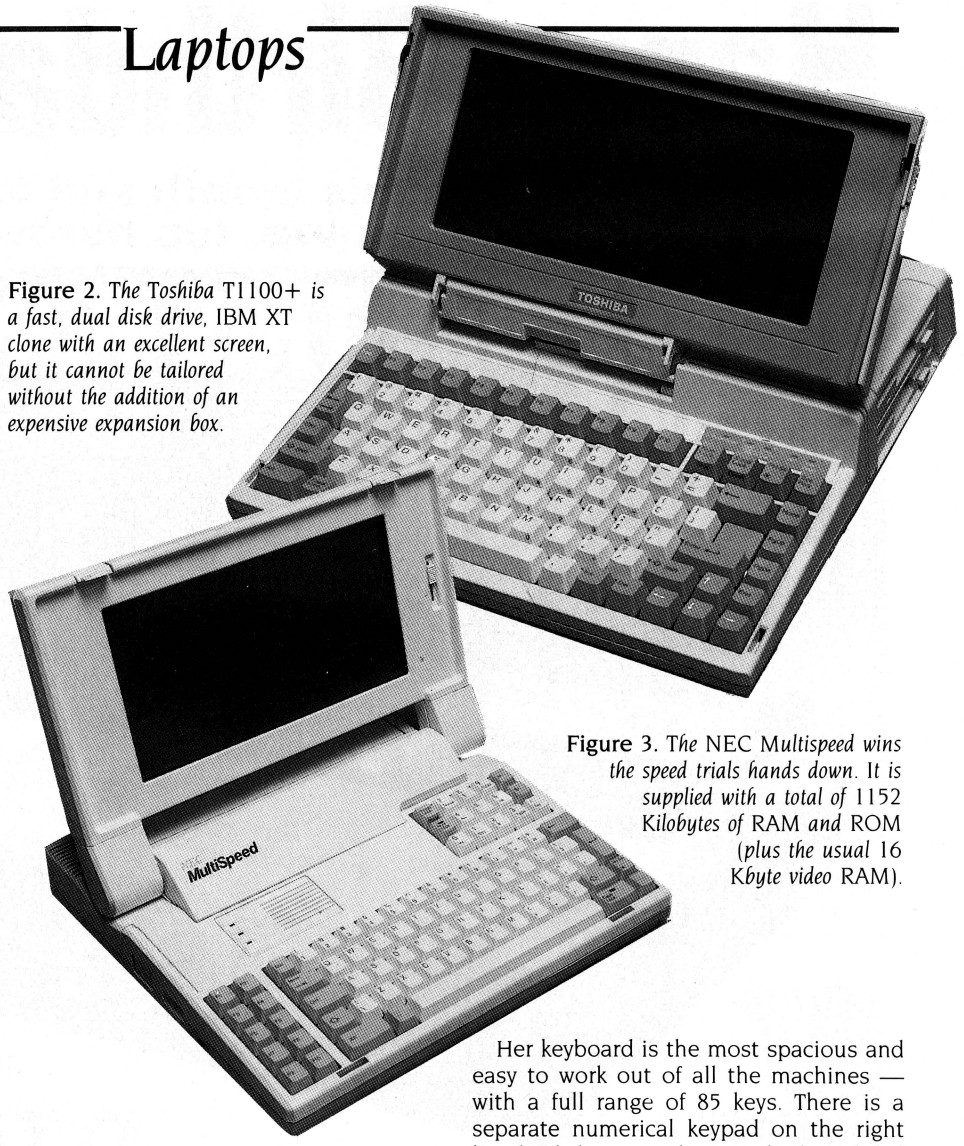


Figure 2. *The Toshiba* T1100+ *is a fast, dual disk drive,* IBM XT *clone with an excellent screen, but it cannot be tailored without the addition of an expensive expansion box.*

Figure 3. *The* NEC *Multispeed wins the speed trials hands down. It is supplied with a total of* 1152 *Kilobytes of* RAM *and* ROM *(plus the usual* 16 *Kbyte video* RAM).

Her screen can be locked into a number of positions with a button on the side of the hinge. A marvellous feature of the screen is that it can be taken off so the NEC can very conveniently be used as a desk top computer plugged into a normal screen. Provision is made to plug in a colour CRT monitor (but not a composite).

The display is midway in size between the other contestants at 18 x 23 cm. It's not as well lit as the Toshiba, but brighter than the Gridlite.

Her keyboard is the most spacious and easy to work out of all the machines — with a full range of 85 keys. There is a separate numerical keypad on the right hand side between the main keyboard and the screen, set back more from the keyboard than on the other machines. This is a distinct advantage in use.

She also has 10 function keys on the left. The QWERTY keys are light coloured, and all other keys are in grey (excepting the numerical pad). There are two keys marked in Red — one is called POPUP, the other HELP (more about these later).

On the left side she has two 3½ inch drives mounted side by side. The recessed power switch is the best positioned and

Product Details

Product:	NEC Multispeed
From:	NEC Australia (02) 438 3544
Review Machine From:	Bayside Computers 127 Nepean Hway Seaford 3198 Vic. (03) 785 2922
Price:	$2985 RRP (*Refer to the text for options.*)

Happy Birthday Hales & Rogers

We're ten years old this month and to celebrate we have slashed our prices on top, top hardware!!!

brother THIS MONTH ONLY!

M1709 $954
SAVE $386

- ☆ SPEED — 240 CPS DRAFT
- ☆ HIGH QUALITY NEAR LETTER QUALITY MODE
- ☆ PAPER PARKING
- ☆ TRACTOR FEED
- ☆ GRAPHICS
- ☆ DUAL INTERFACES



MENTION THIS AD. WHEN ORDERING

see our other ad. this issue for more special prices!

MORE GREAT PRINTER PRICES

Description	H&R Sell Tax Paid	RRP Tax Paid
BROTHER HR20 22 cps Dual Interfaces Friction Feed	$777.00	$1092.00
BROTHER HR40 38 cps Dual Interfaces Cut Sheet Feeder & Tractor standard	$1,266.00	$1,779.00
BROTHER M1109 100 cps 9 pin head, NLQ, dot graphics, serial & parallel interface	$449.00	$631.00
BROTHER M1109 PF-50 Tractor Feed with sound cover	$38.00	$54.00
BROTHER M1109AP to suit Apple's with Tractor feed & cable	$497.00	$698.00
BROTHER M1409 180cps 110 col 9 pin head NLQ tractor & friction dot graphics	$617.00	$867.00
BROTHER M1509 180cps 9 pin head tractor & friction feed dual interfaces	$761.00	$1,070.00
BROTHER M1709 240cps 9 pin head tractor & friction feed dual int & paper parking	$954.00	$1,340.00
BROTHER M2024L 160cps 24 pin head friction & tractor feed	$1,034.00	$1,453.00
BROTHER Twinwriter Six - 36cps Daisy wheel AND 140cps Dot matrix Parallel	$1,883.00	$2,646.00
EPSON EX-1000 300cps	$1,181.00	$1,471.00
EPSON EX-800 300cps 9 pin head friction feed NLQ dot graphics	$906.00	$1,129.00
EPSON FX-1000 240cps 9 pin head friction feed NLQ dot graphics	$961.00	$1,197.00
EPSON FX-800 240cps 9 pin head friction feed dot graphics NLQ	$769.00	$958.00
EPSON LQ-1000 180cps 24 pin dual interfaces tractor feed	$1,245.00	$1,550.00
EPSON LQ-2500 24 pin head 324cps tractor & friction feed NLQ dot graphics	$1,822.00	$2,269.00
EPSON LQ-800 180cps 24 pin head dot graphics NLQ friction & tractor feed	$906.00	$1,129.00
EPSON LX-800 9 pin head friction feed NLQ Push Tractor	$531.00	$661.00
NEC 3510 35cps Spinwriter friction feed parallel interface IBM	$1,941.00	$2,344.00
NEC 8810 88cps Spinwriter friction feed parallel interface IBM	$2,923.00	$3,529.00
NEC P560 - 264cps 24 pin head friction feed parallel interface	$1,674.00	$2,021.00
NEC P660 216cps 24 pin head friction feed dot graphics multiple fonts parallel	$881.00	$1,064.00
NEC silentwriter LC-800 8 Pages per min LED Array RS-232 & Parallel CSF 4 fonts	$4,732.00	$5,714.00

THOMSON EGA MONITOR HIGH RESOLUTION COLOUR

Come out of the Dark Ages with one of our Thomson EGA Monitors and EGA Video Card.

- 640 x 350 RESOLUTION
- 16 COLOURS
- 14" NON GLARE SCREEN
- TEXT COLOUR SWITCH
- ·31MM DOT PITCH
- 12 MONTHS WARRANTY MONITOR & CARD

$1275.00
MONITOR ONLY $890
CARD ONLY $480
SAVE $615



Hales & Rogers Pty. Ltd.

5 Mobbs Lane, Carlingford 2118
Tel. (02) 858 5322

Adco/787A



Figure 4. *The Multispeed keyboard is the most spacious and easy to work out of all the machines and has a full range of 85 keys.*



Figure 5. *The touch of the keyboard on the Toshiba T1100+ is pleasing; the F and J keys are marked by a small knob to aid in placing the hands.*



Figure 6. *The touch of the Gridlite keyboard is superb with a light springy action — the best of the three.*

protected of the contestants and there is provision for a builtin modem card (which is awaiting Telecom approval).

Her ports are also recessed and are protected with easily lost plastic covers. There is an RS232C serial port, a Centronics printer port, a CRT monitor port and a port for an external disk drive or for data transfer from another computer.

The drop-in battery pack lasts 4 hours per charge which is half the time of the other machines, but you can have more than one pack and thus always keep going. Data in the RAM disk will survive a week without power before perishing.

There are six ROM chip located under the keyboard. Four of them are builtin software, while the other two are for your own use (and completely ignored by the manual).

Now for the final trial . . .

Utility

Utility and 'tailor-ability' are basic criteria when buying any machine.

The Toshiba T1100+ is not particularly outstanding in this department. It's a fast, dual disk drive, IBM XT clone with an excellent screen, but it cannot be tailored without the addition of an expensive expansion box.

The Gridlite is eminently tailorable with it's ability to load a megabyte of ROM (in cheap chips). I am sorry my trial machine wasn't fully loaded with RAM and ROM — it must be a marvellous machine to drive. It's a bit limited in having only one disk drive as standard. It also has by far the largest RAM memory capacity — up to 1684 Kbyte — no other laptop I know has so much RAM power.

But, the machine only comes equipped with 640 Kbyte of RAM, and, despite its price, only an MS-DOS ROM chip is supplied.

The Multispeed's builtin ROM software makes the machine extremely useful — the other contestants come in rags in comparison. (Don't forget it is the cheapest of the contestants.) ▷

Product Details

Product:	Gridlite
From:	Vicom Pty Ltd 4 Meaden St Sth Melbourne 3205 Vic. (03) 699 3239
Price:	$5400 RRP *(Refer to the text for options.)*

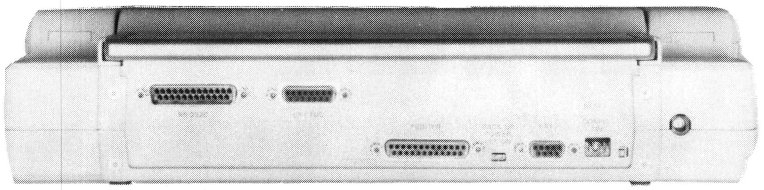
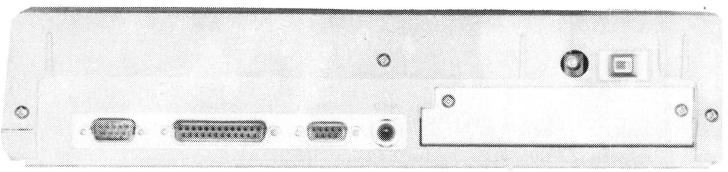


Figure 8. *The ports of the* Multispeed *are recessed and protected with plastic covers. There are five ports; an* RS232C *serial ports, Centronics printer port,* CRT *monitor port, and a port for an external disk drive.*

Figure 7. *At the back of the* T1100+ *are the ports, two of which are for external monitors, and the power switch.*



There are six programs in ROM. These are interesting enough in their own right (and such good value), that I've reviewed them briefly — see the boxed item.

Here's a good feature — Try switching the power off and a bold message appears: SUSPENDED ROM APPLICATIONS PRESENT. SAVE ALL DATA FILES BEFORE TURNING POWER OFF (YES-NO). If you change your mind, switch the power back on, press N, and you are back where you left the program.

So — the cheapest of our machines (although still over $3000) wins the utility stakes hands down. It is not only a fast machine, it not only has room for 2 Megabytes of user selected ROM (twice that of the Gridlite), but it comes with superb builtin software.

The much touted Toshiba T1100+ just cannot face up to this kind of competition. Unless I wanted a laptop with a brighter screen and longer battery life and to which an expansion box could be attached, the Multispeed would be my choice.

The Gridlite, despite having the slowest clock speed, could be the choice if you need a machine with a lot of RAM and that can easily (and inexpensively) be tailored to your own specifications. But you'll pay for the privilege as it is by far the most expensive.

If I include the laptops I reviewed last month — then the Bondwell 8 could well be chosen by those who want a very portable, well made, basic IBM compatible laptop. The Sotec PHC-16 rivals Multispeed in engineering excellence with its infrared keyboard, large RAM disk, and 1.25 Mbit memory. Its plasma screen was the best of the lot — it a fine desktop machine as well as a portable.

But, for briefcase operation, and taking all points into consideration — the NEC Multispeed is a superb machine and a winner. □

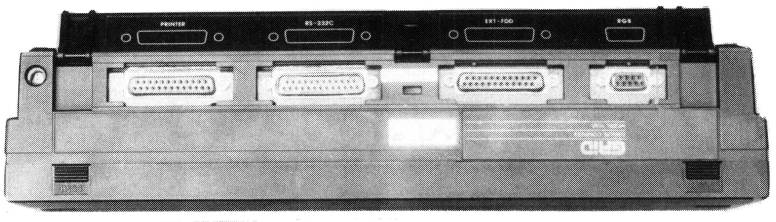


Figure 9. *A hinged panel covers the ports on the back of the Gridlite and the hinge can function as legs to put the keyboard at the right operating angle.*

The Multispeed's Builtin Software

THESE ROM chip programs are included in the price of the NEC Multispeed —

Notepad — Press the red POPUP key while running a program and a full screen, powerful wordprocessor appears. Its window size can be redefined so you can see the original program you were running. In addition to the normal editing functions, you can import data (but not graphics) from the program running when you entered Notepad.

There is a builtin 20,000 word dictionary (which is in ROM so it takes up none of your workspace and needs no disk accessing). And, you can have a personal, additional dictionary on the RAM drive.

Filer — Press POPUP and F and a relational database program appears, fully compatible with dbase II! It's fully menu-driven and easy to use. You can search your 'cards' of data specifying conditions from every field. For example, find all people over 6 foot who sell cars and have a Bankcard with a credit limit of over $1,000. You can add, delete and modify cards at any time.

Outliner — POPUP and O bring up the Outliner, which is a different sort of wordprocessor that stores ideas or information under topic headings. You can toggle from just seeing the headings to seeing the information hidden under any heading. This can also serve as a very flexible writers' database.

Dialer — POPUP and D allows you to dial a number from your own phone list (with the builtin modem(!), when it gets Telecom approval). All you have to do is position the cursor on the correct line, or use the FIND command, and press Return. It will even move your most used numbers to the top of the directory.

Telcom — POPUP and T gives you this full communications program that's integrated with the two wordprocessors, Notepad and Outliner. With the right modem, it can be set to work unattended, so you can, say, place a call at midnight while you're sound asleep, or access it while away from home.

Setup — Finally, POPUP and S lets you set your preferences for the monitor, the size of the RAM disk, and even assign your disk drives as the external slave drives of another computer (making it very easy to transfer data).

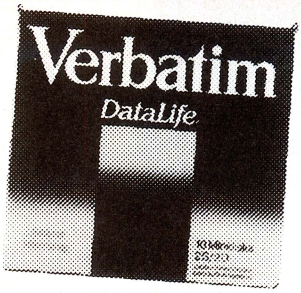
Of course, you can save the data and document files to the RAM disk — and have these preserved when the machine is switched off! The size of the windows used by each POPUP program can be set so three of them are visible at once.

The HELP key gives instant and appropriate instructions in a large window. This facility alone would make the Multispeed win the utility stakes. And, the accompanying documentation is very well presented. □

008 335757 TOLL FREE MAILORDER HOTLINE FOR CREDIT CARD ORDERS!!



SAVE!



VERBATIM DISKS!

(All prices per box of 10 disks)

Description	1-9 boxes	10+
3¼" 1S/2D	$47.50	$46.50
3¼" 2S/2D	$49.50	$48.50
5¼" 1S/2D	$24.95	$22.50
5¼" 2S/2D	$29.95	$28.50
5¼" 2S/HD	$44.95	$42.95

IBM* XT COMPATIBLE COMPUTERS $795*

Check these features and our prices. We're sure you'll agree they're exceptional value for money!

- **Assembled in Australia!**
- **Tested by us for 24 hours prior to delivery!**
- **150W power supply**
- **AT style keyboard**
- **8 Slot motherboard**
- **6 months warranty!**

(Japanese drives available for an extra $50 each)
(4.77/8MHz Turbo Motherboard with Soft/Hard switch, available for an extra $100)

* $795 COMPATIBLE COMPUTER

256K RAM Single Drive, Graphics and Disk Controller Card **$795**

256K RAM COMPATIBLE COMPUTER

2 x 360K Disk Drives, Multifunction Card,(which has Disk Controller, Clock/Calender including Timer disk, 1 Serial Port, 1 Parallel Port and 1 Games Port) and your choice of Colour Graphics Card or Monochrome Graphics Card. **$1,095**

640K RAM COMPATIBLE COMPUTER

2 x 360K Disk Drives, Multifunction Card,(which has Disk Controller, Clock/Calender including Timer disk, 1 Serial Port, 1 Parallel Port and 1 Games Port) and your choice of Colour Graphics Card or Monochrome Graphics Card. ..... **only $1,150**

20 M/BYTE HARD DISK COMPATIBLE COMPUTER

20 M/Byte Hard Disk, 360K Disk Drive(s), 640K RAM, Multifunction Card, (which has Disk Controller, Clock/Calender including Timer disk, 1 Serial Port, 1 Parallel Port and 1 Games Port) and your choice of Colour Graphics Card or Monochrome Graphics Card.

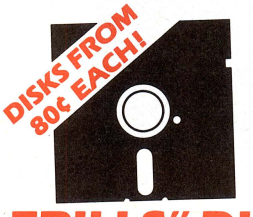
Single 360K Floppy Disk Drive ..... **only $1,850**
Dual 360K Floppy Disk Drives ..... **only $1,995**



MICRODOT DISKS!

DESCRIPTION	1-9 BOXES	10+ BOXES	100+ BOXES
5¼" S/S D/D	$14.95	$13.95	$12.95
5¼" D/S D/D	$15.95	$14.95	$14.50

(SEND $2 FOR SAMPLE DISK!)



"NO FRILLS" DISKS!!

Now you can buy absolute top quality disks in packs of 10, that are also the cheapest in Australia! They even come with a 5 year guarantee, which indicates the quality of these disks. So why pay 2-3 times the price for the same quality?

Bulked packed, (in lots of 10) D/S D/D without boxes, or brand name, just their white paper jacket, and index labels. (5¼" includes write protects).

5¼" 2S/2D "NO FRILLS" DISKS FROM $8 PER PACK!

1-9 PACKS	10+PACKS	100+PACKS	500+PACKS
$11ea	$10ea	$9ea	$8ea

(SEND $2 FOR SAMPLE DISK!)
(TAX EXEMPT PRICES LESS $1 PER PACK)

IBM* TURBO AT COMPATIBLE $2,795

ASSEMBLED & TESTED IN AUSTRALIA!

- 1 M/Byte Main Board
- 1.2 M/Byte Floppy Disk Drive
- Colour Graphics Display Card
- Floppy & Hard Disk Controller Card
- Printer Card and RS232
- 200W Power Supply
- 10 MHz
- 80286 CPU
- 8 Slots
- 20 M/Byte Hard Disk
- Keyboard
- 6 Months Warranty

IBM* BABY AT COMPATIBLE $2,795

Switchable 8/10/12 MHz

3½" 2S/2D "NO FRILLS" DISKS!

1-9 PACKS	10+PACKS	100+PACKS
$39.50 (PER PACK)	$37.50 (PER PACK)	$35.00 (PER PACK)

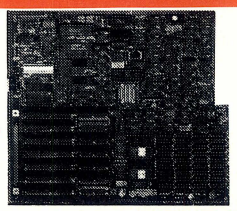
(SEND $5 FOR SAMPLE DISK!)
(TAX EXEMPT PRICES LESS $4 PER PACK)

RETAIL INQUIRIES: Rod Irving Electronics,
MELBOURNE, 48 A'Beckett St. Phone (03) 663 6151
NORTHCOTE 425 High St. Phone (03) 489 8866
MAIL ORDER: (03) 543 7877 or P.O. Box 620, CLAYTON 3168

WHOLESALE INQUIRIES: Ritronics Wholesale, 56 Renver Rd. CLAYTON 3168. Phone (03) 543 2166

008 335757 TOLL FREE MAILORDER HOTLINE FOR CREDIT CARD ORDERS!!

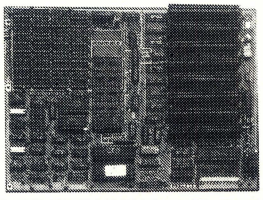
Errors and omissions excepted
*Apple and IBM are registered trade names



6/8 MHz AT MAIN BOARD

- 6/8 MHz system clock with zero wait state
- Hardware and software switches for alternative system clock.
- Rechargeable battery backup for CMOS configuration table and real time clock.
- 80286-8 microprocessor
- Socket for 80287 numeric data co-processor
- 256KB, 512KB, 640KB, or 1,024KB RAM
- 64KB ROM, expandable to 128KB
- 8 Input/Output slots
- Hardware reset jumper
- Power and turbo LED connector
- Phoenix BIOS

X18100 ..... **$895**

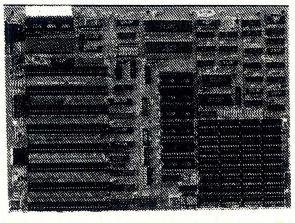


XT MOTHERBOARD

(WITHOUT MEMORY)

- 4·77MHz
- 8088 Processor
- Expandable to 640K on board.
- Provisions for up to 6 x 2732 EPROMs on board.
- Keyboard connector
- 8 Expansion slots

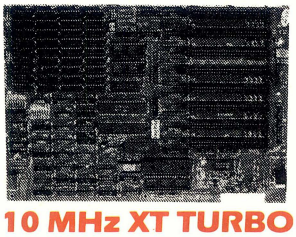
Cat. X18020 ..... **$195**



XT TURBO MOTHERBOARD

- 8MHz
- 8088 Processor
- Expandable to 640K on board.
- Provisions for up to 6 x 2732 EPROMs on board
- Keyboard connector
- 8 Expansion slots

Cat. X18030 (excluding RAM) **$245**
Cat. X18031 (including 640K RAM).. **$415**

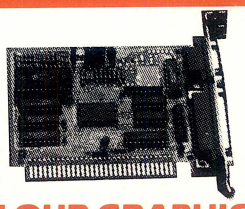


10 MHz XT TURBO MOTHERBOARD

Increase the performance of your sluggish XT approximately four times with this super fast motherboard.

- 8088-2 running at 10 MHz, no wait state
- Turbo/Normal selectable
- 640K fitted
- 8 Expansion slots
- 4 Channel DMA
- Keyboard port

..... **ONLY $465**



COLOUR GRAPHICS & PRINTER CARD

This combination card features printer and monitor interface. It has 1 parallel printer port, composite colour, RGB CTTC outputs as well as composite monochrome video output with display buffer.

Colour:
Text Mode: 40 columns x 25 rows.
Graphics: 320 x 200
Monochrome:
Text Mode: 80 columns x 25 rows.
Graphics: 640 x 200

Cat. X18010 ..... **$149**



I/O PLUS CARD

Provides a serial port, a parallel port and a joystick port, and even a clock/calendar with battery backup!

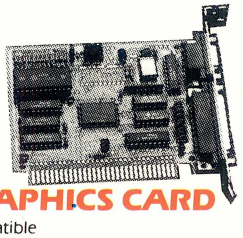
Cat. X18045 ..... **$129**

1·2 M/BYTE - 360K FLOPPY DISK CONTROLLER CARD

The ideal solution for backing up hard disks, archiving etc.

- Supports both 1·2 M/Byte and 360K drives
- Fully XT/AT compatible

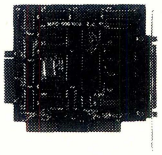
..... **ONLY $139**



GRAPHICS CARD

- 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

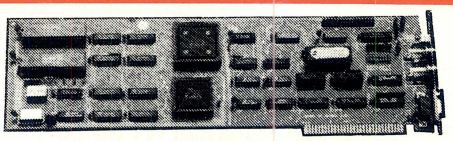
Cat. X18003 ..... **$145**



16 BIT FLOPPY DISK DRIVE CONTROLLER CARD

This card will control up to 4 double sided 360K IBM* compatible disk drives.

X18006 (4 Drives) **$57**



ENHANCED GRAPHICS ADAPTOR CARD

- 256K RAM,
- Handles monochrome, CGA Hercules and E.G.A.
- Standards: 320 x 200, 640 x 200, 640 x 348, and 720 x 348

Cat. X18070 ..... **$295**

GAMES I/O CARD

Features two joystick ports. (DB15).

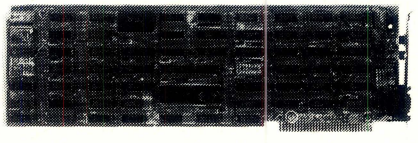
Cat. X18019 ..... **$39.50**

RS232 (SERIAL) CARD

(WITHOUT CABLE)

This RS232 card supports 2 asynchronous communication ports. Programmable baud rate generator allows operation from 50 baud to 9600 baud. Fully buffered. Second serial port is optional.

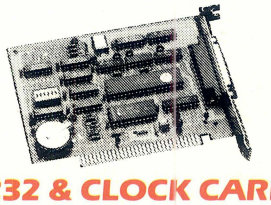
Cat. X18026 ..... **$54**



COLOUR GRAPHICS CARD

This card plugs staight 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 ..... **$112**

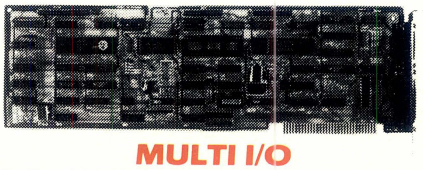


RS232 & CLOCK CARD

(WITHOUT CABLE)

This RS232 card supports 2 asynchronous communication ports. Programmable baud rate generator allows operation from 50 baud to 9600 baud. Fully buffered. Clock includes battery back-up and software.

Cat. X18028 ..... **$95**



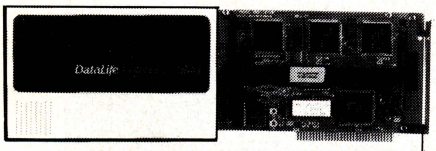
MULTI I/O & DISK CONTROLLER CARD

This card will control 2 x double sided, double density drives, and features a serial port, a parallel port, and a joystick port or games port. It also has a clock/calendar generator with battery backup.

Cat. X18040 ..... **$169**

ROD IRVING ELECTRONICS' AIM IS TO BE

THE CHEAPEST!!



VERBATIM 20 M/BYTE HARD DISK CARD

IBM* compatible, plugs straight in to your computers bus connectors! Includes Q & A software.

X20020 ..... **$1,095**

640K RAM CARD (SHORT SLOT)

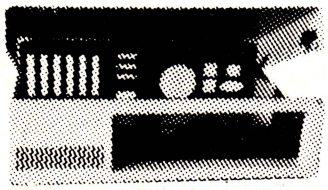
- 640K memory installed
- User selectable from 64K to 640K
- DIP switches to start address

..... **ONLY $89**

MULTI SERIAL CARD

- 4 RS232C asynchronous communication serial ports
- NS16450 Asynchronous communication elements (ACE)
- COM1/COM2 COMPATIBLE
- DTE/DCE Selectable
- Drive support for PC/AT, XENIX
- Interactive installation procedure available.

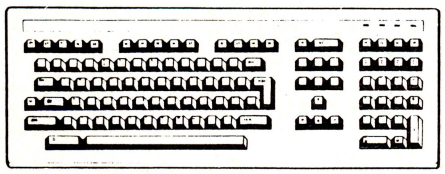
..... **ONLY $195**



"IBM XT TYPE" COMPUTER CASING

Give your kit computer a totally professional appearance with one of these "IBM type" casings. Includes room for 2 x 5¼ inch disk-drives, connection ports and mounting accessories etc. Dimensions: 490 x 390 x 140mm.

Cat. X11090 ..... **$89**

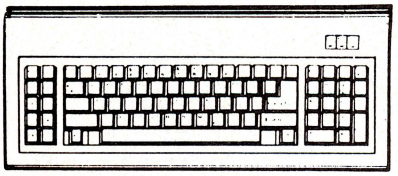


IBM* XT & AT COMPATIBLE EXTENDED KEYBOARD (105 KEYS)

These new keyboards are both XT and AT compatible!

- 20 Dedicated function keys
- Enlarged "Return" and "Shift" key
- Positive feel keys
- Low Profile Design, DIN standard
- Separate Numeric and Cursor control keypads
- Additional Functions: Key-in-Lock, Audio Beep, Previous Word, Next Work, Fast Repeat, Line Feed, Pause, Clear Screen, Reset.

Cat. X12022 ..... **$195**

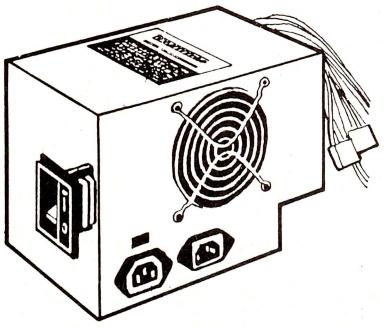


"IBM* XT TYPE" KEYBOARD

- 100% IBM* PC, XT compatible,
- 84 keys, including function keys, and a numeric keypad
- low profile keyboard design,
- proper placement of shift keys with large key tops to suit professional typists
- 3 step height/angle adjustment.
- Curl lead plugs straight into IBM* PC/XT
- Status displays, Power, Cap Lock and Numeric Lock

Just like the "real McCoy" only at a fraction of the price! Why pay more??

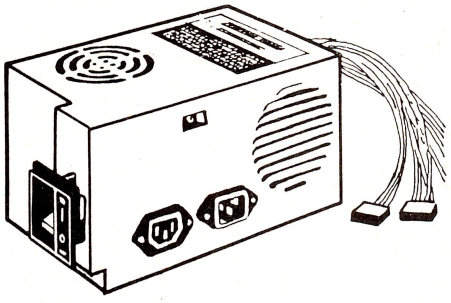
Cat. X12020 ..... **only $129**



150W SWITCH MODE POWER SUPPLY FOR IBM* PC & COMPATIBLE

DC OUTPUT: +5/13A, -5V/0.5A
+12V/4.5A -12V/0.5A

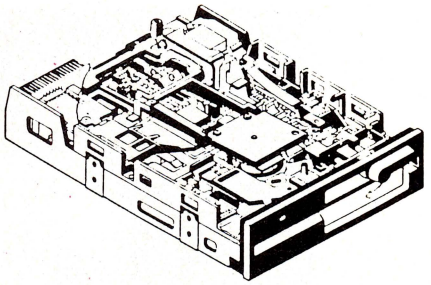
Cat. X11096 ..... **$149**



200W SWITCH MODE POWER SUPPLY FOR IBM* AT & COMPATIBLE

DC OUTPUT: +5/16A, -5V/0.5A
+12V/5A -12V/0.5A

Cat. X11097 ..... **$295**



NEC 1·2 M/BYTE DISK DRIVE

Top quality at an incredibly low price! Double sided, double density. Switchable 1·2 M/Byte to 720K formatted capacity. IBM* AT compatible.

C11906 ..... **ONLY $279**

NEC 20 M/BYTE HARD DISK

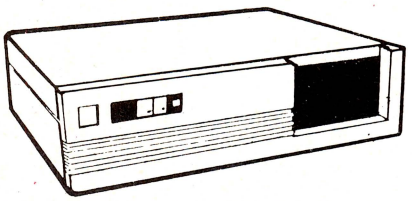
Includes DTC controller card. IBM* compatible.

X20010 ..... **ONLY $850**

MITSUBISHI 4851 DISK DRIVE

Slimline, 360K, Double sided, double density

C11901 ..... **ONLY $239**



"IBM XT TYPE - AT STYLING" COMPUTER CASING

Now you can have the latest AT styling in a XT size case. Features security key switch, 8 slots, and mounting accessories. Size: 490(W) x 145(H) x 400(D)

Cat. X11091 ..... **$99**

ROD IRVING ELECTRONICS

MELBOURNE: 48 A'Beckett Street. Phone (03) 663 6151
NORTHCOTE: 425 High Street. Phone (03) 489 8866
MAIL ORDER & CORRESPONDENCE:
P.O. Box 620 Clayton. 3168 Victoria.
TELEX: AA 151938

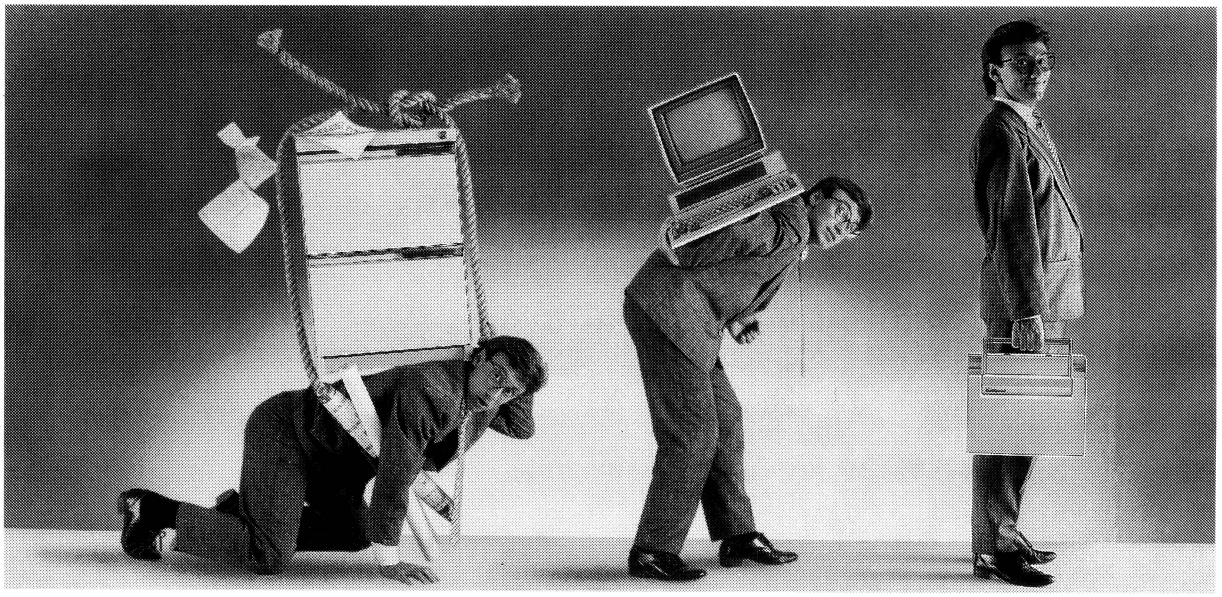
MasterCard VISA

All sales tax exempt orders and wholesale inquiries to: Ritronics Wholesale, 56 Renver Rd, Clayton. 3168 Victoria. Phone (03) 543 2166. (3 lines)

IBM* is a registered trade mark of International Business Machines Corporation
Errors and Ommisions excepted.

C&C Computers and Communications

THEY PERFORM THE SAME UNTIL YOU TRY AND TAKE THEM HOME.



NEC would like to announce a great step forward for portable computers.

The new NEC Multispeed.

It does everything your desktop computer can do, and your filing cabinet used to do (except break your back should you wish to take it anywhere).

Because the Multispeed does in fact, weigh less than 5.4 kg.

Which is all the more remarkable when you consider that it is actually faster than an XT desktop computer (9.54 MHz to be exact).

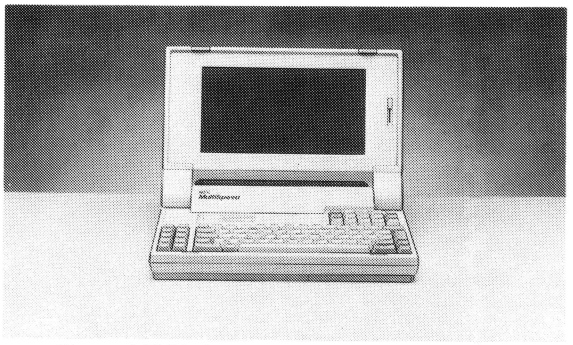
That it has an 80 column x 25 line supertwisted LCD display, 640 Kb RAM and inbuilt software applications such as word processing, data base and telecommunications.

That it's fully industry compatible, with full size keyboard (complete with separate numeric keypad cursor diamond) as well as its own rechargeable batteries. And at around $3,000 it represents the best value for money on the market.

All of which means that at last you can be as efficient in the field (or mountains or country or home or just about anywhere you happen to be) as you are behind your desk.

The new Multispeed portable computer.

We believe popular opinion will be heavily in favour of it.



Phone NEC Information Systems Australia Pty Ltd for your nearest authorised NEC dealer.

Sydney (02) 438 3544. Melbourne (03) 267 5333. Brisbane (07) 52 8544. Adelaide (08) 373 1966. Perth (09) 325 6988. Canberra (062) 51 4611. Auckland N.Z. (09) 391 449.

NEC

LINTAS NEC 3103

Words, Words, Words

Micropro's Easy and SPC's PFS:Professional Write

In his continuing search for the faultless wordprocessor, Keith Mackay checks out two packages, one for secretaries and the other for executives — both easy to learn and suitable for casual use.

Micropro's Easy Extra Version 1.5

EASY EXTRA, FROM the makers of WordStar, as the packaging, the documentation and the program itself point out with some frequency, requires two floppy disk drives or one hard and and one floppy drive to run. It requires also a minimum of 256 Kbytes under DOS 2.*n* and 320K under DOS 3.*n*.

The literature accompanying the program consists of two slim volumes, the Easy Guide and the Easy Mail Guide. Both are couched in the gee-whiz style favoured by a certain type of software manual writer — the type, that is, who ought to be condignly punished for offences perpetrated against the English language. The Easy Guide is as much a glossary of computer and word processor basics as a guide to the program, which is reasonable in that Easy is aimed primarily at the novice. Since Easy's help screens are more than adequate, this is not to be counted a shortcoming — indeed, it is an advantage considering the defects of many computer manuals

The package also includes a tutorial disk. Unlike some other word processor tutorials I have been exposed to recently, this one assumes that the user approaches life's challenges with a normally functioning brain, and provides a more or less complete coverage of the program's features.

Generally speaking, Easy is just that. It is an unpretentious, basic word processor, a fact which is reflected in its price. It is, nonetheless, a program of some elegance and has a number of features not found on more expensive products; and it is considerably simpler to learn and to use than other *soi-disant* beginner's programs I have come across.

Installation

The first easy thing is the installation procedure, although it is one of the most curious of its type I seen: Easy is supplied on six floppy disks, all the files being arranged in subdirectories, with hardly a COM or an EXE file to be found — the installation procedure copies these, as well as writing a CONFIG.SYS file reading 'files=20'. Installation is accomplished by loading the Easy INSTALLATION disk, answering a couple of questions about the system being used and then swapping disks around as files are copied either to hard disk or to floppies.

Selecting custom installation allows the program disks to be copied to high or double density floppy disks, as well as allowing the installation of the word processor only. Network installation is also offered, but the review copy gave the message 'Network Installation not available on this release', so I was unable to poke around in that part of the program.

A shortcoming of the installation procedure emerged when the disk onto which the spell checker had been copied turned out to be faulty — it was necessary to go through the entire business again, as I could see no quick way of setting up the dictionary disk only. However, it is perhaps asking too much that a procedure presumably designed to spare the user from worrying about baud and parity and the like should also make provision for every possible contingency.

Fine tuning can be carried out from the opening menu by selecting 'Change settings', which offers the choices of automatic text reformatting, justified or ragged-right display, overwrite or insert and so on, as well as such things establishing mailing list settings, drive/directory to be changed, and printers to be set up or cus-

Error, Error, Error

In Keith Mackay's article on WordStar and MicroSoft Word in our May issue, a phrase was inadvertently deleted. The published text read 'F10 acts as a kind of Alt key, toggling between two different definitions of the function keys.' This should have read 'In WordStar version 3.4, F10 acts as a kind of Alt key, toggling between two different definitions of the function keys.' We apologise for any confusion this may have caused. □

Product Details

Product:	Easy Version 1.5
From:	MicroPro International Corporation, San Rafael, California
Distributor:	WordStar Australia Pty Ltd, Suite 44, Chatswood Village, Chatswood 2067 NSW (02) 411 7255
Price:	$165.80 taxed

tomised. Fewer options are offered, of course, than would be available on a fully featured program — colours cannot be changed, for example, although since I use a monochrome screen, I cannot say what the colours are; and page numbers are centred at the bottom of the page, where in my own view they have no business to be — this is the default setting in WordStar also, although WordStar provides the opportunity of changing it with a dot command. Easy does, however, use six of WordStar's dot commands for headers, footers, pagination and line height.

On a standard density twin-floppy system, the installation procedure creates seven disks: the WP SYSTEM disk, containing the DOS COMMAND.COM file, CONFIG.SYS and some of the Easy program files; the Easy WP disk, which contains the word processor, the help files and so on; the DICTIONARY disk; the PRINTING disk; the EASYMAIL disk; the TEXT FILES disk; and the DATA FILES disk. The latter two of these have a tutorial function only, thus Easy occupies a total of five disks.

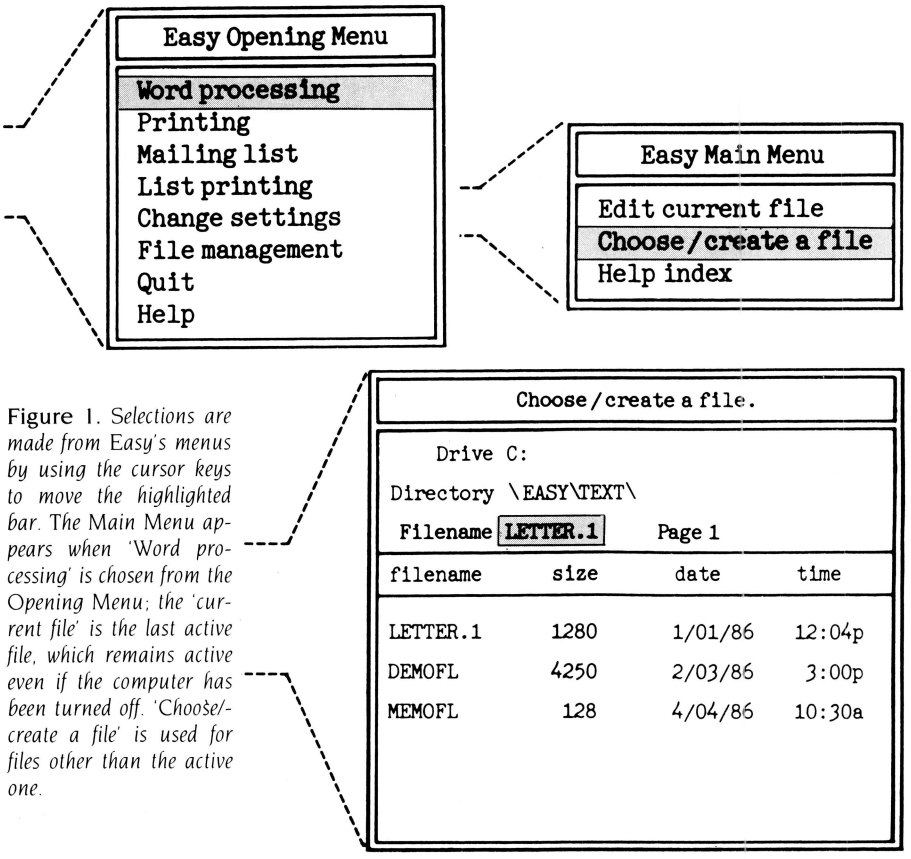


Figure 1. *Selections are made from Easy's menus by using the cursor keys to move the highlighted bar. The Main Menu appears when 'Word processing' is chosen from the Opening Menu; the 'current file' is the last active file, which remains active even if the computer has been turned off. 'Choose/-create a file' is used for files other than the active one.*

The Menu System

Easy is entirely menu driven. When the Easy SYSTEM disk is booted, the opening menu is displayed, offering the options of Word Processing, Printing, Mailing List, List Printing, Change Settings, File Management, Quit and Help, the last of these being accessible also within any of the program modules — see Figure 1. Entering word processing mode therefore involves booting with the WP SYSTEM disk and replacing it with the Easy WP disk.

No doubt there is some logic behind this, although it is not immediately evident — it does not appear to be a question of space, since there is ample room on a floppy disk for the Easy WP files and COMMAND.COM, which would have been a more obvious way to arrange things since word processing mode will probably be the most frequently selected. Things are, of course, simpler on a hard disk system, where the various modules are copied to subdirectories.

Once word processing has been chosen from the opening menu and the Easy WP disk loaded, the main menu is presented, offering the options of editing the current file (the last active file, which remains active even if the computer has been turned off); creating a file or editing a file other than the active file; or accessing the help index. The menu is displayed with the highlight bar on Edit current file, probably the most used selection.

Easy's entire command structure in word processing mode is based on the use of one key, F2. Pressing the F2 key displays a menu from which selections can be made either by moving a highlight bar with the cursor keys or by pressing the initial letter of the required command. Pressing F2 again reveals the second of the two screens of the menu, giving a total of 20 options. (See Figure 2.)

This is a system of extreme simplicity but great elegance, providing every basic word processing function. It allows the learner to select any option with ease, while at the same time offering the more experienced user the choice of hitting the F2 key and then the initial letter, which is a quicker way of going about things and functionally the virtual equivalent of a command driven system. If the command required is on the second menu, however, it is possible to make the wrong selection by going too fast. More thought, furthermore, could have been given to the the arrangement of the commands: it would have been more logical to place the most frequently used ones — the strictly editing functions — on the first menu and the cosmetic ones, so to speak, on the second. Neither Boldface nor Paragraph reform,

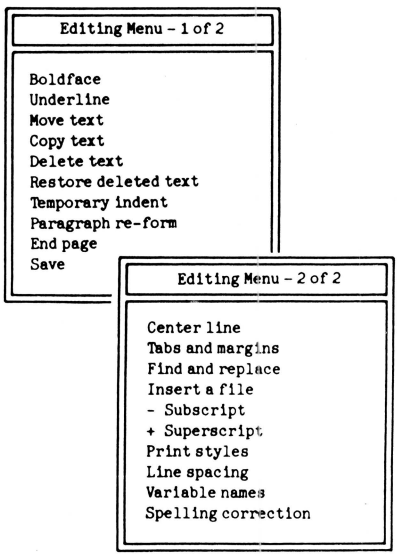


Figure 2. *Easy's entire command structure in word processing mode is based on the use of one key, F2. Pressing the F2 key displays a menu from which selections can be made either by moving a highlight bar with the cursor keys or by pressing the initial letter of the required command. Pressing F2 again reveals the second of the two screens of the menu, giving a total of 20 options.*

for example, should be on the first menu, while Find and Replace should not be on the second.

Cursor Movement

Cursor movement is very rapid and scrolling is among the fastest I have seen on any word processor — in fact, it is not a matter of scrolling at all, but the instantaneous replacement of one screen with another.

Loading and saving of files is very fast. Movement from top to bottom of a file is not so fast, however — fifty seconds on a 40K file. The screen display is somewhat cluttered and limited to nineteen lines, the remaining space being occupied by the ruler line, status line and a legend (seen in the upper left corner of Figure 3), useful only to novices. It is regrettable that the legend, at least, cannot be disabled — it takes little time to become an experienced Easy user, and an experienced user does not require this crutch. The space occupied would better be devoted to text display.

Search-and-replace operates in either direction (although Easy moves the cursor to the top of the file if backward replacement is chosen) and is global by default — it must be terminated with the Esc key if only one replacement is to be made. Making 44 replacements through a 40K file required one and a half minutes, which is by no means fast.

There is no limit to file length other than that imposed by disk space: like WordStar, Easy creates a backup to every file and also writes a temporary editing file while a document is active. The practical limit, therefore, is in the area of 120K, which is sufficient for most purposes. It is

Wordprocessor Shopping?

THERE ARE HUNDREDS of wordprocessing packages to choose from. To make your shopping easier (and to ensure you get what you want) start by reading reviews on different packages and by asking others what they're using and what they think of it — this will give an indication of what features you can expect and how much you should pay.

Draw up a list of specific features (and packages that have them) you'll need — always keep in mind what the wordprocessor will be used for: writing form letters and editing scientific theses, for example, need quite different features.

You will probably use you computer's wordprocessor more often than any other package, so choose it with care. Remember that the most-used features should take the fewest keystrokes. The following is a guide to the features and functions you should try in any package before buying it.

□ **Entering Text:** Enter about 10 lines of text, typing as fast as you can (if you're not a fast typist, enter nonsense broken up with spaces). The letters should appear on the screen as fast as you type them; when you reach the end of a line, the text should automatically start on the next line (wrap around) without delay.

□ **Copying Text:** Mark the beginning and the end of the block of text you've just typed, and then copy it below the original. Repeat marking the end of the block and copying it until you have several pages worth. As the size of the marked block increases does the program take noticeably longer to copy it? Is the marked block high-lighted? Can you copy across page breaks without any problems? Can you copy a marked block to another file and write a second file into the one you're editing (is it possible to display the directory you're working on without exiting the file — if not, can you remember the exact spelling of every file on the directory?).

□ **Moving the Cursor:** How easy is it to move from the top of your document to the end (the program should 'jump' without scrolling through the entire file)? Try moving to the beginning of the next word, the next paragraph, the beginning and end of a line — these should all take a minimum of keystrokes. Scroll the text through a page — how many lines of text are repeated on the screen after a scroll; if you scroll forward and then back, does the cursor finish in its original position?

□ **Editing:** Try inserting a word in the middle of a paragraph, manually replacing a word, and making two paragraphs from one. Can you delete the text on a line to the right and to the left of the cursor, as well as whole lines? Can you un-delete; is it possible to un-delete whole paragraphs? How many lines of text can be shown on the screen at one time; will the program let you turn the ruler and status lines off?

□ **Margin and Tab settings:** How easy is it to change, say, the right margin to column 132? Watch what happens when you type off the screen to the right — does the screen scroll sideways to the end of the text, or a screen-width at a time? Try clearing all tab stops, then entering new ones. Can you put tab stops (and decimal tabs) in any column, including the margin columns? Can you set temporary margins for indenting a block of text? Is it possible to save the margin and tab settings in the file, or do they have to be re-entered each time you open the file?

□ **Formatting:** Can you change the line spacing of the text on the screen? Will the text display with justified right margins, ragged left, centered? Does the file automatically re-format after you change, say, from justified right and left, to ragged right — if not, is it possible to re-format the entire file in one operation, or must it be done paragraph by paragraph? If you delete several words from a line, is the paragraph automatically re-formatted?

□ **Search and Replace:** Can you start searching and replacing from anywhere in the file (say, from the cursor position), or only from the beginning or end? In the text you've entered, replace all occurrences of 'the' with '$' — does that also change such words as 'there' and 'these' and can you choose not to? Can you use wildcards when searching and are the searches upper and lower case sensitive? Is there the option to confirm individual replacements? If you ask for a global (entire file) search and replace without confirmation, are the replacements done one by one onscreen (very slow), or is the operation done offscreen (much quicker)?

□ **Saving:** How easy is it to save a file you're working on and then resume editing — does the cursor automatically return to its position before the save? Are you prompted to save before exiting a file? Can you exit without saving? How easy is it to restore a file from the back-up?

□ **Printing:** Are there options for underlining, italic, sub- and super-scripts bold and over-printing — how are they shown on the screen? Can you change the letter spacing for printing within the file, say, from 10 characters per inch to 12? Will the program print multiple copies and start on any page of the file? Is it necessary to go through a list of options each time you want to print a file? While editing one file, can you print another?

□ **ASCII Files:** If you will want to use your files on more than one computer or transmit them via a modem, it's important that you can create ASCII files from them — try it. □

Cursor movement is very rapid and scrolling is among the fastest I have seen on any word processor — in fact, it is not a matter of scrolling at all, but the instantaneous replacement of one screen with another.

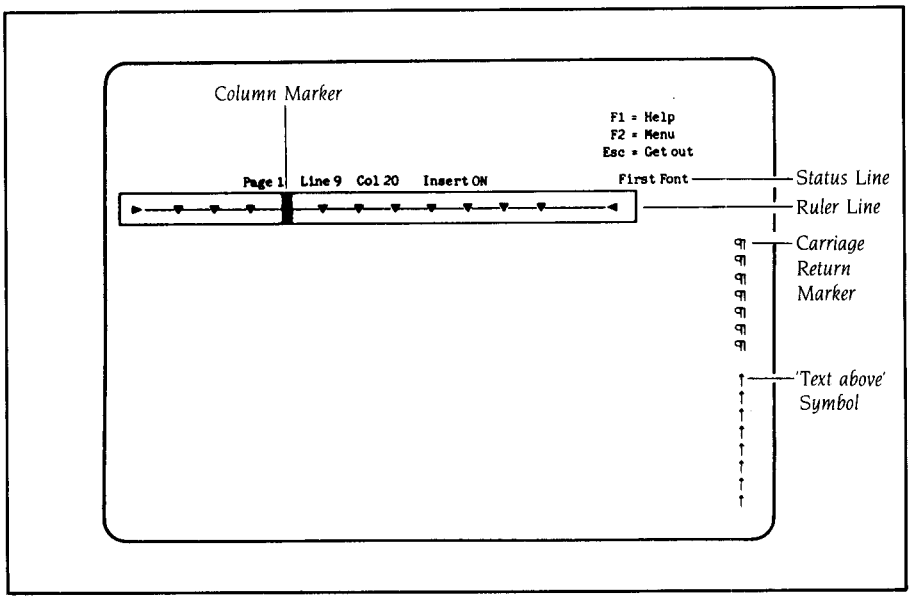


Figure 3. *Easy's typing screen is limited to 19 lines — the legend in the top left corner and the ruler and status lines cannot be disabled.*

not possible, however, to erase a file from within the program, as it is in WordStar, wherefore greater attention must be paid to file length as a disk becomes full. The main menu does, however, indicate file size and disk space remaining.

Spelling Checker

Easy's spelling corrector is a slightly modified version of CorrectStar, the program used with WordStar. The main dictionary has a vocabulary of 87,000 words. Personal or specialised dictionaries may also be created. A text is checked from the cursor position, which is a convenient feature. A suspect word is highlighted and correction suggested in a window. The correction offered may be accepted once or throughout the text, further suggestions may be requested, a correction may be entered from the keyboard or the suspect item may be ignored either once or throughout. Text is automatically reformatted as correction proceeds.

Easy allows Lotus 1-2-3 files to be incorporated in a text, which is a useful feature, although one might wonder whether anyone using Lotus would be likely to settle for such a simple word processor as Easy.

The EasyMail module lives on the EASYMAIL disk (or on a hard disk subdirectory) and is accessed from the opening menu on the Easy SYSTEM disk . It is essentially a simple file manager, and although it is not so powerful as WordStar's MailMerge, it is quite adequate for the maintenance of simple records and the performance of a standard mail merge, the printing of form letters and so on. Its speed and its menu structure mirror those of the word processing module, and learning is equally easy.

In sum, Easy is an excellent program. It by no means does everything, but what it does do it does cleanly, efficiently and unobtrusively. It would be hard to find a better program for a user requiring no more than a basic word processor. □

SPC's PFS:*Professional Write* Version 1.0

PFS PROFESSIONAL Write runs under DOS 2.0 or higher and requires a minimum of 2 floppy disk drives and 320K with DOS 2.*n* or 384K with DOS 3.2. The program is supplied on two floppy disks containing the word processor itself and the dictionary. Professional Write is best used on a hard disk — the word processor files occupy all but 4096 bytes on a standard double density disk, wherefore unless the help file is erased, it is not possible to create a self-booting floppy disk. Professional Write is not copy protected and is available also in 3½ inch format.

The documentation consists of a small spiral-bound volume which opens with a 'Quick Tour' of the program, outlining the processes of creating, saving and printing a document for the benefit of those unfamiliar with computers; and manages to do so without becoming patronising. The manual is well written and well organised although a little scant on technical detail. There is no tutorial disk, but extensive context-sensitive help is available on-screen.

Installation

Installation is one of the three options offered when the program is booted, the other two being Create/Edit and Exit. Installation involves selecting a printer from a lengthy list and keying in the likes of baud and parity settings; or entering data for an unlisted printer. Two printers may be defined. The rest of the installation procedure is concerned with location of files and setting screen colours, although with my monochrome monitor I was unable to determine what the three preset 'colour schemes' are.

Professional Write loads text directly into RAM, thus allowing extremely rapid cursor movement and text manipulation. It does not make back up files, however, which is rather a serious omission. According to the manual, the maximum file length on a 320K system is 'about 15 pages', while 'about 32 pages' is the limit on systems with more RAM. To put this rather more precisely, running Professional Write on a 512K computer I was able to create a file 66,017 bytes or 12,632 words in length, equivalent to 30 forty-line pages. When the maximum length is reached, Professional Write displays a message and allows the file to be saved.

Words, Words, Words

Keith MacKay reviewed Micropro's WordStar Release 3 and Microsoft's Word 3.1 in our May issue; and WordStar Release 4 in June. In August, he looks at Perfect Software's Perfect Writer and Micropro's WordStar Release 2.5. □

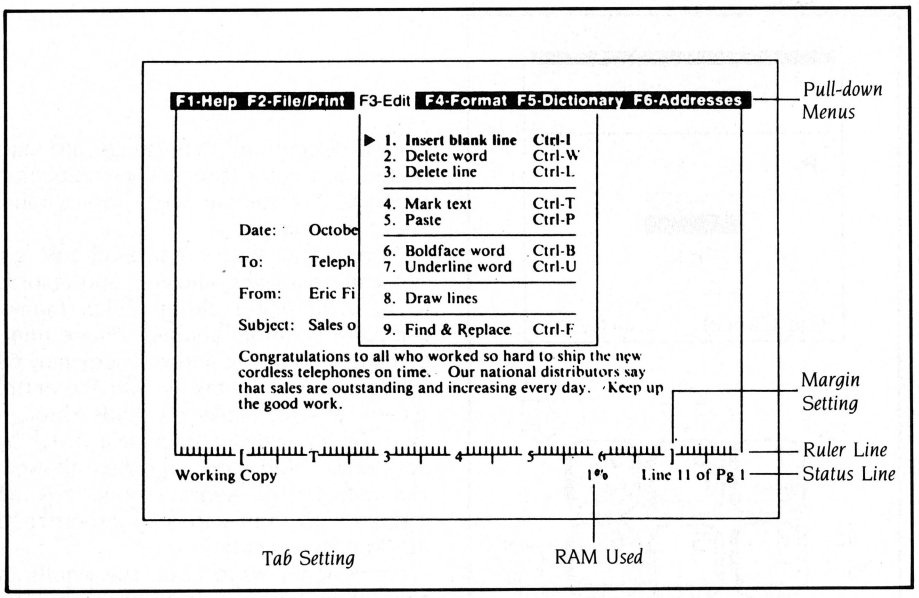


Figure 4. *Professional Write's typewriter-like editing screen, and the Edit menu.*

The typewriter act is unnecessary — no one felt it necessary to pretend that typewriters were fountain pens with very large barrels, but people managed to come to grips with that technology readily enough.

For the applications for which Professional Write seems intended, the maximum file length is probably adequate.

Professional Write is menu driven, with a total of five menus: File/Print, Edit, Format, Dictionary and Address. These are invoked with function keys 2 to 6, F1 being reserved for calling the help files. Further selections are made from sub-menus by moving the highlight bar. Certain commands are also available under 'Speed keys' as Professional Write calls them: mnemonic Control-key combinations such as ^G to load a file ('G' standing for 'get') and ^S to save a file.

The speed keys seem to have been rather arbitrarily chosen, however: there is no Control-key combination for Print, for example, although there is one for turning on Boldface — I would imagine that the former would be used rather more frequently. However, since Professional Write has a built-in macro facility, this is not a major problem, although it does perhaps suggest a failure to consider the user's convenience.

Editing

The editing screen is intended to duplicate the appearance of a typewriter, there being a three-sided border representing a sheet of paper and a ruler line at the foot resembling the line indicator on a key-bar typewriter. A message line underneath this displays the name of the active file, the mode currently operative and the percentage of RAM used. The top of the screen shows the commands assigned to the function keys. There are thus 19 lines free for text. The typewriter motif is maintained in that as text is scrolled, the bottom of the page is eventually indicated by the fourth line of the border. This seems a waste of space — a single line for page breaks would have been quite sufficient.

Further, since Professional Write seems to be aimed less at secretaries than at their bosses, there is no good reason for representing it as a typewriter, particularly the sort of old-fashioned machine near which no dynamic young executive worth his Porsche would be seen dead. And even were it not so aimed, the typewriter act is unnecessary — no one felt it necessary to pretend that typewriters were fountain pens with very large barrels, but people managed to come to grips with that technology readily enough.

Both search and search-and-replace operate forwards only in Professional Write. While Search is more or less immediate, search-and-replace is rather sluggish since the display scrolls and the text is reformatted as replacements are made. On the other hand, Block movement is instantaneous.

Lines and boxes can easily be drawn on screen with Professional Write. Choosing 'Draw lines' from the editing menu redefines the numeric keypad and allows lines to be drawn horizontally, diagonally or vertically. This feature would allow the creation of flow charts, floor plans, hierarchical structures and so on. Whether these

Press:	To:
Alt-0 (zero)	Use macros
Crtl-A	Proof word
Ctrl-B	Boldface word
Ctrl-C	Copy block
Ctrl-D	Turn double-spacing on/off
Ctrl-F	Find & Replace
Ctrl-G	Get file
Ctrl-I	Insert line
Ctrl-L	Delete line
Ctrl-N	Turn indent on/off
Ctrl-P	Paste block
Ctrl-S	Save document
Ctrl-T	Mark text
Ctrl-U	Underline word
Ctrl-V	Proof document
Ctrl-W	Delete word
Ctrl-X	Center line
Ctrl-Y	Turn drawing on/off
Del	Cut block

Figure 6. *When a menu is displayed, the relevant Speed Keys are shown to the right of the menu item.*

Product Details

Product:	PFS:Professional Write Version 1.0
From:	Software Publishing Corporation, Mountain View, California
Distributor:	Imagineering, 77 Dunning Ave, Rosebery 2018 NSW (02) 662 4499
Price:	$165.80 taxed

ABE COMPUTERS P/L
24 BURWOOD HIGHWAY
BURWOOD VIC. 3125
Ph. (03) 288 2144 FAX
(03) 288 9067 (03) 288 0781

MODEM KIT
$95
300/300 1200/75 75/1200

Direct Connect,
Answer/Originate.
Single sided for easy building.
Built & Tested $155.00
Complete with Phone . $240.00

Auto dial **MODEM** Kit $145.00

Autodial can be added to $95.00 kit for $50.00
This includes SOFTWARE

COMMUNICATION SOFTWARE for . . . . . Viatel, with Auto Log on.
PUBLIC DOMAIN SOFTWARE $10.00
ACCOUNTS RECEIVABLE SOFTWARE $20.00

SEGATE 20 MEG HARD DRIVE
$590.00
Full Range of PC add on cards.

PC — Compatible XT
from $1250.00
AT 12mhz from $3475.00
XT FLASH 12 mhz .$1850.00

7.7 Norton Utilities
386 18.7 Norton Utilities.
Performance Plus at $8300.00

BANKCARD — VISA WELCOME

Words, Words, Words

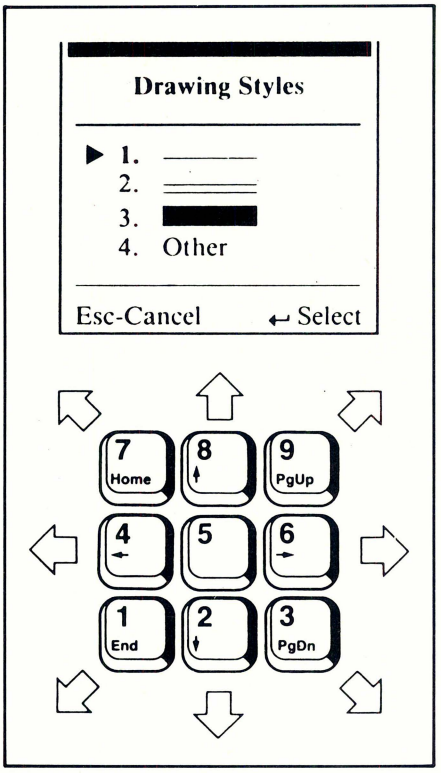


Figure 6. *Choosing 'Draw lines' from Professional Write's Edit menu redefines the numeric key and displays the Drawing Styles menu.*

can be printed, of course, will depend on the characteristics of the printer being used.

Professional Write's dictionary contains approximately 77,000 words and doubles as a thesaurus. A personal or specialised dictionary may be created also up to a limit of 5,000 words. Invoking the dictionary from the dictionary menu, it is possible to check either a single word or an entire document, or to look for a synonym. In either of the first two cases, an unrecognised word can be added to the dictionary or ignored, a correction can be entered from the keyboard or suggestions can be called from the dictionary. Repeated words such as 'the the' are flagged, which is a useful feature, but 'had had' is not recognised as a legitimate repetition.

Macro Features

The macro feature permits redefinition of the Alt key together with any alphanumeric key, thus allowing a total of 35 possible macros of 'an average of approximately 40 keystrokes each', according to the manual — the limit depends on the amount of RAM occupied. Macros may include commands, text or a combination thereof, and a macro may pause any number of times to accept keyboard input. One macro may not call another, however.

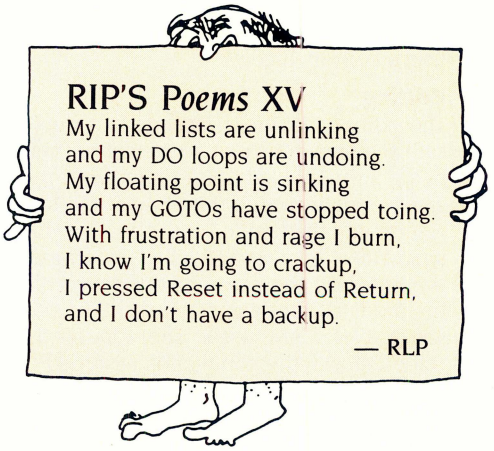
Form letters and mail merge are supported and data held in the companion program Professional Write Professional File may be used.

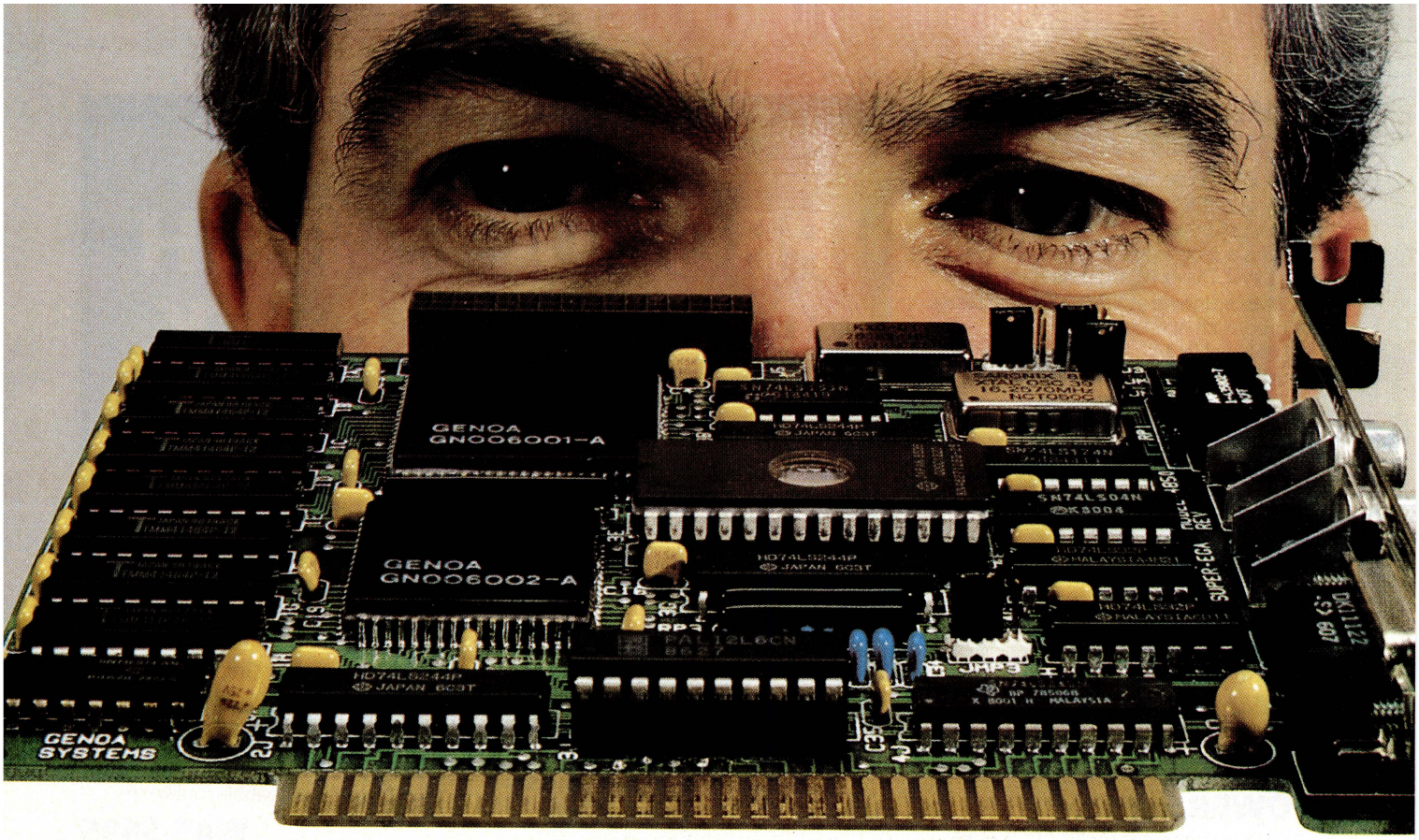
Professional Write's 'Address book' is a small file manager, allowing 256 records to be held under eleven fields (name, company, position, address, phone number, and so on). The address book may be called at any time, taking over the entire screen. A search may be made through any field, allowing for example a search by post code. Wild cards are also allowed. The data in the address book may be merged with form letters or exported to PFS:Professional File.

Professional Write is on the whole an efficient and easy-to-learn program. The only criticisms I can make of it are its space-wasting display and its failure to make back up files.

Summing Up

These two programs have a number of features in common and share broadly the same command structure, although to me Easy's appears more elegant. The main difference between them is that while Easy is an all-round beginner's package, a number of Professional Write's features suggest that it is, as it were, a specialised entry-level program, intended rather for managerial staff who have not the time, the need nor the inclination to learn a more complex word processor — the cover of the manual conveys this impression also, portraying a managerial-looking type sitting at a computer using the program. Neither is a fully-featured word processor, and neither pretends to be. Both can be mastered in a very short time and since neither demands the learning of complex commands, both lend themselves to casual use. □





For Real EGA Compatibility, Come to Our Level.

Our Super EGA™ board is compatible all the way down to the chip register level —so compatibility is embedded in the hardware, not in the software like most EGA boards. And these chips are special: they're our own proprietary VLSI design.

- Requires no software emulation.
- 100% compatible with EGA, CGA, MDA, Hercules, TGA (640 x 400) and PGA (640 x 480).

Super Speed

- Genoa's chip set and Super BIOS™ make this one of the fastest graphics cards made.
- Operates with 4.77, 6, 8, 10, 12 or 16 MHz CPUs—with higher speeds on the way.

Super Resolution

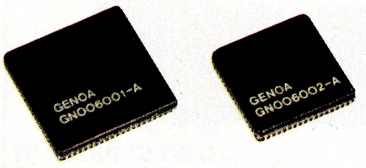
- In EGA mode: 132 x 44, 32, 29 and 25.
- Up to 1056 x 352 pixels.
- Supports highest resolution available today (PGA).
- Displays 3270 format (Models 2, 3, 4 and 5).

Super Reliability

- Low-power CMOS VLSI chip set assures long life.
- Our dealers will tell you: our boards are the most reliable on the market!

Super Driver

- Genoa's software driver for Lotus and Symphony spreadsheet applications makes the Super EGA board a clear winner. All 132 columns are displayed on the screen at once.



Genoa's proprietary VLSI ASIC super graphics chip set gives this half-card incredible speed and compatibility.

Super OEMs Wanted

In addition to the ready-to-use half card, Genoa offers the custom board designs and the advanced CMOS VLSI Super EGA chip set to OEMs. Call for details.

HYPEC
ELECTRONICS
HYPEC ELECTRONICS PTY. LTD.,
21 Ryedale Road, West Ryde NSW 2114
PO Box 483 Ryde, Sydney NSW 2112
Tel: (02) 808 3666 (4 lines)
Cable: LAMRON SYDNEY. FAX: (02) 808 3596
TELEX: AA71551 LAMRON
TELEPHONE ORDER HOTLINE:
(02) 808-3666
Bank cheque, money order, Visa, Bankcard & MasterCard accepted.

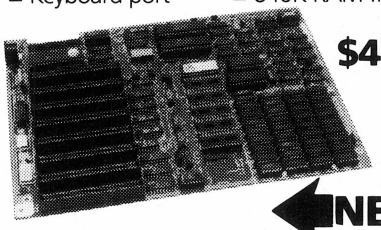
Super EGA and Super BIOS are a trademarks of Genoa Systems Corporation.
Lotus and Symphony are trademarks of Lotus Development Corporation.
FCC Approved.

THE ONLY PC PRODUCTS WITH A MONEY BACK GUARANTEE*

10MHz TURBO PLUS MOTHERBOARD

Boost IBM PC performance around four times with the fastest motherboard money can buy. This 10MHz, no-wait-state board is a drop-in replacement for the sluggish 4.7MHz PC motherboard.

- 8088-3 running at 10MHz/no wait states
- Turbo/normal selectable
- 4 channel DMA
- 8 expansion slots
- Keyboard port
- 640K RAM fitted



$475

NEW

8MHz Turbo Motherboard
still available at new low price.
Was $450.00.

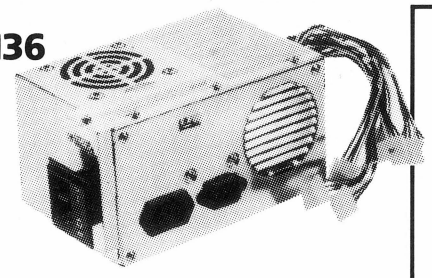
NOW ONLY $425

150W SWITCHING POWER SUPPLY

Drop-in replacement for IBM PC's puny 63W supply.

- Boosts PC to PC/XT specs. Essential to run hard discs and other ad-ons on PC.
- Outputs +5/1A, +12/5A, −12/1A
- All cables to disk drives, mother-board etc.

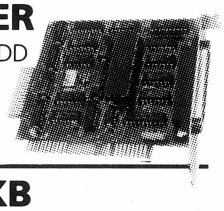
$136



FLOPPY DISK CONTROLLER

Controls up to 4 DS/DD 360K drives.

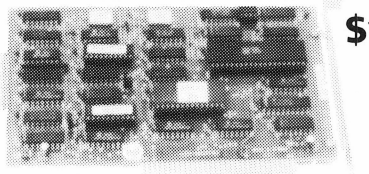
$65



1.2MB/360KB FLOPPY CONTROLLER

The perfect answer for backing up hard disks, archiving etc.

- Supports both 1.2MB and 360KB drives
- Fully PC/XT, PC/AT compatible
- For suitable drive see below



$145

DISK DRIVES

40 Track Mitsubishi.

Very fast track-to-track. 360KB DSDD. Lowest price in Australia.

$245

1.2MB Mitsubishi.

Super high density. Superb construction and reliability. Works with 1.2MB floppy controller.

$285

20MB NEC Hard Disk.

Very fast and super reliable. Best price in town.

$695

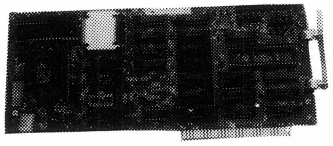
Complete with controller.

$895

AUSTRALIA'S BEST SPEEDUP CARD

Speed up your PC over 7 times with our superb new speed-up card.

- 80286 CPU *plus* 8088 for complete software compatibility
- Clock rate up to 8MHz (selectable)
- RAM on-board for disk cache
- DMA support
- Socket for 80287 co-processor



NEW **LOWEST PRICE IN AUSTRALIA**

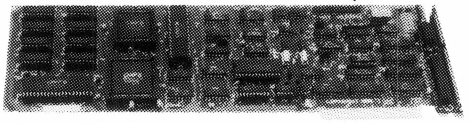
$595

VIDEO CARDS Enhanced Graphics/ Printer Adaptor

Now at an even lower price while stocks last.

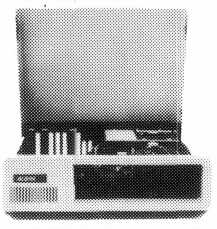
- Functions as Colour Graphics (CGA), Enhanced colour graphics (EGA), Hercules graphics and monochrome.
- 256K RAM for flicker free scrolling
- Suits PC, PC/XT, PC/AT and compatibles
- fully Hercules compatible (unlike the competition)

WAS $695
NOW ONLY $595



XT Style Case with Hinged Lid

Perfect for building your own PC.

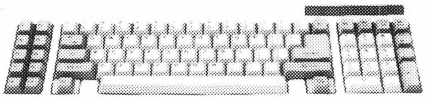


$95

XT/AT Keyboard

- Full AT layout
- PC/XT, AT switch selectable
- Superb action

$175



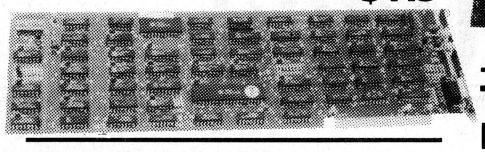
14 DAY MONEY BACK GUARANTEE

All products carry a 14 day satisfaction guarantee. If you are unhappy with any of our products for any reason, return them within 14 days, in original condition, for a full refund (excluding freight charges).

Colour Graphics Video Card

- Suits RGB and composite colour monitors
- Light pen interface
- Fully CGA compatible
- 40 x 25 & 80 x 25 (text), 640 x 200 (mono) and 320 x 200 (colour)

$115

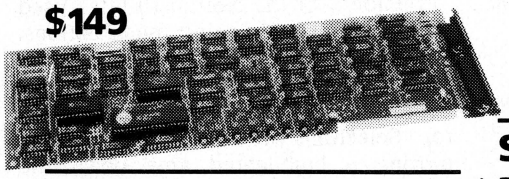


Mono-Graphics/ Printer Card

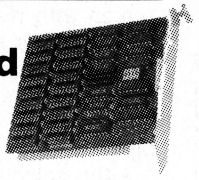
- Hercules compatible
- Interface to TTL monitor
- 720 x 348 resolution
- 80 character x 25 lines with 9 x 14 dot characters

Reduced for this month. Was $165.

$149



MEMORY 512K Ram Card Short Slot

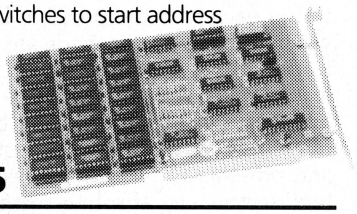


- 512K RAM installed (41256 chips)
- DIP switches to start address

$195

640K Ram Card – Short Slot

- 640K memory installed
- User selectable from 64K to 640K
- DIP switches to start address

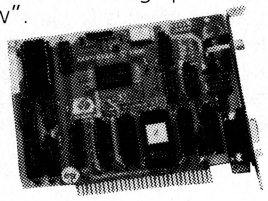


$225

Colour Graphics/Mono Graphics – Short Slot

This amazing new card drives RGB colour, composite colour or a TTL monochrome monitor. And it fits in a short slot. Full CGA support. Can be used as a colour graphics card with a monochrome display and still run all the colour programs. The card even cures the dread colour graphics "flicker and snow".

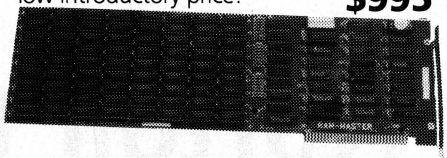
$195



2MB EMS Memory Card

Yes, an affordable "Above Board" memory card. Full 2MB of high speed RAM. At a low introductory price:

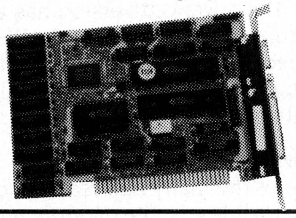
$995



Turbo Mono Graphics/ Printer – Short Slot

If you want fast, flicker free scrolling and full Hercules compatability, this is it! Perfect enhancement for slow scrolling programs like Microsoft Word etc. The ultimate monochrome graphics card.

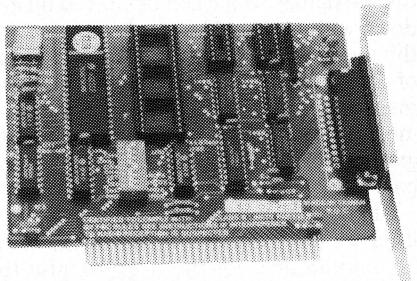
$175



Serial RS-232 Card

- Independent receive clock input
- 2nd serial port option
- Full buffering eliminates need for precise synchronisation

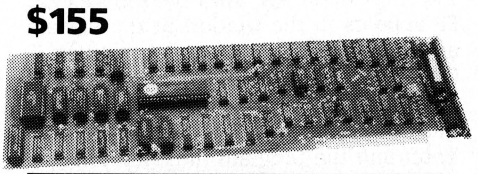
$55



Colour Graphics/ Printer Adaptor

Attaches to IBM-compatible RGB monitor; provides complete compatibility with IBM Colour Graphics Adaptor. Equivalent to the IBM colour/graphics adaptor with additional printer port to replace the video port originally supplied by IBM.

$155

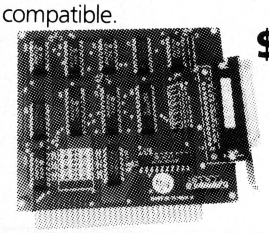


SUPER SPECIALS

10MHz V20 chips	$29.00
10Mhz V30 chips	$49.00
NEC Multisync monitor	$1350.00
TAXAN TTL Amber	$299.00
TAXAN TTL Green	$289.00

Parallel Printer Card

- Standard TTL level
- Centronics printer port, full IBM, EPSON printer compatible.

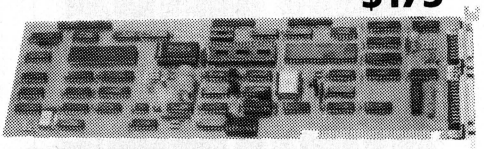


$44

Multi I/O Card

- Floppy disk adaptor, 2 drives DS/DD
- 1 serial port, 1 parallel port, 1 joystick port
- Clock/calendar with battery backup

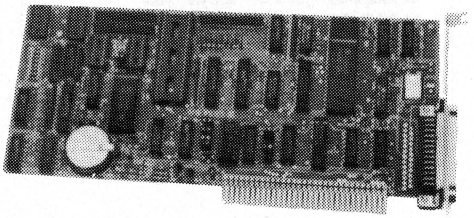
$175



I/O Plus Card

- 1 serial port, 1 parallel port, 1 joystick port
- Clock calendar with battery backup

$136



RING FOR LOWEST PRICE ON ALL PC/AT EXPANSION BOARDS

ELECTRONIC SOLUTIONS

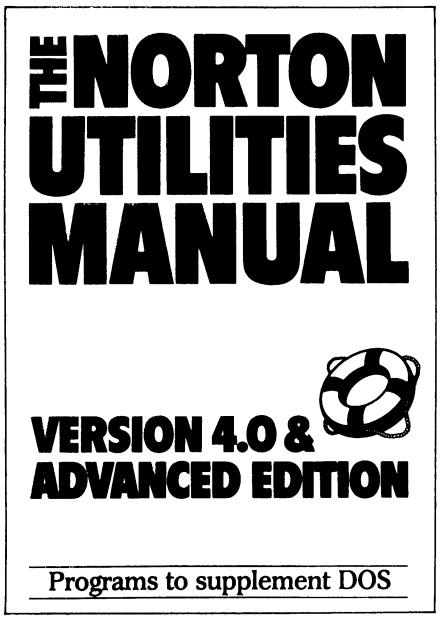
Electronic Solutions

PO Box 426 Gladesville 2111
Phone (02) 427 4422.

We accept both Bankcard and Mastercard. Mail order our specialty. All prices include sales tax.

- All products carry a 14 day money back guarantee
- All products carry a full 3 months warranty
- All cards come with full documentation
- Ring for quantity discounts and tax free prices.

Norton Utilities



Norton Utilities Version 4 and Advanced Edition have just been released. As John Hepworth discovered, both packages are worthwhile advances on Version 3.

ERASING A VITAL file is one of the first and greatest worries ever faced by personal computer users. Many people have written utility software to overcome this problem. Peter Norton was probably the first to do so and he has continued to write software to unerase files as well as a host of other disk management tasks.

Just released are Norton Utilities Version 4 and Norton Utilities Advanced Edition. Both are worthwhile advances on the previous Version 3.

The two new versions are almost identical. The advanced version has a few extra features including Format Recover and Speed Disk for hard disks, and the addition of FAT, Directory and Partition Table Editors.

Norton Integrator

One of the many new features of the Norton Utilities is the Norton Integrator, a DOS shell specifically customised for the Norton Utilities. This is accessed from the DOS command line by typing NI.

On a third of the screen that appears is a list of the program names for the Norton Utilities. A menu bar will be over one of the file names which can be moved up and down with the cursor keys. As it is moved, the messages in the right hand two thirds of the screen change. What is in these messages? A concise and complete statement of the use and options of the program which has its name under the menu bar.

At the bottom of the screen appears a little window with the name of the same file and an area for the user to enter the options for that program. After typing in the options, hitting Enter will run the program. When the selected program finishes, the Norton Integrator screen will reappear.

As an example, imagine you want to use the File Find program to locate all files with the extension .DOC in any directory on the disk. Scroll the menu bar down with the cursor keys till it is over FF.EXE. FF appears in the window at the bottom and the right hand side of the screen is full of relevant help information.

Typing in *.DOC /A, and the message in the window becomes FF *.DOC /A. Press Enter and the program runs, returning to the Norton Integrator when finished. The inclusion of the Integrator makes the use of the smaller programs simpler and far more convenient than before.

The Main Program

The biggest and most vita part of the Norton Utilities is the main program NU.EXE. It is arranged with a series of menus in a simple and logical arrangement. Three main strands can be chosen from the first menu. These are Explore Disk, UnErase and Disk Information.

Version 3 of the Norton Utilities used the function keys to select menu options. On Version 4 this is no longer done, a blessing for those with the new style keyboards with 12 function keys across the top. Selections are now made by either moving a highlighted area down the screen with the cursor keys and pressing Enter when it is over the name of the desired option, or by pressing a letter key which matches a letter in the option name which is both high intensity and in capitals.

After selecting Explore Disk another menu appears. This allows the user to choose an item to explore, show information on the selected item, edit or display the item, search the item or the disk for data, write the item to d sk, or return to the main menu.

Drive and directory can be selected, as can a file, cluster, sector or absolute sector. In each case the possible items from which a choice can be made are presented to the user in a logical manner. When selecting a directory a visual 'tree' is shown and the directory is selected by placing the cursor on the desired directory name and pressing Enter. When selecting clusters, sectors and absolute sectors the appropriate range of options are shown.

Let us imagine that we have selected a particular file. When this information is asked for it is then displayed on a screen which shows the file name, the position in the directory its entry is to be found, name, attributes, creation date and time, starting cluster and sector number, and size.

A diagram that takes up about half the screen shows physically where on the disk the information can be found. Fragmented files occupying more than one cluster at physically separated locations can easily be seen on screen.

Norton Utilities

Editing Files

Editing and displaying an item is one of the most useful and powerful features of the Norton Utilities in both Version 4 and the Advanced Edition. Either the whole screen is used to display the file in ASCII, or alternatively the left two thirds shows the file in HEX and the right third shows the same part of the file in ASCII.

Individual characters can be changed either by typing printable characters in the ASCII window, or by entering the two digits of hex from 00 to FF for a character in the left window. Why bother?

From time to time you will have a file which gets an end-of file marker (a character with the decimal value 26 or hex value 1A) in the wrong place and data after the marker may no longer be accessible. Or there may be messages placed on screen by a compiled program which are unacceptable. Both these and many other reasons to patch a file have happened to me.

In one case a WordStar file somehow got a End Of File marker half way through the file and WordStar would not look beyond it. Replacing the EOF marker with a space fixed the problem. In the other case, a compiled program put sick, boring and childish jokes randomly on screen. Again I was able to overwrite them with spaces without needing access to the source code.

It is conceivable that the user could even replace help messages with ones in another language without returning to the source code if it was unavailable.

With the Advanced Edition, users have the ability to directly edit the directories, File Allocation Table and Partition Table. Very useful for experts, best left alone unless you are absolutely sure about what you are doing.

Unerasing Files

The one compelling reason that most people find to buy Norton Utilities is to unerase a file. Unerase? Surely this is a contradiction and an impossibility. Not at all, as long as a few ground rules are observed.

When a file is erased the data is not lost immediately. Only the first character of the file name is replace by DOS within the directory entry. The data remains where it was on the disk. Provided the user attempts to unerase the file before another file is written to the same part of the disk there is a good chance of recovery.

Norton provides two ways of unerasing. QU.EXE is a separate program which does a 'best guess' job of finding the parts of the file and unerasing it. This may not always work, depending on what has happened to the disk. Within the main NU.EXE program is a far more comprehensive unerasing program which offers the user far more power and control over the process.

The basic rule is to make sure that no file is written to the disk before unerasing is attempted. Following that, if one is unerasing a floppy, use DISKCOPY to make an exact copy of the disk and unerase the copy. Likewise, if unerasing a file on a hard disk, do a complete backup first and then unerase. If you have trouble unerasing there is still another copy of the active files and probably of the unerased files as well so a second try is possible.

The distribution disk comes with some intentionally erased files and the manual has an excellent tutorial on the simple and comprehensive ways of recovering them. I have used previous versions of the Norton Utilities to unerase vital files after colleagues and I have suffered disasters in the past.

The third strand of NU.EXE is Disk Information. Here the space used by files on the disk can be seen in diagrammatic form. Full details of the disk are shown including its size, free space, bytes per sector, sectors per track, number of sides, number of cylinders, sectors per cluster, bytes per cluster and the number of files which can appear in the root directory. This is all valuable information at some time or other.

Norton Utilities comes with a host of other useful programs, which I will mention in alphabetical order —

Improvements

System Information (SI) — now has three performance indexes: Disk Index, Computing Index, and Performance Index, as well as extended and expanded memory, video mode, graphics adaptors and other features.

Directory Sort (DS) — now has a full-screen, interactive mode that lets you arrange your directory exactly as you like.

Disk Test (DT) — now lets you copy with read-errors to safe locations.

File Attributes (FA) — includes a switch to reset all attributes to normal.

File Find (FF) — now co-operates smoothly with networks.

List Directories (LD) — can now display the directory structure in a graphic 'tree' format.

List Print (LP) — can now print extended lines (up to 256 characters).

Quick Unerase (QU) — will now let you specify filenames on the command line. □

ASK is a program used to make batch files interactive. A message is shown asking the user to press a key to respond. The DOS error level is then set, and the batch file can branch depending on the error level. Unlike many other programs with similar functions, a range of acceptable responses can be set and the result does not depend on the case of the response — *y* and Y would have the same effect.

BEEP sounds the speaker. Without any parameters it gives the same sound as echoing control-g to the speaker. In addition, the duration, pitch and number of repetitions can be specified on the command line. Alternatively, an ASCII file can be created and BEEP can read and play the notes specified in it. ▷

Product Details

Product:	Norton Utilities Version 4 Norton Utilities Advanced Edition
Manufacturer:	Peter Norton Computing 2210 Wilshire Boulevard, Suite 186 Santa Monica, California 90403
Distributor:	P C Extras PO Box K9 Haymarket, NSW 2000 (02) 319 2155
Price:	Version 4 retail $185 Advanced Edition retail $351

Norton Utilities

New Programs
Norton Utilities V4.0
ASK — a utility for making batch files interactive.
File Info (FI) — for attaching up to 65 character comments to each filename.
Norton Intergrator (NI) — an on-line reference and central 'command post' for all the Utilities.
Norton Change Directory (NCD) — for changing directories via a full-screen graphic display of the directory tree structure. Norton Change Directory also has a **Quick Change** feature that lets you change to a directory from the command line by typing the directory name only, instead of the full pathname. □

DS (Directory Sort) sorts the entries in a directory by name, date, time, size or extension. All subdirectories, and the files in them, can also be sorted. The options for DS can be specified on the command line. Otherwise a menu appears and DS is driven interactively.
DT (Disk Test) reads selected parts of disks and reports any errors found. If desired, bad sectors can be marked off, preventing their use in the future. Data from suspect sectors can be transferred to good sectors, though if it has already been corrupted there is no way to fix the data.
FA (File Attributes) allows the attributes for one or more files to be set or cleared. What are file attributes, I hear someone ask. There is one byte in the directory entry of each file. Four of the bits are used to give information to DOS, and can mark a file as hidden, archive, read only or system. Any combination can be set at a time.

A read only file cannot be erased or overwritten. A hidden file cannot be seen in a directory listing. An archive file has been changed since the last backup. A system file is used by DOS for its own purposes. It is essential for all users to have at least one program to set and clear file attributes.
FF (File Find) looks through one or more disks for a file. The command FF *.DOC /A would look through all directories on all disks attached to your system for a file with the extension .DOC. Fabulous!
FI (File information) gives you a better understanding of those file listings which are a little cryptic. FI creates another file in the desired directory and allows up to 65 characters of comment on each file to be entered. Entering FI will then list each filename with date, time, size, and the first 36 characters of the comment. Entering FI filename.ext shows the full 65 characters and allows them to be edited.
FR (Format Recover) is provided in the Advanced Edition (not the Version 4), which can recover the files on a hard disk after it has been accidentally formatted.
FS (File Size) lists all the files in the directory with their files sizes and the amount of disk space used. These are not the same as each file uses whole clusters and the difference between a file's actual size in bytes and the total size of clusters used can be quite large.

The Norton Utilities have always shown an insight into the workings of DOS and disks and into the needs of users. The new versions are no exception, and are an essential part of every user's tool kit.

FS can also check if there is room on a target disk for a group of files before an attempt is made to copy across.
LD (List Directories) gives a list of directories on the chosen disk.
LP (Line Print) will print out any file and set margins and pagination. It can also strip the high bit from WordStar files and convert EBCDIC to ASCII.
NCD (Norton Change Directory) gives a visual diagram of the directory tree on a disk. Moving the cursor over a directory and pressing Enter changes the default directory to the one selected.
SA (Screen Attributes) allows the foreground and background colours of the screen to be set, but only if the device driver ANSI.SYS was activated by the CONFIG.SYS file when the system was started.
SI (System Information) is a standard benchmark worldwide for PCs, sysinfo also specifies the system configuration, BIOS date and gives much more information.
TM (Time Mark) provides a stop watch for timing processes to the second, which can be invoked manually and from batch files.
UD (Unremove Directory) allows you to recover a few files in a subdirectory, after you have erased them and removed the directory. The directory information is in the removed directory, so first Unremove that directory with UD and then unerase the file.
VL (Volume Label) in DOS allows an 11 character name to be given to each disk and appears at the top of each directory listing. VL allows this label to be created and changed at will.

WIPEDISK and WIPEFILE allow either a specified file, or all files on a disk, to be overwritten with a selected character. Now no-one can ever get the file back. Just the thing if one is cursed with obsolete but critical information and has an espionage problem!

Documentation
An excellent 175 page A5 manual comes with both Norton Utilities Version 4 and Norton Utilities Advanced Edition. In addition, a 34 page booklet explaining the ins and outs of disks comes with the Advanced Edition.

The two new versions of Norton Utilities are top value. All users need the features of Version 4. The guru in each organisation should probably have a copy of the Advanced Edition to get someone out of that ultimate disaster.

The Norton Utilities have always shown an insight into the workings of DOS and disks and into the needs of users. The new versions are no exception, and are an essential part of every user's tool kit. □

Some New Features in NU
Point and Shoot, and Hot-Key — command selection for faster and easier menu navigation.
Help Screens — are context sensitive.
Speed Search — for fast selection of file names.
Range manipulations — of both blusters and sectors.
Zoom — in Unerase will automatically find free clusters or sectors.
Dual-tracking cursors — in the hex/text format display.
Undo — for undoing edits.
Save — recorded file data (or any other data) to another disk. □

NEW program from Dr Geoffrey Lewis

Lewis CASH FLOW

Manage Your Money Effectively

For PERSONAL Use

CASH FLOW helps you manage your finances better. You can find out your cash position at any time in the future.

This helps you:

- plan for purchase of big-ticket items such as holidays or a new car.
- plan payments of credit cards and loans.
- determine how and where to cut down spending.

For BUSINESS Use

Manage your cash position efficiently. Determine when to invest excess funds. Plan your purchase of capital expenditure. Reminder of expenses. Produce a report of payments due to creditors in date order.

Interface with CROSS-CHEQUE.

COMPUTERS

All the programs run on IBM and other MS/DOS. We are pleased to announce versions for the **MACINTOSH**. CROSS-CHEQUE and CASH FLOW run on CP/M80 and Macintosh. PAY-PACK runs on the Mac.

DEMO PACKS

Demo packs, which contain the complete manual and program, are available at only a fraction of the price. Not just a fancy scrolling display with impressive graphics but the real program. Actually test it out on your own computer! If you like the program you pay the balance of the price.

CUSTOM-MADE SOFTWARE (SALES) PTY LTD
P.O. Box 507,
Randwick NSW 2031
Tel. (02) 399-8566



Dr Geoffrey Lewis: *"This is your opportunity to buy a quality Australian-produced accounting package priced below the $100 mark. CASH FLOW will be invaluable for either personal or business use."*

Lewis PAY-PACK payroll

Handles employees on annual salary, hourly wages or casual. Provides for allowances, deductions and penalty rates and lets you pay employees by cash, cheque or direct deposit. Produces pay slips and group certificates. Keeps track of holidays and sick leave. Currently used by over 300 firms in more than 35 different industries throughout Australia.

HOT-LINE SERVICE

Telephone assistance is available daytime, evenings and weekends on 399-8566.

Lewis CROSS-CHEQUE

Tracking Your Income & Expenditure

Enter details directly from your cheque butts or deposit slips. Produce detailed reports about your business at the press of a button. At the end of the year you can produce a total report for your accountant. Does bank reconciliation. Handles 120 categories of income and expenditure. Ideal for small to medium businesses, professionals, farms, shops, etc. Over 400 users.

"If ever there was a small software accounting system that could be described as ideal for the very small business, Lewis Cross-Cheque would fit the bill." Dan Lawrence, reviewer for Your Computer, August 1986.

Lewis LETTER MAGIC

Produces a complete letter with as few as four key-strokes. If you write a lot of letters, Lewis LETTER MAGIC is ideal as it is a word processor specifically designed for letter writing. It also includes a powerful integrated database of the details of the businesses and individuals you deal with. This means you can also produce address labels, simple invoices, phone lists, reports of sales prospects, etc. Also ideal for clubs and companies that keep track of clients, prospects and members.

Name: .....

Address: .....

.....

Phone: ..... Computer: .....

	Pay-Pack	Cross-Cheque	Cash Flow	Letter Magic
Send more info.				
Send demo. pack	$60 ☐	$36 ☐	$36 ☐	$36 ☐
Send full system	$786 ☐	$318 ☐	$99 ☐	$454 ☐

All prices include Sales Tax.

If paying by Bankcard or Mastercard, include card name, number, expiry date and signature.

A Toy Shop in Your Computer

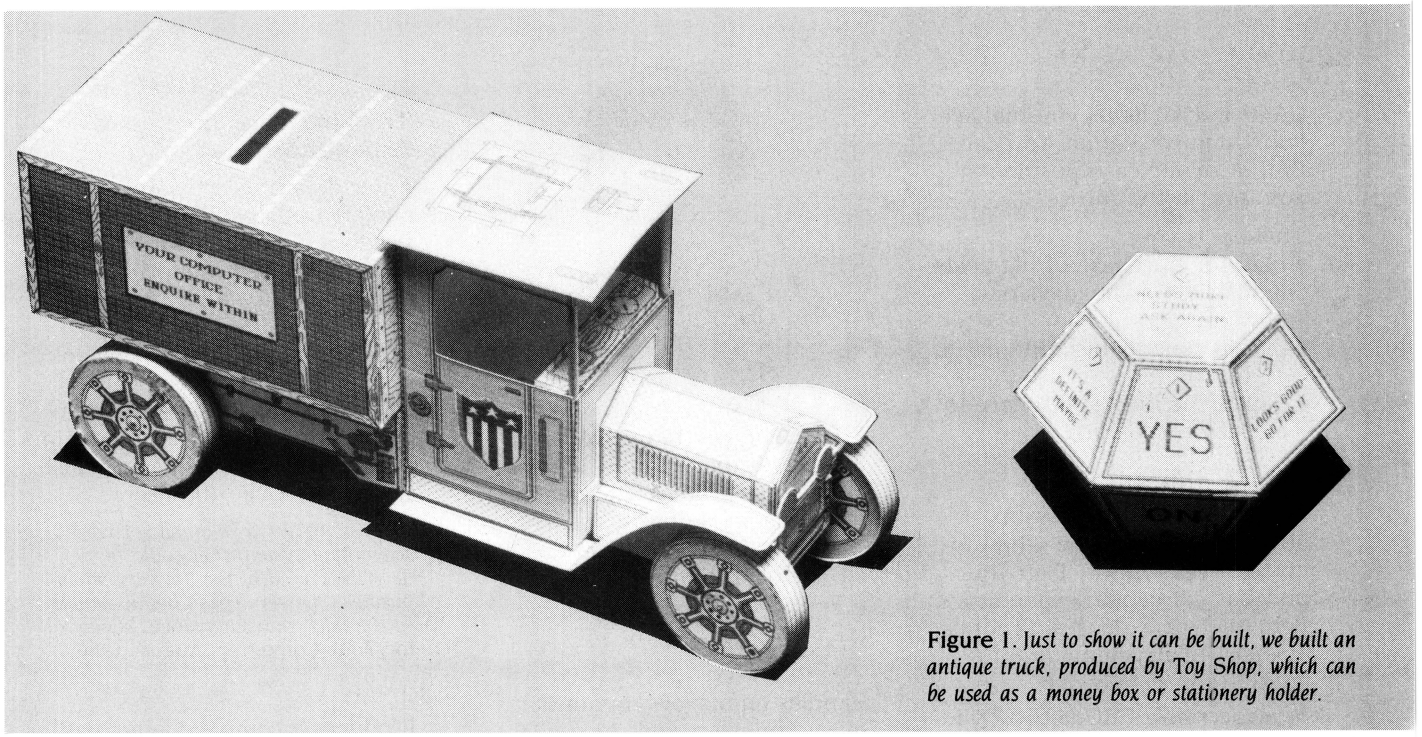


Figure 1. *Just to show it can be built, we built an antique truck, produced by Toy Shop, which can be used as a money box or stationery holder.*

Want something that is fun, creative, and uses a computer? Jeremy Star has found a constructive package called Toy Shop that lets you build what you design.

MY GRANDFATHER ALWAYS used to bug me about my toys; he would say that my toys are far more violent than what he had. I would ask what sort he had, and he would reply 'Models of war planes, little speed dragsters and medieval catapults that actually worked.' (Quaint.)

It's possible to re-create that passive past and the possible future with Toy Shop, a computer run design package which allows you to print out templates of your designs and build them.

There is a very old-world feel to the program, as most of the models are designed from historic cars and planes. There is even a model steam engine! The more modern counterparts take on this 'pre-war' feel, which enhances the package and the models.

The models even work! But here's the clincher — you have to build the models! The easy bit about Toy Shop is the time spent on the computer. The hard part involves manual dexterity.

The unfortunate part about the program is that it does not run on Apple's Mac SE or Mac II, since it was developed for the superseded Mac range. Hopefully Broderbund, the developers of the package, will come out with an update soon. Also watch out for a problem with Commodore printers which are not compatible with the graphics.

I looked at the Macintosh version, which is very easy to learn. Most of the commands are obvious, and if you're the type who jumps into a program before reading the manual, it's fun discovering the not so obvious commands. On other computers, the program is menu driven. I discovered this because the Manual is universal, covering all the computers.

Presentation on the Mac is neat and efficient. There are only two menus on the menu bar; every command you need appears on the screen, and every window appears when it is needed. The graphics are standard but it is pleasing to see a nicely organised program.

One nice effect is the voice that announces the toys as you scroll down the item window. It even reads out the description if you click in that area. The toys range from model cars and aeroplanes to zoetropes and oracles.

My favourite toy has to be the steam engine. It is a challenging toy that can be linked to other toys in the package. The cutest toy is the Carousal, but it's difficult. The toy that is the most fun is the Oracle. Ask it a question and it will literally spring up with an answer (even a 'fixed' answer if you want).

Once you've selected the toy, you can then personalise it. The decals, text and paints of the toy can be changed to suit your taste. Not all these changes are available for every toy. The Oracle can have its text and paints changed; the Flying Propeller is limited to paints.

The decal is a whole graphic. Some toys will have a range of decals to choose from, or you can design your own. You can even change the ones provided. The text is what's written on the toy. There are various fonts available and you can also choose the style of the font.

One interesting feature of Toy Shop is that different fonts are available for different toys. 'Paint' is the way the toy is shaded. You can edit or create paint patterns to your heart's content.

Once the changes have been made, you can save the toy and print it. On an Imagewriter II set on high print quality, it takes about 2.5 minutes to print a page. I hope you have a fast printer as some of the layouts for the toys take up five pages. My Macintosh Toy Shop does not print in colour, which is an unfortunate drawback for the Mac Program. I couldn't learn from the manual if colour printing is available for other versions.

If you do want coloured toys, the manual suggests that you colour the toys by hand before you start building.

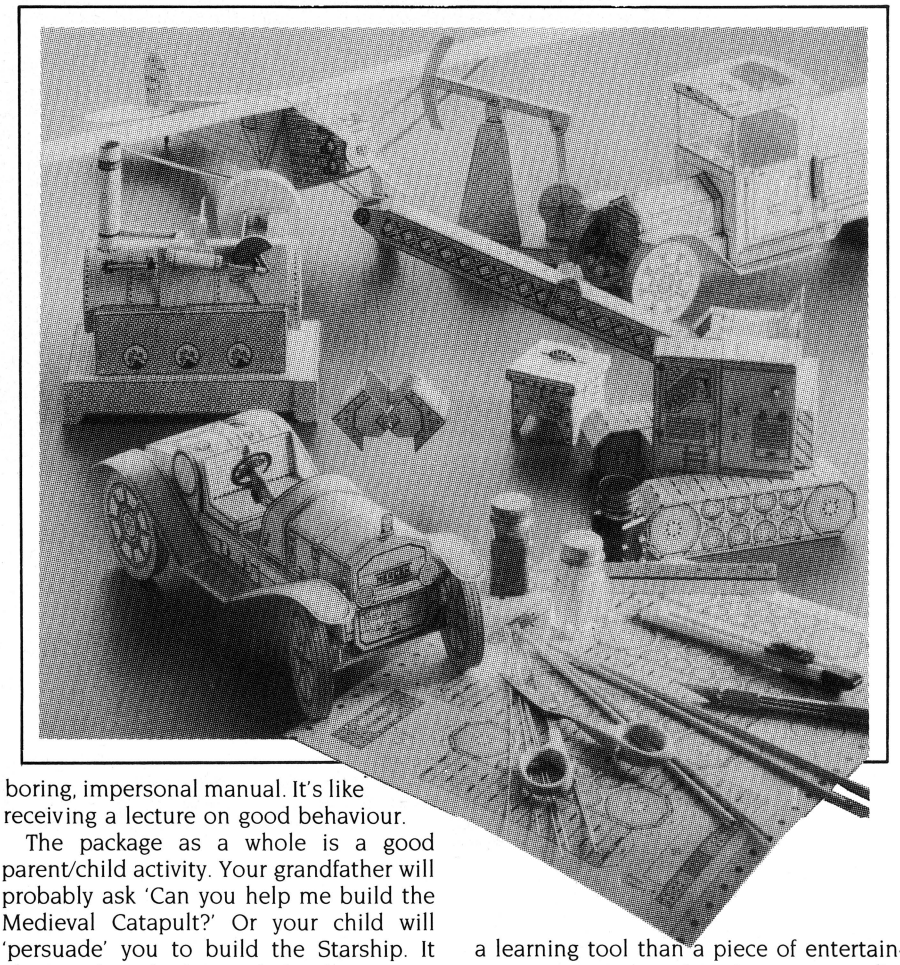
Reading

It is at this point I recommend you begin reading the manual. Part I of the manual is easily glossed over; it covers the software. Part II is the MUST READ OR YOU FAIL section. This section contains the Assembly instruction; building the models are not easy as inserting Tab A into Slot B.

Some of the models fall under the Challenging category — a polite way of saying difficult. There are some Easy models and the rest are Medium. The package includes the material you might need to build your model: such as adhesive cardboard, dowling, string, and a balloon. The materials are easily replaceable. If you can't find a Refill Kit at your local computer store, then the individual items can be found at hobby shops.

In order to be successful at model building you have to follow the instructions to the letter. Cutting skills plays a large part in the process as the models won't work if they are built badly. But always read the manual.

The manual is the best part of Toy Shop. It is friendly and helpful without talking down to you. It is informative as it gives tips about building techniques, and it outlines the history of the toy models. You'll find that you have to continually refer to it as you build your model, so the friendliness is appreciated. There is nothing worse than having to constantly consult a boring, impersonal manual. It's like receiving a lecture on good behaviour.

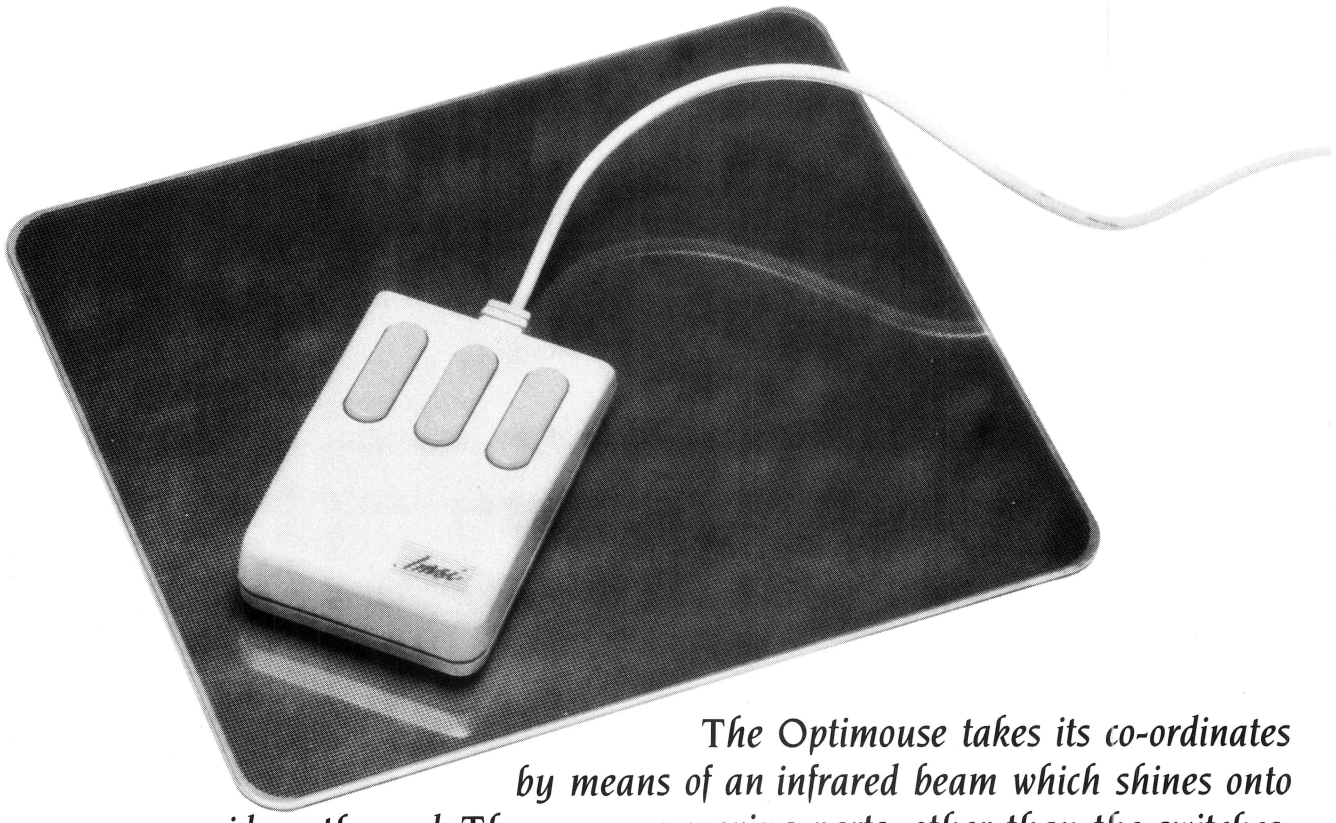


The package as a whole is a good parent/child activity. Your grandfather will probably ask 'Can you help me build the Medieval Catapult?' Or your child will 'persuade' you to build the Starship. It also teaches the basics behind construction and steam locomotion and encourages computer skill and construction. And a lot of satisfaction is obtained from the finished product.

It is a good package but not suited to my tastes. The program has more value as a learning tool than a piece of entertainment. I recommend it for parents who want to encourage an even balance in computer and craft skills, and is a nice gift for the enthusiastic hobbyist. And, I can tell you that my friends and family will be receiving some cheap Christmas presents this year. □

Product Details

Product:	Toy Shop
Manufacturer:	Broderbund
Distributed by:	Imagineering 77 Dunning Ave, Rosebury 2018 (02) 697 8670
Operates on:	Apple II range, Commodore, IBM and Macintosh Plus
Price:	IBM $133 Macintosh $145 Apple $125 Commodore $127 Refill Pack $70



The Optimouse takes its co-ordinates by means of an infrared beam which shines onto a grid on the pad. There are no moving parts, other than the switches, and therefore less — in theory, says Keith Mackay — to go wrong.

Opting for an Optimouse

OPTIMOUSE IS AN optical mouse which runs under DOS 1.1 or higher — yes, I said DOS 1.1! He is supplied with an adequate manual, one and a half floppy diskfuls of software and a pad measuring 22 *x* 19 cm to strut his stuff upon.

He is rectangular and measures 6 *x* 9 cm, a comfortable fit for my own hand, at least. He has three buttons and runs smoothly around his pad on two adhesive-backed velvet strips, which can be removed very easily for replacement.

Turning Optimouse on his back, in a spirit of enquiry, reveals a red LED, which I suspect serves no purpose other than indicating whether he's alive or not; and an infrared LED which, in the nature of things, emits no visible light.

Unlike a conventional mouse, which depends on moving parts of some sort, an optical mouse takes co-ordinates by means of an infrared beam which shines onto a grid on the pad. There are no moving parts other than those in the switches, and therefore less — in theory — to go wrong; and as I established, quite by accident, Optimouse does not mind whether there are cheese biscuit crumbs on his pad, a circumstance which would induce distress in his mechanical brothers and sisters.

Installation

Installation of Optimouse is a two-stage operation. Step One is a matter of locating a vacant port and slotting the little rascal in. Step Two involves clearing a desk space for the pad.

Activation of the beast can be accomplished by means either of a SYS file or of a COM file. This means he can be invoked from CONFIG.SYS, from an AUTOEXEC file or straight from the command line. In either case, a parameter such as /2 can be used to call him from a given port. He can also be installed with software provided, which will create a suitable AUTOEXEC file, if required, and make allowance for graphics and colour cards. Installation also allows a driver to be selected.

In addition to the SYS and COM files, the software consists of a set of predefined pop-up menus which allow Optimouse to be used to drive a number of applications: Lotus 1-2-3, VisiCalc, SuperCalc3, Volkswriter, WordStar, IBM Personal Editor, PFS:Write, Multimate, FlashCalc, dBase I, Framework, Javelin and Symphony. The driver to invoke menus for any of these programs can be set up as the default.

Of these programs, I am more familiar with WordStar than with any other. Readers of *Words Words Words*, the word processing series running in *Your Computer* may recall that in my review of WordStar 4, I quoted the people at WordStar Australia as stating that that program would probably run with a mouse.

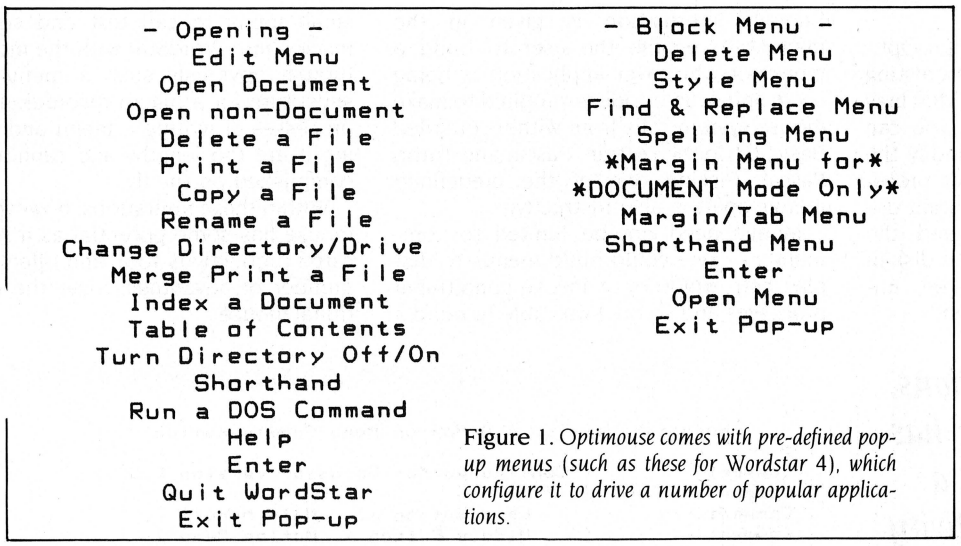


Figure 1. *Optimouse comes with pre-defined pop-up menus (such as these for Wordstar 4), which configure it to drive a number of popular applications.*

As I established, quite by accident, Optimouse does not mind whether there are cheese biscuit crumbs on his pad, a circumstance which would induce distress in his mechanical brothers and sisters.

I did not at the time have access to a mouse and it was not until after the article had been published that I was able to borrow one and establish that WordStar 4 would not recognise a conventional mouse. However, the Optimouse software includes pop-up menus for WordStar 3, 4 and 2000.

The WordStar 4 pop-up covers every WordStar menu, but not always arranged according to the logic which WordStar itself uses. Figure 1 shows two of the Optimouse WordStar 4 menus, the Opening Menu and the Block Menu (shown in Figure 1), which offers some of the options on WordStar's Block and Save Menu, and one or two bits and pieces from elsewhere.

Whether there is any advantage in using a mouse to drive a wordprocessor is dubious. I am writing this article under WordStar 4 with Optimouse active, but using the beast while entering text involves considerably more effort than the orthodox approach.

Apart from the break in co-ordination involved in removing one hand from the keyboard, some of the options on the Optimouse menus call up further menus. Descending through various levels of submenu to carry out a relatively simple operation such as marking a block is not the easiest way of doing things.

Trying to remember which Optimouse menu leads to which operation, furthermore, is at least as difficult as learning WordStar itself. For editing a file, on the other hand, there is perhaps some slight benefit in being able to control everything with one hand while the other manipulates glass and pipe.

Nonetheless, WordStar 4 does allow extensive redefinition of the function keys, a fact of which I took advantage long ere this for leaving the vermouth or nicotine hand free; and most other power word processors offer some equivalent.

Lotus users will be able to decide for themselves whether the Optimouse Lotus menus would make life any easier — see Figure 2. ▷

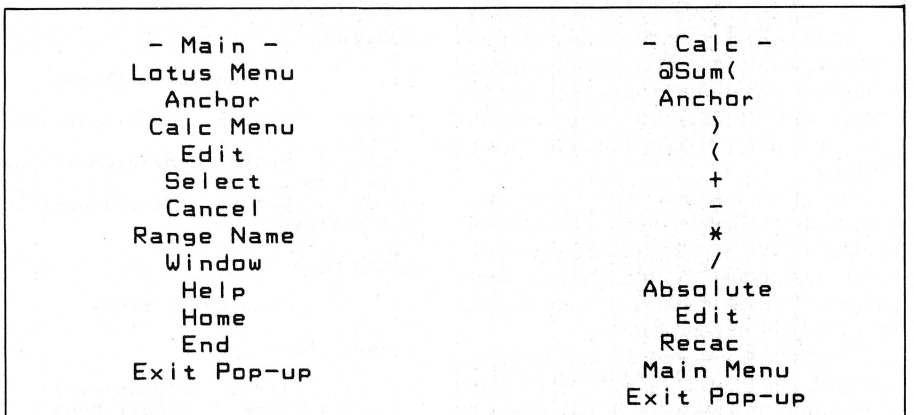


Figure 2. *The Optimouse' pop-up menu for Lotus 1-2-3.*

Product Details

Product:	Optimouse and Pad
From:	IMSI San Rafael, California
Distributor:	Porchester Computers 177 Barclay St, St Kilda 3182 Vic. (03) 537 2722
Price:	$369 taxed

Creating Your Own Menus

In addition to the predefined menus, Optimouse also offers the more interesting possibility of creating your own. This may be done in either of two ways: you can start from scratch, or you can modify the predefined menus. For the latter procedure, however, a copy of the public domain program ARC.EXE is required: the modifiable menus are supplied on disk in compressed form and must be unsqueezed before they can be used.

Within these limitations, however, Optimouse has some potential as a sophisticated productivity tool, and offers a good number of advantages over the conventional mouse.

While this is an elegant approach to quarts in pint pots, a user not possessing ARC would be in something of a quandary — certainly ARC is readily available from bulletin boards, but not everyone has a modem. It surely would have been just as simple, and not that much more costly, to have included a second floppy with the package.

Once the material has been unsqueezed, modifying a menu is a matter of loading it into an ASCII wordprocessor, using Optimouse's programming language to change it and then compiling it with the built-in compiler.

Examples of the language are shown in Listing 1 which gives the opening lines of redefinition programs for the WordStar 4 menu, the buttons, and the menus themselves. *Sensitivity* determines how much mouse motion will result from sending a keystroke sequence, *Xinc* and *Yinc* controlling the X and Y co-ordinates respectively. *Hysteresis* smoothes out imperfect mouse movement by disregarding residual vertical motion in horizontal motion and vice versa.

Starting from scratch is essentially the same operation: using the Optimouse programming language, a menu can be written with an ASCII wordprocessor and compiled with the built-in compiler. Enough information is given in the manual to enable the user to build a menu for whichever application is being used, and source code is supplied to make mouse system calls from within compiled Basic, C, Cobol, Fortran, Pascal and Turbo Pascal. Picking one of the predefined menus apart is also instructive.

Menus need not be limited to commands — one could build menus to display help windows or invoke conditional processes and so on. I was able to build a small menu to call text and command macros into WordStar with the mouse, although obviously such a menu cannot substitute for a macro recorder since the processes of writing a menu and compiling it are too lengthy and cannot be accomplished on the fly.

Within these limitations, however, Optimouse has some potential as a sophisticated productivity tool, and offers a good number of advantages over the conventional mouse. □

```
;
;    Wordstar Version 4.0 Pop-up Menu Configuration
;
Comment          ('Configured for Wordstar version 4.0')
Comment          (' ')
Comment          ('   Left Button :    Main Menu')
Comment          ('   Middle Button :  Motion Menu')
Comment          ('   Right Button :   File Menu')
;
;       Parameters
;
Sensitivity      (13,12)          ; (Xinc, Yinc)
Hysteresis       (2,2)            ; (AutoX, AutoY)
ReverseVideo     (Yes)            ; Menu is displayed in reverse
video
FixedMenu        (No)             ; Menu is floating (centered on
cursor)
EnableBeep       (No)             ; Allows menu switching rather
than beep
```

Listing 1a.

```
;       Button Definitions
;
LBO:    Button  (Menu(Open),Cursor(SpaceKeys)); Left button, Open
Menu
LBE:    Button  (Menu(Edit),Cursor(MedKeys)) ; Left button,
Edit Menu
LBB:    Button  (Menu(Block),Cursor(MedKeys)); Left button,
Block Menu
```

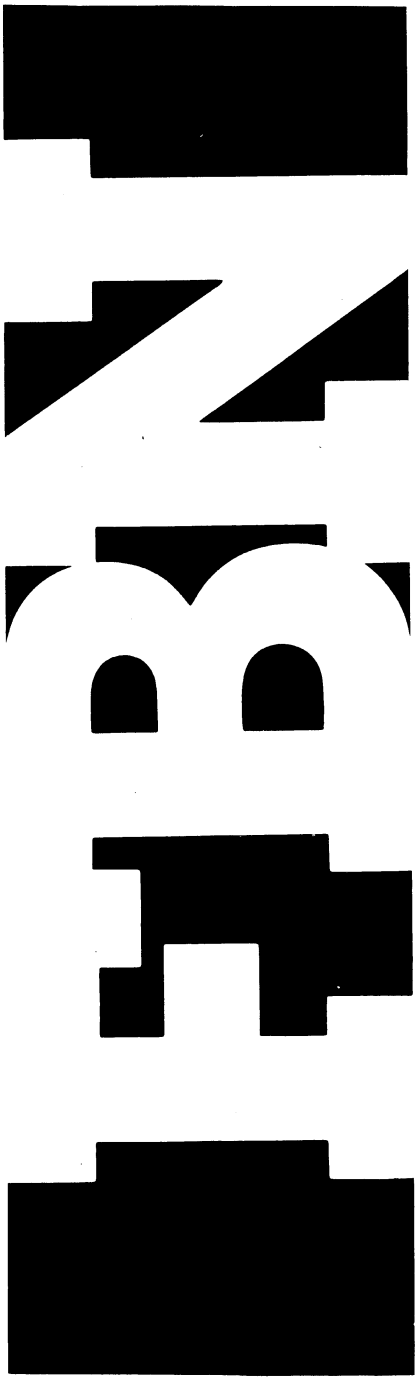
Listing 1b.

```
;       Menu Definitions
;
Open: Menu
(
        Title   ('Opening')
        Item    ('Edit Menu',
Menu(Edit),Button(LBE),
                                              Cursor(MedKeys))
        Item    ('Open Document',             Keys('D'),Button(LBE),
                                              Cursor(MedKeys))
        Item    ('Open non-Document',         Keys('N'),Button(LBE),
                                              Cursor(MedKeys))
        Item    ('Delete a File',
Keys('Y'),Cursor(MedKeys))
        Item    ('Print a File',
Keys('P'),Cursor(MedKeys))
        Item    ('Copy a File',
Keys('O'),Cursor(MedKeys))
```

Listing 1c.

Listing 1. *Optimouse comes complete with its own programming language —* **Listing 1a** *shows the opening lines of the program to modify the* WordStar 4 *menu;* **Listing 1b** *gives the first lines for redefining the buttons, and* **Listing 1c**, *for redefining the menus.*

Our software makes your software smarter.



SMARTKEY

SmartKey does one thing. It lets you take any long, boring, repetitive or difficult-to-remember set of keystrokes and assign them to a single key. Sophisticated programs like Symphony give you a "macro" facility. SmartKey gives you macros for all your software in a single easy-to-use package. Any word, any line, any paragraph — even a whole page of "boilerplate" can be allocated to a single key and permanently saved. The uses of SmartKey are limited only by the imagination.
Available for IBM and compatibles (SmartKey 5.1), MS-DOS and CP/M-86 (SmartKey II Plus), CP/M-80 (SmartKey II). **Price: $81*.**

PC-ALIEN

An easy to use program that lets you read, write, and format disks from different CP/M and MSDOS machines! Speak to more than 220 other computers.
If the disk format you need to access is not included in the current menus in PC-Alien, just send us your formatted CP/M or MSDOS diskette containing more than 50% readable ASCII text and we will try to add that format to PC-Alien's comprehensive list.
With the appropriate hardware, PC-Alien will allow you to read 3.5 inch, 80 track and 8 inch formats in CP/M-80, 86 and MSDOS.
Available for IBM and compatibles. **Price: $104*.**

POST CODE

Hassled by not having the postcode for your letter or database? PostCode, a great little utility, gives you an index to over 12 000 Australian postcodes-ready to pop-up its window anytime with a single keystroke. You can scroll through the list or jump directly to the locality name. Or you can send the code to your program with a single keystroke-just as if you had typed it. PostCode uses a tiny 13K of memory and a 70 K data file, that you can use comfortably, even without a hard disk. Small, efficient and compatible. Order it today and make your life that little bit easier. Available for IBM and compatibles. **Price: $49.***

SPATH

A terrific hard disk space-saver which eliminates the need for multiple copies of overlay and other program files on disk. Run any program that uses overlays, help, or other auxiliary files from any directory, sub-directory or disk drive. Group documents or data files into separate directories and subdirectories without keeping copies of your software on each one. SPATH is easy to use and once installed it may be autoloaded and forgotten.
Available for IBM and compatibles, other MS-DOS. **Price: $33*.**

PC-EIGHTY

Don't throw away your old favourite CP/M-80 software! Now you can run it at full speed on your IBM-PC or compatible. By simply exchanging the 8088 CPU chip in your machine with the latest state-of-the-art NEC V20 chip you retain 100% compatibility with other hardware and software.
The V-20 also runs 8080 (not Z-80) code at full speed. With our PC-Eighty software, you can run your copy of CP/M version 2.2 as a task under DOS. With hard disk access, a half megabyte RAM disk and simultaneous use of DOS resident programs like SmartKey.
Available for IBM and compatibles. **Price: $140*.**

Software

Dealer inquiries welcome

*Allow $5.00 additional postage charges

Advance Australia

AUSTRALIAN SYSTEMS SOFTWARE

FOR FURTHER INFORMATION:
Please send this coupon to
FBN Software
P.O. Box 19,
WODEN ACT 2606
or call (062) 85 2218

YCA 9/86

Codeview Debugger

For all you C programmers, Larry Lewis has found a very advanced debugging tool that lets you watch your source code execute — and it's priceless!

CODEVIEW IS not just another line by line debugger: it's a very advanced debugging tool that permits you to actually see your source code executing! Initially, I was just going to cover Codeview itself, but, since it comes free with Microsoft C, I thought I should have a brief look at that (and a very quick look at a local product — C from Hi-Tech). Incidentally, Codeview is also included with the latest release of Microsoft's Fortran.

Now, down to business. To fully use the facilities provided with Codeview you need to tell the C Compiler and the Link package that you want no optimising in the program and that you want all the symbols and other odds and ends left in the .EXE file (Codeview will not run a COM file). This is done with the command lines —

```
MSC  cprog.c /Zi /Od;;;
LINK /CO cprog;;;
```

To run the program under Codeview, all you enter is 'CV cprog', and away you go. Codeview has a few options for the command line, but the most common one form gives your program its normal command line; an example of this is —

```
CPROG parm1 parm2
```

To get this into Codeview you would enter —

```
CV CPROG parm1 parm2
```

Some users may also need to tell Codeview what environment they are running. For example, if you have a 43 line EGA screen, you could force Codeview to use the extra screen size by entering —

```
CV /43 CPROG parm1 parm2
```

The number of commands it's possible to issue can be a bit painful to remember, so I usually perform my debugging using a batch file (to make it even easier, that same batch file compiles, links and then debugs my programs). Each time I get that latest fix worked out, I change the source, run the batch file, and make a cup of coffee; by the time I get back, Codeview is waiting for me with the latest version of my (now) bug free program (*cough, splutter — maybe next time*).

Earlier I said Codeview will not run a COM file — well it will, sort of, since Codeview will allow you to run any executable program (almost). The only catch is that unless it is compiled and linked with the correct options you debug in assembler mode (*Yuk!*).

Inside Codeview

After you get your program ready, there are two ways you can run the debugger: either in sequential mode or window mode. Sequential mode is almost identical (I can only take the manual's word for it) to SYMDEB, the 'old' way to debug programs.

In window mode, Codeview sings. When it finishes its initialisation, you get a screen showing your source code, a menu bar (like 1-2-3's) across the top, and a command area. At this point, no code in your program (or the C startup code) has been executed. You get the code as it appears at the source level (comments, too!). And the program gives a whole new meaning to putting good comments in your code, as a few well placed reminders do wonders when you are working away with Codeview.

Describing a full window tool like this one with prose, doesn't do justice to the product — and that's why Microsoft will send you a demo disk for the price of a phone call.

Screen Facilities

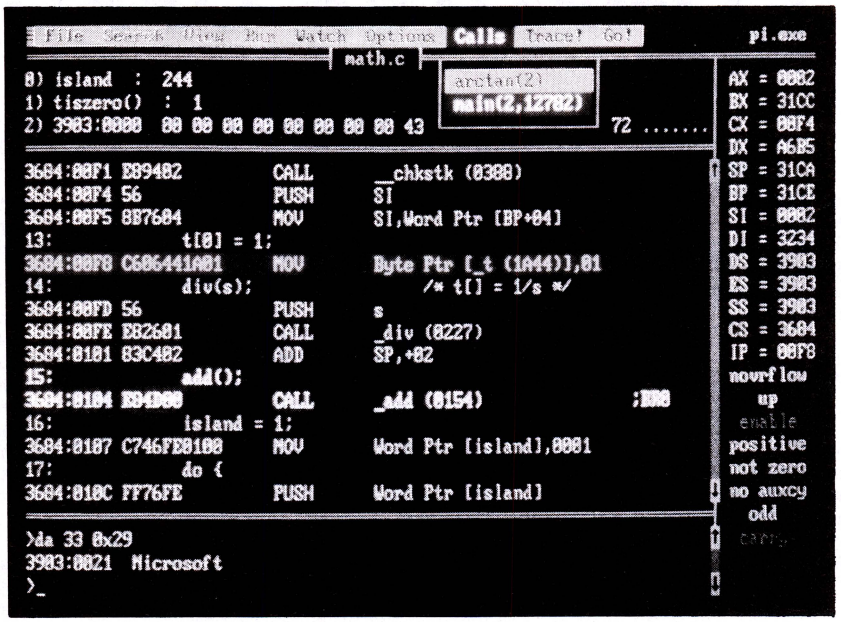
Initially the screen comes up with a 1-2-3 type menu bar across the top, the first part of your source code, and a command area. The actual screen layout adapts as you proceed through your debugging session and it is totally at your control.

You can display the program's registers with Codeview continually updating them on the screen. This feature uses the F2 key as a toggle so you can turn it on and off with a single whack at the keyboard. Another neat feature is that you can have 'watchpoints'; these little beauties are a display of your program variables which are continually updated on the screen as the program executes.

To make watchpoints even better, you can, for example, set a 'breakpoint' of 'counter==13'. This would stop your program when Codeview detects that the variable counter has hit 13 and display the line in which it occurs. You can use almost any C expression for the breakpoint.

These slow the program down, but usually you wouldn't be worried about that when debugging. And if that doesn't slow the screen down enough for you, there is always the Execute command: enter an 'E' into the command area and your program will execute in slow motion. One of the ways I use this feature is to see the program flow; it's amazing the number of errors you pick up while watching the program execute at that speed.

There is even a display that will answer that perennial question, 'How the hell did I get here?' It shows all the functions that led to the one you are looking at, and includes the parameters passed to it.



Microsoft's Codeview speeds debugging by letting you concentrate on your program, not on the mechanics of debugging. For example, the Calls drop down menu shows how the current function was called, including all intermediate functions and their stack arguments; Trace! immediately begins tracing program execution and GO! runs the program from the current line.

Examining Data

From the command line, you can dump any area of the program by address, name, or indirection (you are a C programmer aren't you?). The display can be in hexadecimal, octal, decimal, as a string of characters, an unsigned/signed integer, floating point and so on. You can display single variables, members of structures or even whole areas of data. (You'd be very hard to please if you couldn't find a display option to suit.) Most of the commands to display the variables are sensible — obviously a lot of thought has gone into the command displays.

If you don't like having the registers displayed on the screen all the time, you can also tell Codeview to dump the register contents for you as needed (although hitting a Function key would be nicer, in my humble opinion). I understand that you can also view the 8087 registers and status information (I don't have an 8087,so I couldn't use this facility).

There is even a display that will answer that perennial question,'How the hell did I get here?'

Changing Data (or Code)

Obviously you need to be able to change the way your program is running, either by changing its flow or the data it is using. The commands you are given allow you to change a register, code or variables.

Two of the commands are really not very useful for a C program, and could be very dangerous. 'A' allows you to modify your program at assembly level, so you really need to know what you are doing here. Similarly, the 'R' command lets you modify a register — boy, I would be careful with this one: change a segment register and you are in the poo if you do it wrong; even changing a general register could get you into all sorts of problems!

The command to change the variables, 'E', is one that a C programmer would use.

Breakpoints

In the screen facilities I mentioned that you could get Codeview to stop the program when a certain condition is true. now, that's a pretty nifty feature, but of course the one you will want to use most often is to tell Codeview to stop your program when it reaches a certain line of code in your program.

You can set, clear, disable, enable or list your breakpoints. That's usual for a debugger, but like the rest of Codeview the ways you do it are very *nice*. Let's say we want to stop at line 24 in program Whatever.c. Okay, how do you do it? Easy, say BP 24; nifty isn't it? Or, you can find the line of code you want the breakpoint at and press F9. Great stuff: zoom around your code and drop in the breakpoints you want without even remembering the syntax.

You have other options, naturally; you can set a count number so that the breakpoint is only activated on the call equivalent to your count, for example, 'BP 24 5' will stop your program the fifth time it executes line 24. And, if the line you want to stop at is a function, like zoom(), then you could enter 'BP zoom 5.'

Watch Statements

The Watch statement commands are among the most powerful features of Codeview. As I mentioned above, the Watch statements provide something that must be the most advanced feature a debugger can have.

Watch is literally what the command does, you can set a normal watch which will display in real time the value stored in a variable or expression. There is a watchpoint that will stop your program when a variable or expression is not zero (C for true). A tracepoint will stop your program whenever a change is made to the area you have a trace on. ▷

Product Details

Product:	Codeview
From:	Microsoft
Distributor:	Microsoft Pty Ltd 1/17 Rodborough Rd, French's Forest 2086 NSW (02) 452 5088
Price:	Not for separate resale — supplied with Microsoft Fortran, C and Quick Basic (Free demonstration disk available)

MICROLAND
COMPUTER OPPORTUNITIES

	Inc. Tax $
SPREADSHEET	
Lotus 123 2.01	550
Lotus Hal	230
Lotus Report Writer	230
Multiplan	345
Spreadsheet Auditor Ver 3.0	207
Twin	240
Silk	285
Javelin	440
VP Planner	185
DATABASE	
Foxbase	590
Foxbase Multiuser	770
D'Base III Plus	945
D'Base III Pls Lan Pack	1,420
Paradox	949
Reflex	220
WORDPROCESSING	
Multimate 3.3	650
Multimate Advantage II	790
Wordperfect Ver 4.2	550
M/S Word Ver 3.1	720
Wordstar 2000 Plus	520
XY Write III +	615
Shakespeare	610
INTEGRATED	
Ability Plus	300
Framework II	1,060
Open Access II	920
Symphony Ver 1.2	945
PFS First Choice	245
Smart 3.0	1,180
BORLAND-BLAISE-POWER	
Turbo Pascal Ver 3	155
Turbo Prolog	155
Turbo Graphix Toolbox	115
Turbo Database Toolbox	115
Turbo Editor Toolbox	115
Turbo Tutor	69
Turbo Gameworks	155
Turbo Lightning	155
Turbo Power Tools Plus	240
Turbo Power Extender	185
Turbo Power Utilities	205
Turbo Asynch Plus	240
TDE Bug Plus	155
Turbo Prolog Toolbox	155
Turbo Basic	155
Turbo C	155
COMMUNICATIONS	
Supercom Executive	170
Mirror	95
Crosstalk XVI	160

Communications Continued	Inc. Tax $
Softerm PC	445
Remote	220
Carbon Copy	435
HARD DISKS/HARD CARDS	
Seagate 20MB + DTC	685
Seagate 30MB + DTC	740
Seagate 40MB + DTC	1,450
Seagate 20MB Voice Coil	1100
Seagate 30MB Voice Coil	1140
Seagate 40MB Voice Coil	1350
Seagate 80MB Voice Coil	1980
Dysan 20MB File Card	1,150
Plus 20MB Hard Card	1,450
MONITORS	
Thomson Composite	230
Thomson TTL	260
Thomson 447OD EGA	950
Thomson 4375 Multisync	1,675
TVM MD-3 CGA Monitor	680
TVM MD-7 EGA Monitor	940
NEC TTL	280
NEC Multisync	CALL
ADI-DM14 TTL	260
Taxan Monitors	CALL
GRAPHICS/CAD	
Harvard Presentation	575
Freelance Plus	745
Form Easy	915
Prodesign II	550
PC Draw	749
In-A-Vision	1,050
Ventura	1,525
PROJECT MANAGEMENT	
Timeline	670
Harvard Project Manager II	765
M/Soft Project	720
Superproject Plus	739
UTILITIES	
DS Backup +	165
Fastback	180
Copywrite	89
Smartkey	68
PC Alien	95
Norton Utilities Ver 4.0	140
Norton Utilities Advanced Edition	210
Typequick	75
Printworks	138
Mace + Utilities Ver 4.0	165
Xtree	95
Sideways	135
PC Tutorial Dos 3.2	85

CHECK THESE PRICES

Utilities Continued	Inc. Tax $
System Builder	245
LANGUAGE	
Lattice C Compiler	750
MS Quikbasic Compiler	175
MS C Compiler	825
MS Cobol Compiler	1,140
MS Pascal Compiler	529
MS Fortran Compiler	745
MS Macro-Assembler	349
VIDEO CARDS	
Paradise Autoswitch EGA	550
Vega Deluxe	645
Monographics/Printer	160
KIF 557 EGA	980
Hercules Graphics Card Plus	475
PRINTERS	
Epson GX-80 100 CPS	
Epson LX-86 120 CPS	
Epson FX-800 240 CPS	
Epson FX-1000 240 CPS	
Epson EX-800 300 CPS	
Epsom EX-1000 300 CPS	
Epson LQ-800 180 CPS 24 Pin	
Epson LQ-1000 180 CPS 24 Pin	
Epson LQ-2500 325 CPS 24 Pin	
Epson Laserjet	
Star NX 10	480
Star NX 15	780
NEC P6	840
NEC P7	1,080

BEST PRICES IN AUSTRALIA

CHECK THESE PRICES

Okidata Microline Printers — full range — call for best prices

NETCOMM MODEMS	
PC Inmodem	360
Inmodem 123	685
Inmodem 1234	905
Automodem 21/23	405
Automodem 1200	515
Automodem 2400	735
Automodem 123	685
Automodem 1234	830
Smart 123SA	885
Smart 1234SA	1105
Datalock 123SA	1105
Datalock 1234SA	1330

ACCESSORIES	
Xidex 5.25 DSDD 48TPI Disks	$36 Per Box
Xidex 5.25 DSDD 96TPI Disks	$55 Per Box
Xidex 3.5 DSDD Diskettes	$65 Per Box

MICROLAND

COMPUTERS, SOFTWARE, ACCESSORIES

(02) 331 7474

FOR PROMPT DELIVERY

Bankcard Mastercard Visa

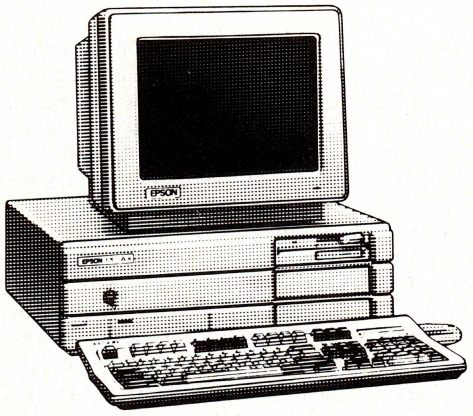
DELIVERY EXTRA

WE DELIVER AUSTRALIA WIDE

170A Riley Street, Darlinghurst
P.O. Box 1221, Darlinghurst 2010.

Right opposite the Ansett Bus Terminal

MICROLAND
COMPUTER OPPORTUNITIES



EPSON QUALITY IS MORE AFFORDABLE!

and with our specials, it comes with even better value than other compatible systems.

EPSON PC AX

FEATURES —

- **3 speed switch selectable 6, 8, 10 MHz.**
- **Speaker volume control, keylock.**
- **1 × 1.2 FDD, 640K RAM.**
- **9 expansion slots — 6 × 16-BIT, 3 × 8-BIT.**
- **Space for 2 more ½HT devices.**
- **44MB 28MS Voice coil hard disk.**
- **Enhanced keyboard 101 keys.**
- **DOS 3.2 + G.W. Basic.**
- **200 Watt power supply.**
- **12 months, warranty backed by 3M.**
- **On site warranty in metropolitan areas.**

For the best $$$$ value in Australia on Epson products call (02) 331 7474

THIS MONTH'S SPECIALS

NETCOMM MODEMS
KAYPRO COMPUTERS
SEAGATE HARD DISKS
WORDPERFECT 4.2

KAYPRO PC and PC30

Switchable 4.77 to 8 MHz
DOS 3.2
Basic Ser/Par.
Real Time Clock.
Bundled Software inc Wordstar, Mailmerge.

Best prices in Sydney.

AMSTRAD PC 1512

8MHz/512K RAM/MOUSE
Available with Single or Dual drives, Mono or Colour Monitor.
GEM Software Inc.

From **$1,499**

OSBORNE

New Osborne AT-Turbo, power with speed. New Look. 20M/30M/44M opt. Hard Disk Drive. 512K to 1MB RAM. Rated one of the fastest avail.

Graduates, Colleges
Turbo-Executives
We've Got The Lot!

MICROLAND

COMPUTERS, SOFTWARE, ACCESSORIES

(02) 331 7474

FOR PROMPT DELIVERY

Bankcard Mastercard Visa

DELIVERY EXTRA
WE DELIVER AUSTRALIA WIDE

170A Riley Street, Darlinghurst
P.O. Box 1221, Darlinghurst 2010.
Right opposite the Ansett Bus Terminal

How about we get a bit deeper into these; Watch commands allow you to examine your data as the program is executing, which is very useful if you think that a bit of logic is calculating something wrong, just watch (see, told you the commands made sense) the variable as the program is chewing it up.

In window mode, Codeview sings. When it finishes its initialisation, you get a screen showing your source code, a menu bar (like 1-2-3's) across the top, and a command area.

The real power of the Watch statements is the watchpoint/tracepoint. First the watchpoint; this is fairly straightforward but deserves some comment. One of the usual problems that you get in program development is boundary processing. That is, when you start and stop loops, counts and all those things you execute multiple times. Watchpoint allows you to tell Codeview that you do not want to be annoyed until a condition is true.

Say we have a loop that counts the characters in a file and at the end of the program it seems to be giving rubbish for the answer. You check the logic and it looks okay (doesn't it always?), so you say to Codeview something like 'WP? count==511.' This would stop your program when it is at character 511 of a 512 byte buffer. You can then have a peek at what is going on and, if necessary, single step the program from there, which is much easier than stopping at each loop. Oh, by the way, like most other commands in Codeview, you can use the menu rather than type the command.

Tracepoint

What about tracepoint? Well, ever get garbage in a variable (who hasn't? Okay, leave out the Unix gurus as they *never*)? It can been a real pain to try and locate it. With C, the use of pointers is a very powerful and important part of the language, but, it is also the easiest part to totally screw up.

How do you fix that garbage? In BC (Before Codeview) times I would sometimes rewrite code that looked to be the problem, rather than try and work it out. That's slack, but generally if you've really screwed up the pointers, it's much quicker to start again. Well, Codeview changed all that! Say we have a pointer (or buffer, whatever) and let's assume that somewhere in your latest masterpiece the pointer is getting something pretty terminal in it. (Have you ever put NULL (Hex 0) into a buffer pointer and then written to that address? One of the very few things I know is that always causes some interesting failures.)

Now with Codeview, just say 'TP? buffer' and if any part of your program touches the buffer it will stop and let you see what it's doing. I can't think of a more fantastic feature for a debugger.

There are other commands that let you execute DOS commands (if you have enough memory), change settings, input commands (redirect) from or to a file and lots of other nifty things.

Summary

I reckon Codeview is fantastic — is that enough of a summary? It must be the best tool apart from the compiler ever to be made available to a C programmer. If you write perfect code every time perhaps you will not think much of Codeview, but I have never professed to be perfect, and Codeview definitely is the way I go when I have to figure out what has gone wrong and, more importantly, where it is that I need to make my changes.

I think that Codeview is lightyears ahead of other debuggers. The only other serious contender for debugging like this are the interpretive C programs which do not have half the features of Codeview and, generally, do not support full C syntax.

Microsoft C Version 4

No review of Codeview would be complete without a quick word on the compiler that it is the debugger for. Although you can debug more than C with Codeview, it is really meant for the C compiler.

MSC is an excellent compiler — expensive, but very good. The language is very close to the Unix standard (most programs I grab from Unix compile and work well). MSC also allows you to develop programs on MS-DOS for use on Xenix at object level (meaning you only need to send the .obj files, not the source).

The documentation supplied with the system is top notch and includes full information about the libraries provided, the compiler, and the C language itself.

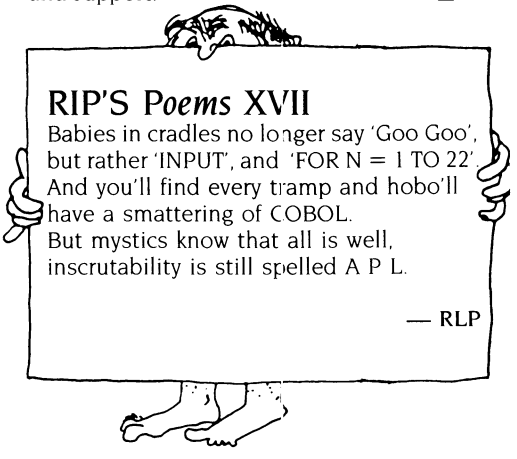
My only whinge with MSC is that the libraries are supplied in object form only. The code in these, although subject to copyright, is so necessary to users of the language that I hate not having it. It also means that if you want to change the behaviour of the library you can't — well, not unless you totally rewrite the function. Also, I find that the library code is one of the best ways to learn about the language, and the machine and operating system it's running on.

Hi-Tech

Obviously from the above I use the MSC compiler, and I love it. I also use the Hi-Tech C compiler, and I must admit I use it more than MSC. Why you ask? It's just that it runs on every machine I could want it to. I can compile for CP/M80, CP/M86, MS-DOS and CDOS.

It is also a reasonable price and more importantly its Australian! If you can't afford MSC (typically over $1000), then Hi-Tech is the way to go (at about $300). You also get all the source for everything except the compiler itself. Hi-Tech is also compatible with most of the Unix code around and is just as compatible as MSC. If you've got the money, get both — if you need to run on different types of PCs, Hi-Tech is more useful; if you want a state-of-the-art compiler debugger, MSC wins hands down.

I will continue to use Hi-Tech so that I can run on any machine I like, but I also make heavy use of MSC. If you can afford it, MSC on the IBM is definitely the C compiler, and can not be surpassed for quality and support. □



A lesson in Desktop Publishing from President

Desktop Publishing is the most significant advancement in the computerized world today. President have composed the following information on Desktop Publishing to inform you what D.T.P. is really all about and reading this, perhaps you will have more appreciation on how D.T.P. can decrease your costs, improve the quality of every day documentation, reduce turn around time and improve productivity in your company's printing requirements. Also most importantly you will understand how Desktop Publishing works.

How is conventional company printing achieved? Well, first you form an idea for a promotion, advert or document. This might be settled on in a meeting in which an advertising agency is called in, the idea is discussed and the agency goes away and translates this into a "rough layout" which is brought back to you for approval. Once approved, the agency then has graphic designers produce the graphics and typesetters set the text, and the page layout is finished. The layout then comes back to you again for proofing and correction, final changes are made by the agency. When this time consuming process has been completed, and again approved by you, bromides or metal plates are made if necessary, then the finished layout goes to an offset printer for reproduction. However with Desktop Publishing this could have all been done in house at a fraction of time and cost.

turn the page

Old steps and procedures

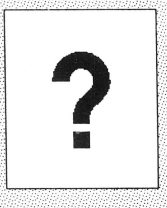
The Idea.

MEETING



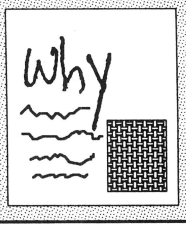
1.

ROUGH DESIGN TO COMMERCIAL ARTIST



2.

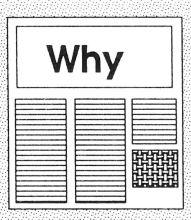
HAND DRAW THEIR CONCEPT FOR APPROVAL



3.

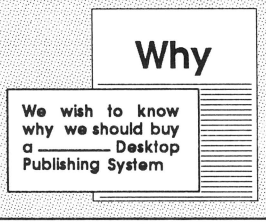
Layout Approval

GRAPHICS / TEXT CUT & PASTE



6.

COMMERCIAL ARTIST TYPESETS SEGMENTS



5

APPROVAL OF DESIGN MEETING



4.

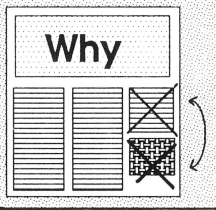
Final Artwork changed and approved.

FINAL APPROVAL, CHANGES & CORRECTION



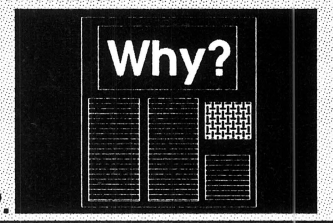
7.

LAST CHANGES MADE BY DESIGNER



8.

BROMIDE PLATES MADE



9.

All steps render transport and courier costs, to and from each stage.

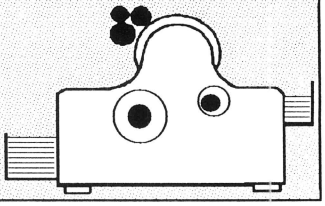
Management time wasted

Commercial Artist costs.

Typesetting costs etc. etc.

Await Printing

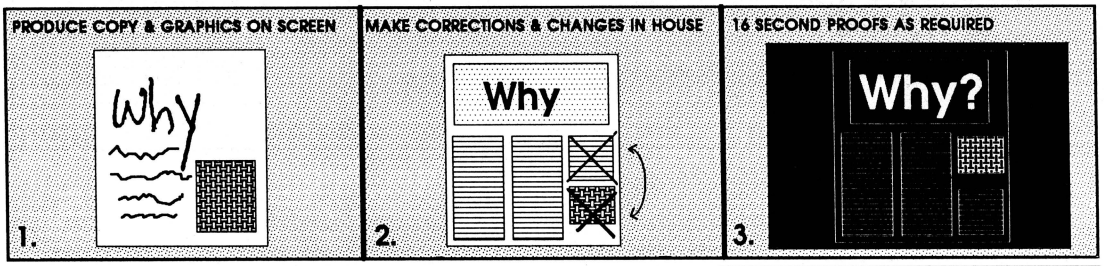
SENT TO PRINTER FOR REPRODUCTION



10.

In house publishing

Procedure



All steps in house

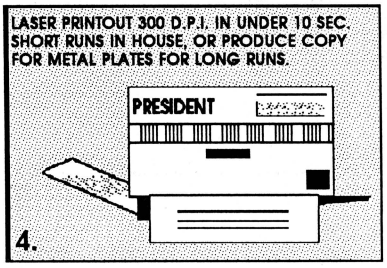
All approvals in house

Minimum time loss

Last minute changes made

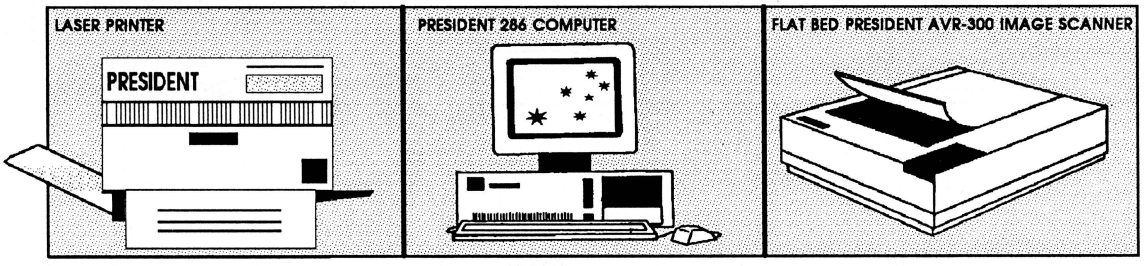
Cost savings 40 to 70%

Result

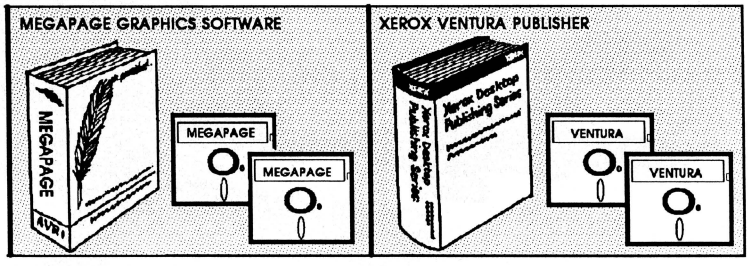


President MegaPage IV "the complete system"

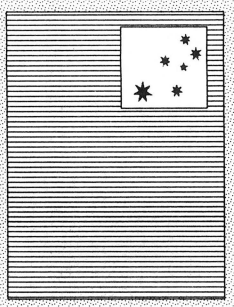
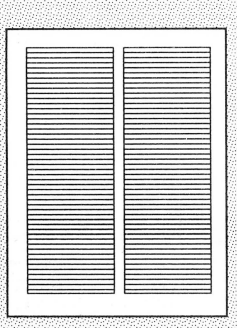
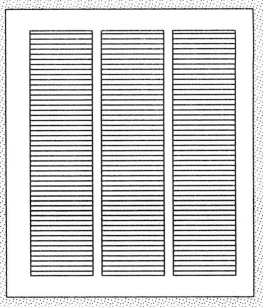
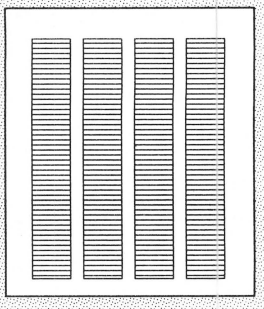
Hardware



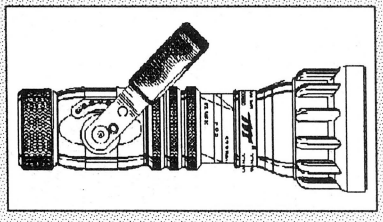
Software

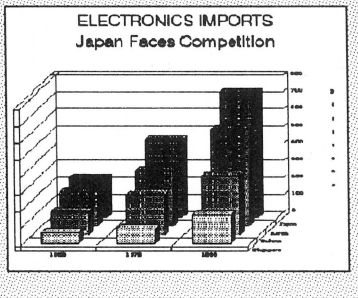


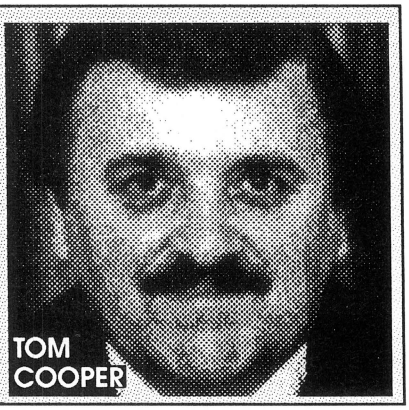
21 STYLE SHEETS TO CHOOSE FROM OR YOU CAN DESIGN YOUR OWN.

CAD DRAWING OR LOTUS GRAPHS CAN BE CAPTURED
AND INCORPORATED, ALSO COLOUR PHOTO'S CAN BE SCANNED.



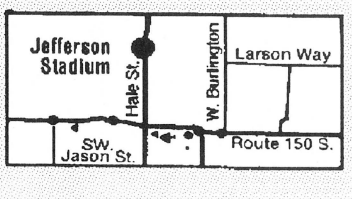




CLIP ART, HAND DRAWINGS AND LOGO'S CAN BE SCANNED.

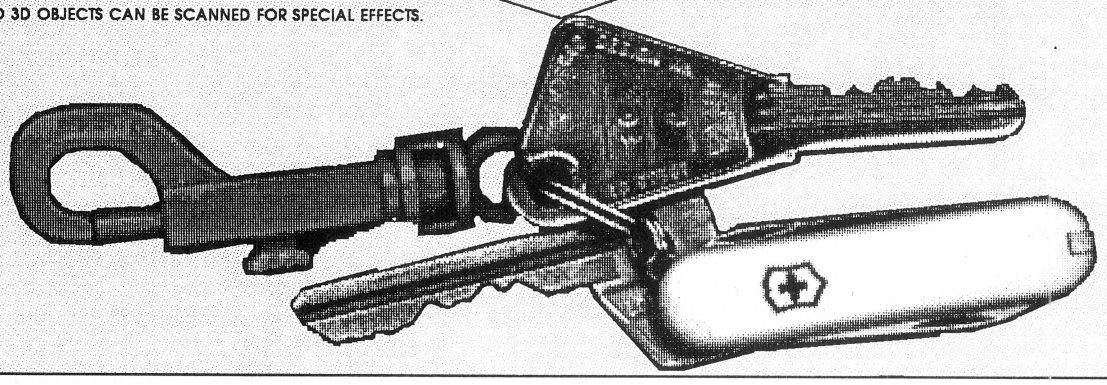


SHOW SOME SPIRIT !





ALSO 3D OBJECTS CAN BE SCANNED FOR SPECIAL EFFECTS.



Why Desktop Publishing

- Less steps to produce a finished document.
- Encourages experimentation & promotes individual creativity.
- Reduce turn around time to create a document and circulate it.
- In house control on all steps
- Reduce costs in -
  - Development time
  - Personnel
  - Equipment

Why XEROX Ventura Publisher

- Full Wysiwyg
- Accepts files from -
  - ASCII & most Word Processors
  - More that 500 graphics packages
  - President A.V.R. Scanner
- Professional Style Sheet Facility
- Automatic Index and Table of Contents
- We choose Ventura 1.1 because we think its simply the best

Why MegaPAGE

- Total graphics control
- Five Levels of Zoom
- Editing Graphics/Text to individual Pixel level 300 DPI
- 10 Seconds output to Laser printer for whole A4 full page at 300 D.P.I.
- Incorporate text using more than 800 available fonts
- Fax Interface on board
- Scan directly into Ventura
- and much much more

Full System Features

B.R.W.'S PC OF THE YEAR

President Publisher 286

40 M/Byte Voice Coil Hard Disk
60 M/Byte Streaming Tape Backup
1.3 M/Byte MegaBuffer Ram Card
Laser Printer 300 Dots Per Inch 8 P.P.M.
EGA Monitor (Wyse Optional)
AVR-300 Image Scanner (10 sec) Scanning
101 Publisher Keyboard

MegaPAGE Software

Scanning, copying, reverse text, flow, patterns, rotate left/right, halftone, darken, lighten, photo enhance, vertical flip, mirror image, justify word-left-right, centre, scale, outline and more.

Ventura Software

21 Style sheets, kerning, leading, widows & orphans, footers, headers, footnotes, captions, superscript, subscript, indexing, table of contents, formatting, graphics, drawing, patterns, landscape to name just a few.

Options :-

Postscript Laser Top.
Full A4 or Wyse high resolution screens.
MegaFAX facsimile upgrade.
MegaREAD optical character recognition.

Why XEROX Ventura + MegaPAGE

Desktop publishing consists of text and images. VENTURA is to document formatting what MEGAPAGE is to Graphic editing. Only with Ventura and MegaPage you will be able to produce a document the special way you imagine it, and there is no limit to your imagination.

Why President

Because you want to be productive from the first day.
You dont want to run around looking for interfaces.
You want the support of a genuine Australian Company with branches in all capital cities, and with 18 years in the industry.
Because you want to deal with only one supplier that will give you the system, software, installation, service, training and on going support.

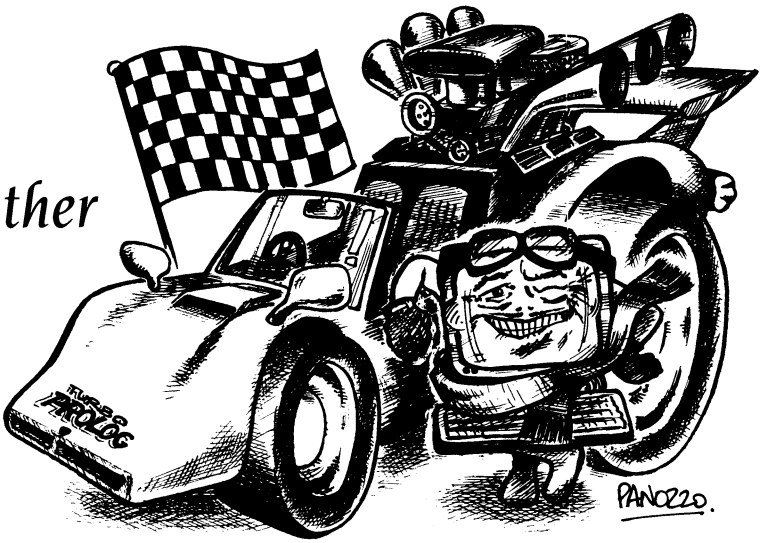
CALL president NOW

President Computers	Melbourne:-	Brisbane:-	Adelaide:	Canberra	Factory
100 George Street,	117 Cardigan Street,	19 Brereton Street,	297 Waymouth Street,	49 Townsville St,	1 Computer St
Hornsby. N.S.W. 2077.	Carlton. Vic. 3053.	South Brisbane. Qld. 4101.	Adelaide. S.A. 5000.	Fyshwich. ACT.	Labrador. Qld.
Ph: (02) 4762700	Ph: (03) 3470555	Ph: (07) 8462228	Ph: (08) 2313063	Ph: (062) 804804	Ph: (075)374788

President Established 18 Years and Proudly Australian!

Turbo Prolog Version 1.1

Roy Hill (of Forth fame) declares Turbo Prolog another 'good value language'! (And, the new release is even faster than V1.0!!)



IN THE LAST few years, considerable interest has been raised in the field of Artificial Intelligence (AI for short). The reason for this upsurge of interest is the emergence of 'expert systems.' Using a question and answer dialog, these programs are designed to provide laymen with the resources that a top-flight expert in a particular field has. The languages that these systems are usually written in are LISP (LISt Processing) and Prolog (PROgramming in LOGic).

Both of these languages have had two features which have restricted (until lately) their use by owners of microcomputers. First, they are extremely memory hungry; second, they are *very* costly.

Both of these factors have been overcome in recent times with the introduction of compilers and interpreters for microcomputers. The problem that lies with the interested prospective programmer is 'which one do I learn?' My choice was influenced by the fact that the Japanese have adopted Prolog as the preferred language for their Fifth Generation Computer Systems (FGCS), and Borland released Turbo Prolog — an affordable version of the language, which does for Prolog what Turbo Pascal did for Pascal.

Prolog

Prolog differs from all of the previous computer languages in one major fashion. Languages such as C, Pascal, Fortran, and Cobol are known as procedural (or imperative) languages. This means they solve a problem by explicitly describing the manner in which the problem is to be solved, such as progressive calculations through a formula. Prolog, on the other hand, is called a declarative language, in that it specifies the logical connections between related items of data. In logic programming we 'declare' the logical relationships and structure of the problem, and then allow the language to find solutions. This 'finding' of solutions introduces another fundamental difference between procedural and declarative languages.

In a procedural language, the logical flow of the the program produces one or more answers to the problem, depending on the structure. With Prolog, however, the number of possible solutions to a problem is usually not known by the programmer, who merely specifies the relationships and then waits for the program to provide the solutions. This feature of Prolog is known as 'backtracking' and its use will be shown in a small Turbo Prolog example a little later.

Turbo Prolog (Version 1.1) conforms fairly closely to the pseudo standard laid down by Clocksin and Mellish (*Programming in Prolog, Second Edition*, Springer-Verlag, 1984) and in doing so, makes it a far closer resemblance to Edinburgh Prolog, developed at the University of Edinburgh, than, say, Micro Prolog. The Edinburgh version was adopted by DEC for the DEC and VAX series of minicomputers (and called DEC-10 Prolog) and has become the de facto standard against which all implementations are measured.

The other microcomputer versions of which I am aware (also relatively cheap) are Prolog-86 (by Expert Systems, Oxford, England) and Chalcedony Prolog (by Chalcedony Software, La Jolla, California). For all those who purchased V1.0 of Turbo Prolog, Borland is offering a *free* upgrade to V1.1. You don't even have to return your original discs — just be a registered user. V1.1 is faster (yes, faster than V1.0) and has an expanded examples section and answers to problems posed in the tutorial. Also, the cumbersome compilation procedure has been made much more straightforward. A much needed addition was an extended updated index and this is also provided in the V1.1 update.

The combined manual and tutorial is fairly typical of Borland products — low cost, high quality. I do, however have two criticisms of the book. Firstly, despite the errata included with the V1.1 update, the book is still riddled with errors. Secondly, the book progresses far too quickly (for a tutorial, anyway) from the relatively easy to the quite difficult. It should still be possible for the dedicated enthusiast to actually learn Turbo Prolog from the book and its associated examples.

The Structure of Turbo Prolog

The structure of Turbo Prolog is based on four main sections —

Domains: It is in this section that the data

types to be used in the program are declared. The six data types are 'char' (character), 'integer', 'real', 'string', 'symbol' and 'file'.

Predicates: A list of all the functional definitions used in the solution to the problem. (See Example 1.)

Clauses: The section that specifies the organisation and relationships between the data.

Goal: This is an optional section, which need only be included if the program is to be compiled. The goal specifies exactly what task the program is to perform (see Example 2).

Programming in Prolog

Let us now see how these areas are used to make a Prolog program — we'll start with the first example from the manual which is given in Figure 1.

Now, let's see how the program works — Firstly, *all* variable names (as pointed out in Figure 1) commence with capital letters, so that names like Ellen and Bill must start with lower case (this limitation can be overcome after further learning).

In the domains section of the program, we find that the two data types, *person* and *activity*, are symbols. These symbols are both used in the predicate section to define a relationship so that a *person* likes an *activity*. The clauses section contains the facts and the rules that link the data with the relationships. We may now run this program (not compile it — remember, it doesn't have an intrinsic goal) and then test the program by entering various sets of goals in response to the Turbo Prolog prompt *Goal*.

If we enter *likes*(X,Y) as our goal, we will obtain a list of all the possible answers to that goal —

```
X=ellen, Y=tennis
X=john, Y=football
X=tom, Y=baseball
X=eric, Y=swimming
X=mark, Y=tennis
X=bill, Y=baseball
6 solutions
```

The first five answers are fairly self-evident. The last answer is the one Turbo Prolog finds by using the relationship —

```
likes(bill,X_var) if likes(tom,X_var).
```

This simple relationship says (in English) 'whatever activity tom likes, then bill likes it too.' From the third answer above, we find that tom likes baseball, hence, bill likes baseball. If we added the clause *likes*(*tom*,*tennis*), we would discover that Turbo Prolog finds 8 solutions. This attempt by Prolog to find multiple solutions to a problem is known as 'backtracking.' Note also that each clause ends with a period. This is part of Prolog's structure and punctuation marks like this can't be omitted.

The manner in which Turbo Prolog carries out its backtracking duties can be controlled in three ways. First, there's the 'cut', denoted in Prolog by the exclamation point. The cut is used to prevent Prolog from repeating answers unnecessarily and is illustrated in Figure 2, which is a highly modified version of Program 15 from the manual. The cut is illustrated in the clause governing the rules for a wife. A man can only have one wife (which is a very reasonable rule). Second, the 'fail' is used to force Prolog to backtrack and find further solutions that might otherwise be missed. Finally, the structure of the clauses must be controlled to ensure that solutions are sought in the correct order.

The *everybody* predicate does just that — it finds all of the relationships in the family. This program may also be compiled to an .EXE version if the two lines —

```
goal
    everybody.
```

are added between the predicates and clauses. Now, prepare yourself for a shock

```
/* Program 1 */
/*
   Enter the goal on page 18 of the manual.  Some valuable notes are at
the bottom of this program. */


domains
    person, activity = symbol

predicates
    likes(person,activity)

clauses
    likes(ellen,tennis).
    likes(john,football).
    likes(tom,baseball).
    likes(eric,swimming).
    likes(mark,tennis).
    likes(bill,X_var) if likes(tom,X_var).

/* Note that the first letter of a variable is capitalized.

Turbo Prolog returns NO SOLUTION when an attempt to bind a
variable fails. Prolog searches for all bindings which satisfy
the goal. Each set of bindings that satisfies the goal
constitutes a solution. If there are no variables, Turbo Prolog
does not search for all solutions, it looks for the first fact or
rule which matches the goal, and thereby proves it true. Turbo
Prolog returns TRUE if there is a fact or rule that matches. If
no match is found, the fact cannot be proven and Turbo Prolog
returns FALSE. */
```

Figure 1. *An example Turbo Prolog program from Borland's manual. Note the explanation at the bottom.*

Product Details

Product:	Turbo Prolog Version 1.1
From:	Borland International Scotts Valley, California
Distributor:	PC Extra (02) 319 2155
Review Copy From	Hales and Rogers 5 Mobbs Lane Carlingford 2118 NSW (02) 858 5322
Price:	$210 taxed

```
domains
        name = symbol

predicates
        male(name)
        female(name)
        sister(name,name)
        brother(name,name)
        father(name,name)
        mother(name,name)
        married(name,name)
        wife(name,name)
        husband(name,name)
        everybody

clauses
        male(phillip).
        male(charles).
        male(andrew).
        male(edward).
        female(elizabeth).
        female(anne).
        father(phillip,anne).
        father(phillip,charles).
        father(phillip,andrew).
        father(phillip,edward).
        mother(elizabeth,anne).
        mother(elizabeth,charles).
        mother(elizabeth,andrew).
        mother(elizabeth,edward).
        married(elizabeth,phillip).
        married(phillip,elizabeth).
    sister(X,Y)     if female(X)
                    and father(Z,X)
                    and father(Z,Y)
                    and X <> Y.
    brother(X,Y)    if male(X)
                    and father(Z,X)
                    and father(Z,Y)
            and X <> Y.
    wife(X,Y)       if female(X)
                    and married(X,Y)
                    and ! .
    husband(X,Y)    if male(X)
                    and married(X,Y)
                    and ! .
    everybody       if
                    wife(A,X) and
                    write(A," is ",X,"'s wife\n") and
                    husband(X,A) and
                    write(X," is ",A,"'s husband\n") and
                    ! and
                    father(X,Y) and
                    write(X," is ",Y,"'s father\n") and
                    mother(A,Y) and
                    write(A," is ",Y,"'s mother\n") and
                    brother(C,D) and
                    write(C," is ",D,"'s brother\n") and
                    sister(E,F) and
                    write(E," is ",F,"'s sister\n") and
                    fail.
```

Figure 2. A *Turbo Prolog program to explore some family relationships. (This is a highly modified version of the manual's Program 15.)*

— The size of the .EXE program produced is 36,250 bytes, which is a far greater amount of memory than such a small program would indicate. This is one of the main problems with Prolog — a very high overhead of memory is required for the object program. This is also the reason that expert systems of any complexity can still only be run on large machines. With MS-DOS V5 in the offing, ATs may still make the grade.

Prolog programs can be prepared using any standard editor which is capable of handling non-documents. Turbo Prolog has its own built in editor which uses the WordStar command set and operates more quickly and efficiently than WordStar itself — suggesting the use of Turbo Prolog as a low cost wordprocessor. When the program is prepared, the user can run it in an interpretive mode, compile the program to memory, or compile a .EXE program.

Whichever method is used, Turbo Prolog uses an extensive error checking process to find any mistakes and then places the programmer inside the editor at the offending location, together with an error message describing the nature of the error found. For larger programs, or those requiring extensive debugging, a Trace window, plus associated *on* and *off* predicates, allows the programmer to follow the progress of the program whilst input and output dialogs are occurring.

A Setup option allows the user to configure the on-screen display of Turbo Prolog's dialog. This allows changing of any of the screen colours and window settings, together with directories (where .PRO programs are stored) and some miscellaneous settings (type of CGA card, auto load message and stack size). Turbo Prolog makes considerable use of windows, both as part of the operating system and as part of the interface available for use by programmers. A very good example of this is shown in Figure 3.

The program simply acts as a primitive adding machine, setting up an input window for each of the two addends and a further window for the result. The fourth window acts as a prompt for the user to continue. The *nl* on the fourth line of the *set—up—windows* clause generates the old carriage return/line feed sequence and the system predicate *readint* accepts an integer character from the keyboard. Any character other than an integer causes the program to abort.

```
predicates
    run(integer)
    do_sums
    set_up_windows
    clear_windows
goal
        set_up_windows,do_sums.
clauses
    set_up_windows :-
        makewindow(1,7,7,"",0,0,25,80),
        makewindow(1,7,7,"Left operand",2,5,5,25),
        makewindow(2,7,7,"",2,35,5,10),
        nl,write(" PLUS"),
        makewindow(2,7,7,"Right operand",2,50,5,25),
        makewindow(3,7,7,"Gives", 10,27,5,25),
        makewindow(4,7,7,"",17,22,5,35).
    do_sums :-
        run(_),clear_windows,do_sums.
    run(Z)  :-
        shiftwindow(1),
        cursor(2,1),readint(X),
        shiftwindow(2),
        cursor(2,10),readint(Y),
        shiftwindow(3),Z=X+Y,cursor(2,10),write(Z),
        shiftwindow(4),
        write(" Please press the space bar"),
        readchar(_).
    clear_windows :-
        shiftwindow(1),clearwindow,
        shiftwindow(2),clearwindow,
        shiftwindow(3),clearwindow,
        shiftwindow(4),clearwindow.
```

Figure 3. *As this example (Program 27 from the manual) shows, Turbo Prolog makes considerable use of windows, both as part of the operating system and as part of the interface available for use by programmers.*

Turbo Prolog also allows extensive interaction with DOS and later examples in the manual provide examples of interfaces with both high level languages (C is used in this particular case) and 8086/88 assembly language programs. The *makewindow* predicate takes eight parameters, which are, in order: WindowNumber, ScreenAttribute, FrameAttribute, HeaderMessage, TopLeftRow, TopLeftColumn, Height and Width.

The two –Attribute controls allow blinking rate and intensity of the selected area to be set. The *shiftwindow* predicate takes only one parameter, which specifies which window of those created is to become the currently active window. Likewise, the *clearwindow* predicate clears the currently active window to the background colour, which was determined using the ScreenAttribute parameter. The *cursor* predicate allows positioning of the cursor within the currently active window.

Stand alone applications are also explained and the programmer is provided with a detailed tutorial on how to create an extensible database from which Turbo Prolog can 'learn' new rules and facts.

For those who wish to explore some of these features without first becoming expert programmers, Borland have provided some very nice examples of working systems. There is an American geography database (with a limited ability to decipher English sentence syntax), called Geobase; there is also a small expert system shell called Geni and several examples of demonstrations including a graphics line drawing program (Turbo Prolog supports turtle graphics), a Towers of Hanoi program and a quicksort program proposed by Clocksin and Mellish.

Everything considered, Turbo Prolog must be one of the best value for money languages available today. □

XENIX SYSTEM V

The Unix for Business & Commerce

NOW AVAILABLE

XENIX 286: IBM AT & close compatibles, TI PRO, Olivetti M28, Compaq, NCR PC8, Mitsubishi 286, Corona ATP, Sperry PCIT.
XENIX 86: IBM XT & close compatibles, ITT, Olivetti M24, Sperry, Wyse, Compaq, Ericsson, Leading Edge, Mitsubishi, NCR PC86, Tandy 1200.
XENIX 68K: Macintosh XL.
XENIX 11: PDP-11/23, PDP-11/73, Pro 350, Pro 380. (Note: XENIX 11 is not System V).

WHY XENIX?

- Full commercial support and training.
- Wide and local area networking.
- Multi-user, Multi-tasking.
- User access controls.
- Enhancements: File and record locking; Shared Data, Automatic File System, check and recovery.
- Inter-process communications — signals, pipes, print spooler and semaphores.
- Xenix is an entire software family.
- Xenix lets users tailor their environments.
- Electronic mail.
- Small, fast kernel — Full Unix System V optimised for speed on microcomputers.
- Xenix has been installed on more microprocessor-based computers than all other UNIX based operating systems combined.
- Expanded and improved documentation.
- Xenix is full UNIX system V, only better.
- Xenix has superior multi-tasking design.
- Xenix is tuned for the micro-computer environment.

WHY BLUE SKY?

- We have been in business since 1978.
- We have been involved with computers since our inception.
- First Xenix sold in 1982.
- We know Xenix.
- Some of our customers include: NCR — Health Commission — Commonwealth Bank — Westpac — Telecom Australia — Philips — TAFE — WICAT — Dept. Science & Technology — University of New South Wales — Univesity of Sydney.

MEDIA TRANSFER

Blue Sky Industries designed and developed the extremely versatile system now marketed by NASHUA as the NASHUA DATA CONVERTER. • We provide a disk-to-(& from)-magnetic tape transfer bureau. • MAGTAPE — FLOPPY * UNIX — MSDOS — CP/M — CP/M-86 — PCDOS. 8" — 5.25" — 3.5"

SOFTWARE

NOW AVAILABLE

8 MPC
8 RS232 Ports with high-speed intelligent controller and Xenix Driver.

	XENIX V 8086	XENIX V 286	XENIX V 386	XENIX V HP VECTRA
XENIX SYSTEM V OPERATING V2.2	•	•	•	
XENIX SYSTEM V OPERATING SYSTEM VERSION 2.1.3				•
LYRIX WORD PROCESSING	•	•	•	•
SCO PROFESSIONAL (Lotus 1-2-3) workalike		•	•	•
MULTI PLAN	•	•	•	•
INFORMIX relational database	•	•	•	•
FOX BASE (D Base II workalike)	•	•	•	•
FOX BASE plus (D Base III workalike)		•	•	•
FOX BASE RUN TIME		•	•	•
FOX BASE PLUS RUN TIME		•	•	•
SCO XENIX 386 TOOL KIT		•	•	•
SCO XENIX NET		•	•	•
SCO UNIPATH SNA 3270 (COMMS)	•	•	•	•
MICRO FOCUS COBOL COMPACT LEVEL II	•	•	•	•
DEVELOPMENT TOOLS INC. animator and forms — 2	•	•	•	•
C — ISAM	•	•	•	•

NEW NEW NEW NEW

MICRO FOCUS COBOL VS COBOL	•	•	•
SOFTQUAD (publishing software)	•	•	•
MULTI VIEW (windowing environment)	•	•	•

HARDWARE

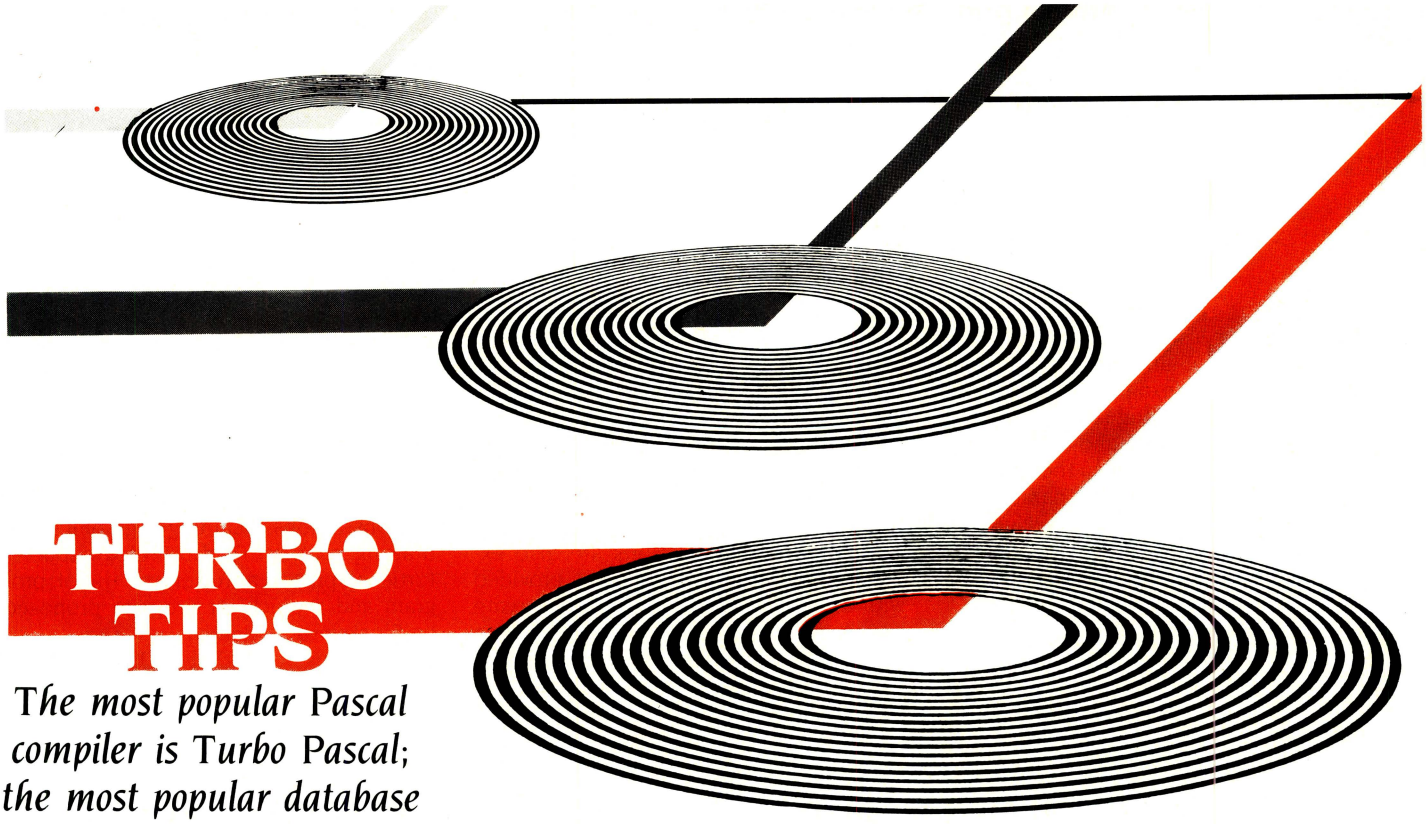
- Winchester disk controllers for S-100, IBM PC, stand-alone.
- 8 Port intelligent communications board for S-100, IBM PC, IBM AT.
- Streaming tape back-up for Xenix.
- Statistical Multiplexers 8-16-24 ports with error correction.

Australian Distributor

BLUE SKY

BLUE SKY INDUSTRIES PTY. LTD.

2a Blakesley St., Chatswood, N.S.W. 2067
National: (02) 419-5799
International: +612 4195799. Telex: 74994.



TURBO TIPS

The most popular Pascal compiler is Turbo Pascal; the most popular database management system is dBase. Can Peter Hill bring them together in a useful manner? Indeed he can . . .

The dBase Connection

THE MOST POPULAR Pascal compiler is Turbo Pascal; the most popular database management system is dBase II/III/III Plus. Can we bring them together in a useful manner? Indeed we can, and from time to time I will present code here to allow low-level tinkering with dBase command files, databases and indexes. Of course, if you're really into dBase, you subscribe to *Your Computer* and automatically receive the free dLetter dBase newsletter, don't you?

This month we have a Turbo Pascal program which reads in dBase command files and creates an output showing the calling structure. In dBase, one command file can call another and so forth, with optional return to the original. In a large data management application it is not trivial to determine which command file is calling which, nor to guess the dependencies inherent in such a calling system. This program creates a disk file showing each command file which is called, and indenting each to show the depth of nesting of the command file. Optionally, the actual lines of source code can be sent to the disk file as well.

The program is written for the IBM-PC version of Turbo Pascal, but most of the hardware dependent features are cosmetic rather than essential, hence it is straightforward to modify the source for CP/M or MacIntosh operation (or indeed for other Pascal compilers). Modifications to produce a 'plain vanilla' CP/M version are noted in the source comments.

Since dBase II, III and III Plus command files are essentially the same, the program can equally be used on each of these systems. Sample output is as follows —

```
*Calling structure of dBase
 files commencing at:menu.prg

MENU.PRG
   PERMIN.PRG
   ACCPERM.PRG
      FINDINGR.PRG
   MODPERM.PRG
   PLCORDER.PRG
      CHKINGR.PRG
   MODORD.PRG
   PRINMENU.PRG
      ORDLIST.PRG
         PRINT.PRG
         FPRINT.PRG
      PERMOUT.PRG
         PRINT.PRG
      HISTPROD.PRG <not found>
   DATE.PRG
Nr. of Lines processed was :2238
Nr. of Files processed was :16
```

The Turbo Pascal source to achieve this is is given in Listing 1.

In the case of dBase III and dBase III Plus, the selection of the –O option not only directs all the source code to the output file, but also prepares a dBase PROCEDURE file, which can be called by a MAIN file like —

```
*MAIN.PRG
SET PROCEDURE TO OutFile
DO WHILE .T.
      DO First
ENDDO
```

In the case of complex data management systems, a PROCEDURE file can substantially increase operational speed since the necessary code is loaded into memory by the SET PROCEDURE TO command and does not have to be subsequently retrieved from disk. Whilst this can nominally be achieved by using the dBase III command editor, the limitation of this to 4K of code prevents it being performed directly except for trivial cases. Prior to taking this step, you must ensure that each module of the code is thoroughly debugged, since file size limitations might constrain your ability to subsequently edit the merged file.

This program could also be used to analyse similar calling systems with minor modifications. For example, where the dBase statement DO ProcName triggers the investigation of a called file, in R:BASE System V the equivalent commands are either INPUT ProcName or RUN ProcName IN ProcFile USING Parameters, hence the differences are syntactical rather than structural.

In the next dBase connection in the Turbo Tips series, I will present a similar utility to parse and analyse dBase command files for correct sysnpxx; dBLint, a lint type utility for dBase. □

ERROR, ERROR

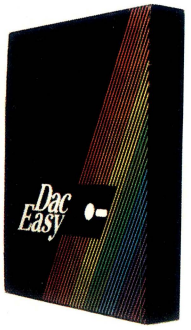
THE LISTING for 'The Key to Windows' was left somewhat draughty in our April issue — If you'd like the complete Listing, please forward your name and address to: Turbo Tips, *Your Computer*, PO Box 227, Waterloo 2015 NSW. Our apologies for the glitch. □

```
{$F20}  (*MS/PC-DOS only*)
PROGRAM dBTree;
{
DATE:     May '87.
BY:       Peter Hill.
PURPOSE: Show the tree structure of dBase II/III  Command files.
USEAGE:  DBTREE [MainFile] [OutPutFile] [-o[t]]
The -o option causes the output of the dBase source code to the
disk file. If this option is selected, the created file is ready
for selection as a PROCEDURE file.
The -t option causes all text to be directed to the screen
If any command line parameters are specified there is no prompting
for options; if none are specified, all are prompted.
}

CONST
MaxFiles =20;

TYPE
LongStr =STRING[255];

VAR
InFile          :ARRAY[1..MaxFiles] OF TEXT[$800];
OutF            :TEXT[$800];  (*MS/PC-DOS only; for CP/M, type is TEXT;*)
i,j,k           :INTEGER;
Depth           :INTEGER;
LineCount       :INTEGER;
FileCount       :INTEGER;
MainFile        :LongStr;
OutFile         :LongStr;
PathName        :LongStr;  (*MS/PC-DOS only*)
TextToScreen,
TextOut         :BOOLEAN;
ScrnAddr        :INTEGER;
LC              :LongStr;

FUNCTION Strip(DummyStr  :LongStr):LongStr;
{remove leading blanks}
VAR
i   :INTEGER;
BEGIN
    WHILE Copy(DummyStr,1,1)=' ' DO Delete(DummyStr,1,1);
    Strip:=DummyStr;
END;

FUNCTION Exist(VAR FileName   :LongStr):Boolean;
{determine whether a file exists}
VAR
Fil   :File;
BEGIN
     Exist:=True;
     Assign(Fil,FileName);
     {$I-}
     Reset(Fil);
     {$I+}
     Exist:=(IOResult=0);
     Close(Fil);
END;

FUNCTION IOR(VAR FileNae   :LongStr):Integer;
{determine the Input/Output result of attempting to open a file}
VAR
Fil   :File;
BEGIN
     Assign(Fil,FileName);
     {$I-}
     Reset(Fil);
     IOR:=IoResult;
     {$I+}
     Close(Fil);
END;

FUNCTION UC(DummyStr  :LongStr):LongStr;
{convert a string to UPPER CASE}
VAR
i   :INTEGER;
BEGIN
     FOR i:=1 TO Length(DummyStr) DO DummyStr[i]:=UpCase(DummyStr[i]);
     UC:=DummyStr;
END;

(* This procedure for  MS/PC-DOS only*)
PROCEDURE Get_Display;
VAR
CGAPresent :INTEGER;
BEGIN
    CGAPresent:=Mem[0:$410];
     IF ((CGAPresent AND $30)=$30) THEN ScrnAddr:=$B000 ELSE
        ScrnAddr:=$B800;
END;

   PROCEDURE Colour(Fore,Back :INTEGER);
   BEGIN
        TextColor(Fore);
        TextBackGround(Back);
   END;

(* This procedure for  MS/PC-DOS only*)
PROCEDURE WAL(Attr,C,R :Integer; CurrentStr:LongStr);
VAR
Count,Col,LenCurrentStr  :Integer;
BEGIN
     LenCurrentStr:=Length(CurrentStr);
     Col:=C+LenCurrentStr;
     C:=((R-1)*160)+((C-1)*2);
     FOR Count:=1 TO LenCurrentStr DO
     BEGIN
          Mem[ScrnAddr:C]:=Ord(CurrentStr[Count]);
          Mem[ScrnAddr:C+1]:=Attr;
          C:=C+2;
     END;
END;
FUNCTION YesNo(Dummy :LongStr):BOOLEAN;
VAR
InChar :CHAR;
BEGIN
     Write(Dummy+' (Y/N)? ');
     Colour(0,7);
     ReadLn(InChar);
     Colour(7,0);
     IF InChar IN ['Y','y'] THEN YesNo:=TRUE ELSE YesNo:=FALSE;
END;

(* This procedure for  MS/PC-DOS only*)
PROCEDURE Frame(Name :LongStr; ULX,ULY,LRX,LRY :INTEGER);
VAR
I,Attr : Integer;
BEGIN
     Attr:=112;
    WAL(Attr,ULX,ULY,Chr(201));
    WAL(Attr,ULX,LRY,Chr(200));
    WAL(Attr,LRX,LRY,Chr(188));
    WAL(Attr,LRX,ULY,Chr(187));
    FOR I := (ULX + 1) to (LRX - 1) DO
    BEGIN
        WAL(Attr,I,ULY,Chr(205));
        WAL(Attr,I,LRY,Chr(205));
    END;
    FOR I := (ULY + 1) to (LRY - 1) DO
    BEGIN
        WAL(Attr,ULX,I,Chr(186));
        WAL(Attr,LRX,I,Chr(186));
    END;
    WAL(Attr,ULX+((LRX-ULX) DIV 2)-(Length(Name) DIV 2),ULY,Name);
END;

PROCEDURE Initialise;
BEGIN
     ClrScr;
     LowVideo;
     Get_Display;                          (*MS/PC-DOS only*)
     Depth:=1;
     LineCount:=0;
     FileCount:=0;
     i:=1;
     j:=1;
     k:=1;
     PathName:='';                         (*MS/PC-DOS only*)
     TextOut:=FALSE;
     TextToScreen:=FALSE;
     WAL(112,4,1,'dBtree....by HillSoft... 1987.
          Calling structures of dBase II/III files.');
     Frame('Source',1,3,80,21);            (*MS/PC-DOS only*)
     Window(3,4,78,20);                    (*MS/PC-DOS only*)
    Frame('Status',1,23,80,25);           (*MS/PC-DOS only*)
     ClrScr;
END;
  (*Following Procedure for MS/PC-DOS only*)
PROCEDURE Get_Parms;
BEGIN
    CASE ParamCount OF
      1:BEGIN
          MainFile:=ParamStr(1);
          Write('Output File name for result ? ');
          Colour(0,7);
          ReadLn(OutFile);
          Colour(7,0);
          TextOut:=YesNo('Output all text to file ? ');
          TextToScreen:=YesNo('Output all text to screen ? ');
          IF Length(OutFile)=0 THEN Halt;
        END;
      2:BEGIN
          MainFile:=ParamStr(1);
          OutFile:=ParamStr(2);
          TextOut:=YesNo('Output all text to file?');
          TextToScreen:=YesNo('Output all text to screen?');
        END;
      3:BEGIN
          MainFile:=ParamStr(1);
          OutFile:=ParamStr(2);
          IF Pos('O',UC(ParamStr(3)))<>0 THEN TextOut:=TRUE;
          IF Pos('T',UC(ParamStr(3)))<>0 THEN TextToScreen:=TRUE;
        END;
```

Listing 1. *A Turbo Pascal program which reads in dBase command files and creates an output showing the calling structure. The program is written for the* IBM-PC *version of Turbo Pascal, but most of the hardware dependent features are cosmetic rather than essential, hence it is straightforward to modify the source for* CP/M *or Macintosh operation (or indeed for other Pascal compilers). Modifications to produce a 'plain vanilla' CP/M version are noted in the source comments.*

SETTING A NEW PACE IN SOFTWARE ECONOMY





DOCTOR DOS	speeds up PC's	$69.95
DAC WORD	Word processor	$109.95
DAC EASY	Accounting	$199.95
DAC BASE	Data Base	$109.95
VERSA FORM	Business Form Data Base	$295.95

Mace Software is setting the pace, bringing you a comprehensive range of innovative, low cost, quality software packages: Doctor Dos does wonders for slow old PC's, Anex magnifies the power of your PC through the addition of low-cost work stations. Check out Versa Form - a most practical Business form Data Base and where would we be without our DAC's - the best software you can buy without paying a fortune! If you're looking for value-for-money, look no further.

MACE SOFTWARE

SYDNEY MACE SOFTWARE 122 Arthur Street
NORTH SYDNEY 2060 (02) 922 4344

BRISBANE MACE SOFTWARE 23 Sylvan road
TOOWONG 4066 (07) 870 3600

MELBOURNE TAMIYM PTY LTD (03) 819 1228

PERTH COUNTRY WISE (09) 275 7977

TO MACE SOFTWARE 122 ARTHUR ST., NTH. SYDNEY., 2060 (02) 922 4344

SIMPLY SEND IN THIS COUPON WITH THE CORRECT MONEY PLUS $7.50 FOR COURIER

☐ BANK CHEQUE ☐ MONEY ORDER ☐ BANKCARD ☐ VISA ☐ MASTERCARD

ACCOUNT NO ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ EXPIRES_____

NAME_____

ADDRESS_____

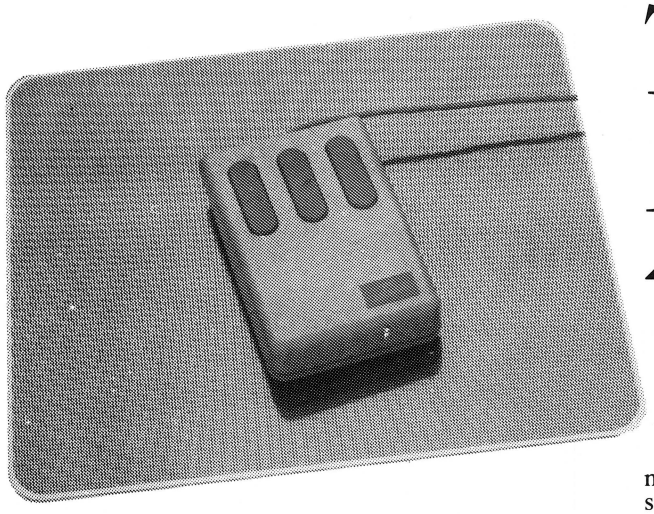
CITY_____POSTCODE_____

PHONE_____SIGNATURE_____

PRODUCTS REQUIRED (TICK APPROPRIATE BOXES)

☐ DOCTOR DOS $69.95 ☐ DAC BASE $109.95 ☐ DAC WORD $109.95
☐ VERSA FORM $295.95 ☐ DAC EASY $199.95

```
     ELSE BEGIN
            WriteLn('USEAGE dBTree [Mainfile] [Outfile] [-o[t]]');
            WriteLn('Where -o is output of all text to Outfile');
            WriteLn('and -t is output of all text to screen.');
            Write('First (Main) file name (including extension)? ');
            Colour(0,7);
            ReadLn(MainFile);
            Colour(7,0);
            Write('Output File name for result? ');
            Colour(0,7);
            ReadLn(OutFile);
            Colour(7,0);
            TextOut:=YesNo('Output all text to file?');
            TextToScreen:=YesNo('Output all text to screen?');
            IF ((Length(OutFile)=0) OR (Length(MainFie)=0)) THEN Halt;
          END;
     END; {case}
     WAL(7,2,24,'In:');
     WAL(113,5,24,UC(MainFile));
     WAL(7,38,24,'Out:');
     WAL(113,42,24,UC(OutFile));
     WAL(7,70,24,'Line:');
END;

(* Alternative Procedure if Parameters are not supported on your
computer or version of Pascal is:

PROCEDURE Get_Parms;
BEGIN
     Write('First (Main) file to process (including extension)?');
     ReadLn(MainFile);
     Write('Output File name for result?');
     ReadLn(OutFile);
END;
*)

  (*Following Procedure for MS/PC-DOS only*)
PROCEDURE Get_Path;
BEGIN
     IF Pos('\',MainFile)<>0 THEN
     BEGIN
          PathName:=UC(MainFile);
          REPEAT
               PathName:=Copy(PathName,1,Length(PathName)-1);
          UNTIL PathName[Length(PathName)]='\';
     END;
END;

PROCEDURE Open_OutF;
BEGIN
  Assign(OutF,OutFile);
  ReWrite(OutF);
  WriteLn(OutF,'*Structure of dBase files commencing at ',
          MainFile);
  WriteLn('Structure of dBase files commencing at ',MainFile);
END;

PROCEDURE Process_File;
LABEL
L1;
VAR
CurrentLine :LongStr;
BalanceLine :LongStr;
OldX,OldY   :INTEGER;

PROCEDURE Open_New;
BEGIN
     FileCount:=FileCount+1;
     IF Exist(BalanceLine) THEN
     BEGIN
          Assign(InFile[Depth],BalanceLine);
          Reset(InFile[Depth]);
          WriteLn(OutF);
          WriteLn;
          (*Next 2 lines MS/PC-DOS only*)
          WAL(7,5,24,'                                        ');
          WAL(113,5,24,BalanceLine);
      END
      ELSE
      BEGIN
          Depth:=Depth-1;
          CASE IOR(BalanceLine) OF
               1:BEGIN
                    WriteLn(OutF,'*<not found>');
                    WriteLn(' <not found>');
                 END;
              24:BEGIN
                    WriteLn(OutF,'*<too many open files>');
                    WriteLn(' <too many open iles>');
                 END;
          END;
      END;
END;

PROCEDURE Text_Out;
BEGIN
     IF TextOut THEN
     BEGIN
          FOR k:=1 TO (3*Depth) DO Write(OutF,' ');
          WriteLn(OutF,CurrentLine);
     END;
     IF TextToScreen THEN
     BEGIN
          FOR k:=1 TO (3*Depth) DO Write(OutF,' ');
         WriteLn(CurrentLine);
     END;

END;

PROCEDURE Eliminate_Comments;
VAR
Part1    :LongStr;
Part2    :LongStr;
FoundPos :INTEGER;

 PROCEDURE Cut_Off;
 BEGIN
      {eliminate continued comments}
      IF FoundPos<>0 THEN
      BEGIN
           IF CurrentLine[Length(CurrentLine)]=';' THEN
           REPEAT
                ReadLn(InFile[Depth],CurrentLine);
                Text_Out;
           UNTIL CurrentLine[Length(CurrentLine)]<>';'
           ELSE CurrentLine:=Copy(CurrentLine,1,FoundPos-1);
      END;
 END;

 BEGIN
      CurrentLine:=Strip(CurrentLine);
      {delete blocks of text}
      IF Copy(CurrentLine,1,4)='TEXT' THEN
         REPEAT
               ReadLn(InFile[Depth],CurrentLine);
               Text_Out;
               LineCount:=LineCount+1;
               (*Next 5 lines MS/PC-DOS only*)
               IF LineCount/10 =LineCount DIV 10 THEN
               BEGIN
                    Str(LineCount:5,LC);
                    WAL(113,75,24,LC);
               END;
         UNTIL Copy(Strip(CurrentLine),1,7)='ENDTEXT';
      {get rid of comments}
      FoundPos:=Pos('*',CurrentLine);
      Cut_Off;
      FoundPos:=Pos('NOTE',CurrentLine);
      Cut_Off;
      FoundPos=Pos('&&',CurrentLine);
      Cut_Off;
      {get rid of @ }
      FoundPos:=Pos('@',CurrentLine);
     Cut_Off;
      {get rid of ?}
      FoundPos:=Pos('?',CurrentLine);
      Cut_Off;
      {get rid of "literals"}
      FoundPos:=Pos('"',CurrentLine);
      IF FoundPos<>0 THEN
      BEGIN
         Part1:=Copy(CurrentLine,FoundPos+1,
                                 Length(CurrentLine)-FoundPos);
         CurrentLine:=Copy(CurrentLine,1,FoundPos-1);
        FoundPos:=Pos('"',Part1);
         IF FoundPos<>0 THEN
           CurrentLine:=CurrentLine+
           Copy(Part1,FoundPos+1,Length(Part1)-FoundPos-1);
      END;
      FoundPos:=Pos('''',CurrentLine);


           IF FoundPos<>0 THEN
           BEGIN
              Part1:=Copy(CurrentLine,FoundPos+1,
                                      Length(CurrentLine)-FoundPos);
              CurrentLine:=Copy(CurrentLine,1,FoundPos-1);
              FoundPos:=Pos('''',Part1);
              IF FoundPos<>0 THEN
                CurrentLine:=CurrentLine+
                Copy(Part1,FoundPos+1,Length(Part1)-FoundPos-1);
           END;
       END;

PROCEDURE Main_Process;
VAR
FoundPos :INTEGER;
BEGIN
     WHILE Depth<>0 DO
```



The Mouse that Roared.

'New' generation Optical Mouse

It's faster, smoother, more versatile and more accurate! The new DSE PC Optical Mouse brings new levels of efficiency to software programs! Virtually maintenance free, the PC Mouse gives nine button-touch program options and includes a high accuracy optical pad. Comes with designer Pop-up menus for interaction with a huge range of popular software. The PC Mouse — greater efficiency from DSE!! Cat X-3800 $249

Buy both and Save!

What a fantastic offer! Buy a PC Mouse and PC Paint Plus together and you'll save an amazing $49. Make the most from your computer system and get a bargain at the same time! Cat X-3801

Pack Special $299
Save $49

Computer art made easy!

Become your own Picasso with Mouse Systems PC Paint Plus. The software program which allows you to draw and edit pictures in up to 16 colours or B&W in a huge variety of sizes and resolutions. The only constraint is the power and size of your system. PC Paint Plus gives you total image flexibility for reports, graphs, charts... anything! One picture is worth a thousand words - PC Paint Plus gives you thousands of pictures! Cat X-9500 $99

Introductory offer - free Gallery Software with every PC Paint Plus sold!!
Offer valid while stocks last!



New

PC710 DSE Multitech
The superior intelligence!

The new DSE Multitech 710: It's the world's fastest 8088-based PC, with keyboard selectable 4.77MHz or 10MHz, standard 640K RAM expandable to 768K, a minimum of 3 add-on slots for future expansion, PC compatibility PLUS the revolutionary 3-in-1 graphics display cabability including CGA, MGA, MDA and Plantronics Colorplus functions! MS-DOS V3.2, compare it for price, compare it for performance, compare it for versatility — there's just no comparison at all!!

System 1

Includes twin 5¼" floppy disk drives, 640K RAM and 12 months warranty. Cat X-8150 $1595

System 2

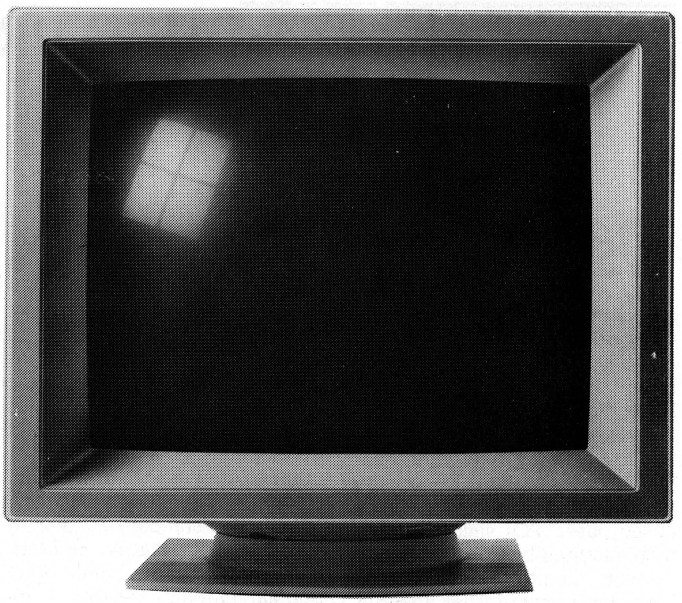
With single 5¼" floppy disk drive, 640K RAM and a huge 20 Meg Hard Drive and 12 months warranty! Cat X-8151 $2695

Monitor not included, but available at great prices when bought with the PC710 System.

DICK SMITH ELECTRONICS COMPUTERSTORE

• NSW • Albury 21 8399 • Bankstown Square 707 4888 • Blacktown 671 7722 • Blakehurst 546 7744 • Bondi Junction 387 1444• Brookvale (Warringah Mall) 93 0441 • Campbelltown 27 2199 • Chatswood Chase 411 1955 • Chullora 642 8922 • Gore Hill 439 5311 • Gosford 25 0235 • Hornsby 477 6633 • Liverpool 600 9888 • Maitland 33 7866 • Miranda 525 2722 • Newcastle 61 1896 • North Ryde 88 3855 • Parramatta 689 2188 • Penrith 32 3400 • Railway Square 211 3777 • Sydney City 267 9111 • Tamworth 66 1711 • Wollongong 28 3800 • ACT • Fyshwick 80 4944 • VIC • Ballarat 31 5433 • Bendigo 43 0388 • Box Hill 890 0699 • East Brighton 592 2366 • Coburg 383 4455 • Essendon 379 7444 • Frankston 783 9144 • Geelong 43 8804 • Melbourne City 670 9834 • Richmond 428 1614 • Ringwood 879 5338 • Springvale 547 0522 • QLD • Brisbane City 229 9377 • Buranda 391 6233 • Chermside 359 6255 • Redbank 288 5599 • Rockhampton 27 9644 • Southport 32 9863 • Toowoomba 38 4300 • Townsville 72 5722 • Underwood 341 0844 • SA • Adelaide City 232 1200 • Darlington 298 8977 • Elizabeth 255 6099 • Enfield 260 6088 • Salisbury 281 1593 • WA • Cannington 451 8666 • Fremantle 335 9733 • North Perth 328 6944 • Perth City 481 3261 • TAS • Hobart 31 0800 • NT • Stuart Park 81 1977

```
        BEGIN
            WHILE NOT Eof(InFile[Depth]) DO
            BEGIN
              If Depth<1 THEN Exit;
              ReadLn(InFile[Depth],CurrentLine);
              Text_Out;
              LineCount:=LineCount+1;
              (*Next 5 lines MS/PC-DOS only*)
              IF LineCount/10 =LineCount DIV 10 THEN
              BEGIN
                  Str(LineCount:5,LC);
                  WAL(113,75,24,LC);
              END;
              CurrentLine:=UC(CurrentLine);
              Eliminate_Comments;
              FoundPos:=Pos('DO ',CurrentLine);
              IF ((FoundPos<>0) AND
                  (Pos('ENDDO',CurrentLine)=0)) THEN
              BEGIN
                 i:=FoundPos;
                j:=Length(CurrentLine)-FoundPos;
                 BalanceLine:=Copy(CurrentLine,i+2,j);
                 IF ((Ps(' CASE',BalanceLine)=0)
                    AND (Copy(Strip(BalanceLine),1,1)<>'&')
                    AND (Pos(' WHILE',BalanceLine)=0))
                    THEN

               BEGIN
                    BalanceLine:=Strip(BalanceLine);
                    IF Pos(' ',BalanceLine)<>0 THEN
                       BalanceLine:=Copy(BalanceLine,1,
                          Pos(' ',BalanceLine)-1);
                  IF Pos('.',BalanceLine)=0 THEN
                      BalanceLine:=BalanceLine+'.PRG';
(*MS/PC-DOS only*) IF Pos('\',BalanceLine)=0 THEN
                      BalanceLine:=PathName+BalanceLine;
                  FOR k:=1 TO (3*Depth) DO
                  BEGIN
                       Write(OutF,' ');
                       Write(' ');
                  END;
                  IF TextOut THEN Write(OutF,'*');
                  Write(OutF,BalanceLine);
                  IF TextToScreen THEN Colour(0,7);
                  Write(BalanceLine);
                  LowVideo;
                  Depth:=Depth+1;
                  Open_New;
                  Main_Process;
               END;
             END;
           END;
           IF (TextOut) AND (CurrentLine<>'RETURN') THEN
              WriteLn(OutF,'RETURN');
           Close(InFile[Depth]);
           Depth:=Depth-1;
           IF Depth<1 THEN Exit;
       END;
 END;

 BEGIN
      BalanceLine:=MainFile;
      Open_New;
      BalanceLine:=UC(BalanceLine);
      WriteLn(OutF,'*'+BalanceLine);
      IF TextOut THEN WriteLn(OutF,'PROCEDURE '+BalanceLine);
      IF TextToScreen THEN Colour(0,7);
      WriteLn(BalanceLine);
      LowVideo;
      Main_Process;
 END;

 PROCEDURE Wind_Up;
 BEGIN
      WriteLn('Finished');
      WriteLn(OutF,'*Nr. of Lines processed was :',LineCount);
      WriteLn('Nr. of Lines processed was :',LineCount);
      WriteLn(OutF,'*Nr. of Files processed was :',FileCount);
      WriteLn('Nr. of Files processed was :',FileCount);
      Close(OutF);
      Window(1,1,80,25);  (*MS/PC-DOS only*)
 END;

   (*The following Procedure is for MS/PC-DOS only*)
 PROCEDURE Error(Errno :ErrAdr  :INTEGER);
 BEGIN
      Window(1,1,80,25);
      ClrScr;
      WriteLn('Error Number:',Hi(Errno),',',Lo(ErrNo));
      WriteLn('An Irrecoverable Error Has Occurred...Sorry!');
      Close(OutF);
      Halt;
 END;

 BEGIN   {MAIN}
         ErrorPtr:=Ofs(Error);          (*MS/PC-DOS only*)
         Initialise;
         Get_Parms;
         Get_Pat;                      (*MS/PC-DOS only*)
         Open_OutF;
         Process_File;
         Wind_Up;
 END.
```

THIS MONITOR COULD PUT US OUT OF BUSINESS.

The NEC MULTISYNC colour monitor is so advanced it will probably never need to be upgraded. That means once you've bought one, you'll possibly never need to replace it.

You see the MULTISYNC automatically scans all frequencies between 15.5kHz and 35kHz – which includes every colour graphics board now in use. And it adjusts itself to suit, with a maximum resolution of 800 (horizontal) by 560 (vertical). It's also compatible with IBM PCs. And all IBM compatibles.

In layman's terms this simply means that the MULTISYNC not only has a superior clarity of display. And superior database applications. But with MULTISYNC, when the time comes to upgrade your computer, you won't have the added expense of changing over your monitor.

Now despite the fact that we call the MULTISYNC the 'intelligent' monitor, it may not be the most intelligent business move we've made. However we're sure the MULTISYNC will keep you ahead of everyone else for a long time to come. To find out more telephone (02) 8681811.

MULTISYNC™

NEC

NEC HOME ELECTRONICS

Sydney (02) 8681811; Newcastle (049) 262466; Melbourne (03) 5449200; Brisbane (07) 2770888; Adelaide (08) 2949033; Perth (09) 4453499.

NEC484/87 USPNeedham

Software

SCO Xenix 386 System V Operating System
Blue Sky Industries Pty Ltd
Phone: (02) 419 5799
Price: Not supplied.
The Santa Cruz Operation (SCO) Xenix System V Operating system and the SCO Xenix 386 Development System are for 80386 based PCs such as those manufactured by Compaq, Wyse, Apricot, Zenith, Olivetti, and Texas Instruments. They also run on IBM PC compatible machines which have been turbo-charged with a 386 accelerator card such as the Intel INboard. Xenix System V is a commercially enhanced, fully licensed version of AT&T's multiuser, multitasking Unix System V Operating System, originally developed for microprocessor-based computers by Microsoft. SCO Xenix System V is an AT&T System V.3 licensed, version of Xenix.

Value added resellers and other system integrators can design PC based solutions using 386 machines, using SCO Xenix. The virtual address space means that SCO Xenix can accommodate large applications such as CAD/CAM, AI, and desktop publishing. High resolution graphics are available. It also supports all 286 based Xenix applications currently available. Packaged with the SCO Xenix is SCO CGI, a device independent graphics development system including libraries and device drivers for creating graphics applications. Support for standard PC display devices, dot matrix printers, Postscript printers, and other popular graphics devices is included.



Accountant Plus
Personal Computer Software Pty Ltd
Phone: (02) 923 2899
Price: $599 taxed
This new softwar is an integrated accounting system designed for the small business and will run on any PC/MS DOS microcomputer. It handles the debtors ledger, creditors ledger, general ledger, stock control, and invoicing. Other features are Free Format invoice design, Auditors Utility, password protection, and Budgetary control. Reports can be spooled to disk, displayed on the screen or the printer. Also available are debt chasing and direct mail letters. Accountant Plus gives alphanumeric account references.

Graphics and Symbols 1
Dynamic Graphics Pty Ltd
Phone: (02) 660 0211
Price: Not supplied
Graphic art supplier, Dynamic Graphics, has launched the first in a series of graphic art software packages for the IBM PC, XT, AT, and compatibles. The range of Desktop Art packages for the Apple Macintosh has also been extended. Graphics and Symbols 1 contains more than 200 pictograms, seasonal symbols and design elements, stored in the personal computer format. The two new collections in the Macintosh software series are Borders and Mortices 1, with more than 200 designs for producing coupons and Business 1, which contains more than 200 illustrations and symbols.

Desktop Art packages are suitable for bulletins, newsletters, logos, flyers, or newspaper advertisements. Dynamic Graphic's Macintosh software already include a variety of individual title volumes. Desktop Art packages are compatible with common visual communication programs and are planned for categories like sports, business, borders and the four seasons. In addition to the art, each PC collection includes an instruction guide, a complete a complete pictorial index of the art, and a permanent storage case.

Harris-Desk
Harris-Lanier
Phone: (02) 816 2088
Price: Not supplied
A multi-function wordprocessor which enables the user to perform a wide range of sophisticated office applications on a standard PC, has been released by Harris-Lanier. Known as Multi-Desk, it includes spelling verification, task and user programming and electronic mail. The main feature is Perspective, the user interface designed to bring all the functions associated with office automation into perspective for the user. Perspective allows a user to apply simple rules of logic to a wide range of system functions providing the same operating environment all the time.

Harris-Desk runs on the Harris PC, IBM PC, XT, AT, Portable, Compaq Deskpro, Compaq Portable or compatibles, in either a standalone or network configuration. It requires a minimum of memory and can operate on either a colour or monochrome screen.

Lattice dBC III Plus
FMS
Phone: (03) 699 9899
Price: $1158 untaxed
The dBC III Plus software program will enable C programmers to simultaneously create, access, and update files that are compatible with dBASE III Plus software, is now available. It is a library of C functions for the multi-user environment. The Lattice package provides an alternative to programming in the dBASE III Plus interpretive language. It allows C programmers to replace dBASE III Plus operations with C language programs. Users can also take advantage of the many C libraries that solve complicated network database problems. Source code is optionally available.

Users of the Lattice dBC III library can upgrade to dBC III Plus at a reduced price. There are also C libraries that support screen and window management, graphics, statistical analysis, and more to integrate dBASE III Plus applications. File or record locking capabilities ensure total security of designed applications. Lattice dBC III Plus is a complete Indexed Sequential Access Method package and users do not have to purchase dBASE III Plus. The product is network ready so users can share ISAM files with as many stations as possible in the LAN. The product is specifically designed to solve complicated network problems.

More Version 1.1
Busiware
Phone: (02) 281 1300
Price: Not supplied

ACME SOFTWARE

Digi-View
Acme Software
Phone: (03) 596 6732
Price: $395
It has been called the non-artist's dream, as Digi-View is a product for the Amiga which takes full colour pictures of an object, then puts it on the computer screen. Digi-View is a combination of hardware and software for the Amiga. A colour picture is captured in the 320 x 200 mode on the Amiga by taking snapshots of the object through coloured filters of red, blue and green. The filters come with the product and are mounted in front of the camera lens; an exposure of 10 seconds is needed for each filter. The program then combines the three images into a full colour or high resolution grey scale monochrome image. These images can be held in the hold-and-modify mode, which allows for up to 4096 colours on the screen at once. The software can also be used to produce standard 32 colour pictures to incorporate into other programs. Digi-View has two special modes, one to automatically select the most appropriate palette and another to sharpen up the picture. Black and white images have a resolution of 640 x 400. With extra RAM, Digi-View can produce colour pictures in 320 x 200 (4096 colours), 320 x 400 (4096 colours), 640 x 200 (16 colours), and 640 x 400 (16 colours). Either a colour or monochrome camera can be used with filters (the camera does not come with the package).

The latest release of More, Version 1.1, includes a number of new commands. Now users are able to use the Undo command and undo any typing in a headline, any reorganizing of headlines, editing changes using cut, copy, paste or clear, and undo computations with the calculate command. Selective styling of any character, word or phrase is available so the user can change the font to bold or italics, and use outline, underlining and shadow in headlines, document windows, bullet and tree charts. More automatically creates a Resume file when the user quits. There is a new checkbox in the Bullet Options dialog and, if checked, each 1st level heading starts a new slide. All subheads, at any level are included in each slide.

Multi-Plus
Sybiz Software Pty Ltd
Phone: (09) 232 0600
Price: Not supplied

A multi-user version of the accounting package, Sybiz Plus, has been released. Multi-Plus is a low cost network which allows single PC Sybiz Plus users to expand into multi-user environments and to run a wide range of IBM compatible software. Multi-Plus comprises MultiLink, a simple, low-cost system with wide compatibility, and the Sybiz Plus Multiuser Module.

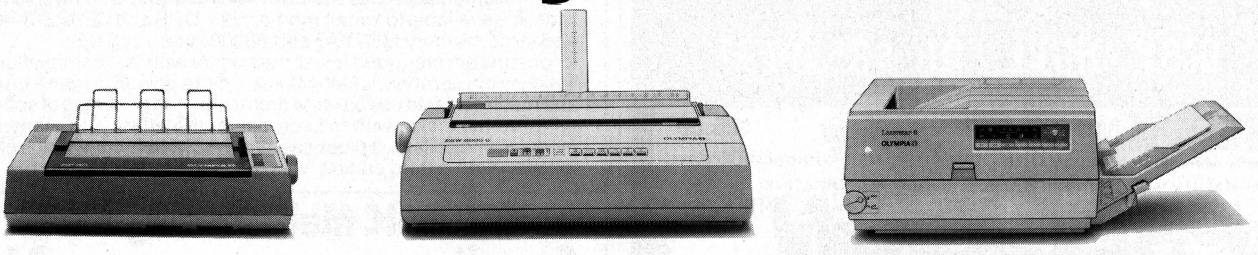
It has been designed to provide a continuous development path. All data is upwardly compatible and the Sybiz Plus Multiuser module contains protective devices to prevent work on one terminal from overwriting work on the others. A single user Sybiz Plus system can be expanded to a multiuser version by adding IBM PC compatible dumb terminals, paired with a printer. Multi-Plus has three new accounting features; an option for weekly cycles in Debtors and Creditors, an option for extended part numbers, and a decimal facility which avoids having to round off small inventory prices to the nearest dollar.

The Estimator
Business Computers International (BCI) *Pty Ltd*
Phone: (02) 959 5122
Price: $1500 plus tax
The Estimator is a job estimation package for use on PCs. It is suitable for use by builders, plumbers, electricians, contractors, and any business that involves the preparation of tenders, quotas or budget costings. According to BCI, estimates that used to take a day to compile can now be produced in less than two hours. The Estimator can reprice the job if changes are made to specifications in just a few minutes. The package runs on PCs with 256 kilobytes of main memory and a 10 megabyte hard disk.

Estimating techniques are developed in the Edit mode, using typical spreadsheet design procedures. The resulting sheets are reusable templates for the jobs to be estimated and as many as 30 sheets can be combined to handle small to large estimating processes. Up to 9 data files can be used in the estimating process. It does not offer a particular style of estimating but contains all the features necessary to allow a business to computerize its existing procedures. Standard reports produced by The Estimator are the Estimate and Component reports. These reports give the complete estimate, produced on screen, and a listing of all components used in the specified job. Users can also design their own reports. The package uses spreadsheet technology to gain a high degree of flexibility.

The Stock Executive Mk II
Software Wholesalers of Australia Pty Ltd.
Phone: (02) 957 6686
Price: $298 ▷

Dot, Daisy and Laser.



The new family of Olympia Printers with a prestigious technological heritage.

For over 80 years Olympia has been a leading innovator in typing technology for the office. Our reputation for efficiency, reliability and service is renowned.

Now Olympia introduces its new range of printers, all with that famous Olympia standard of quality. The Olympia dot matrix printers produce clean, crisp printing at speeds from 130 CPS to 200 CPS for a wide range of applications.

Our range of daisywheels is unsurpassed in printing quality.

And our Laserstar 6 is compact, versatile, compatible and offers all the benefits of the latest in desktop printing technology.

Whatever your printer requirements are, Olympia has a model for you.

Contact Olympia now for further details.

OLYMPIA
electronic It works

Phone (008) 251 448 for an Olympia dealer near you, or Olympia (Australia) Pty. Ltd., 59-61 Dickson Ave., Artarmon, NSW 2064. Phone: (02) 439 3444.
OLY4166

The Stock Executive, from Wycom in the US, is now being distributed by Software Wholesalers of Australia. It is designed for the Australian personal investor. The latest version updates the original The Stock Executive, which was released 12 months ago. Features in the package are aimed specifically at personal investors trading in shares, including targets, stop losses and strategy reports. The Stock Executive handles up to six portfolios of 100 shares each. It runs on all IBM XT, AT, and 100 percent compatibles.

Peripherals

2274 Controller Upgrades
Memorex Pty Ltd
Phone: (02) 908 2211
Price: Not supplied

Memorex has announced upgrades to its 2274 controller range. The range now supports IBM 3179-G and 3191, Models A10 and B10, display stations, and X.25 data transmission in SNA environments. Also, the range has ASCII terminal support (ATS) in the cluster controller, which provide for the connection of Memorex terminals to IBM and compatible mainframes. Up to 32 terminals are supported and can be connected in any sequence.

The controller is able to be customised using the local point, an extensive selection of control and monitor routines available at any display terminal and transparent to the host. Changes to the controller's configuration can be made while it remains online, with no interruptions to terminal users. The 2274 Controllers support the X.25 protocols connected to public packet switched data networks via dedicated point-to-point leased lines.

An RS-232C interface is standard on the remote controllers and maximum line speed is 9600 bps. Support for ASCII terminals is an optional feature available on 2274 models 2A, 2C, and 2CX, providing 3270 emulation for some asynchronous devices. Release 5 relieves some of the previous device limitations encountered by earlier software releases.

CPBlue Version 2.0
Computer Protocol
Phone: (09) 470 2333
Price: Not supplied
CPBlue is a micro-to-mainframe linkboard which fits into any spare slot on an IBM or compatible PC. You can have access to over 15 mainframes, in both directions, and as fast as your PC can run. CPBlue increases the functionality of PCs in any mainframe environment. It has the ability to conduct file transfers between host storage and MS DOS, as well as provide for the total integration of PCs into mainframe networks. A single board enables access to up to fifteen different mainframes. An on board microprocessor allows CPBlue to run by its own power, causing no loss of power to the CPU. It can be configured for synchronous or asynchronous information delivery and does its own formatting. CPBlue has two communications ports and full emulations including screen presentation, keyboard mapping and attached printer. Through the addition of Computer Protocol equipment, it is possible to provide gateways to SNA and X.25 environments. Computer Protocol will consider the development of special CPBlue software, or escalate the priority of planned development, for orders of 100 or more units.

AUSTRALIA'S LOWEST PRICED DISK DRIVES
WHERE CAN YOU BUY A 5.25" DISK DRIVE FOR $85.00??
MPI MICRO PERIPHERALS INC. MODEL 5.25" DSDD!!! $85.00
Floppy Disk Drives fully reconditioned 60 days warranty will fit most P.C's and home computers.
PRECISION™
FLEXIBLE DISKS Manufactured by Xidex®
Floppy Diskettes 5.25" $19.90 per box of 10
Floppy Diskettes 3.5" $52.50 per box of 10
Nashua Xidex quality magnetic media at the lowest price in the country, diskettes DSDD fully boxed by Xidex and Nashua 100% error free.
Nashua® Professional Magnetic Media
CALL US ON (02) 662 4884
MDS MAGNETIC DATA STORAGE PTY. LTD. Incorporated in N.S.W.
59a Boronia Street, Kensington. N.S.W. 2033 Australia
Tel: National: (02) 662 4884 Fax: 662 1339 Telex: AA121822 (SY2567)

FTL MODULA-2 Compilers $50-$100
You've probably heard of Modula-2, Niklaus Wirth's newest language: It's now available for a range of machines from JED Microprocessors.
This implementation was written in Australia, and is being sold worldwide. It's available for small-memory MS-DOS and CP/M Z-80 at $90 and large memory MS-DOS and 68000 (Atari) at $125.
It contains an integrated full-screen editor with fast compilation and linking from libraries, which makes it more powerful than Turbo-P., and much easier to use on large programs. You get 1 meg of soft-ware on three full disks, with full sources of the editor and many other modules and utilities. It produces fast, PROM-able code which closely follows Wirth's third edition, with 8087 and LONG support.
MTBASIC Multitasking BASIC Compiler.....$125
MTBASIC is an easy to use BASIC which allows interactive program writing and checkout, followed by easy production of a PROM-able COM file on disk. The multi-tasking allows time or interrupt task switching, ideal for process control where operator I/O and communication occurs while the control work goes on. MT8087: $160.
Both compilers are available for many MS-DOS and CP/M formats. (Above prices are tax-exempt. Add 14% for tax inc.) Phone (03) 762 3588 to order (VISA, B/C, cheque OK), or to receive detailed data or a JED 30-page catalogue of STD-bus CMOS single board computers for data logging or control.
JED JED MICROPROCESSORS PTY. LTD.
Office: 7, 5-7 Chandler Rd, (P.O. Box 30), Boronia, 3155 VICTORIA, AUSTRALIA
(03) 762 3588 (02) 467 2032 (07) 369 5900 (08) 46 8531 (002) 234 3888



Apricot Xen-i 386 and VX Series
Barson Computers Pty Ltd △
Phone: (03) 419 3033
Price: Not supplied

The latest Apricots from Barson, the Xen-i 386 and VX Series, have all been designed to be compatible with the OS/2 operating system for the IBM Personal System/2. According to Barson, the new machines have an access time which is a minimum of 25 percent faster than their equivalent in the PS/2 range. The systems offer users and system planners a clear and uninterrupted upgrade path for at least five years into the future. The Xen 386 series incorporates the Intel 32-bit 80386 central processing chip, running at a clock speed of 16 MHz. The Xen-i 386 also supports the 80387 arithmetical co-processor at speeds up to 1.5 megaflops and comes with three internal AT short slots. The base system begins with 1 Megabyte of high speed 32-bit RAM, expandable to 8 Mbytes. There is the option of a further 8 Mbytes of RAM on an Above Memory shortcard.

Each system comes with Extended MS DOS 3.2, MS Windows, MS Write, MS Paint, VP Planner, and GW BASIC software. Disk drive options include 5¼ inch (1.2 Megabyte), 3½ inch (1.44 Megabyte) floppy drives and hard disk options of 30 and 45 Mbytes. The multi-user Apricot VX Series which is a low-cost office system with storage options from 70 Mbtyes to 1.8 Gigabytes, is able to handle up to 63 users on an Apricot MS Net/MS DOS 3.2 network, or 48 users under Xenix 386. Up to 10 VX systems can be networked to give a total terminal capacity of more than 600 users. A single VX system comprises up to 8 Mbytes of 32-bit RAM, plus modular storage up to 1.8 Gbytes. □

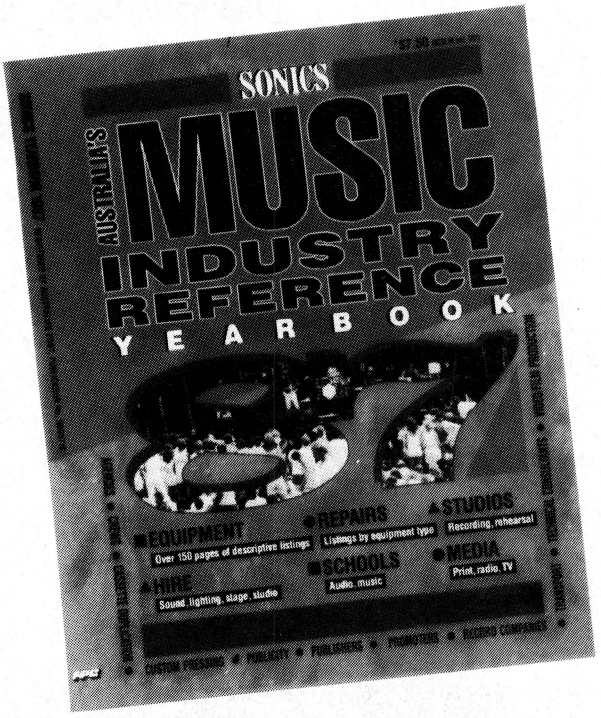
CASE

DCX 833 and 842 Multiplexers
Case Communications Systems Ltd
Phone: Not supplied
Price: Not supplied

Two feeder multiplexers for the DCX communications processor networks have been released. The DCX 833 Multiplexer feeds both synchronous and asynchronous devices into DCX networks, enabling users to mix communications protocols and link a wider range of computers in a

IT'S INDISPENSABLE!

The music industry reference book



SONICS YEARBOOK 1987

NEW! EXPANDED DIRECTORIES!

★ EQUIPMENT 100 pages of descriptive listings
★ REPAIRS Listings by equipment type
★ HIRE Sound, lighting, stage, studio
★ STUDIOS Recording, rehearsal
★ SCHOOLS Audio, music
★ MEDIA Print, radio, TV

Plus
• ACOUSTIC CONSULTANTS • AGENCIES • CREWS • CASSETTE DUPLICATION • CUSTOM RECORD PRESSING • PUBLICITY • PROMOTERS • RECORD COMPANIES • TRUCKING • VIDEO/FILM PRODUCTION.

ONLY $7.50 FOR 300 PAGES PLUS!

POSTFREE IN AUSTRALIA

WRITE TO: FREEPOST No. 4
PO Box 227, WATERLOO, NSW 2017.
Enclose $2 for postage and handling with your cheque or money order.
Or: Phone (02) 693-0000 to order now

AT ALL NEWSAGENTS NOW!

In modems, you'll find NetComm stacks up better than the rest.

When it comes to ours or theirs, only NetComm has a modem to suit every communications need.



MODEL	DESCRIPTION	FEATURES	BAUD RATES
CM400	Modem 64/128®	AD, PD, TD, AR, AA, AX, OA, SW, ASY. Commodore© Compatible	300 FDX, 1200/75 FDX (CCITT V.21, V.23)
SM8501	Modem 3+12® NCP	MD, PD, MA, OA, SW, ASY, IBM PC® Compatible	300 FDX, 1200/75 FDX (CCITT V.21, V.23, Bell 103)
SM8502	Modem 3+12® A	MD, PD, MA, OA, SW, ASY, Apple,II/e/c Compatible	300 FDX, 1200/75 FDX (CCITT V.21, V.23, Bell 103)
SM860	AutoModem® 3+12	AD, PD, MA, OA, ASY, AT, SW	300 FDX, 1200/75 FDX, 75/1200 FDX (CCITT V.21, V.23, Bell 103)
AM100	AutoModem® 21/23	AD, PD, TD, AA, AX, OA, AT, ASY	300 FDX, 1200/75 FDX, 75/1200 FDX (CCITT V.21, V.23, Bell 103)
AM120	AutoModem® 12/12	AD, PD, TD, AA, AX, OA, AT, ASY	1200 FDX (CCITT V.22, Bell 103, 212A)
AM140	AutoModem® 24/24	AD, PD, TD, AA, AX, OA, AT, ASY	1200 FDX, 2400 FDX, (CCITT V.22, V.22bis, Bell 103, 212A)
AM160	AutoModem® 123	AD, PD, TD, AA, AX, OA, AT, ASY	300 FDX, 1200/75 FDX, 75/1200 FDX, 1200 FDX (CCITT V.21, V.23, V.22, Bell 103, 212A)
AM180	AutoModem® 1234	AD, PD, TD, AA, AX, OA, AT, ASY	300 FDX, 1200/75 FDX, 75/1200 FDX, 1200 FDX, 2400 FDX (CCITT V.21, V.23, V.22, V.22bis, Bell 103, 212A)
SM8911	SmartModem® 21/23SA	AD, PD, TD, AR, AA, OA, AX, AT, ASY, SY, SW	300 FDX, 1200/75 FDX, 75/1200 FDX 1200 HDX (CCITT V.21, V.23, Bell 103)
SM8721	SmartModem® 1200SA	AD, PD, TD, AR, AA, AX, OA, AT, ASY, SY, SW	1200 FDX, (CCITT V.22, Bell 103, 212A)
SM8821	SmartModem® 2400SA	AD, PD, TD, AR, AA, AX, OA, AT, ASY, SY, SW	1200 FDX, 2400 FDX (CCITT V.22, V.22bis, Bell 103, 212A)
SM8421	SmartModem® 123SA	AD, PD, TD, AR, AA, AX, OA, AT, ASY, SY, SW	300 FDX, 1200/75 FDX, 75/1200 FDX, 1200 HDX, 1200 FDX (CCITT V.21, V.23, V.22, Bell 103, 212A)
SM8471	SmartModem® 1234SA	AD, PD, TD, AR, AA, AX, OA, AT, ASY, SY, SW	300 FDX, 1200/75 FDX, 75/1200 FDX 1200 HDX, 1200 FDX, 2400 FDX (CCITT V.21, V.23, V.22, V.22bis, Bell 103, 212A)
DL842	DataLock® 123SA	AD, PD, TD, AR, AA, AX, OA, AT, SW, EP, DE, PW, ASY, SY	300 FDX, 1200/75 FDX, 75/1200 FDX 1200 HDX, 1200 FDX (CCITT V.21, V.23, V.22, Bell 103, 212A)
DL847	DataLock® 1234SA	AD, PD, TD, AR, AA, AX, OA, AT, SW, EP, DE, PW, ASY, SY	300 FDX, 1200/75 FDX, 75/1200 FDX 1200 HDX, 1200 FDX, 2400 FDX (CCITT V.21, V.23, V.22, V.22bis, Bell 103, 212A)
IN600	PC In/Modem®	AD, PD, TD, AR, AA, AX, OA, AT, SW, ASY, FI (Half Card Size)	300 FDX, 1200/75 FDX, 75/1200 FDX CCITT V.21, V.23, Bell 103
IN610	1200 In/Modem®	AD, PD, TD, AR, AA, AX, OA, AT, SW, ASY, FI (¾ Card Size)	1200 FDX (CCITT V.22, Bell 103, 212A)
IN615	2400 In/Modem®	AD, PD, TD, AR, AA, AX, OA, AT, SW, ASY, FI (¾ Card Size)	1200 FDX, 2400 FDX (CCITT V.22, V.22bis, Bell 103, 212A)
IN620	123 In/Modem®	AD, PD, TD, AR, AA, AX, OA, AT, SW, ASY, FI (¾ Card Size)	300 FDX, 1200/75 FDX, 75/1200 FDX, 1200 FDX (CCITT V.21, V.23, V.22, Bell 103, 212A)
IN625	1234 In/Modem®	AD, PD, TD, AR, AA, AX, OA, AT, SW, ASY, FI (¾ Card Size)	300 FDX, 1200/75 FDX, 75/1200 FDX, 1200 FDX, 2400 FDX (CCITT V.21, V.23, V.22, V.22bis, Bell 103, 212A)
TR100	TrailBlazer®	18,000 bps High Speed Modem, AD, PD, TD, AR, AA, AX, OA, AT, EP, ASY	300 FDX, 1200 FDX, 2400 FDX, 18,000 Adaptive Duplex (CCITT V.21, V.22, V.22bis, Bell 103, 212A)
TR200	TrailBlazer PC®	18,000 bps High Speed Modem, AD, PD, TD, AR, AA, AX, OA, AT, EP, ASY, SW, FI	300 FDX, 1200 FDX, 2400 FDX, 18,000 Adaptive Duplex (CCITT V.21, V.22, V.22bis, Bell 103, 212A)
SM2000	SmartModem® 9648PT	AD, PD, TD, AA, AX, SY	2400, 4800, 7200, 9600 HDX 2-Wire and FDX 4-Wire (CCITT V.27, V.29)
SM2010	SmartModem® 9648DF	AD, PD, TD, AA, AX, SY	2400, 4800, 7200, 9600 HDX 2-Wire and FDX 4-Wire (CCITT V.27, V.29)
SM2020	SmartModem® 9648HD	AD, PD, TD, AA, AX, SY	2400, 4800, 7200, 9600 HDX 2-Wire Only (CCITT V.27, V.29)

LEGEND:

AD – Auto Dial
MD – Manual Dial
PD – Pulse Dial
TD – Tone Dial
AR – Auto Ranging
AA – Auto Answer
MA – Manual Answer
FDX – Full Duplex
HDX – Half Duplex
AX – Auto Disconnect
OA – Originate & Answer
AT – "AT" Command Set
SW – Software Included
EP – Error Protection
DE – Data Encryption
PW – Password/Dial-Back
SY – Synchronous
ASY – Asynchronous
FI – Fully internal for IBM PC and compatibles

NetComm

Total Solutions for Data Communications

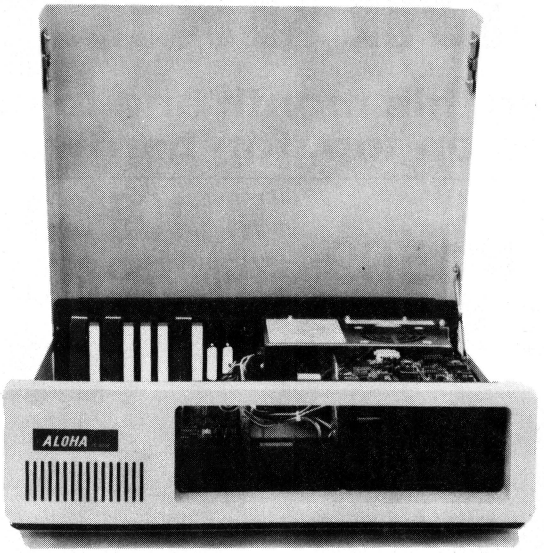
NetComm (Aust) Pty Ltd • NSW PO Box 284 Pymble NSW 2073 Tel: (02) 888 5533
Telex: AA27488MODEMS Minerva: 07:DNC002 Viatell: 288855330
Vic. 94 River Street South Yarra 3141 Tel: (03) 241 0534
Qld. Suite 6 Level 11 AMP Place 10 Eagle Street Brisbane 4000 Tel: (07) 229 7376
WA. St Martin's Tower 44 Georges Tce Perth Tel: (09) 220 3407

®SmartModem, AutoModem, In/Modem and DataLock are registered trademarks of NetComm (Aust) Pty Ltd. Apple, IBM and Commodore are trademarks of their respective corporations. ®TrailBlazer is a registered trademark of Telebit Corporation.

NE53FPC

single network. The DCX 842 Multiplexer creates a composite link, allowing any four DCX multiplexers to be connected to a DCX communications through a single transmission line. This reduces the number of telephone lines used in a network. According to Case, the flexibility of the new multiplexers enables users of DCX communications processors to expand and modify their networks as communications needs change.

The DCX 833 can be configured with up to 12 asynchronous channels, connecting PCs, a Case protocol link module and a single composite transmission line to a DCX 840 or DCX 850 communications processor. Available Case protocol links include S-Link, which supports the IBM SNA/SDLC environment and D-Link, which supports equipment manufactured by Digital Equipment Corporation. The DCX 833 can support network speeds of up to 19.2 Kilobits per second through to a DCX communications processor. The DCX 842 is a feeder multiplexer for other DCX products. The DCX 842 can link any four Case DCX communications processors, as well as other DCX feeder multiplexers, to a DCX 840 or 850 communications processing multiplexer through a single composite line running at up to 64 bps. Each of the four attached multiplexers can support up to 64 virtual channels.



WY-430, WY-440 Boards
Microprocessor Applications (MPA) Pty Ltd
Phone: (03) 894 1500
Price: Not supplied

The WY-430 and WY-440 are two colour plug-in colour graphics adaptor boards. The WY-430 delivers both high resolution monochrome and colour graphics for RGB or composite displays. It is also compatible with the Wyse PC, IBM PC and compatible monochrome or colour displays. When used with a monochrome monitor, the WY-430 will support normal monochrome text as well as software written for the Hercules Graphics card at a resolution of 720 x 348 pixels, with two pages of full screen memory. It will display 16 shades of grey without using special software. When used with a colour monitor, the WY-430 generates up to 16 colours in 640 x 200 resolution graphics. The WY-430 also emulates the Plantronics ColourPlus board, driving any IBM compatible RGB or composite monitor. A major feature is the flicker free scrolling.

The WY-440 is an enhanced colour graphics adaptor. It is a full-function display, which offers complete compatibility with IBM Enhanced Graphics standard, IBM Colour Graphics, and the Hercules Graphics standards. Colour graphics are displayed at a 640 x 350 resolution and there is a choice of 16 colours from a palette of 64. The WY-440 allows user-definable characters in up to four sets of 256 characters and runs on Lotus 1-2-3, Framework, Symphony and other popular programs.

Miscellaneous

Clone Cases
Electronic Solutions
Phone: (02) 427 4422
Price: $95 including tax

For those who fancy themselves as 'clone builders', Electronic Solutions has come out with a case especially for IBM PC clones. The cases are strongly constructed to regulation IBM PC size. They have an ergonomic, flip-up lid. Electronic Solutions is offering a 14 day money back guarantee on the cases.

BACK 4 UP
ESSENTIAL DATA DUPLICATOR

Back up your copy-protected disks with **ESSENTIAL Data Duplicator 4 PLUS** ■ **EDD 4 PLUS** is new technology, not just 'another' copy program. The **EDD 4 PLUS** program uses a specially designed hardware card which works with your disk drives to back up disks by accurately copying the bits of data from each track. Don't be fooled . . . no other copy-program/system for Apples can do this! ■ In addition to backing up disks, **EDD 4 PLUS includes several useful** utilities such as examining disk drives, certifying disks, displaying drive speed rpm's, plus more! ■ **EDD 4 PLUS** runs on Apple II, II Plus (including most compatibles), and IIe, and is priced at $190.00 (duodiskl/unidisk 5.25 owners must add $32.00 for a special cable adapter). ■ A standard **EDD 4** version which doesn't include any hardware is available, and can be used on Apple IIc and III (using emulations mode) and is priced at $125.00.

■ Bankcard and Master card accepted by phone. Add $3.00 to all orders for postage and handling.

All orders must be prepaid.

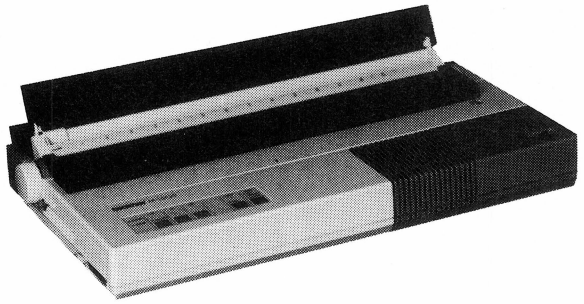
WARNING: EDD is sold for making archival copies only.

UTILICO SOFTWARE
83 HALL ST., BONDI BEACH, NSW 2026 PHONE (02) 30 2105

Happy Birthday Hales & Rogers

We're ten years old this month and to celebrate we have slashed our prices on top, top hardware!!!

brother M1509 $761 SAVE $309



M1109 $449 SAVE $182 TRACTOR FEED $38 SAVE $16



☆ 180 CPS ☆ NLQ MODE
☆ TRACTOR FEED ☆ DUAL INTERFACES

MENTION THIS AD.

When ordering as these prices are even better than our normal discounts

SERIOUS SOFTWARE

A tiny sample of the huge range of software we can source. Please call for items not listed.

Serious Software	H&R	RRP
Ability	187	225
Attache 4	995	995
Copywrite	95	125
dBase III+	950	1470
EBA Business Accounting	564	675
EBA Prelude	60	69
Fastback	166	198
First Choice	237	329
Lotus HAL	240	334
Lotus 123	660	1099
Mace & Utilities	165	195
Microsoft Chart	533	654
Microsoft Word & Mouse	1029	1244
Microsoft Word	790	960
Microsoft Windows	204	256
Mirror	90	123
Multimate Advantage	866	1203
Norton Utilities	133	166
Norton Utilities Advanced	233	302
PC-Introduction	61	74
Prodesign II	592	714
Sidekick unprotected	117	172
Sideways	127	153
Silk	278	345
Supercom Executive	168	198
Symphony	977	1470
TAS Plus Data Base	196	227
TimeL (TimeLine)	706	892
Twin	292	364
Typequick	76	86
Wordperfect Ver 4.2	643	789
Xtree	92	112

AMUSEMENTS

	H&R	RRP
Ancient Art of War	83	96
Archon	54	61
Flight Simulator	117	131
Gato	60	68
Hitch Hiker's Guide	68	79
Jet	105	114
Leather Goddess	68	79
Newsmaster	142	160
Pitstop II	54	57
Printmaster	85	96
Rogue	54	57
Sargon III	83	113
Seven Cities of Gold	76	80
Starflight	98	103
Zork I, II or III	68	79

We can source a much larger range of games than this sample including the full Dataflow series of educational software. Call for details.

LOGITECH

Software & Accessories	H&R	RRP
Logitech ROM Pack	450	510
Logitech Apprentice Pack	180	204
Logitech Magic Toolkit	165	187
Logitech Wizard's Pack	330	369
Logitech Windows Pack	90	101
PMI M-2/86 Repertoire	158	171
PMI M-2/86 Macro2	158	171
PMI M-2/86 ModBase	158	171
Mice		
Logimouse Plus Pack	215	233
Logipaint Plus & PC Paintbrush	261	284
LogiCad Plus & Generic Cad	315	351
Logipaint & Cad	361	402

All Logitech Mice are available in Bus or Serial versions, please specify.

BORLAND INTERNATIONAL

	H&R	RRP
Eureka	155	210
Reflex Data Base	231	298
Reflex Workshop	116	146
Superkey	140	185
Turbo Prolog Toolbox	155	207
Turbo Prolog	155	210
Turbo Basic	155	207
Turbo Gameworks	116	146
Turbo Graphix Toolbox	116	146
Turbo Lightning	155	207
Turbo Numerical Methods Toolbox	155	207
Turbo Editor Toolbox	116	146
Turbo Database Toolbox	116	146
Turbo Pascal Ver 3 & 8087 & BCD	155	207
Turbo Word Wizard	125	158
Turbo Tutor	65	89
Turbo C	155	207

ACCESSORIES

Printer Stand to suit 15" printers, no paper tray, no bells or whistles, takes a 2" stack of paper under the stand **$35**
PC Off Desk Stand suits virtually all PC/XT/AT computers. Stands your PC vertically on the floor at the end of your desk and lets you use the top of the desk for what it was intended **$35**
PC Extension Cables Usually necessary with the PC stand
Monitor extension cable 3m suits RGB & TTL monitors **$18**
Keyboard extension cable 1.8m **$12**
Monitor mains cable extension, for monitors that plug into the switched outlet on the PC **$12**
Floppy Disks PERFECT Brand 100% certified with a life time warranty. All prices below are for packs of ten discs. Less 5% for 100 discs.
5.25" DSDD 48TPI Bulk Pack with tabs, labels & envelopes **$22**
5.25" DSDD 48TPI Boxed with tabs, labels & envelopes **$26**
5.25" DS1.2MB 96TPI Boxed with tabs, labels & envelopes **$74**
3.5" DSDD 135TPI Boxed with tabs, labels & envelopes **$68**
Printer Paper
11" x 9.5" 70gsm Plain Bond smooth edge 900 sheets **$26**
A4 70gsm Plain Bond smooth edge 900 sheets **$30**
11" x 15" 60gsm Blue Cross Ruled 900 sheets **$23**

SAMPLE RANGE ONLY. SEND FOR PRICE LIST!

Warranty: All products sold are covered by the manufacturer's warranty.
Sales Tax: All prices include sales tax. We can supply tax free, please call for prices.
Sources: All products are sourced from the authorised Australian distributor and carry their full support.
Prices: Are subject to change without notice. Please check before ordering.
Stock: We endeavour to keep stocks of the more popular items at all times. Delivery usually overnight providing your order is in before noon!

Hales & Rogers Pty. Ltd.
5 Mobbs Lane, Carlingford 2118
Tel. (02) 858 5322

To: Hales & Rogers.
Please send me the following items

Name .....
Address .....
Postcode .....

☐ Price List & Newsletter only
Add $5 for each order post & packing.
Cheque enclosed $.....
Please charge my ☐ Bankcard ☐ Master Card
☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
Signature ..... Expiry Date .....

Adco/787B

WELL, I FELL for it yet again — in the July edition I said that sysops could register electronically. Apart from forgetting that I had written that (in the two months between writing and the magazine), the good old system has been giving me some problems. I will get around to implementing an electronic sysop registration as soon as I can (hopefully before you read this). But — please be patient, there are lots of things happening in Prophet land. And don't forget, whether you register your board electronically or otherwise, you'll qualify for a year's subscription to *Your Computer*.)

As an example of one of the things going on, AED no longer support the PAMS Registry. As I was told, 'The marketing people are not happy, you are not selling us machines' — I mean WOW! They haven't even bothered to supply *any* information for their users on the system.

Since I'm not running a business here, I can't afford to pay the bills — so: I am pleased to announce that *Your Computer* has agreed to cover me for the costs of running the registry. Good on you Jake, thanks.

While I am saying thanks, must thank Steven Withers (of *Australian Personal Computer*). We share the PAMS information we receive each month to try and make sure that only current and correct information is published, it gets a bit hard at times but we both (and our publishers) realise that we can not compete with the provision of PAMS news.

So now just before the PAMS update for this month, remember that I will have a modem review in the October edition (I am doing it on my holidays — how is that for a real rest?) I am a bit disappointed that some suppliers have not bothered to give me modems to look at, but I think we have the best of them anyway. □

```
                Prophet Australian PAMS Listing
                Changes with Release: 8707

AUSTRALIAN CAPITAL TERRITORY

  PAMS List INFO: *** AMENDED ***
          System: Canberra KBBS
           Sysop: GEO
           Phone: (062) 88-0412
            Baud: V21
          Access: Mem.Reg.LVA
        Computer: Commodore 64
      BBSoftware: KBBS

  PAMS List INFO: *** AMENDED ***
          System: Pharmacy BBS
           Sysop: Michael Pye
         FIDOnet: [626/223]
           Phone: (062) 92-3875
            Baud: V21.V22.B103.B212
          Access: Reg.Public
        Computer: Kaypro 16
             DOS: MSDOS
      BBSoftware: Opus

NEW SOUTH WALES

  PAMS List INFO: *** AMENDED ***
          System: ACE (NSW) BBS
           Sysop: Larry O'Keefe
           Phone: (02) 529-2059
            Baud: V21
          Access: Mem.Reg.LVA
        Computer: Atari
             DOS: Atari
      BBSoftware: Michtron

  PAMS List INFO: *** NEW System ***
          System: Alpha Juno BBS
           Sysop: Kevin Withnall
         FIDOnet: [620/701]
           Hours: 1800 - 0600
           Phone: (02) 774-1543
            Baud: V22

  PAMS List INFO: *** AMENDED ***
          System: CSACE BBS
           Sysop: Larry O'Keefe
           Phon : (02) 529-8249
            Baud: V21
          Access: Mem.LVA
        Computer: Atari 800
             DOS: Atari
      BBSoftware: AMIS V 36
            Info: Atari protocol only, logon
                : delay answering machine for
                : 30 seconds then BBS

PAMS List INFO: *** AMENDED ***
          System: First Nice MIDILine
           Sysop: Andrew Khoo
         FIDOnet: [711/805]
           Phone: (02) 868-4347
            Baud: V22.V22bis.B103
          Access: Public
        Computer: IBM XT
             DOS: PCDOS 3.2
      BBSoftware: Opus

PAMS List INFO: *** NEW System ***
          System: Galactic Federation
           Phone: (02) 233-5040

PAMS Lis INFO: *** AMENDED ***
          System: Micro Design Lab
           Sysop: Kevin Lowton & Lindsay Gorrie
           Phone: (02) 663-0151
          Access: Reg.VA

PAMS List INFO: *** AMENDED ***
          System: Micro Mart C Users
           Sysop: Rick Polito
         FIDOnet: [712/501]
           Phone: (02) 560-3607
            Baud: V21.V22.V22bis.V23
          Access: Reg.LVA
        Computer: DECA AT
             DOS: MSDOS 3.1
      BBSoftware: Opus
            Info: C & dBase User System

PAMS List INFO: *** NEW System ***
          System: Mudgee Connection
           Sysop: George Rhedey
           Phone: (063) 72-1898
            Baud: V21.V22.V23
          Access: Public
           Hours: 2100 - 0700

PAMS List INFO: *** NEW System ***
          System: TNT Shuttle
```

```
          Sysop: Paul Birch
          Phone: (02) 281-2476
           Baud: V21.V22.V22bis.V23.B103.B212
         Access: Reg.LVA
       Computer: IBM System/2
            DOS: OS2 (???)
     BBSoftware: RBBS V151a

QUEENSLAND

  PAMS List INFO: *** AMENDED ***
          System: AMPAK PBBS/RCPM
           Sysop: Brian Wendt
          Phone: (07) 263-7070
           Baud: V21.V22.V22bis.V23.B103.B212
         Access: Mem.Public
       Computer: AMPRO
            DOS: CP/M80
     BBSoftware: PBBS
           Info: 147.600 Mhz VK4KJB-1 (Radio)
               : 1200 bps Amateur Packet Radio

  PAMS List INFO: *** NEW System ***
          System: Apple-Q RABBS
           Sysop: Graham Black
          Phone: (07) 284-6145
           Baud: V21.V22.V22bis.V23.B103.B212
         Access: Mem
       Computer: Apple //e
     BBSoftware: GBBS

  PAMS List INFO: *** AMENDED ***
          System: CORPLEX
           Sysop: Scott Pierce, Lloyd Ernst
          Phone: (07) 350-1300
           Hours: Weekdays: 1800 - 0600
                : Weekends: 24 Hours

  PAMS List INFO: *** Status Changed ***
   System Status: *** OFFLINE ***
          System: Educational RCPM

  PAMS List INFO: *** NEW System ***
          System: Focus BBS
          Phone: (07) 285-5814
           Baud: V21.V23

  PAMS List INFO: *** Status Changed ***
   System Status: *** OFFLINE ***
          System: Hotline

  PAMS List INFO: *** NEW System ***
          System: Marlin-Coast BBS
           Sysop: Ray Chalmers
         FIDOnet: [640/501]
          Phone: (070) 51-7220
           Baud: V21.V22.V22bis.V23
         Access: Reg.VA
       Computer: Cleveland 286
     BBSoftware: Opus

  PAMS List INFO: *** AMENDED ***
          System: Micro-LYNX BBS
           Sysop: Craig Upton
          Phone: (07) 393-5352

  PAMS List INFO: *** NEW System ***
          System: Redcliffe Library
           Sysop: Andrew Osborne
          Phone: (07) 283-0315
           Baud: V21.V22.V22bis.V23
         Access: Reg.VA
          Hours: Weekdays: After Hours
               : Weekends: 24 Hours
       Computer: IBM Compatible
     BBSoftware: Fido

  PAMS List INFO: *** AMENDED ***
          System: The Focus BBS
           Sysop: Geoff Ryan
          Phone: (07) 285-5814
           Baud: V21.V23
         Access: Mem.VA
           Info: User Works Node 6

  PAMS List INFO: *** Stats Changed ***
   System Status: *** OFFLINE ***
          System: Toowoomba Computer Centre

  PAMS List INFO: *** NEW System ***
          System: Townsville RBBS
           Sysop: Tony Smith
          Phone: (077) 74-1552
         Access: Public
       Computer: IBM Clone
            DOS: MSDOS
     BBSoftware: IBBS

VICTORIA
  PAMS List INFO: *** NEW System ***
          System: Angler's Den
          Phone: (03) 876-4118
           Baud: V21.V22.V23
           Hours: Weekdays: 1800 - ????
                : Weekends: 24 Hours

  PAMS List INFO: *** NEW System ***
          System: Maxitel BBS
           Sysop: Mark Micallef
          Phone: (03) 882-6188
         Access: Public

  PAMS List INFO: *** AMENDED ***
          System: Melbourne Data Exchange
           Sysop: Robert Broomhead
         FIDOnet: [631/321]
          Phone: (03) 561-6556
           Baud: V21.V22
         Access: Reg.VA
           Info: Supports ANSI graphics only

WESTERN AUSTRALIA

  PAMS List INFO: *** Status Changed ***
   System Status: *** OFFLINE ***
          System: Apple BBS

  PAMS List INFO: *** NEW System ***
          System: Lightning BBS
           Sysop: Simon Blears
         FIDOnet: [690/903]
          Phone: (09) 275-7900
           Baud: V21.V22.V22bis.V23
         Access: Reg.LVA
       Computer: IBM XT Clone
            DOS: MSDOS 3.1
     BBSoftware: Opus

  PAMS List INFO: *** Status Changed ***
   System Status: *** OFFLINE ***
          System: Streamline BBS
```

LOOK WHO'S JUST BLITZED THE MODEM WAR!

The Bit Blitzer 12E Modem.

The Bit Blitzer 12E outprices and out performs the rest. It's the professional modem.

LOOK AT THE FEATURES

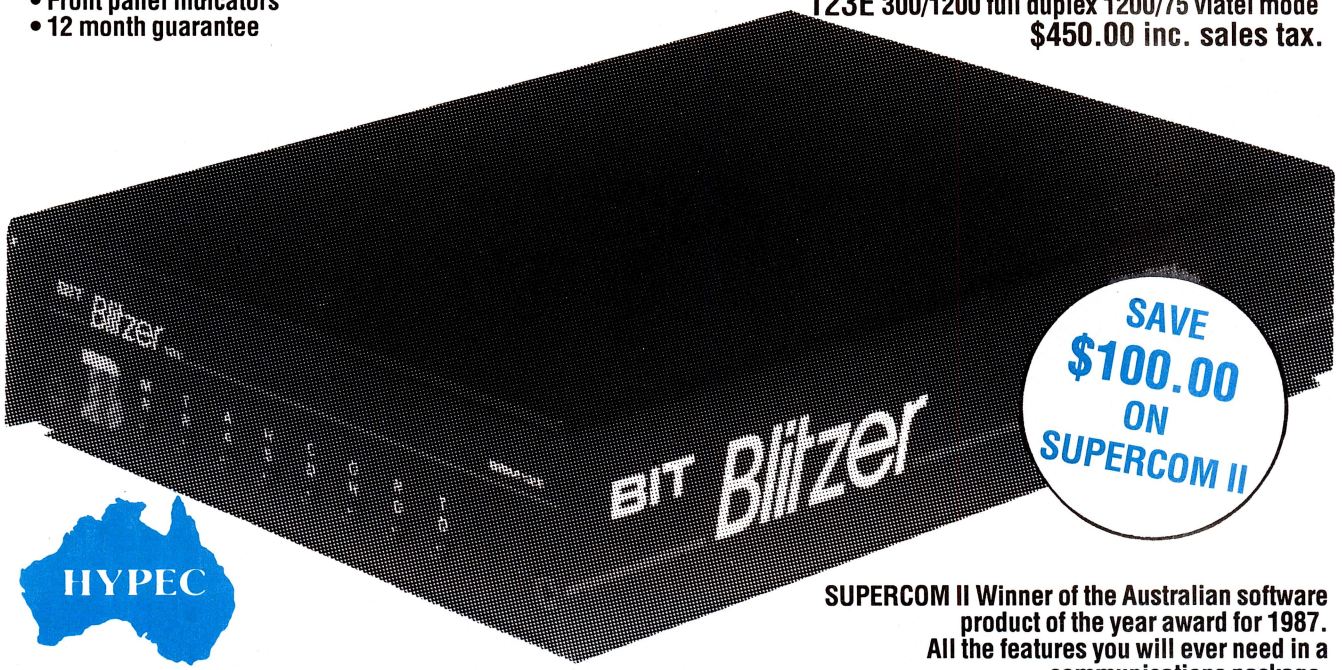
- 300 and 1200 baud full duplex
- Telecom approved
- Auto answer
- Auto dial
- Hayes compatible
- Low power consumption
- Front panel indicators
- 12 month guarantee

LOOK AT THE PRICES!

12E 300/300 1200/1200 full duplex $375.00 inc.salex tax.

Due in August the 123E with the same powerful features of the 12E modem but with 300/1200 and 1200/75 viatel modes of operation.

123E 300/1200 full duplex 1200/75 viatel mode $450.00 inc. sales tax.



SAVE $100.00 ON SUPERCOM II

HYPEC

HYPEC ELECTRONICS PTY. LTD.

(INCORPORATED IN N.S.W.)

21 RYEDALE ROAD, WEST RYDE, N.S.W. 2114, AUSTRALIA
POSTAL ADDRESS: P.O. Box 438, RYDE, N.S.W. 2112, AUSTRALIA
TEL: (02) 808 3666 TELEX: AA71551
HYPEC. CABLE: "LAMRON" SYDNEY. FAX: 808 3596
TOWNSVILLE (077) 75 4088 PENRITH (047) 33 1287.
DEALER ENQUIRES WELCOME.

SUPERCOM II Winner of the Australian software product of the year award for 1987.
All the features you will ever need in a communications package.
Recommended retail price $195.00.

When purchased with a Bit Blitzer modem it's just $95.00.

DISCWARE
New Software Products

GET A NEW HANDLE ON YOUR BUSINESS WITH SBT.



SBT Now you can handle up to 254 users, all working in the same data files, with the SBT MultiNet Database Accounting Library.

The accounting software written in dBASE III PLUS.
So whether your business is large or small, you can grow to the limits of the most advanced PC networks available.

When you want that special report, or your business needs something we didn't think of, you can quickly and easily modify our programs to meet your needs exactly (because our dBASE source code is included **absolutely free**).

And if you don't have time to make the changes yourself, there's a nearby consultant who can make them for you.

So if your company has two users or two hundred and fifty, you can add customers, update records, and have as many people enter orders as it takes to keep your business growing.

Isn't it nice to know there's software you can't outgrow? The SBT MultiNet Database Accounting Library.

Now you can get a new handle on your business.

Call today for our demo disk and brochure.

THE SBT DATABASE ACCOUNTING LIBRARY.

dProfessional	Time & Billing	$695
dOrders	Sales Orders	$535
dInvoice/dStatements	Accounts Receivable/Inventory	$695
dPurchase	Purchase Order	$535
dPayables	Accounts Payable	$695
dPayroll	Payroll/Labor	$695
dLedger	General Ledger	$695
dAssets	Asset/Depreciation	$535
dProject	Project/Job Accounting	$695
dMaterials	Material Requirements	$695
dMenu/Backup	Menu/Backup	$129

Multi user versions $400 additional per module.
Clipper and FoxBase compatible.

DRAFIX 1 PLUS

CAD SOFTWARE YOU'LL BE USING IN MINUTES – CAD SOFTWARE YOU'LL BE USING FOREVER



Drafix 1 totally changed the image of low priced CAD software.
It proved that you could have extremely sophisticated performance and features demanded by serious CAD users.
Yet still be very easy to learn and use for the novice. All at an amazingly low price.
Now we've done something even more dramatic.
We've improved it.
Drafix 1 Plus. A great new package at a great new price. $595.
Reviewers call Drafix 1 a "breakthrough" in design, speed and ease of use.
Drafix 1 Plus is a breakthrough in value.
Check these exciting new features:
– **A pop-up text editor** for writing, editing and rearranging even large blocks of copy.
– **Function key macros** so you can store and customize Drafix commands to your personal workstyle.
– Sophisticated **curve-fitting splines** and **free-form sketching** functions to let you draw complex shapes.
Plus we added two more bonuses. A **symbol library** with 450 pre-drawn, time-saving symbols.
And along with our standard pen-plotter support, our **DotPlotter software** that lets you create high resolution plots of any size on your dot matrix printer.
A powerful CAD tool you'll be using in minutes.
You'll never use an easier menuing system than Drafix.
Everything is on display all of the time so there's no searching, backtracking or memorizing.
In just minutes you'll be doing drawings that would take days to learn on most other CAD software.
And you'll find yourself easily using features that are normally found only on software costing more than 10 times as much as Drafix.
Rotating, scaling, stretching and trimming, multiple object snap modes – they're all included along with much, much more.
Drafix is a powerful, full-featured CAD tool. It just doesn't happen to be priced like one.

DISCWARE

DISCWARE (02) 212-6933

5th Floor, 3 Smail St., Broadway, NSW 2007. TLX: AA23509

ALL PRICES INCLUDE SALES TAX. AVAILABILITY MAY BE LIMITED AT PRICES ADVERTISED. PRICES APPLY TO STOCK HELD AS AT 27/7/87.

DISCWARE
Latest and Greatest

PRINT Q

COMPUTE WHILE YOU PRINT
Finally, a real mainframe print spooler for your IBM PC or compatible

If you spend part of your PC time running applications. Part of it printing. And a lot of time waiting . . .
Imagine a program that prints up to 10,000 pages while you run applications.
PrintQ does that.. And more. It's the first really complete print spooling subsystem for your PC. And your biggest time saver ever!

How PrintQ Works

Run your application programs as usual, but instead of stopping after the print command, keep right on computing! **PrintQ** intercepts the documents bound for the printer, spools them to disk, then prints them according to your commands.

*"Using **PrintQ** could become very addicting, and users may never want to go back to ordinary printing again."*
– PC Week

With PrintQ you can . . .

- Re-start printing from any page.
- View documents on screen with or without printing.
- Print up to 255 copies automatically.
- Save reports for reprinting.
- Minimize form changes. **PrintQ** groups similar documents.
- Print in order of priority.
- Simplify forms alignment.
- Work while printer is down.
- Copy reports to ASCII files.
- Control from within a batch file.
- Use any printer (including laser).
- No program modifications required.

. . . and much more

Print Q $219

THE BROOKLYN BRIDGE

The Solution to incompatible drives: forget expensive, add-on hardware and use the software solution, the Brooklyn Bridge. The Brooklyn Bridge provides fast, convenient transfer of programs and data between desktop 5.25″ floppy and laptop 3.5″ floppy computers. Once you have installed the Brooklyn Bridge software and connected your two machines with the cable provided, all you need to do is enter one single command to copy files from one machine to another.
Besides copying files, you can use the Brooklyn Bridge to update or edit files on either machine, or to direct a document to a laser printer or other peripheral device, all without having to disconnect and reconnect devices or load any additional software.

"This thing is fabulous"
– John Dvorak
PC Magazine

Brooklyn Bridge $249
Lap Link $249

SMART NOTES

SmartNotes is a memory-resident program that lets you attach notes to data base records, spreadsheet cells, letters, memos and reports. *It's like 3M Post-it Notes for your computer.*

- Attach removable notes anywhere on computer documents.
  - Any phrase or passage in a word processor.
  - Any spreadsheet cell.
  - Any field in a data base or accounting record.
  - Any entry in a DOS file directory.
  - Any line in a program listing.
- Data files and application programs are not altered.
- View the computer screen with notes showing:
- Or hide notes to reveal what's underneath.
- Two note sizes and five note colors.
- Print notes.
- Transfer files via network or modem with notes attached.
- Very easy to use.
- Extensive on-line HELP.
- Not copy protected.

THE UI PROGRAMMER

dBASE CODE GENERATOR

We all know what a great user interface can do for our systems. Bounce bar menus, pop-up helps, on-screen forms intelligently coloured or shaded. And we all know there are only 24 hours in a day.

Could a code generator automate the programming, so we can create the systems we want in the time we've got? With The UI Programmer's release, the answer to that question is now YES!

UI is the next generation in programming – it makes the code generator a professional tool. The reason? UI is programmable. The UI Programmer is limited only by your skills and imagination.

UI comes with many basic templates to get you started. Putting all the fields from a DBF onto the screen and adding a bounce bar 'Add Edit Delete . . . ', menu takes about a minute. The rest of your time can go into the screen artwork.

And we paid attention to the artwork. The UI editor takes the text mode of the PC to the limit. Of course it's driven from pull down menus, for easy learning. And it has a clean expert mode and keyboard macros for advanced users.

UI includes a public domain, memory resident screen pop-up system and lots more.

WallSoft's UI Programmer $575

dbSCOPE

dBASE COMES ALIVE WITH dbSCOPE

dbScope is an interactive dBASE debugging utility.

With dbScope, you can watch your source code in a Trace Window while the program is running. Pop-up dbScope, slow it down, or single-step through your program one line at a time. At anytime you can use WordStar-like commands to review the last 100 lines executed by dBASE. You can even change the Trace Window's colour, position and size. Compatible with Clipper and Foxbase.

dbScope $199

For users of IBM, PC, AT, XT and most IBM compatibles. Dealer Enquiries Invited.

Please send me the products indicated:

I enclose my cheque for $ _____ (plus $8 for freight) or please debit my Visa ☐, Mastercard ☐ or Bankcard ☐

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Card expires: ☐☐☐☐ Signature: _____

Name: _____ Company: _____

Address: _____ PCode _____ Tel: _____

☐ dProfessional ☐ dProject
☐ dOrder ☐ dMaterials
☐ dInv./Stat. ☐ dMenu
☐ dPurchase ☐ PrintQ
☐ dPayables ☐ Brooklyn Bridge
☐ dPayroll ☐ LapLink
☐ dLedger ☐ UI Programmer
☐ dAssets ☐ dbScope

Please send me information only on the products indicated:

Discware, 5th floor, 3 Smail Street, Broadway NSW 2007, TLX: AA 23509, Tel: (02) 212 6933
Prices apply to stock held as at 27/7/87

SEVERAL ITEMS OF great joy this month. First up, two brilliant, though very different simulations/games. I've had the opportunity to spend some happy hours trying to survive in a graphics based adventure called Deja Vu. For sheer entertainment value this one should not be missed.

The game makes good use of the Amiga's facilities with mouse control, multiple windows, sound effects, and text responses which show a real tongue-in-cheek humour. It can be played by kids of all ages, though those under voting age will miss the best of the humor.

Deja Vu opens with you, the player, awakening from a drugged sleep and finding yourself in the none too hygienic setting of a stall in the men's washroom of a downtown bar. Unfortunately, though you regain consciousness, you fail to regain your memory. On a hook on the back of the stall door hangs an overcoat. Upon removing the overcoat you discover a revolver in a shoulder holster also hanging on the door. Taking the coat and gun you make your way out of the washroom, examining various items on the way, and out into a bar room. The bar room is deserted and your head takes this opportunity to remind you that you've been run over by a whole convoy of semitrailers.

If the beginning sounds interesting just wait until you meet the redhead with her hand in her handbag! This game is a lot of fun and, for someone like me who usually finds 'adventure' games slow moving and tiresome, it's a rare treat. Very involving with real intrigue, I enjoyed it a lot.

Balance of Power

The second item is not so much a game but a complex simulation. Called Balance of Power, it is a challenge involving diplomatic manoeuvres and bluff. The player can choose to represent the USA or the USSR and must then attempt to win points based on international prestige. You can win (or lose) points by challenging the activities of the other superpower and by gaining prestige through carefully calculated financial and military aid to individual countries, and by aiding the government or the anti-government elements in countries.

I wonder whether anyone has seriously considered designing a game/simulation where the path to success involves *not* destroying everything in sight, *not* killing anything that moves, *not* amassing enormous wealth at the expense of others, and keeping the Pacific Basin green and nuclear free? Probably too boring and wouldn't sell. Oh well, just a thought.

Meanwhile, back at the Balance of Power. After destroying all life in the known universe several times in quick succession, I decided that diplomacy is not really my calling. It really is an experience to spend billions of bucks on support for insurgents and military backing around the world, not to mention toppling the odd democratically elected government or two. Made me feel like an old film star for a while there!

Workbench

I have recently been using a new startup routine on my Workbench disk. The main advantages of this startup are that it forces me to consider the date. (Even hitting <ENTER> alone will retain the date from the last startup so it should never be too far out of date), it creates an open CLI window on my Workbench screen, which saves me having to chase through to the CLI icon and it initiates a RAM disk with the Echo and Date commands. The reason for copying Echo and Date to RAM is that each time the command is used DOS normally looks for the command on the Workbench disk and reads it from disk before performing the command.

The way I've set this up, the command is only read from disk once and after that is used direct from RAM, which is much faster. See Listing 1 for the content of S/Startup Sequence file. Note that the Workbench disk must be left write-enabled as the date is stored at each boot-up. Figure 1 shows the new Workbench screen which results.

I've been using the ALEGRA RAM expansion for some time now with great success. The extra memory speeds up the Amiga significantly. I have discovered that some software, Balance of Power and Flight Simulator, for example, will not run with the extra memory. I'm not sure why, but I assume that they use some sort of direct addressing in their routines. Simi-

```
Use ED to change your s/startup)sequence file to the following:)

copy c/echo ram:
copy c/date ram:
ram:echo "Workbench disk.  Release 1.2  version 33.42"
ram:echo "please wait for system configuration"
path system
addbuffers df0: 20
addbuffers df1: 20       ; delete this line if you dont have ext
disk
if exists sys:system
   path sys:system add
endif
binddrivers
ram:echo " "
ram:echo "*e[1;33mThis is my new Workbench disk"
ram:echo " "
ram:echo "Configured for a CLI window on Wbench *e[0m"
ram:echo " "
wait 1
ram:echo "Default date :"  ; show date of last use
ram:date
ram:echo " "
ram:echo "Set the Date and Time .. DD)MMM)YY HH:MM"
ram:echo " "
failat 21    ; in case of illegal input
ram:date > nil: ?
if fail
ram:echo "Please try again, use space to separate D and T"
ram:echo " "
ram:date > nil: ?
endif
ram:date
ram:date to sys:s/last)startup)date     ; save this date
ram:echo " "
loadwb
newcli con:540/150/100/50/CLI
endcli > nil:


*END:
```

Listing 1. *The S/Startup Sequence file that gives the new* Workbench CLI *screen in Figure* 1.

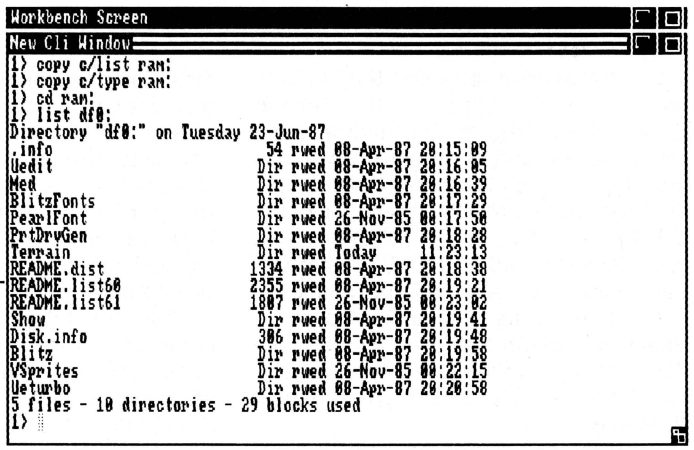


Figure 1. *This is the new Workbench CLI screen that results after activation of the S/Startup Sequence in Listing 1.*

larly, Flight Simulator will not run under 1.2 if you have an external drive attached. This is because 1.2 autoconfigures for the extra drive and assigns the drive some memory for a buffer. This leaves insufficient memory for Flight Simulator which falls over with a mighty thud.

Despite warnings to the contrary I have discovered that it is possible to chain three external 3½ inch disk drives simultaneously on the Amiga. The drives are then DF0: DF1: DF2: and DF3:. This was wonderful when I was reshuffling files between disks as I rearranged loads of public domain software from Fish disks at the weekend. I also discovered that in using Marauder II (an excellent 'backing up' utility), it was possible to make three copies of an original disk simultaneously — shades of mass production!

Digi-View

Over the weekend I also had the opportunity to spend some time with Digi-View. This package, consisting of a hardware module which plugs into the parallel printer port and a disk full of software, takes the video signal from a camera or VCR and digitises the image. I was using a color camera but the results were still quite good. For best results a black and white video camera should be used as the resolution is very much better than a colour camera. By taking a little time with careful lighting and adjustment, excellent images can be obtained in both black and white (actually lots of shades of grey) and full HAM color.

The images can be saved to disk in IFF format and can then be printed or loaded into a paint package (DPaint, Images, Prism, DigiPaint and the like) to be modified.



Figure 2. *These images of Marilyn Monroe are just one of the many Amiga IFF images that can be found on Fish Disk 72.*

The number of Amiga IFF images floating around on disks these days is amazing, and the quality of the images is stunning. I've included one image contained on Fish Disk 72. As computer graphics continue to improve in color and resolution it's getting so it's hard to tell a television image from a computer image.

I've received several letters from readers of this column and I'll try to answer them in this way. First letter; thanks Mum, I needed the support! Second letter; I mentioned a battery powered real-time clock which plugs into mouse port 2 , where is it available? Well, the intending importer declined to go ahead with Tic device and so, to my knowledge the Tic is not available in Australia. Two possibilities remain; one is to write to an American supplier and arrange to have it sent out, or, investigate a package called JTime on Fish Disk 65, which describes how to build your own device.

Another reader, who prefers to remain anonymous, would like more program reviews, manual reviews, information on Fish Disks and their contents, and information on Amiga User groups. No sooner said than done, watch for them next month! Information about user groups is harder to come by and I'm counting on user groups to please let me know of their existence so I can spread the word. I shall try to include reviews of at least a couple of programs per issue and from now on, I'll use a score chart to review the programs. The whole world must be sick of hearing me sing about the value of the AmigaDOS manual, it's vital to enable the user to get value from the Amiga. I promise to review a sampling of the manuals on offer, for next month if possible.

Several people have asked me why it takes so long for the Amiga to load a program from disk. Many packages wind up the disk drive, present a pretty title picture on screen, and then take forever to finish loading. The answer is a complex one. Firstly, most of the packages in question load an enormous amount of data from disk to memory. Many of the popular packages load well over 200 Kilobytes and that takes time. Other packages perform a lot of initialisation routines in between loading bits and pieces from disk. Again, some are just inefficient and slow. ▷

Another factor is the disk itself. If the files have been created in a haphazard fashion on the disk, the disk drive has to do a lot of running back and forth to the directory to see where the files are located. Very often it is possible to hear the head mechanism 'scanning' back and forth while a disk takes forever to load. A hard disk reduces the access time by a certain amount but some packages are still very slow. Use the time to do some relaxation and Kanti RSI stretching and wriggling.

Bulletin Board Creativity

Many Commodore Amiga owners are very talented programmers who spend a lot of time putting together programs of all sorts. These programs range from games to business packages and, of course, programming utilities. Budding Picassos seem to make up a good percentage of AMIGA owners and these people create huge numbers of very good images using packages like Deluxe Paint, Aegis Images, and Digi Paint. Like most of us, these people want to share their creations and so they lodge their products on bulletin boards, or distribute them freely on disk for anyone who is interested. This material is known as Public Domain software, the author having explicitly released it for general use without cost.

A talented fellow in the US, by the name of Fred Fish (I kid you not!) has collected all manner of Public Domain software and assembled it on to a set of disks known, for obvious reasons, as Fred Fish Disks. These disks are also sometimes known as AmigaLibDisks. Several Amiga dealers around this country have obtained a set of these disks and allow their customers to freely copy as many as they wish. The only drawback is that there are now about 75 Fish disks available and just searching through them is an enormous task.

This intrepid columnist has taken the task in hand and is picking the bones out on your behalf. This month I'll cover disks 15, 28, and 60. Why those disks? The simple answer is that I happened to have copies of 15 and 28 already, before I copied 60 to 73 for these articles. More disks will be reviewed as soon as my drives recover from the strain.

How to Use

But first . . . .How can you use the material on a Fish Disk? Let's take it one step at a time. First load the Workbench disk in your internal drive and select the CLI icon, usually found hiding in the System drawer. Then, drag the CLI window to the top of screen and open it to full screen size. Type in the instruction COPY C/LIST TO RAM: and <ENTER>, then type COPY C/TYPE TO RAM: and <ENTER>. Next type CD RAM: and <ENTER>. What you have done is to copy the DOS commands you will be using onto a RAM disk, an imaginary disk which lives in memory. The CD command told the operating system to look for any instructions we give it on the RAM disk.

Take the disk out of the internal drive and put a Fish Disk into the internal drive; type LIST DF0: and <ENTER> and the disks contents will be listed on your monitor screen. Let's take a look at the contents of the directory called Vsprites. Type LIST DF0:VSPRITES and <ENTER>. Take particular note of any file labelled Readme, or suffixed with the letters .DOC, as these are text files which explain what the package is about. Type TYPE DF0:VSPRITES/README and <ENTER> and the text file will be displayed. To stop the text scrolling hit the space bar, and to proceed hit the back space key. If you want a hardcopy of the text, and you have a printer connected, type TYPE > PRT: DF:VSPRITES/README and <ENTER>, this will steer the output to the printer you have selected in Preferences.

Any files with the suffix .c are C language source files which you can read using the TYPE command as for the text files (see Figure 4). A file without a suffix is most likely an executable file. Trying to TYPE an executable file will only display rubbish and, most likely, cause a GuruMed. An executable file can be run by typing its hierarchical pathname. For example, to run the VSPRITES executable I would type F0:VSPRITES/VSPRITE and < ENTER>. The program Vsprite would then run and, on completion, return me to my CLI window (he says very optimistically!).

To go further requires some use of other DOS commands and I would strongly urge you to purchase a copy of the AmigaDOS Manual which costs about $40 and will repay itself in no time.

What They Contain!

Disk 15 opens with BLOBS which is a pretty little graphics demo with pull down menu controls. Clock is an early clock display program. Dazzle has yet to be surpassed as a fast graphics demonstration program which can be watched for hours. Fish is another graphics demo using a 'cel' animation technique. Moropoly is a computer version of the classic board game, complete with American street names. Okidatadump is a printer driver/screen dump routine for the Okidata printer. Polydraw and Polyfractals are graphics drawing programs written in AbasiC by David Addison.

Disk 28 is full of games. Backgammon is another of David Addison's AbasiC creations. Cribbage, Milestone, and Othello are games written in AbasiC by David Addison and all are worth a look and a play. Note that they require some work to carry over to a bootable games disk but all instructions are provided by the nice Mr. Fish. CPP is a utility for C programmers. SHAR is an archiving packing routine. Superbitmap is an example program prepared by Carolyn Scheppner and Phil Lindsay of Commodore/Amiga.

Disk 60 is full of useful utilities. Utilities are programs which can make a programmer's or hacker's life easier by performing complicated tasks easily. Blitz is a little program which loads into memory and lies dormant until a Hot Key (a combination of special keys like Ctrl/Alt/Amiga) is struck. It the allows you to view a text file but, unlike the DOS Type command, with Blitz you can scroll forward and backwards through the file. Blitzfonts allows very fast text output and is equally useful. Handshake is a VT52/VT100/VT102 terminal emulator which most of us would never use. MED is a high powered text editor allowing up to 36 files to be edited at a time. PRTDRVGEN generates drivers for printers and could be a Godsend to anyone with some obscure printer not supported by Preferences. Show is a magic little program for displaying Amiga images, a must in every owner's library. Vedit is a powerful text editor with its own language and an example of customization beyond the beginner but very pretty.

It's a nice change to find a computer retailer where staff know what they are talking about and take the time to really help the customer without the high pressure so often encountered. Steve and John from Steve's Communications at Fyshwick, ACT are to be thanked for the Fish Disk Service that their customers really appreciate.

For now I'll leave you to get into the mass of Amiga Public Domain material — Happy Fishing. □

Where Has the GS Gone?

IF I TOLD you that Apple was no longer selling the GS, most of you probably wouldn't be surprised.

It is a lie however. The GS is still up and running at Apple, as far as I can tell, but it is not being overwhelmed with hype and publicity. Apple are treating the GS like a disgraceful child — they keep it fed and clothed, but in the shadows — not to be bought out in front of strangers.

From what I can glean through the company grapevine this isn't a deliberate policy but more a matter of circumstance. The GS had the misfortune to be born just a few months ahead of the most monumental Macintosh release of the decade; the birth of the SE and the Mac II, and the announcement of MS-DOS compatibility.

Herein lies the trouble, says the company. Apple Australia are a relatively small organisation with a limited number of staff engaged in the promotion of new products, and when the Mac II and SE burst upon the scene, all hands manned the Mac publicity pumps.

While this may be so, there are other problems with the GS that mean that Apple prefer not to over-play their hand, at present, with the machine.

This printer routine problem is holding up a whole wave of new GS software that takes advantage of the 16-bit power of the machine.

A Chip off the Old Block

Even before the release of the GS, Apple knew about a chip fault that caused a row of pixels across the top of the screen not to update, and they also had intermittent colour bleeding on the screen. Apple went ahead and released the machine with this fault, on the promise of fixing it later (which they have done). This was OK since the fault only effected screen quality, not program function.

Apple has been promising for six months to release the GS printer routines for the Laserwriter and Imagewriter II, but so far this hasn't eventuated. The later problem seems to be more serious, although it could well be overcome by the time you read this.

What this means is that a lot of software companies, with GS products already coded, are sitting in the wings waiting for printer routines.

DataPak went ahead and released their excellent GraphicWriter — a cross between a word-processing program and desktop publishing — with their own routines, but they couldn't drive the LaserWriter.

A desktop publishing program that won't run the Laser is a bit of a non-event in the business world, so now GraphicWriter version II awaits Apple's routines.

DataPak, to their credit, will update GraphicWriter for free when the new version comes out, but it must be a source of frustration to these software companies to have to operate in this way.

This printer routine problem is holding up a whole wave of new GS software that takes advantage of the 16-bit power of the machine. But that is not to say that some excellent software hasn't been released which takes advantage of the full 16-bits.

The excellent Music Studio is probably the best music package for composers that I've seen on the Apple or similar small pcs so far. It uses colour to differentiate notes written for the piano from those for the flute, and so on, and it is both easy to use and yet complex enough to satisfy serious musicians.

GS Paint from International Solutions is also an excellent program that takes full advantage of the 16-bit mode, although the companion GS Write is still sitting on the shelf — (you guessed it!) — waiting for printer routines.

Fortunately, despite their problems, software writers for the GS are co-operating more in writing programs that can talk to each other. You can use GS Paint drawings in GraphicWriter for instance.

Plug-in MS-DOS Card

One of the most interesting recent announcement for the GS is from Applied Engineering in Texas, which says it is going ahead with a plug-in MS-DOS card. This isn't the first time that MS-DOS cards have been designed for the II series, but until now they've been killed by the price.

Orange Micro announced an MS-DOS card for the GS late last year, but they dumped the idea after looking at the price structure. When you can buy an IBM PC clone for under a thousand dollars, you are not likely to pay 75 per cent of that figure for a plug-in board.

Apparently some redesign work at Applied Engineering has bought the cost of the card down to a reasonable level, although the company hasn't yet announced a price even for the American market.

The card will be clocked at 7 MHz and will control all peripherals including the printer interface and the system clock. You will still need to buy an IBM-compatible disk drive, but these are now down to only about $200.

MS-DOS on the Apple may be a great idea for the company, but it wouldn't do much for me. I've already got an IBM PC compatible gathering dust in a corner, and every time I use it I get horror-flashbacks to the bad old days of CP/M and WordStar. Days that I left behind me when I discovered AppleWorks.

I only ever drag out the compatible when I have to edit material written on another IBM-compatible machine — so why would I want to pay good money for a card that represents a retrograde step?

Printer Problems

Since I first started to use an Apple, the curse of my life has been printers and printer cards — not to mention programs (like the early versions of Appleworks) that wouldn't drive the printers I had, in the way I wanted.

I'm not alone. If you look through computer magazines from anywhere in the world you'll find them full of questions and complaints about printing problems — especially on compatibility between computer software, hardware, interface cards and printers.

It's difficult to understand why this has happened. Sure, there has been the constant battle between printer manufacturers to make something different and better, and to do that they often need to introduce innovations and changes. But you'd think that it would have been possible to agree on basic standards so that you could always print out straight typewritten text — even if the graphics, super and subscript capabilities were different.

If you look around the world there are only six printer manufacturers of any note — so at worst you'd expect to find only six standards — but for some goddamn rea-

son, each model from each manufacturer seems to be different also. To top off the confusion, everyone and his dog seems to make a different printer card, and most of these seem to require different software drivers. The permutations and combinations of cards, protocols and hardware models must be enough to drive any software writer up the wall.

Still, things are looking up. With the introduction of the Small Computer Serial Interface (SCSI) standard, we are moving in the right direction, although that's little comfort for someone who has invested his or her hard-earned cash in an obscure printer card to drive some odd-named printer.

The Apple II series now has four different forms of computer/printer interface standards, parallel, series, IEEE-488, and SCSI, currently available. So it is worthwhile understanding a bit about the problems of each. Understanding the cause of the problem won't solve them, but it's a start.

Parallel

Parallel connections were the way most Apple II printers worked, although nowadays Apple doesn't make a parallel printer themselves, but there are plenty of manufacturers who do. Probably the main advantage of the parallel interface is that it is reasonably standard (although there are a couple of different plug and socket types in use).

The parallel cables are, traditionally, flat ribbons with 26 individual wire links feeding into a 36-pin Centronics connector. Eight of these wires are used to carry the bits of an individual byte, in parallel. To put this another way, each bit in a byte is sent down its own wire simultaneously, so they all arrive at the printer together.

Bits flow down the cable in the form of voltage changes (pulses) and the other wires in the cable carry control signals between the computer and the printer in much the same way. Control signals may be in the form of pulses, or longer-term changes in voltage. The printer will set some of these voltages 'high' or 'low' to indicate that its buffer is full, or that it is ready to take new data.

There may be dip switches on the printer interface card to vary the polarity of some of these signals, but in most cases these can now be omitted since the electrical standards are reasonably well established.

Data exchanged between the computer and printer passes through the parallel printer interface card. And since there are so many card manufacturers, each with his own idea of what controls the card should provide, you'll need to consult the manual/s to find out what codes need to be set in the software print-driver to get the printer to do what you want.

Quite often you'll find that you simply can't get your printer to do everything it should be able to with a particular piece of software.

Serial

The standard serial interface card for the Apple II is now the Super Serial Card, which can also be used to drive a modem or any other serial input/output device. Serial connections are generally more versatile than parallel, hence the popularity of these cards now that we have modems and computer communications. You have to set the Super Serial card to either the Modem mode or the Terminal mode (for printers).

Serial transmissions to a printer or any other output device need extra bits to be added to the chain of eight data bits that make up one character byte. For printers, only a start bit and a stop bit need to be added — the first to tell the printer that the next eight bits are the character, and the stop bit to inform it that this is the end.

You also need to set the Super Serial Card to a baud rate, which in most cases will be 9600 baud (bits per second). Other parameters that need to be set include the delay needed after a carriage return (usually zero), the line width (usually 80 characters), whether or not to echo the data on the screen (usually no), and whether the printer needs a special line-feed character after a carriage return (variable).

This sounds a lot if you haven't previously had experience, but usually you'll get guided in the necessary dip-switch and software settings by carefully reading the manuals that come with the card, the printer and the software. Its a crazy system — often terribly frustrating — but it works.

IEEE-488

This is another type of printer/input-output card available from Apple, although it is usually used for the control of scientific instruments. There are printers on the market that need this card.

The main advantage of the IEEE-488 approach is that more than one kind of printer can be attached to your computer at the same time. You can have both a dot matrix and a daisy wheel printer online, and simply address the one you want. The major problem is that the card does not support the normal protocols, so you need to be a whizz kid Pascal assembly language programmer to write a driver.

There are SCSI printers which are now on the market, and since they are a universal standard, you don't have the old problems of having to buy one which has been specifically made for your computer. If you are starting afresh with a system, this is probably the way to go.

SCSI

I've saved the best for last — mainly because it is the newest and, as yet, it hasn't made much impact on the market.

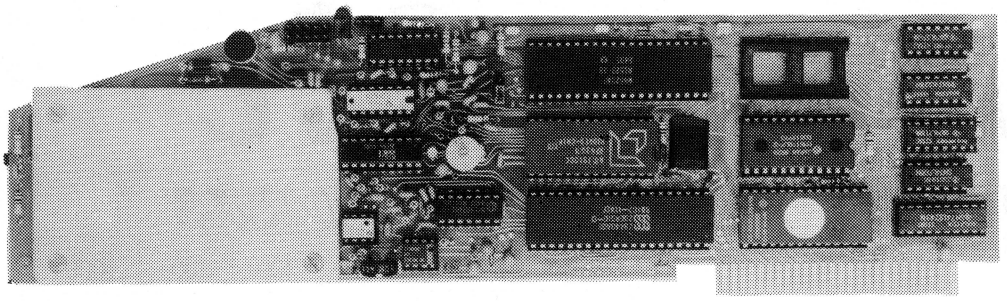
The Small Computer Systems Interface card (SCSI) is used at present mainly to drive hard disk and CD-ROM units, which need to transfer large amounts of data quickly. You probably wouldn't think of using this card just for a printer — it's a bit like putting a jet engine in a Tiger Moth airframe — but the value of SCSI is that you only need one interface card for a whole series of peripherals devices.

SCSI allows you to daisychain up to seven peripherals (eight including the computer), and these can include printers and plotters, along with hard disks and modems — so it cuts costs in the long run and leaves plenty of slots unused in the Apple II.

There are SCSI printers which are now on the market, and since they are a universal standard, you don't have the old problems of having to buy one which has been specifically made for your computer. If you are starting afresh with a system, this is probably the way to go. □

MODEM FOR APPLE II & IIE

NOW IN STOCK WITH FULLY OPERATIONAL FIRMWARE & NEW FEATURES



"VIATEL NOW IN FULL COLOUR ON THE APPLE 11GS AND IMAGE WRITER PRINTER"

* Super intelligent direct connect MODEM/VIATEL terminal for APPLE II, IIE & compatibles fully contained on a single card — plugs into slot#2 — does not require separate serial card or software. All software is permanently resident in an onboard 128K EPROM. It is hidden in the slot#2 card space, leaving the whole of memory completely free for other programs unlike disk based comms software which must occupy the main memory excluding other programs. It is menu driven and automatically senses for ProDos or DOS 3.3 operation. Received files are appropriately converted before saving and can be used.

Sending/receiving files is very simple:—
— Press "ESC" to display menu.
— Select "(S) END A FILE" option
— Answer the prompt "FILENAME?:"

The modem will search the disk for the file, make all the decisions (e.g. binary, basic, textfile, DOS 3.3 or ProDos) and transmit it in the correct format. <CR> transmits the file in memory. Similarly to receive a file select "(R) ECEIVE A FILE" option.

* AUTO ANSWER — AUTO DIAL. Senses true dial tone, ring tone, busy tone and acts intelligently, returning status messages. Characters can be included in the phone number to set baudrate, pause, "await dialtone" and multiple redial on busy. On answer, it selects the incoming baudrate by precision frequency measurement. This is much more reliable than the normal autosearch using carrier detect which is often confused by voice and phone tones. A reliable autosearch is a must for bulletin board operation.

* 300 Baud full duplex or 1200/75 and 75/1200 with fast automatic line turnaround. An upgrade kit to add V22 (1200/1200 baud) and V22 Bis (2400/2400 baud) will be available later.

*Main menu option "(V)IDEOTEXT" shows the VIATEL menu. It becomes a full graphics VIATEL terminal, automatically dialling and transmitting the user ID stored in the battery backed ram. When online, a keypress will immediately save pictures to memory. These can be reviewed later and selectively saved to disk or printed (requires a graphics printer card). Pictures can be loaded from disk and printed out. The modem can act as a videotext host and can be programmed to act on frame information. e.g. — use the clock to ring "MONEYWATCH" hurly and dial you at the office if your shares move outside a given range.

* TELESOFTWARE DOWNLOAD facility to purchase programs over VIATEL from suppliers such as MICROTEX 666 and TANGO.

* A full wordprocessor in EPROM for pre-composition of text before transmission. It can also be used to edit or print received files as well as for general wordprocessing.

* Onboard battery backed calendar clock can time and initiate calls or keep an activity log. ProDos uses it to time and date disk files and it is accessible from Basic.

* 2Kx8 battery powered CMOS RAM stores default parameters, phone numbers, ID, password, logon strings, search codes and setup parameters (e.g. baud rate, parity, printer ON) for each number, allowing single keystroke call establishment to specific areas of complex databases. Main menu option "(T)ELELIST" displays the list of 23 names and one is selected.

* Incorporates XON/XOFF and CHRISTENSEN error correcting protocol. Textfiles are not so fussy but error correction is a must when transferring program files. A debug function can display normally invisible control characters sent by the host.

* Can output directly to printer even when online at 1200 Baud — a fast printer is not required as the printer is spooled out of the receive buffer. A "FILTER" function is available to remove screen control characters from textfiles (these can drive a printer crazy). Special scroll routines print to 80 column screen and printer at 1200 Baud without any lost characters.

* Unique "PHANTOM MODEM MODE" function allows the modem to be permanently connected with the normal phone. When answering, if it doesn't immediately detect a calling modem it generates ringing tone back to the calling party and sounds the APPLE bell, giving you 60 seconds to answer the phone.

* If you have previously purchased this modem and have not yet received an updated EPROM VERSION V2.18 and a manual, contact AUTOMATIC ICE CO. — there is no charge for these.

AUTOMATIC ICE COMPANY

Mastercard & Bankcard

10 SMITH STREET, CHARLESTOWN, 2290.
PHONE (049) 63 3188 — (049) 63 1386

Price $299 *(incl S/T)*

MICRO-EDUCATIONAL PTY LTD
Unit 8, 235 Darby St, Cooks Hill NSW 2300 Phone (049) 264122

DISKS *from* 82c

We sell **two million** disks a year.
Why? Look at our prices.



Not just the lowest price in Australia, our disks are also the **highest quality**.
US made by Wabash, our disks are fully machine-made to the **highest possible quality** standard: nearly double the American National Standards Institute's standard for double-density disks.
And we sell them cheaply because we sell in **VOLUME.**
NOBODY sells more disks than Micro-Ed and **NOBOBY** beats us on **price** or **quality**. We are Australia's largest retail supplier of diskettes with over 32,000 customers Australia-wide.

BULK DISKS

DISKS	10+	100+	200+	500+	1000+
Plain label	1.00	0.95	0.90	0.87	0.82
5.25SSDD (Micro-Ed)	1.40	1.20	1.00	0.97	0.92
5.25DSDD (Micro-Ed)	1.60	1.40	1.20	1.10	1.00
5.25DSDD (Wabash)	1.90	1.70	1.50	1.40	1.30
5.25DSHD (Wabash)	3.50	3.20	3.00	2.90	2.80
3.5 DSHD (Wabash)	4.95	4.50	3.99	3.90	3.75



FREE LIBRARY DISK ORDER FORM

Dear George,
Please rush me your latest library disk for my ..... computer containing the best available public domain software (utilities, graphics, games, program tips, etc)

NAME:_____

ADDRESS:_____

Please send disks to the following: (attach list if necessary)

NAME	ADDRESS	COMPUTER

Enclosed $..... ($2 per order)

FREE

Public Domain Library Disk for your Apple, IBM, Mac or Amiga (Specify which computer you own.)

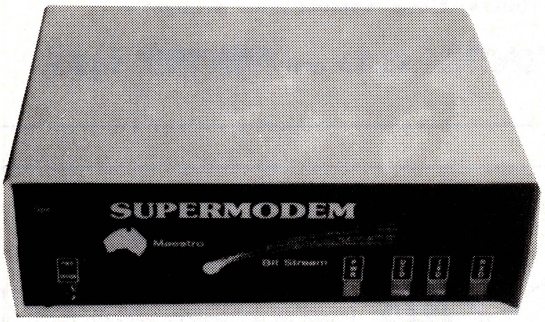
Normally $6 to $9 each we will send you one FREE for your computer. Just fill in the attached order form and send it to the above address with $2 to cover postage. One disk per order. You may also have us send a disk to each of your computer owning friends by adding their name and address and adding $2 per disk postage!

Hurry! Do it now. Offer ends 31/10/87.

MICRO-EDUCATIONAL

Unit 8, 235 Darby St, Cooks Hill NSW 2300 Phone (049) 264122

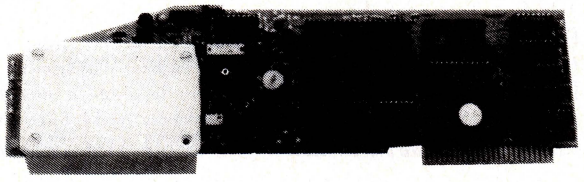
MODEMS



GPA SuperModem $395 inc, $359 ex

Our top-selling fully-featured modem. Australian made standalone V21, V23 with optional V22 board.
Features:

* Auto-answer, auto-dial, auto-disconnect
* Onboard intelligence for Baud rate detect
* Hayes compatible
* 300 Bd full duplex, 1200/75 (**VIATEL** mode)
* 1200 Bd full duplex option ($190 inc, $160 ex)
* Connects to any computer with RS232 serial
* Viatel software (Apple/IBM) available $35
* Cable to suit your computer $30
* Over 2900 sold! (New model now has LED's)



AUTO ICE Apple Modem $299 inc, $279 ex

Card modem for Apple II+, IIe and IIGS (Yes. In colour!) Direct connect, auto-answer, auto-dial, auto-disconnect with a full suite of onboard EPROM software including comms, **VIATEL** and a simple word processor. V21 and V23. Suitable for users wishing to quickly, simply and easily connect to bulletin boards and **VIATEL** applications. This is a complete package requiring no further software or cabling to be operational.
And at $299 it is ***great value!***

Maestro Flyer



From the designers of the all-conquering GPA SuperModem comes a standalone V22 modem for the ***embarrassingly low price of $199.***
The brief we gave Maestro: Design a "No Frills" V22 modem for existing modem users who need the speed increase but who don't want to junk their existing modem. And do it under $200!
Do you need 1200/1200? If so the Maestro Flyer may be the modem for you. Nothing fancy. No auto anything. Just V22 120 cps transmission. ***$199 inc***

SPECIAL
20 Mb Tandon drive and OMTI card
was $1495. **NOW $795!** (Suit XT and AT)

ORDER FORM

Post to
PO 160
The Junction 2291

Dear George,
Please rush me the following by courier:

_____

_____

Enclosed please find cheque/ Bankcard/ VISA/ MasterCard

#_____

for $_____ (include $8 for overnight courier)

NAME _____

ADDRESS: _____

_____

SIGNED: _____

LOOK

At some of our other goodies.

TCF GENERAL ACCOUNTING $695

For the Accountant or Businessman wishing to run a full set of business account books including directors reports, up to taxation levels.

MABEL $1250

For Stock Control of a Wharehouse or Retail Point of Sale with optional Bar Coding, large section of reports includes Invoices, Dockets, Bar Code Labels, Daily Transaction Lists.

BASIC MANAGEMENT SYSTEMS $1650

Fully integrated Debtors, Creditors, Stock Control, General Ledger, includes Backorders, Alpha sort, Central Billing, Open Item, Salesmen, Dissections, suit Manufactures, Retailers, Tradespeople, Importers, Professional Services.

STUNNING

Is the only way to describe FONTRIX and PRINTRIX
The output from our Desktop Publishing Suite will lift you into the ranks of the Publishing Professionals.

Maximum Power and Performance Minimum Cost.

FONTRIX and PRINTRIX
IN ANY LANGUAGE WE ARE THE GREATEST.
ラシ アシス イアシマウアマナ スナ アシナ キヤナ マシナアキナリキ.
ИН АНШ ЛАНЖФАЖД ЦД АСД УЗД ЖСДАУДТУ.
בסנאנסמר נרת נסא נע נראדפאט פסא פר
ਿਡ ਆਡਡ ਲਆਡਘ ਆਘ ਢ ਆਢ ਯ ਘਢ ਆਯ ਯਥ
IN ANY LANGUAGE WE ARE THE GREATEST.

Will work with any PC DOS Computer and give near "Laser" print quality off many of the current Dot Matrix Printers, Laser version now available.

FONTRIX $395 and PRINTRIX $425.

THE MISSING LINK

You dont have to be a GENIUS

To achive Greatness T/MASTER is the missing LINK.
As you know to run the "average" INTEGRATED PACKAGE you need an IQ of about 180¢.

T/MASTER will give everyone an IQ of 180.

All your software in one Package.
Wordprocessing, Proofreading, Dictionary, Mailmerging, Bar Graphing, Spreadsheets, Listprocessing, File Sorting, Database, Auto make for Database, Built in Calculator, Communications.

Also available T/MAKER for CP/M Machines.

T/MASTER $695 and T/MAKER $495

LANGUAGES

C86PLUS™
C COMPILER

Computer Inovations latest release.
Based on a proprietry compiler design technology that applies artificial intelligence to produce highly optimized code. C86PLUS now benchmarks 20% faster than Microsoft C v4.0 & 70% faster than C86 v2.3. It Includes functional equivalents to most UNIX V libraries and implements the latest ANSI C library features. Over 250 library functions. 8087/80287 auto detect emulator, source level debugger support, and many other features. C86PLUS begins where others left off. Designed for the serious programmer, C86PLUS provides the ultimate Developement enviroment. C86PLUS **$995**

TOOLS

GOOD GEAR for Industrious Programmers.

INTRODUCING 'C' Interactive C language training system. The fastest easiest way to learn C for both the learner and experienced operator.
'C' UTILITY LIBRARY Over 300 functions including Source Code by Essential Software. No royalties.
ESSENTIAL GRAPHICS 'C' Over 150 Graphic Functions plus range of Text Fonts by Essential Software. No royalties.
PCNX PC Operating System that allows you a UNIX enviroment Multitasking, Multiuser, 100% compatable with MSDOS. No royalties.
INTRODUCING 'C' $325 'C' UTILITY LIBRARY $375 ESSENTIAL GRAPHICS $475

OPERATING SYSTEM TOOLBOX PC Operating System Construction Set. You can build your own Multiuser Operating System, Port Mainframe systems to PC's.
DB-VISTA Is a giant step beyond the generalised file managers (eg DBASE III). It is a C programmer's database management system.
DB-QUERY Allows the application developer to create a more familiar relational view of the complex network database model. (user environment)
PCNX $225 OPERATING SYSTEM TOOLBOX $225 DB-VISTA $495 DB-QUERY $495

TCF Computer Systems Pty Ltd

214 Harbord Road Brookvale 2100 (02) 938-2522

THIS PAGE WAS BUILT USING PRINTRIX
All Prices Include Sales Tax. Bankcard Orders Welcome.

Unlike the Apple and Hewlett-Packard lasers, this one has no on-board processor and memory, but relies on the computing power of the host computer. This should hold down the cost of the system, but I wonder if there will be a performance tradeoff.

THERE HAVE BEEN a number of big developments in the world of Atari, most of which should come to fruition by the time you read this.

On the Australian scene, Atari Corp has announced that it will be setting up a wholly owned subsidiary to distribute its computers, games machines and software in Australia. Mobex relinquished its distributorship on 4th July 1987. Mobex's Atari man in Perth tells me that the changeover will probably result in a bigger advertising budget, and price variations. In particular, peripherals such as the hard disk should be reduced substantially.

On the hardware scene, a number of new machines will be marketed, although I understand that dates, specification and prices are all still to be finalised. The less exciting releases are the PCs and the 520 STFM, while the big news is the Mega ST and its companion laser printer.

The 520 STFM is basically the existing 520 ST with disk drive and power supply built integrally into the keyboard/system unit, as on the 1040 ST. This will help reduce the large footprint of the ST system, and tidy things up by eliminating quite a lot of superfluous cabling and those ugly black power supplies. This is certainly a step in the right direction.

The PCs will come as an entry level machine and an expandable model. (My specifications on these machines were supplies by Mobex, but originated in the UK, so there may be some local variations). Both models have an 8088 processor running at 4.77 or 8.0 MHz, 512K RAM, and a single 13 cm floppy disk. A second floppy can be mounted, and the expandable model can mount a hard disk in place of the second floppy. Both models also support EGA, CGA, Hercules and IBM monochrome display standards.

A 'major feature' of the expandable system is the provision of five PC standard slots? (Really??!!) It appears that the entry level model has no provision for expansion apart from peripherals that can be hung off the parallel and serial ports. Both models come with a mouse, which suggests that the GEM operating system interface will be supplied as standard.

Far more interesting are the new Mega ST Ataris, which will come with two or four megabytes of main memory, detachable keyboard and the new blitter chip. The system unit is a low-line affair with a single 720K floppy built in.

The specifications appear to be very similar to the existing ST models, but with a number of significant improvements. These include the mega-memory and blitter chip mentioned above, and an internal expansion slot/bus expansion connector. This connector is said to allow a range of extremely powerful options including maths co-processors, use of the Motorola 68020 processor (a full 32-bit chip) and so on. More details as they come to hand.

The Mega-STs are being marketed to the business community, and in particular for desktop publishing. I have my own opinion as to whether we really need another desktop publishing system, but Atari don't seem to agree. The projected price of around $10,000 for the complete system of Mega-ST, Atari SLM804 laser printer and software seem to indicate that they are serious about this market.

The printer is an 8 page per minute unit with a resolution of 300 dots per inch. Unlike the Apple and Hewlett-Packard lasers, this one has no on-board processor and memory, but relies on the computing power of the host computer. This should hold down the cost of the system, but I wonder if there will be a performance tradeoff.

Before you all run out to put down your deposit on a Mega, you might like to take a look at the Lightspeed upgrade board distributed through Techsoft in Western Australia. This is a small circuit board which mounts internally in the 520-ST, and is socketed to hold up to 4 megabytes. Installation involves removing the memory shifter chip from the main board, inserting the upgrade board plug, and reinserting the original chip — no cutting or soldering is required. In addition to the memory chip sockets, the board is also socketed to take the forthcoming (real soon now) blitter chip.

The Lightspeed board will accept half a megabyte of 256 Kbit chips, or up to three or more megabytes of 1 Mbit chips for a total configuration of 4 Mbytes. The 256 Kbit chips have only 16 pins, but will mount in the 20 pin sockets used by the megabit chips. A jumper block is used to tell the board which configuration is in use.

I have not had the opportunity to test this upgrade, but the sample I saw looked very well made. The Lightspeed upgrade board is sold by Computer Oasis at Grove Plaza, Stirling Highway, Cottesloe, (09) 385 1885.

Starglider

Some months ago, a short article in this magazine referred to Starglider as a program which is so good it could justify buying an Atari on its own. I really wondered if any shoot-'em-up type game could really justify this type of lavish praise. Well . . . yes and no.

My reflexes not being quite so finely honed as they once were, I tend to avoid the arcade style games, but I had to make an exception for Starglider. Although at its most basic this is a shoot-'em-up, it is much more than that. The game is a Flight Simulator of sorts, and also has some attributes of adventure games, although there is no time for slow logical deduction.

There are no instructions as such with Starglider. Instead, the excellent documentation consists of a 64 page novella, a poster, playguide and keyguide. The novella is an entertaining and lighthearted story of the invasion of Novenia by the ruthless Egrons and the single-handed resistance put up by the pilot of an antique ground attack aircraft (AGAV) which is rescued from a museum. ▷

POOR PERSON SOFTWARE

WRITE-HAND-MAN — Desk Accessories for CP/M 2.2 or CP/M 3.0! Notepad, Phone list, Diary, Disk directory, Text file Scan, Calculators (Decimal and Hex), Key Macros (Eight), ASCII Table, Cut and Paste, more — from within Wordstar, dBasell, Turbo Pascal and other CP/M programs! Use with Ram disks, XTRAKEY and ZCPR. Source for accessory programs included! Open-ended — add your program for WHM to 'pop-down'. Supplied versions run on ALL Microbees including 256 TC, Dreamdisk, Kaypro II/IV/X, Osborne, Apple II CP/M, Amstrad CPC6128 and PCW8256 and many more. Supply computer model and CP/M version when ordering . . . **$47.**

Also Memory-Resident SOFTWARE PRINTING SPOOLER . . . **$40,** MAILING LABEL PROCESSOR . . . **$30,** SPELLING CHECKER . . . **$27,** SPREAD SHEET . . . **$40.**

MITEK SOFTWARE

MITEK RELOCATABLE Z80 MACRO ASSEMBLER . . . **$65.** Including Linker/Library Manager **$95.** Full Package including Mitek On-Screen Symbolic Debugger for option-packed Z80 Assembly Language programming . . . **$120.** Bonus DAZZLESTAR Public Domain disk included. For all CP/M micros (Microbees, Kaypros and many others).

XPERT SOFTWARE

XTRAKEY — POWERFUL Keyboard Redefinition Program! Once 'in residence', XTRAKEY lets you redefine single keys or define two-key (Xshift) sequences to make text-string (word, sentence, paragraph) insertion a 'snack'. Never type 'printf("/n' (or worse) again! Define keys on the fly. Define keys to strings requiring user input. Send strings to your printer (set NLQ, CPI) or 'Punch' port (logon sequences). Toggle entire-screen (Kaypros only) dump and/or screen output (all) to printer. Edit/Save/Load definition sets to fine tune your keyboard. XTRAKEY available now for ALL Microbees including 256 TC, Kaypro II/IV/X, Morrow, Osborne, Amstrad CPC6128 (running CP/M 2.2), Apple II CP/M and many more . . . **$49.**

Also XTRAPRINT (CP/M 2.2) . . . **$49,** SIDE2 (CP/M 2.2, MS-DOS) . . . **$47,** XTRATECH (CP/M 2.2) . . . **$38,** XCREEN (Kaypro II/IV/X) . . . **$38.**

In popular formats, e.g. Microbee 3-1/2", 5-1/4", Kaypro II, Osborne DD, Xerox 820, Televideo 802/803, 8" SSSD, Apple II CP/M and Amstrad 3" CP/M. Who said CP/M wasn't alive?

H.D. TUNEUP

H.D. TUNEUP is the ideal follow-up to a backup of your IBM PC/XT/AT (or compatible) floppy or hard disk. H.D. TUNEUP reallocates all your files to remove fragmentation and relocates subdirectories closer to the root. After H.D. TUNEUP, files read and write faster with less disk thrash! For disks up to 32 Mbytes. Available in 5-1/4" and most 3-1/2" MS-DOS formats. Not copy protected . . . **$75.**

WRITE for Glyphic Software Catalogue. Prices include pack, post, sales tax and manuals. School/College? Enquire about our School Packs. REALLY good value.

GLYPHIC SOFTWARE
P.O. BOX 391
PENNANT HILLS, 2120

Order by:
☐ Cheque ☐ Money Order ☐ B/card ☐ M/card
Please charge my
Card No. Expiry Date ...../...../.....

Signature .....

Split second reaction, intuitive formulation of strategy and tactics and a very sharp eye for detail are all necessary to proceed beyond the Rookie classification.

The playguide is a small 15 page manual for the AGAV — it is not a guide for playing the game of Starglider. The keyguide is a diagram of the ST keyboard indicating the functions of a number of the keys and the mouse. My copy was printed in German! (Luckily, I am blessed with a beautiful and multilingual wife who was able to translate.)

Once through the documentation, it was time to load the disk and try my luck. The program opens with a beautifully done still graphic and some digitised theme music, and a screen full of credits. This in turn clears to show the control panel of our trusty AGAV. Immediately, I was attacked from the rear by a flight of photonic darts, form front right and front left by Egron tanks and from somewhere on the left by an unseen enemy. Within a few minutes it was all over.

On the tenth time around, having re-read the playguide, I was starting to get the hang of this game. Split second reaction, intuitive formulation of strategy and tactics and a very sharp eye for detail are all necessary to proceed beyond the Rookie classification. Apart from being blasted away, you can also fail by running out of energy or having your shields depleted. I have yet to get beyond Rookie, but I have managed to dock in the rotating support depot and to re-charge my battery by skimming along a power line while under attack from all manner of nasties.

The animation and sound effects of this program are superb. The control panel of the AGAV is quite detailed, with all the necessary flight instruments (it doesn't look anything like the Cessna in Flight Simulator). The landscape is in darkness, with buildings and nasties showing up in glowing outline. This is no doubt much easier to program, and is neatly covered by an explanation in the manuals. To quote: *The blister canopy of the AGAV is actually part of a complex display system. Rather than looking at the outside world with standard infra-red goggles, the canopy actually intensifies the normal levels of background gamma and x-ray radiation, and enhances the edges of all solid matter to give a stunning translucent display of anything within its visual range, even if objects are behind solid buildings.*

I'm not too sure about the physics behind this, but it sure sounds better than 'It's too hard to program solid-looking surfaces.'

The plot is reasonable, and made more so by the novella and playguide. The execution of the program is brilliant, and it is certainly the equal of anything I have seen in arcades, and miles (kilometres?) ahead of the vast majority of computer games. As to whether Starglider is good enough on its own to justify buying an ST, I would have to say no — there are plenty of other good reasons to buy an Atari. However, if you already have the ST, then this program should definitely be on your Must Have list.

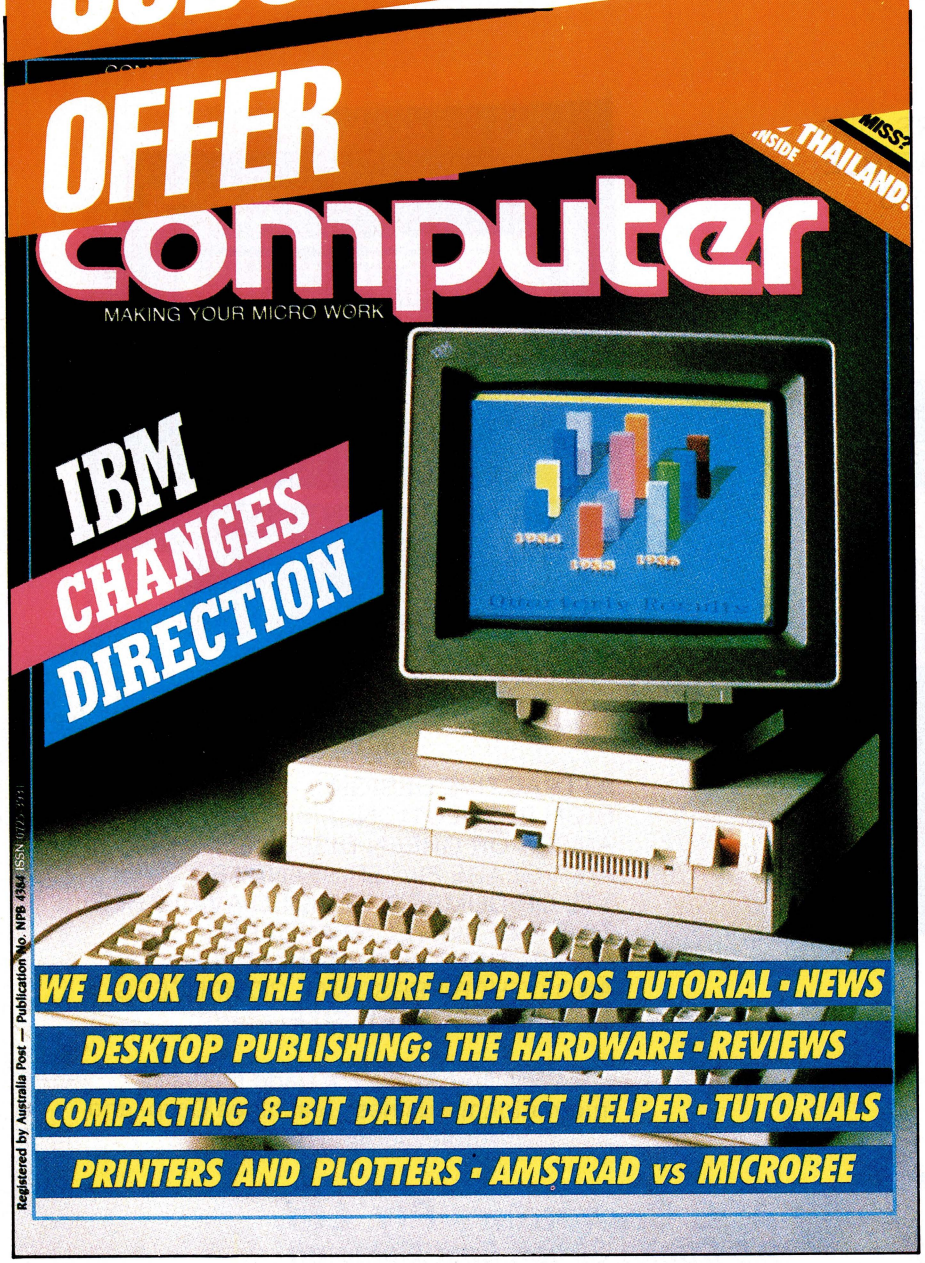
Far more interesting are the new Mega ST Ataris, which will come with two or four megabytes of main memory, detachable keyboard and the new blitter chip.

Before I close — some free advice. Support your local user group, and you will get a lot more out of your computer.

Thanks to Norm Pearce of the Adelaide Atari Computer Club for sending that club's excellent newsletter *Feedback*. And let's have lots of feedback from the readers so that I can include the types of news and views that you want to see.

Next month, I hope to have reviews of two art programs as well as some programming and operating hints. ☐

SPECIAL DISCOUNT SUBSCRIPTION OFFER



SUBSCRIBE NOW TO Your computer

Your Computer provides friendly, informal advice and presents technical subjects in a comprehensible manner. It specialises in tutorials showing users how to get the most out of their equipment.
Jam-packed with product and software reviews, **Your Computer** is a must for anybody with a micro-computer.

This Month Only!

Two year subscription $60.00
(Normally $70.80) **Save $10.80**

One year subscription $31.00
(Normally $35.40) **Save $4.40**

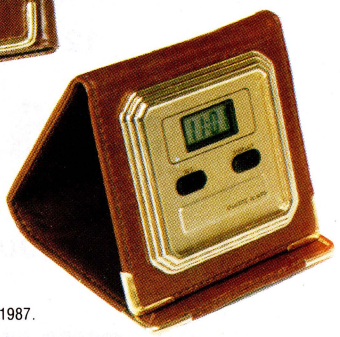
(N.Z. 1 year Airmail $A55.00
Surface $A48.00)

PLUS receive this free bonus gift

This leatherette TRAVEL ALARM CLOCK is the ideal companion for any traveller. The LCD readout gives the time and date, along with an effective alarm. Lightweight and compact, the alarm clock folds away to fit in your pocket or handbag. The gold-colour corner trim and face give a stylish finish.
(Free gift is forwarded under separate cover.)



folds away



Offer expires 30 Sept. 1987.

Pull out the self-sealing coupon/envelope or send your cheque and details to Your Computer subscriptions Freepost No. 4, P.O. Box 227, Waterloo, NSW 2017

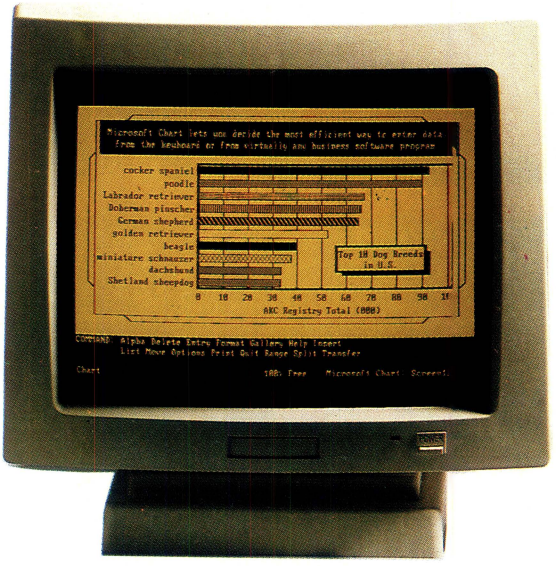
AMBER

a sight for sore eyes

MONOCHROME MONITORS FOR
IBM* APPLE* AND COMPATIBLE
PERSONAL COMPUTERS



12″ ADE 1216T/A



14″ ADE 1406T/A

R.R.P. FROM: **$225** incl. tax.

ATTRACTIVE DESIGN
HIGH RESOLUTION
AMBER OR GREEN DISPLAY
ANTI GLARE FILTER STANDARD
TTL OR COMPOSITE VIDEO AVAILABLE
TILT AND SWIVEL STANDARD
COMPATIBLE WITH IBM*, APPLE*
AND OTHER PERSONAL COMPUTERS
12″ OR 14″ SCREEN SIZE

*IBM and Apple are trade marks of International Business Machines Corp. and Apple Computers Corp.

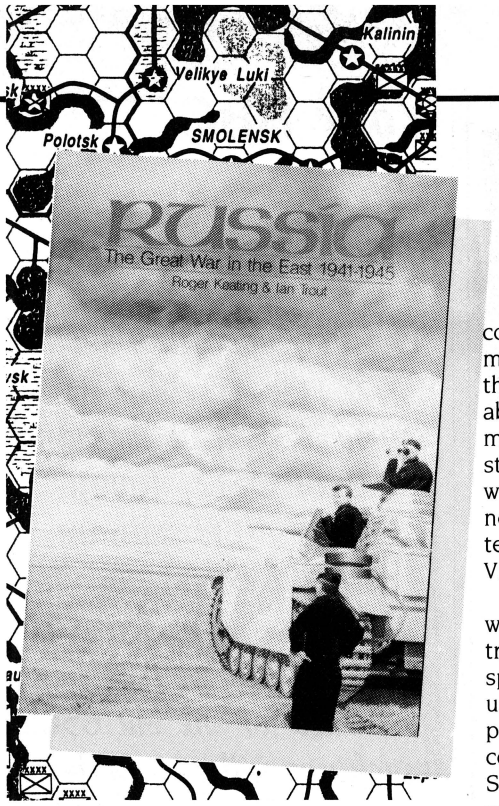
DEALER ENQUIRIES WELCOME:

ADE

ADE Computers Pty. Ltd.
2-6 Dublin Street, East Oakleigh
Victoria, Australia, 3166
Telephone: (03) 543 2677
Telex: AA 36384 ***Fax: (03) 543 5582***

HOT LINE: 008 033508 FOR ORDERS ONLY

BY IAN ALLEN



IN MANY WAYS, the release of the Amiga 500 should have been the death knell of the Commodore 64. But as Oscar Wilde once said; 'The reports of my death have been much exaggerated.' And so it is for the C64. It was a versatile computer when it was released, and it remains so, but the key to it's survive-ability is in the huge software pool that has been built around it. C64 software is plentiful, it does most of the things you'd ever want to do with a home computer, and it's relatively inexpensive (especially when compared to Amiga software).

Don't get me wrong. I'm not knocking the Amiga — it's a great machine and brilliant value for money, but hardware alone is not enough. You need software to go with it and the price and availability of that software are just as important as the cost of the hardware. If you have to pay three times as much for standard programs such as wordprocessors or terminal packages, you'd be forgiven for thinking twice.

Time will probably see changes in the pricing situation for Amiga software, but in the meantime, the C64 pool is ever expanding. Some of the latest additions are right up with the state of software science — it just goes to show how much power even an 8-bit computer can have.

Ever since I discovered Reach for the Stars, a strategy game from Sydney company, Strategic Studies Group, I've been a fan. The big attraction is the way they make the computer players 'intelligent' by using expert systems in the software.

Ian Trout and programmer Roger Keating were talking about creating a game based on the World War Two Russian front the first time I met them two years ago, and now it's finally been released. I came upon it quite by chance when I was in a store looking for a new modem — I couldn't resist spending an extra $50.00 and taking 'Russia' home as well.

So there I was with two new toys, facing the happy dilemma of which one to play with first. You guessed it, I was off to the the Eastern front. Russia offers three short scenarios plus a campaign game covering the entire war. You have command of several army corps, each of which is comprised of three to four divisions.

You control the 'doctrine' of each corps (Maximum effort, Hold, or Rest) plus you can give orders to individual divisions (attack, probe, defend or rest). You also allocate the air and ground support that each division receives. This command process is done through a series of simple menus which are friendly and easy to master.

Once you've issued all your orders it's up to your local commander (played by the computer) to attempt to carry them out. Your computer subordinate will move your pieces, work out how best to keep the supply lines open and keep track of the morale and freshness of your troops. It then puts on it's other hat and plays both General and local commander for the other side — the computer controlled side plays intelligently enough to be a real challenge.

But the real scope of Russia is only revealed when you play the campaign game. It's meant to simulate the entire war on the Eastern front, and it can be played by up to eight players (four per side) in any combination of human and computer opponents. It's not a game for the hyperactive, but at the same time you don't have to be an enthusiast to enjoy it or master it. In fact, it is probably more accessible to non-enthusiasts than any of SSG's previous efforts and I would recommend it to first timers.

Netcomm 64/128 Modem

The other toy I purchased was the NetComm 64/128 Modem. It's an auto answer/auto dial unit, but I wanted it for it's ability to handle 1200/75 and 75/1200 baud rates. A number of bulletin boards now support these speeds which means that file transfers can be done in a quarter of the time. It's interesting to note just how far our modem manufacturers have come in just a few years. The NetComm modem is much more versatile than my three year old Cicada 300, yet it is only about one quarter of the size. The old modem came with only rudimentary instructions and no software to drive it, while the new one not only came with a neat professional manual, but also with a terminal program, which supports both Viatel and standard Ascii comms.

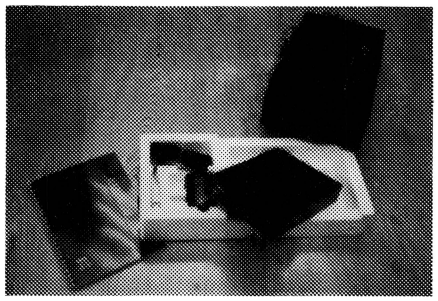
I was a little disappointed that the software supports only the Xmodem file transfer protocol. After all, this modem is specifically marketed to Commodore users and so it should support the Punter protocols which are now becoming very common on Commodore bulletin boards. Still, it's a good documented package which supports all of the modem's features, and that's just what a newcomer to telecomputing needs. The modem will work quite happily with other terminal programs, so people who are upgrading can continue to use programs they may be more familiar with. The autodial feature is compatible with CBM 1650 type modems. This is a standard supported by many terminal packages so your existing programs may well exploit the feature.

There are other modems on the market, almost all of them are Australian made. The NetComm is not the most inexpensive, but that's because you pay extra for the auto-dial/auto-answer feature. If that's not particularly important to you then you may do better elsewhere. One feature you should consider when looking for a modem is that ability to support BOTH 1200/75 and 75/1200. You'll find it a real time saver. Also, as when buying any peripheral for the C64/128, you should remember that units that plug directly into the 64 are not going to be compatible with other makes and models. If you ever do upgrade, you will have the additional expense of replacing the peripherals as well. With modems, the ones that require an RS-232 cartridge are the ones that will work on other computers.

The NetComm modem 64/128 is strictly 64/128. But in my case I'm thinking I will keep my 128 even if I do eventually upgrade to an Amiga. You can't play Russia on an Amiga — at least not yet! □

SSG

If you'd like to know more about the Strategic Studies Group and their games, refer to Merv Beamish's *Let's Have a Go* in YC, Mar.'87 □



BIT BLITZER

LESS THAN 1/2 THE PRICE OF COMPETITIVE MODEMS

with these features:
CITT V22 (1200 BPS) & V21 (300 BPS)
BELL 212A (1200 BPS) & 103 (300 BPS)
Auto dial
Tone or pulse dialing
Auto answer
Auto redial
Full Hayes AT command set including all 17"S" registers
Call progress monitoring
Loop back for remote diagnostic
Carrier detect disconnect time adjustable
Internal speaker with volume manually and software controllable
8 LEDS (LIGHTS) indicate status and activity
Low power consumption 1.5 watts.

TELECOM APPROVED

ONLY $349

MIKE BOORNE ELECTRONICS PTY. LTD.

Suit 3, 61A Hill Street, Roseville,
N.S.W. 2069

P.O. Box 8, Turramurra,
N.S.W.2074
Phone: (02) 46 3014, (02) 46 3015
Telex: AA24457

Perth:
3 Topaz Gardens
Edgewater 6027
(09) 306 2056

Aggressively structured dealer pricing

The new operating system is called 'Arthur' (I suppose it's a better name than OS/2, if only because the software actually exists) and its designers have tried to ensure that well-written software for the old 6502 machines will run perfectly in Archimedes' 6502 emulation mode.

ARCHIMEDES, I'M LED to believe, was the Greek who conducted the first successful tests in Ronnie Regan's beloved Star Wars program, zapping a few invaders with his solar-powered death ray back in whenever-it-was BC. He is also credited with being one of the first recorded streakers.

We humans have a shameful tendency of trivialising great people's lives and my frailty in this area has never been brought home more than by Acorn's decision to name their latest *mine's faster than yours* RISC machine the 'Archimedes'.

They claim it's because they see it as a serious machine destined for a lot of use in universities, labs, desktop publishing and education: the name is supposed to conjure up a sober, serious and no-nonsense image. It's all a bit of a worry.

For me, the name conjures up the vision of a skinny old gent pounding away at a keyboard in his bathtub, trying to audit the king's gold stocks using ViewSheet. Now if Archimedes had used a computer to try and track down the missing gold, it's a worthwhile bet that all those nuclear submarines mightn't ever have been built.

Last July I gave a brief description of the Acorn's capabilities, so at the risk of boring the bathtowels off those who prefer to remain in familiar 6502 territory I'll go into a bit more detail and no doubt add to the confusion.

The Error

Firstly, there was an error in the display specs I gave in July. There are actually 20 screen modes, with mode 20 giving the maximum resolution (640 x 512 with 16 colours from a palette of 4096) if used on a Multisync monitor. The highest number of colours that can be displayed at once is 256 from a palette of 4096, on a 640 x 256 screen in mode 15. Both modes consume 160K of RAM. There is talk of the high density modes I mentioned becoming available in the future, but nothing definite.

The biggest problem with any new machine is compatibility with existing software. The new operating system is called 'Arthur' (I suppose it's a better name than OS/2, if only because the software actually exists) and its designers have tried to ensure that well-written software for the old 6502 machines will run perfectly in Archimedes' 6502 emulation mode.

Unfortunately, not all software conforms with Acorn's stringent rules, so while the View family, ISO Pascal, and so on, work beautifully, it won't look at Wordwise, Interword, Elite and Revs, for example. Playing Elite and Revs at 20 times the normal speed isn't my idea of relaxation, anyway.

There has to be a point where one's love of old, familiar software has to give way to using the benefits of the greatly expanded facilities of the Archimedes. No-one in their right mind would willingly use AMS Super Art or Fleet Street Editor after trying some of the exotic art and publishing packages already available for the Archimedes, and the word processing made possible by the extended screen modes make true WYSIWYG facilities the norm rather than something special.

One of the best features of the Model B was the multitude of ports bristling from its case. Acorn has taken an even more flexible approach with the Archimedes. It is fitted with a standard set of basic interfaces (parallel printer, RS423, analogue RGB video, mono video, mouse and a Walkman headphone socket).

To handle anything more you'll need to buy a backplane into which you can fit one or two hardware 'modules'. So far four of these modules have been announced. There's an Econet interface, a ROM board and an I/O board that includes a hard disk interface. The 20 Mbyte hard disk is fitted internally.

BY BRUCE MITCHELL

The standard Archimedes' 512K RAM can be doubled simply by adding more 120 nS RAM chips. The system ROM takes up a further 512K of the 4 Mbyte memory map. It supports a number of fonts, window management, the mouse, debug facilities, sprite management and the powerful sound and memory management systems as well as all those other boring, mundane tasks done by operating systems, like keeping the machine functioning. Sixty four megabytes of virtual memory is also supported by the memory management system.

As with the Master series, a number of important utilities are supplied as standard features. The Basic editor is there, as is a faster ADFS that also supports 800K capacity 9 cm disks. There is also the 6502 emulator and a floating point emulator. The latter is available for languages such as C to perform fast floating-point calculations, but is not used by Basic.

Basic V, as mentioned last time, offers many improvements over earlier versions. This is more important than many people I've spoken to seem to realise. Although it might be very untrendy these days to write in anything other than C, it's often very desirable to be able to hurl together some graphics or a sort in quick and dirty code at times.

Formerly this has had to be done in 6502 assembler, but with Archimedes' speed it isn't worth the trouble. Efficiency has increased in other areas, too. Until now garbage collection hasn't been a big feature of BBC Basic (there wasn't any), but with improved string handling facilities have changed this for the better. WHILE, WEND, CASE, WHEN, OTHERWISE, ENDCASE and IF, THEN, ELSE, ENDIF structures are now included, as are binary operators, better PRINT and TRACE facilities and more reliable TAB functions.

A full ARM assembler replaces the inline 6502 assembler of earlier versions and it is now possible to operate on whole arrays at once. One delight on the pre-release Basic B I saw was the MANDEL function; it was originally a bit of an in-joke, I was told, but it seems that it might be allowed out of the factory after all. Probably only of interest to number-crunching freaks, it is nevertheless a novelty to see an entire screen of Mandelbrot patterns instantaneously rather than wait eight hours for a Model B to grind through a 20K screen.

Showdown

At this level of the non-IBM market there seem to be only three machines to choose between: Archimedes, Apple IIGS and the Amiga. The IIGS offers little to those not already steeped in Apple software, except that it shows more colours on the screen at any one time than the Amiga or Archimedes. Despite recent and overdue price cutting it remains overpriced for what you actually get: an ageing operating system running some very nice 1984 vintage hardware.

The Amiga is far better value than the IIGS and an enthusiastic, innovative software industry has grown up around it, something that certainly isn't happening with the IIGS. The Amiga is not a cheap machine to expand, however, and just about everything has to hang off the back of it. The various operating system versions have made for minor annoyances, with some older software not compatible with the latest versions of KickStart, and while very much slower than the Archimedes I've never found a lack of speed to be one of the Amiga's problems.

At around $2700 (plus tax) for a single 9 cm drive machine with a medium resolution colour monitor, is the Archimedes worth $1000 more than an Amiga? For games I'd go for the Amiga every time.

There are some wonderful games available for it and their quality seems to be increasing all the time. I can't see the Archimedes ever gathering a lot of this kind of software around it for the same reason that the Mac hasn't. It's a genuine production tool rather than the classic stereotype of an all-purpose 'home' computer, happiest when working hard.

Acorn's well-mapped upward hardware development path through the 400 series and beyond, shows that there is a long-term future for their new baby, especially with the powerful recursion, macro and system variable enhancements to the already well proven operating system incorporated in Arthur.

For desktop publishing, CAD, education, simulations and any applications requiring very fast number crunching combined with high quality graphics, it is one of the most promising machines I've seen for a long time. □

Help for C Programmers

You can now create sophisticated applications **FAST** with our C compilers, database and screen libraries and tools.

With **dBX,** the dBASE to C source code translator, you can run your dBASE programs on computers that do not support dBASE. Makes your programs run like lightning.

STOP wasting time debugging your programs the hard way . . . one at a time. Use **PC-LINT** to find bugs, glitches and inconsistencies in your **C** programs. Saves hours of development time.

Use the **BEST** Database and Report Generators available. **C-tree** provides multi-user locking routines for Unix, Zenix, MPM and DOS 3.1. **R-tree** is a powerful multi-file, multi-line report generator. Includes source code.

FULL RANGE of products available including Graphics, C interpreters, Make, Editors, Wendin, Under-C, Greenleaf, Faircom, Softfocus, Turbo C, Microport System V/AT Unix and more.

Try our **FREE** 24 hour Bulletin Board (02) 560 3607. Hundreds of C files and programs available for downloading.

For your **FREE** C Programmer's Catalogue, phone Rick Polito on (02) 233 3455 or write to:

MICROMART PTY. LTD.
56 Percival Road, Stanmore 2048

BY JOHN HEPWORTH

LAST MONTH WE entered the murky area of transferring files from one system to another where the two disk formats are incompatible. Using a serial cable and Modem7 at each end to transfer batches of files is a tried and true system, and can be used reliably even when the two systems are completely incompatible — such as from IBM to Apple, or CP/M.

Much more common in the future will be the need to transfer files from one MS/PC-DOS system to another with an incompatible disk format. With the introduction of the 90 mm (3½ inch) drive as the standard, and the ultimate obsolescence of the 135 mm (5¼ inch) floppy, many users will need to transfer programs and data from one format to another either once, or more regularly.

Faster Serial Transfer

Simple serial transfer at 9600 baud is not the answer, as it is simply much too slow. The first choice is to replace Modem7 with other communications software which will achieve a higher throughput without a large hardware investment.

There are many communications programs which will offer transfer of files in batches at speeds above 9600 baud. Telix, a user supported communications package, is just one which allows batch transfer at speeds up to 19,200 baud. Many commercial programs also allow high speed batch mode, sometimes at speeds up to 38,400 baud as in the case of SuperCom. (Supercom is the Australian communications program which won the *Your Computer* 1987 Australian Software Commendation, and is available from PC-Extras on (02) 319 2155.)

Brooklyn Bridge

My favourite software solution to transfer files from 90 mm to 135 mm (or the reverse) is Brooklyn Bridge. This is a very sophisticated product, and comes with one copy of the program on a 360 Kilobyte IBM PC format 135 mm disk and a second copy on a Toshiba format 720 Kbyte 90 mm disk. Two MS-DOS computers are linked with a serial cable supplied with the package and the Brooklyn Bridge software is run on each.

Now one computer is the host and the other the remote. The host computer has access to its own drives and also to the drives in the remote machine. If the host had drives A, B, and C, and the remote also had drives A, B, and C, the drives on the remote are seen as drives D, E, and F on the host machine.

The amazing thing about Brooklyn Bridge is its fantastic speed. It takes over the serial ports and runs them at 115,200 (!) baud.

Any program can be loaded and run on the host from any remote drives, and the host drive can read and write files to drives on the host and/or remote. In addition, files can be copied from the remote to a drive on the host (or the reverse) using the normal DOS copy commands. Other capabilities include the use of peripherals, like printers, connected to the remote from software on the host, though this does depend on the application software being run.

The only programs which do not work from host to remote are ones which directly access the drives and cannot accept device drivers. These programs include FORMAT, DISKCOPY, copy protected software and archive programs like COPYWRIT. One other limitation occurs when one machine uses a hard disk formatted under DOS 3.x and the other is running DOS 2.x. In this case, the host must be the machine using DOS 3.x as DOS 2.x cannot read the 16 bit File Allocation Table of DOS 3.x hard disks.

The amazing thing about Brooklyn Bridge is its fantastic speed. It takes over the serial ports and runs them at 115,200 (!) baud. After allowing for the overhead of reading and writing directories and error checking protocols a throughput of around 5000 characters per second is achieved.

Brooklyn Bridge is available from PC Imports, 20 Rockfield Rd, Doolandella, Queensland, at the recommended retail price of $240.

Data Migration Facility

With the introduction of the Personal System/2 range, IBM recognised that many users would require a cheap and fast way of transferring files from their older machines — so they developed the Data Migration Facility.

The PS/2 range have a bi-directional parallel port, which can not only send output to a printer, but can receive input from another device. The Data Migration Facility is a small plastic device with a DB25 connector on one side to match the printer port on the PS/2, and a Centronics port on the other side to match the printer end of your existing printer cable. Some conductors are bridged together within the DMF.

Now we have the devices connected together in the following order — PC to printer cable to DMF to PS/2. Run COPY35 supplied with the device on the PC and RECV35 (on the DOS 3.3 disk) on the PS/2 and files are copied from the PC to the PS/2 at around 2500 characters per second. As PCs don't have a bi-directional parallel port, the reverse is not possible.

The Data Migration Facility is $75 (recommended retail price) and is available from IBM dealers.

Adding an External 90 mm Drive

Want an extra drive for your existing PC, and an external 90 mm at that? One answer is the external drive offered by IBM. The drive is in a neat case which can sit next to the monitor on top of the system unit. Data transfer is via a cable which plugs into the connector on the rear panel of the floppy controller. Power supply comes from the PC. The power connector to the A drive is unplugged from the drive, a Y cable is plugged in and this gives power to both the A drive and the external drive.

To access the drive, DOS uses a device driver called DRIVER.SYS which is supplied with DOS 3.3 and is invoked from the CONFIG.SYS file. As with Brooklyn Bridge, software which directly accesses the drive hardware will not run but other software had no problems.

IBM offers two versions of its external drive, for PCs and ATs. The PC version has a recommended retail price of $810. Similar devices are available from many other suppliers. ▷

THE IMPORTERS OF MACE $195, XTREE $112, AND FORMTOOL $295

introduce



DSBACKUP + is an invaluable hard disk software utility designed to quickly backup and restore any or all files from an IBM PC/XT/AT or close compatible

FEATURES

NOT COPY PROTECTED
This means you can install it and forget it, with no need for clumsy key disks.

TRUE DATA COMPRESSION
Now you can get even more data on each disk or cartridge — up to 40% more!

SPEED
No more waiting around — DSBACKUP + backs up to 10 Megabytes in 5 minutes with its new SPEEBACK OPTION!

MULTIPLE VOLUMES
You can now backup and restore from more than one drive at a time,

DIRECTORY & FILE SCROLLING
Now you can scroll through all the selected backup files prior to the backup process and take full advantage of the Inclusion/Exclusion FILESPEC capabilities.

PERCENTAGE COMPLETION
DSBACKUP + is always updating your screen with information regarding the status of your backup.

BENEFITS

DS BACKUP + IS SAFE
All the data you spent years accumulating is automatically verified while backing up and/or restoring, assuring you complete data integrity.

DS BACKUP + IS FAST
An entire 10 Megabyte hard disk can be backed up in 5 minutes **(That's 10 times faster than DOS).** Under normal operating procedures you will save valuable hours every time you back up.

DSBACKUP IS EASY
Completely menu or command line driven, all of the programming functions are clear and simple to follow during step by step backup/restore procedures. All the information you need is always on screen including single keystroke context sensitive help.

DSBACKUP + IS POWERFUL
With DSBACKUP + 's new power features such as True Data Compression and Data Specific Backups, DSBACKUP + offers options that were formerly only available on more expensive tape drives and mainframe systems.

INSURANCE YOU SHOULD NOT BE WITHOUT!

ONLY $195

PERFECT INTERFACE (AUSTRALIA) PTY. LTD.
7th Floor, 8 West St., N. Sydney, NSW 2060
Phone: (02) 957-1112

Please send me _____ copies of MACE, $153 each.

Please send me _____ copies of XTREE, $112 each.

Please send me _____ copies of FORMTOOL, $295 each.

Please send me _____ copies of DSBACKUP +, $195 each.

I enclose my cheque for $_____ or please debit my American Express, Diner's Club, Visa, Mastercard or Bankcard plus $6.50 freight.

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Card expires _____ Signature _____

Name _____ Phone No. _____

Address _____

Company _____

Internal Drives

Toshiba has long been a manufacturer of excellent floppy and hard disk drives, and turn out an excellent 90 mm for internal mounting. Vizden, who import Kaypro to Australia, bring them in and add a frame which they call an insertion kit.

The 90 mm drive plus insertion kit is exactly the same size as a half-height 135 mm floppy, and slots straight into a PC. The insertion kit includes a small printed circuit board permanently mounted on it which adapts the connections from the pins on the 90 mm drive to the edge connections expected by the PC cable. Also included is a blanking plate in case it is being installed in a full height slot.

Late model XTs with DOS 3.2 or 3.3 should be able to access the drive directly. Other machines use a device drive called DRIVER.SYS, found on the DOS disk, so that early DOS and BIOS can access the drive. The price is $465 from Vizden, (02) 542 3866.

PC Alien

FBN Software made their name with PC Alien, a program which allowed users of PC/MS DOS machines to read, write and format hundreds of CP/M formats. The latest version includes as a free addition, MSA.COM. This reads, writes and formats 40 MS-DOS formats including IBM PC Convertible, JX, Toshiba, DOT and Canon (all 90 mm) plus many 96 tpi, 135 mm (5¼ inch) MS DOS formats.

Another of their products is a device driver called 3INCH.SYS, which allows programs running under DOS to read and write Apricot, Toshiba, Canon and IBM Convertible format 90 mm disks. Device drivers are extensions to DOS which are loaded when the machine is booted. DOS looks into the CONFIG.SYS file on the boot disk to find which device drivers are required. To load 3INCH.SYS, adding the line DEVICE=3INCH.SYS to the CONFIG.SYS file does the trick.

PC Alien (including MSA.COM) is $104, and 3INCH.SYS is $33, from FBN Software, (062) 86 1102.

The ultimate way to transfer files from 135 mm to 90 mm or back is to use a Toshiba laptop with an external 135 mm drive. This plugs straight in, and runs without device drivers or any other add-ons. All file transfers are perfect, including making of 90 mm working copies of 135 mm copy protected archival masters using COPYWRIT or COPYIIPC.

Since many vendors of copy protected software either no longer exist, don't have 90 mm versions, charge like a wounded bull for them or even ask for the 135 mm to be surrendered and then send the 90 mm at a later date, this is a fair and reasonable way of making a working copy. Naturally you mustn't use the second copy at the same time that the primary copy is used on another machine as this would contravene copyright.

The recommended retail price for an external 135 mm drive for a Toshiba T1100+ is $764.

While the IBM JX has its own, completely unique disk formats, those of the Toshiba and Model 30 are very similar. There seem to be no difficulties for Toshibas reading disks formatted on Model 30s, though I hear that 30s don't like reading disks formatted on Toshibas. Disks that have been formatted on 30s and written on Toshibas can be read on Model 30s without problems.

Model 50s, 60s, and 80s use a 1.44 Meg, 90 mm floppy, so far used only by IBM. Fortunately it can read disks in the Model 30, 720 Kbyte format as well.

I don't pretend to have found all the ways to transfer files from one machine to another, but those above should get you started and allow you to find a method which works for you at a price that you can afford. □

PUBLIC DOMAIN SOFTWARE

1000 TITLES $2 A DISK

Latest MS-DOS PC Blue & SIG now available in our catalogue. Library membership $30 p.a.
Includes: ■ Updateable ring-bound catalogue ■ Monthly catalogue updates and program reviews
■ Free Programs to active members ■ Special offers on peripherals & consumables.
Each disk of programs available to members for $2 Do It Yourself copying charge.
$8 for mail order (inc. disk & postage).

SME SYSTEMS

Buy a system with full support

22 Queen Street, Mitcham,
Vic. 3132. Tel: 874 3666

THE REAL COMPUTER PEOPLE

Send today to SME Systems, 22 Queen St., Mitcham, Vic. 3132.
Telephone: 874 3666. Telex: AA 37213
I would like to enrol in the SME DOS library. Please send me my copy of the latest catalogue.

Name .....

Address .....

.....

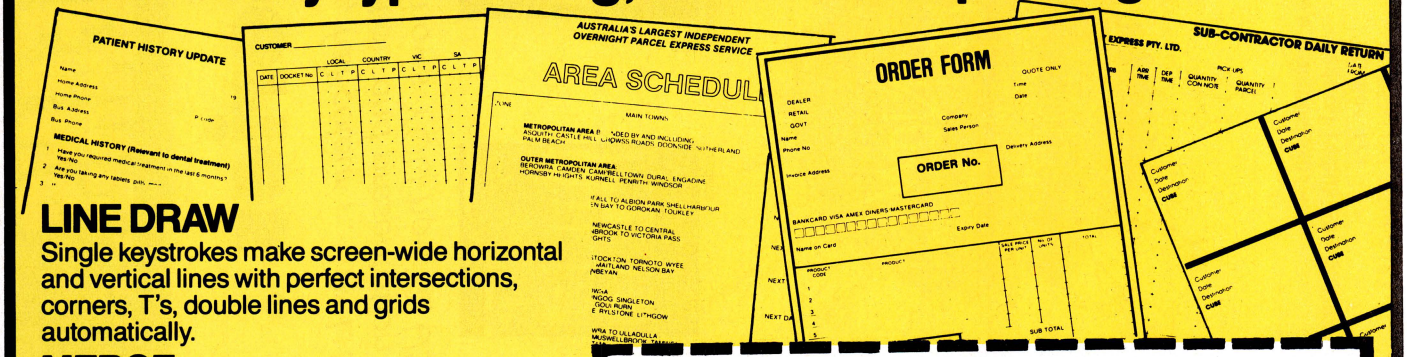
I enclose $30 cheque, money order, or
My Bankcard, Visa, Mastercard number is ..... Expiry date / /

Signature .....

THE IMPORTERS OF MACE $195 AND XTREE $112 INTRODUCE

FORMTOOL

FORMTOOL is the sophisticated software package that allows you to custom make forms, letterheads — all office stationery. With FORMTOOL you no longer need costly typesetting, artwork and printing.



LINE DRAW

Single keystrokes make screen-wide horizontal and vertical lines with perfect intersections, corners, T's, double lines and grids automatically.

MERGE

Fill in form or just specify dBase, DIF or ASCII data files and let FORMTOOL merge data into your new form.

PRINTING

Print your own office forms. Just plug in for use with most dot matrix, laser and inject printers. Sideways printing included.

TEXT COMMANDS

Variable fonts, typestyles and sizes. Direct access to graphic symbols, horizontal and vertical typesetting. Foreign characters etc. etc.

ONLY

$295

A GENUINE PRODUCTIVITY TOOL

PERFECT INTERFACE (AUSTRALIA) PTY. LTD.
7th Floor, 8 West St., N. Sydney, NSW 2060
Phone: (02) 957-1112

Please send me _____ copies of MACE, $195 each.

Please send me _____ copies of XTREE, $112 each.

Please send me _____ copies of FORMTOOL, $295 each.

I enclose my cheque for $_____ or please debit my American Express, Diner's Club, Visa, Mastercard or Bankcard plus $6.50 freight.

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Card expires _____ Signature _____

Name _____ Company _____

Address _____

Phone No. _____

Buy Now! Save time & printing costs

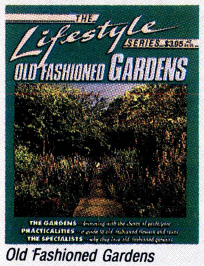
HAVING STYLE MEANS... being different!

The Lifestyle Series . . . is different!

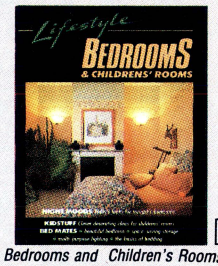
Each title in the series is over 100 pages of glossy, full colour . . . ALL STYLE. They are beautifully photographed and provide intelligent advice about the renovation and presentation of your home or apartment. Bedrooms, Bathrooms, Kitchens and Gardens, etc. Lifestyle shows YOU how to USE STYLE and . . . BE DIFFERENT.



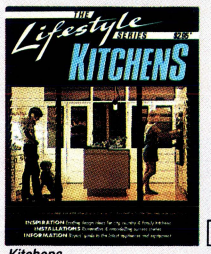
1 *Restorations & Renovations*



2 *Old Fashioned Gardens*



3 *Bedrooms and Children's Rooms*



4 *Kitchens*

Start your collection

Select — any two titles for $5.95 (incl. postage) and save 25% or

Select — all four titles shown, for just $9.95 (incl. postage). That's a saving of nearly 40%.

In fact, this offer is so good that we've included two coupons. One for you and one for a friend.

THAT'S STYLE . . . THAT'S LIFESTYLE.

Coupon 1 FOR YOU

YES! Please send my selection of Lifestyle magazines. The code number of the titles I have selected are: (Please circle)

1 2 3 4

I understand it will be 2 titles for $5.95 or 4 titles for $9.95.

☐ I enclose my cheque/money order for $..... (with this form in an envelope)

or charge my ☐ Bankcard ☐ Mastercard

☐ American Express ☐ Visa with $ .....

Card No: Card Expiry Date: ...../...../.....

Signature: .....

Name: .....

Address .....

..... Postcode .....

Date of Order: ..... Phone: .....

Act Now! This is a Limited Offer.

Cut out and send to: Freepost No. 4
Federal Publishing Company
PO Box 227
(No stamp required) WATERLOO NSW 2107

Coupon 2 FOR A FRIEND

YES! Please send my selection of Lifestyle magazines. The code number of the titles I have selected are: (Please circle)

1 2 3 4

I understand it will be 2 titles for $5.95 or 4 titles for $9.95.

☐ I enclose my cheque/money order for $..... (with this form in an envelope)

or charge my ☐ Bankcard ☐ Mastercard

☐ American Express ☐ Visa with $ .....

Card No: Card Expiry Date: ...../...../.....

Signature: .....

Name: .....

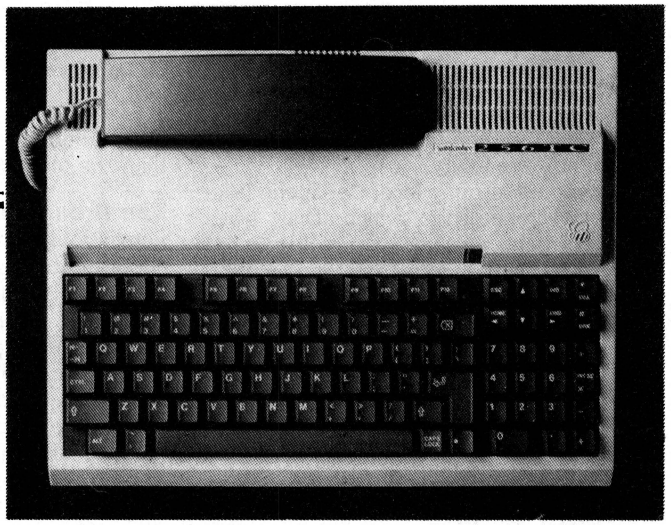
Address .....

..... Postcode .....

Date of Order: ..... Phone: .....

BY JAN ROBERTS

Your Microbee



The enlarged memory is one of the nicest things about the 256TC.

A New-Fangled Keyboard

HOW MANY OF YOU have seen the new Microbee keyboard with its numerical pad, 12 function keys, a cursor arrow key pad, an Alt key and even a Print Screen key? The board clearly has potential — but the potential is not yet realized. I'm sure Microbee will quickly move to supply it with the software it needs, possibly some of it will appear by the time this article appears.

At the moment the Print Screen key doesn't work, the Home and End keys don't do what they claim (or as needed by Multiplan) and the Alt key is totally unused. But each key does have its own individual code — so time should see each key given plenty of work to do.

I set to work to see if I could assign functions to the currently redundant keys on the 256TC. At present, I have about 200 possible function keys available on my 128K keyboard (available courtesy of Qwikkey, Flashkey and Peter Broughton's eXtended BIOS).

Unfortunately the CCP.SYS for the 256TC was not available at the time of writing (out before you read this article on a disk with Basic, I'm told), so I couldn't install most of the above programs nor WriteHand Man. However, Flashprint does work fine on it — I just had Esc-A type my address at the top of a letter. Flashprint gives user defined function keys, but only for use within Wordstar, and for the full control of of a dot-matrix printer from within Wordstar.

B*ut* — the new eXtended BIOS (operating system) for the machine *does* have the ability to reprogram the 12 function keys so they will do what you want them to do. I am not a programmer — and I hope Microbee Systems soon provides a nice easy utility (like USR.COM) to make it easy for non-programmers. If you do have programming skills you can do it right now. But if you are a non-programmer, skip the mumbo jumbo in the next paragraph.

If you do have the skill, have a look at function 16 where a command like —

```
ld  hl,key-table-addr
ld  a,16
rst 28h
```

will load a table of key definitions at (HL) to the internal programmable key buffer. This loads functions for the CONTROL 1 — 9 function keys on the old standard keyboard. Note that you have to define all 12 function keys even if only nine are actually used.

Non-programmers may now rejoin me. My advice to you is that if you have an old keyboard, wait until all the bugs are out of the new system before upgrading. I hear that the new keyboard may be offered as an upgrade. As it is, I can do nearly everything it can do (and much more) on my old machine.

Memory

The enlarged memory is one of the nicest things about the 256TC, yet it is the way the memory is employed that I like most.

You still only have the standard maximum of about 64K as your operating space — but you have an extra hidden 64K just for the machine to use itself. It uses this as its disk cache which gives the Microbee much of its speed.

The 128K computer 'disk caches' in those areas are on the M: drive are not being used for program storage. On the 256K you also have a 128K M:drive. This is big enough to contain WordStar complete with its overlays — and thus to make it work very fast.

However, you have to train WordStar to look for its overlay files on the M: drive. This means re-installing it and telling it to look on drive 13 for the files (as I said last month, M is the 13th letter of the alphabet). But — this won't work if you want to Mailmerge since WordStar seems unable to learn that MAILMRG.OVR is anywhere but on the A: drive along with WS.COM.

Compatibility

The 256TC will accept 3½ inch disks from earlier machines — but not from the Kernal, the screen that appears when you switch on your machine without putting in a disk. You must first load the Shell from a disk that has the 256K system on it.

Another snag at the moment is that some programs talk directly to the old keyboard and thus get dreadfully confused and bewildered on the new machine. Microbee engineers have assigned new standards to ensure that this keyboard incompatibility doesn't occur again. If you use mostly SimplyWrite, WordStar, Multiplan and the usual utilities you will have no problems — they all work perfectly on the old machines and on the new.

The Cool Machine

It is also an incredibly *cool* machine even though it doesn't have a fan. Only 40 percent of the power of the 128K machine is used. The 256TC takes its power from a transformer hidden in the M15 Monitor (thus cutting down leads), or from a separate transformer if you have a colour or other monitor.

Well — that's plenty about the 256TC for now.

Adding a Third Disk Drive

Last month I told you about my successful attempt at getting a third disk drive for my machine. Well — at that time I *thought* I had solved all the hassles. But I found there was one more.

I had to go and get myself another copy of INIT.COM from the Microbee shop. There's one version for 5¼ inch disks and another for 3½ inch disks. I call the smaller one INIT3.COM and use it when I want to format a disk for my third drive.

The 3½ inch INIT.COM allows you to format disks either so they use just one side or as double sided. Normally, you would tick the 800K option in INIT.COM to get double sided disks. There is no sense in wasting a side.

But even with the correct INIT.COM, I still had problems. My first disk formatted fine (by a fluke I found), but no others did. I checked some of the failures on subsequent disks with FINDBAD.COM (a public domain program that checks disks for bad sectors and locks these sectors away in a

dungeon). I found that all the tracks after 40 or so were faulty.

I charged into my local Deepdene (Victoria) Microbee shop (which always gives me excellent service) — and discovered that my Microbee is an early model 128K (despite its upgrades) and the disk controller is missing some parts that it needs to deal with the 3½ inch disks. They charged me about $22 (which I think most reasonable) — and I had my machine back in less than 15 minutes. It now operates its extra drive with no difficulty.

Memory Transplants and Disk Caching

Some of you may have had your machine up-graded to 256K or even 512K. I had it done — with all the talk above about disk caching, you should know that Microbees with transplants currently (to the best of my knowledge) do *not* have disk caching. This slows down the machine *if* you are not using the M: drive for your programs. If you do as I do, and put all the programs you use into the M: drive and work from there, then the machine is much faster than the old 128K.

The Broughton Microbee

Peter Broughton of the Melbourne Users' Group continues to improve his eXtended BIOS (or XBIOS) for the Microbee — especially for 128Ks and CHOOKS with memory transplants.

I haven't room here to cover all the features of his excellent developments — you will have to wait till next month for that. He hasn't finished yet, but is willing to provide the pre-release version for $20. (I think the only fault with the current version is that it can only support 300 baud under Telcom.)

If right now, in the midst of editing this document, I were to push Ctrl-9, a window would appear in the middle of my screen. (Esc gets rid of it as if it were never there — it redraws the screen instantly.)

This window contains a menu listing all XBIOS can do. It can define combinations of Control and Number keys and of Control plus Shift plus Number keys, as Function keys on which you can put text or control functions, or even link them together. You can also redefine your cursor keys, set your clock, set eight levels of loudness for a keyboard click, move your screen around and set new background and foreground colours and finally warm boot (unfortunately, the new functions do not come into play until you warm boot.)

Finally, wonder of wonders, it adds a 25th line to your screen which tells you if Caps Lock is on, if the function keys are on and the time, if you have a clock. This 'status' line can be switched off — but I find it great.

More about this system next month. See you then — and, until then, HAPPY COMPUTING! □

The Microbee 256TC

WATCH FOR Ewart Stronach's review of Microbee's 256TC in our October issue — 'is this the machine which will pull them back up to their rightful place as a leading, innovative local producer . . .' □

Bird Cameron is Business Computer Training

Learn Framework in 2 days

Intro Framework II . 2 days
Introduction to basic Framework skills in:
☐ Word Processing
☐ Outlines ☐ Spreadsheets
☐ Graphics ☐ Database
Advanced features are demonstrated.

Intro Multimate..... 2 days

Intro dBase III ..... 2 days

Advanced Framework: FRED ..... 2 days
☐ Macro Creation ☐ Converting Macros to FRED Function Code
☐ Introduction to FRED Programming

No prior knowledge of the Package is assumed. Attendance at our Intro to PC and DOS Course is recommended for first time users.



BIRD CAMERON
COMPUTER TRAINING
Easy to talk to, easy to work with.
Tania Bennett (03) 67 9212 315 Queen Street, Melbourne
Ann Lobascher (02) 221 3633 4 Bligh Street Sydney

DISTRIBUTING MICROCOMPUTER software packages has a serious problem. Most packages consist of several files, and if one is missing the system doesn't work. This is particularly a problem when users download a package from a Bulletin Board and must get it all or none is any use.

A second problem with Bulletin Boards is file sizes. All Bulletin Boards have limited disk space and want to make the best possible use of it. When uploading and downloading files, the smaller the file the faster the job is finished.

In May 1986 I wrote of two public domain solutions to these separate problems. LAR combines several files into one for transmission and the SQ/USQ pair for file compression. Later, in October 1986, I wrote of ARC, which both compresses files using a variety of algorithms, and combines them into libraries.

The ARC concept has become universal in the IBM PC public domain arena, and many companion products from other authors have appeared. Users of Bulletin Boards will be very familiar with ARC by now, as most files on Bulletin Boards now are libraries created with one version of ARC or another, and they all have extensions .ARC.

Systems Enhancement Associates

The original ARC program was the product of System Enhancement Associates, who made early versions of the source code Public Domain and made details of the file structure readily available. ARC51.COM, the ARC reviewed by me in *Your Computer*, October 1986, was written by them.

The latest update available around the traps is ARC520.COM, and should be considered the standard with which all companion products and other ARC's should be compatible. ARC520.COM is a self extracting library, containing both program files and their companion documentation. On running ARC520.COM, it unpacks itself and creates ARC.EXE, ARCE.EXE, ARC.DOC and ARC.TXT. ARC.DOC and .TXT are documentation files, ARC.EXE creates libraries and extracts files from them, while ARCE.EXE is a fast extract utility.

PKWARE

A firm which has been very active and successful in providing companion products to ARC, and also in creating enhanced versions, is PKWARE, Wichita, USA.

PKX35A35.EXE is a self-extracting library. It's components are PKARC.COM, PKXARC.COM, PKXARKJR.COM, MAKESFX.COM, PKARC.DOC, PKXARC.DOC, PKSFS.DOC AND README.DOC. All those .DOC files are documentation, of course. The rest? PKARC is an advanced version of ARC which compresses files and combines them into libraries. It does not have the ability to extract files from libraries, and this task is carried out by PKXARC. PKARC and PKXARC have been clocked as being around four to six times faster than ARC.

PKARC has one more method of compressing files than does ARC. When creating a library file, the user has the option of not using this method and ARC can then extract files from a library created by PKARC. No problem occurs if an attempt is made to extract files with ARC from an .ARC file created with PKARC, all that happens is a message is displayed suggesting that a newer version of ARC is required.

The other interesting part of PKX35A35.EXE is MAKESFX.COM. Its all very well to distribute your package in an .ARC file, and expect the end user to have a copy of ARC or PKXARC. If they don't, you and they have a problem. The solution? Make libraries which self-extract. MAKESFX.COM does just this, and will allow you to create and distribute self-extracting library files.

Another fabulous, essential package from PKWARE is PKFIND. All users with hard disks know how hard it is to find a file from the hundreds which may be scattered through the many sub-directories. Now include .ARC files, and finding a file within one of them is an order of magnitude more difficult. A little program called WHEREIS made finding a file on a hard disk easier — WHEREIS *.BAS would show every .BAS file on a hard disk and list the directory in which it was found.

PKFIND is very similar. It looks through every directory on a hard disk to find files which match the mask specified by the user. It also looks into all the .ARC files and lists files it finds in the .ARC files which match the mask. Optionally it will only show files which are in .ARC files and ignore 'normal' files.

There are several other programs which are essential for users confronted with .ARC files. Paul Nance, of Tempe, Arizona, has written two programs which, with documentation, are distributed as ARCTOOL2.ARC. They are ARCTLDIR.COM, a damaged archive directory reader and ARCTOOL.COM, a damaged archive file extracter. These two utilities are designed to be used with files created by ARC file archive utility and damaged through various modem transfers.

These programs are not a replacement for ARC, nor do they actually remove from and decompress the stored files. ARCTLDIR finds every ARC header in an archive, even if ARC can't 'see' past the point of corruption. This is not achieved with speed as every byte in the ARC must be examined.

After using ARCTLDIR to find a files location in an archive, ARCTOOL can extract it and write it to a file. Fortunately, so far, I have not had to use these programs in anger, but surely the day will come!

Availability

All the above programs have been compiled onto one disk by the Sydney PC User Group. The disk is numbered S003, and is titled 'ARCs and BBS Utilities'. Costing $10, plus $3 postage, it may be obtained from the group at GPO Box 5010, Sydney, 2001.

The disk also includes SQ and USQ to squeeze and unsqueeze files in the old manner, and LAR to create and extract files from older type library files. These are there not just for nostalgia but to allow you to extract files created by others using these protocols. In addition there are a number of 'safety' programs for use when one is trying programs obtained from various sources.

BOMBSQAD, CHK4BOMB, STRINGS and NOHARD variously intercept calls to the hard disk and make access to it by a 'trojan' program impossible, and look for hidden, gloating messages within files. All four are on S003.

I hope you will all get a copy of these latest ARCs and utilities, if only to extract files from .ARC files on Bulletin Boards. The ability to regularly save vital files, and hold them for long periods, is a bonus. Many of the authors of programs on S003 have asked for a modest donation from regular users. Let's all send that donation and encourage the existence of economical, quality software from the user supported community.

Happy Hunting. □

SERVICES

LETTERS TO THE EDITOR

We are happy to receive your comments and, if they are of interest to other readers, publish them. Letters will only be considered for publication if they include your name and address, although we can withhold such details from publishing on request. Note that we reserve the right to (and probably will) edit all letters for the sake of brevity, clarity or accuracy.

SUBSCRIPTIONS

Standard 12-issue rate within Australia: $35.40. Surface rate for New Zealand and Papua New Guinea: $51.80; airmail rate: $57. Rates for other countries on application. All overseas rates quoted are to be paid in Australian dollars. Allow up to eight weeks for subscription processing.

BACK COPIES

Back copies of *Your Computer* are available from The Federal Publishing Co, PO Box 227, Waterloo 2017 at A$4.00 each, including postage for Australia and New Zealand. We will supply photostat copies of articles where a back issue is not available, at the single-magazine price for each feature copied. A special service is offered for Tutorials: see below.

TUTORIALS

All Parts of Tutorials published within the last 2 years are available as photocopies for a charge of $4.00 for the first five Parts and $1.00 for each additional Part. Prices include postage and handling within Australia (overseas postage additional). Please identify the Tutorial by its complete name and specify the Parts by number or the issue of publication. All but the latest of our Tutorials are listed in our 5-Year Index, published with our July 1986 issue.

READERS' ENQUIRIES

We will make every effort to answer readers' written enquiries, if accompanied by a stamped, self-addressed envelope, although staff shortages and deadline pressures may cause delays. Please include your telephone number(s) with any enquiry. Phone enquiries not related to subscriptions, readers' advertisements, or other 'service information' cannot be accepted.

COPYRIGHT

All material appearing in *Your Computer* magazine is copyright and cannot be reproduced in part or in full, by any means, without the written permission of the Publisher or Managing Editor. Computer clubs and schools can, however, apply for restricted permanent reproduction rights for non-commercial, limited-circulation use (for example, newsletters and class instruction). Given that it sometimes takes us a while to answer such requests, you can consider that restricted permanent rights apply in these cases from the day you send in your letter, and will later be confirmed (or withdrawn) by our reply.

LIABILITY

Although it is policy to check all material used in *Your Computer* for accuracy, usefulness, and suitability, no warranty, either expressed or implied, is offered for any losses due to the use of any material from this magazine.

EDITORIAL CONTRIBUTIONS

Contributions to *Your Computer* are welcomed and will be given every consideration. Although the greatest care will be exercised, no responsibility can be accepted for the safety or return of any letters, manuscripts, photographs or other materials supplied to *Your Computer* magazine. If return is desired, you should include a stamped, self-addressed envelope. If return is critical — say it's something you can't afford to lose, then don't send it; we *are* careful, but we're not perfect. Please read these notes carefully to get an idea of the style and format we prefer.

All Contributions: should include your name, address, and home and office phone numbers (in case we need to check details). Each page of your submission, and any material sent with it, should also carry your name.

Contributions by Telephone: Contributors who have modems and suitable software (in the MODEM7/YAM mould — see our stories on Christensen Protocols in the May and June 1983 issues) can arrange direct transfer to our computers 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 acknowledgement. The preferred medium is IBM standard format single-sided, single-density, 20 cm (8 inch) CP/M disks or IBM PC-DOS minifloppies. We can also handle, in-office, most soft-sectored 13 cm (5¼ inch) 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. □

AD INDEX

ABE 90
ADE 148
ATS 14
Automatic Ice 141
Automation Statham 56
Bird Cameron 158
Blue Chip 161
Blue Sky Industries 117
Brother 43
Computer Factory 144
Computer Print and Paper 61
Custom Made Software 97
Dick Smith Electronics 20,122
Discware 30,31,134,135
Earth Computer Systems 60
Electronic Solutions 92,93
EME ..... IBC
Emona 66
Epson 40
FBN Software 103
Federal Marketing 156
Federal Publishing 147
Firmware Design 46
Glyphic Software 146
Halcom Holdings 32
Hales and Rogers 78,130
Hi Tech Software 10
Hypec 48,58,91,133
Interface Publications 13
JED 126
Mace 120
Maclagan Wright 63
Magnetic Data 126
Minicomm 27
Martlett Software 11
McMullan Kilvington 12
Micro Education 142,143
Micro Management 47
Microland 106,107
Micromart 151
Microsoft IFC,3
Microway 6
Mike Boorne Elec 150
Mitsui ..... OBC
NEC 84,123
Netcomm 128
Olympia 125
PC Extras 76
Perfect Interface 67,153,155
President 109,110,111,112,113
Program Plus 51
Ritronics 68,82,83
Select Software 52,53
SME 154
Software Express 81
Software On The Cheap 62
Sonics Year Book 42,127
Star Micronics 26
Typequick 73
Utilico 129
Vizden 22
Wilbro Print 37

BLUE CHIP

A CHIP OFF THE OLD BLOCK



For quality, value and service the Blue Chip Network meets your needs.

BLUE CHIP A1
1x360K D/DRIVE
256 KB RAM, colour display card, multi-function card, XT style keyboard, green or amber monitor.
$995

BLUE CHIP PC/AT
1 MEG RAM, 20 MEG hard drive, 1x1.2 MEG disk drive. Green or amber monitor.
$2995

- Add $50 for 640 KB RAM
- Add $200 for Turbo option
- Add $100 for hi-res monographic monitor
- Add $450 for colour monitor
- Add $1200 for EGA monitor

	$
Lotus 123	645
Wordstar 2000+	375
dBase III	910
Symphony	990
Multiplan	339
Microsoft Word	559
Multimate Adv. 1	799
Word Perfect	589
First Choice	249
Framework II	999
Javelin	399
Microsoft Windows	169
Norton Utilities	139
Open Access II	999
Ability	179
Microsoft Mouse	249
Genius Mouse	169
AST 6 Pack Card	219
Turbo Pascall	149
Turbo Prolog	149
Turbo Tutor	59
Database Toolbox	99
Editor Toolbox	99
Graphic Toolbox	99
Game Work	59

BLUE CHIP A2 $1195
As per the A1 with 2 disk drives.

BLUE CHIP A3 $1395
As per the A1 with 5 MB hard disk.

BLUE CHIP A4 $1595
As per the A1 with 10 MB hard disk.

BLUE CHIP A5 $1795
As per the A1 with 20 MB hard disk.

***ALL PRICES INCLUDE TAX**

Blue Chip computers are assembled, sold and supported exclusively by the Blue Chip Network.

DANDENONG
92 Thomas Street Ph: (03) 794 0966

RINGWOOD
8 Railway Place Ph: (03) 870 2243

COBURG
328 Sydney Road Ph: (03) 383 5655

ST. KILDA
106 St. Kilda Road Ph: (03) 534 9437

A CHIP OFF THE OLD BLOCK

SURRY HILLS
90 Foveaux Street Ph: (02) 281 1044

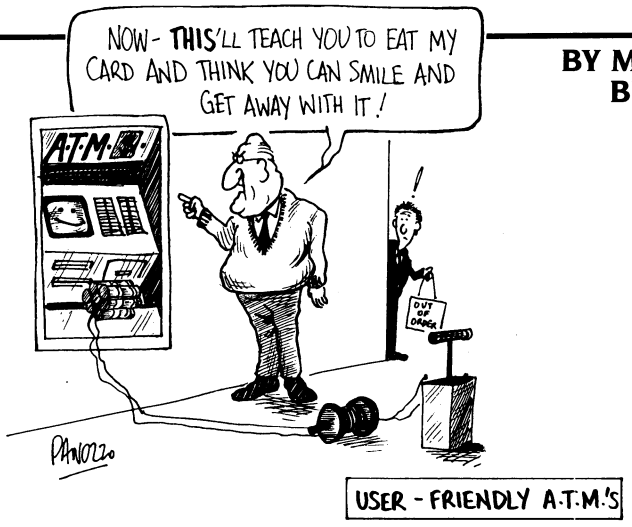
CHATSWOOD
807 Pacific Highway Ph: (02) 412 4122

PARRAMATTA
463a Church Street Ph: (02) 683 1599

CANBERRA
30 Lyell Street, Fyshwick Ph: (062) 80 7833

Cursory Glance

BY MICHAEL BURLACE



NEXT TIME you're in the queue at your favourite terminal (the automatic teller machine, in other words) notice the behaviour of other people.

Most of us talk to ourselves at various times and most computer users talk to the machine. Auto tellers are attracting a similar response. People thank them, abuse them and generally chat with them.

Who needs voice recognition and speech synthesis, computers and humans get along fine already.

■ Computer warranties are typically three months, although some manufacturers are starting to extend this. Six months is becoming more common with the odd one-year or more warranty appearing. The battle the Japanese car makers are waging over warranties could well spill into the computer arena, with a bit of luck.

Regardless of the length or wording of the warranty, you usually have redress through such things as Consumer Affairs, the Trade Practices Act, the Sale of Goods Act and various other bits and pieces of the law.

Until we have an NRMA/RAC for computer users, warranties will remain a mystery. Many lawyers advise against signing warranties because that can limit the rights you could have otherwise claimed.

There is much confusion about shrink-wrap warranties which say that you accept the conditions of the warranty by opening the package. One software package I tested for a client who may import and distribute it went a little too far. Nowhere in the documentation visible before opening did it mention that the software was copy-protected.

For my money, many copy-protection schemes should be avoided like AIDS. I'd like to see the company which supplied the software try to enforce a warranty which concealed such significant facts from the buyer.



■ Once you get a computer in your organisation, you may notice a tendency for executives or caseworkers to become clerk/typists at a higher than clerk's pay. I am convinced that spreadsheets have been responsible for making more executives into clerks than any recession ever could. Fortunately it has probably increased their productivity at the same time, but I do wonder about the *real* cost benefit of a spreadsheet in some situations.

With increasing numbers of computers in offices there is trend toward people being employed more for computer skills than for the skills which result in production of goods, services and their real results in dollar terms — that same person's wages.

■ A dentist in the US has developed a computer program which he uses to hypnotise patients and reduce their suffering. Patients look at patterns on a screen and go into a trance.

If he were to combine this with some sort of brain wave monitor he could keep his patients out to it for as long as they or he liked. The program could be marketed to parents, school teachers, hospitals and so on. Maybe we could even sell it to the Federal Drug Offensive as a substitute for shooting up.

■ The way things are going with computer-aided design and manufacture, plus shopping and banking on Viatel, all they need to do is automate the distribution systems and humans can drop right out of the picture. It's lucky we're still needed as consumers. No doubt John Singleton is working on a way to con the robots into buying things.

■ A new disease has come onto the scene to replace RSI which seems to be slowing down. It's mouse callus and you read about it here first, long before the Medical Journal of Australia mentioned it.

A friend who is having an affair with her Mac, found that in the first month she ended up with blisters on the hand from her new screen navigational device. Since then she has toughened up and learnt a new way of holding the rodent.

Bootstrap

Dentalk is a new piece of software and hardware developed by an astute young Canberra dentist. It consists of four parts. The first is a voice recognition and transcription program, the second a program which can carry out comparisons of phrases and expressions in English. The third is a voice simulation unit.

The software has been microscopically reduced and embedded in the fourth part which uses the new Fujitsu 400-gate gallium arsenide integrated circuits which have been put into a chip smaller than a match-head. This is believed to be the first commercial use of the gallium arsenide technology.

The chip is connected to a microphone the size of a pinhead and to a speaker the size of a tooth. The whole unit can be incorporated into a dental implant. One use is to check the soundness (ideological or otherwise) of a person's speech. If the speech is found to be unsuitable the unit takes over and gives out the acceptable words.

When things take too long for the software to analyse, it corrects any mistakes made in the meantime and plays out an appropriate apology. The first use of the device was overseas where an aging leader found himself caught in a scandal about arms and money.

The Dentalk unit was used to handle his rare media conferences and after a bit of retraining, his lips and jaws became synchronised with the speech unit.

The second use was for one of the leading candidates in the recent Federal election. Because that person was elected it is difficult to tell what will happen. But you can be sure that more will be in use the next time around.

Michael Burlace is an independent computer consultant operating from the Sydney Information Technology Centre (Itec). He may be contacted by writing to PO Box 57, *Broadway* 2007 *or by phoning* (02) 281 2111. □

Profound goes Compact

PROFOUND

"PROFOUND. Australia's leading seller."

International Data Corporation Survey 1987.



Tomorrow's technology today.

Introducing the new Compact series from PROFOUND

COMPACT 88 - State of the art 8088[1] TURBO PROCESSOR for speed and flexibility.

COMPACT 286 - 80286[10] Advanced technology processor incorporating zero wait-state memory to give optimum performance and processing power.

COMPACT 386 - PROFOUND's new flagship boasting maximum 80386 power for multi-user and stand-alone applications.

PROFOUND COMPUTERS BY
EASTERN
MICRO ELECTRONICS

MELBOURNE
215-217 PARK STREET,
SOUTH MELBOURNE, 3205.
Telephone: (03) 699 3088.
Telex: AA 38432.
Fax: (03) 690 9562.

SYDNEY
Ground Floor, Fortune House,
88 FOUVEAUX STREET,
SURRY HILLS, N.S.W., 2010.
Telephone: (02) 212 6944.
Fax: (03) 212 2245.

No other laser printer comes close on price and features.

Check the features — and call us for the price!



Ricoh's PC Laser 6000 brings you versatility and cost effectiveness in laser printing. It produces up to 6 pages a minute — quietly — on any paper size from A5 to legal — and feeds envelopes!

Its 1Mb RAM is standard (upgradeable to 2Mb) providing for full A4 page graphics and crisp, clear 300 DPI images.

The Ricoh PC Laser 6000 also features: Diablo 630* and Ricoh Graphics emulations are standard. Compatibility with all leading software is assured. HP LaserJet Plus*, IBM Proprinter*, and Epson-FX* emulations are options which will ensure superb performance from your Ventura* and PageMaker* or any other leading desktop publishing software.

In addition to the standard paper input of 150 pages, the PC Laser offers an optional auxiliary paper input tray of 250 pages — letterheads in one, follow-on in the other or any combination you like!

Ricoh's front panel is especially user friendly — all functions of the printer are easily and comfortably available.

Of course another benefit you'll enjoy is the professional advice and service from a company with the computer know-how of Mitsui Computer.

You've read some of the features. Now call us for the sensational price of the remarkable Ricoh PC Laser 6000.

* Trademarks of the respective owners.

WorkSydney 1944

Mitsui Computer

"The best business connections"

Sydney (02) 451 7711 Melbourne (03) 690 6722

Brisbane (07) 369 7799