

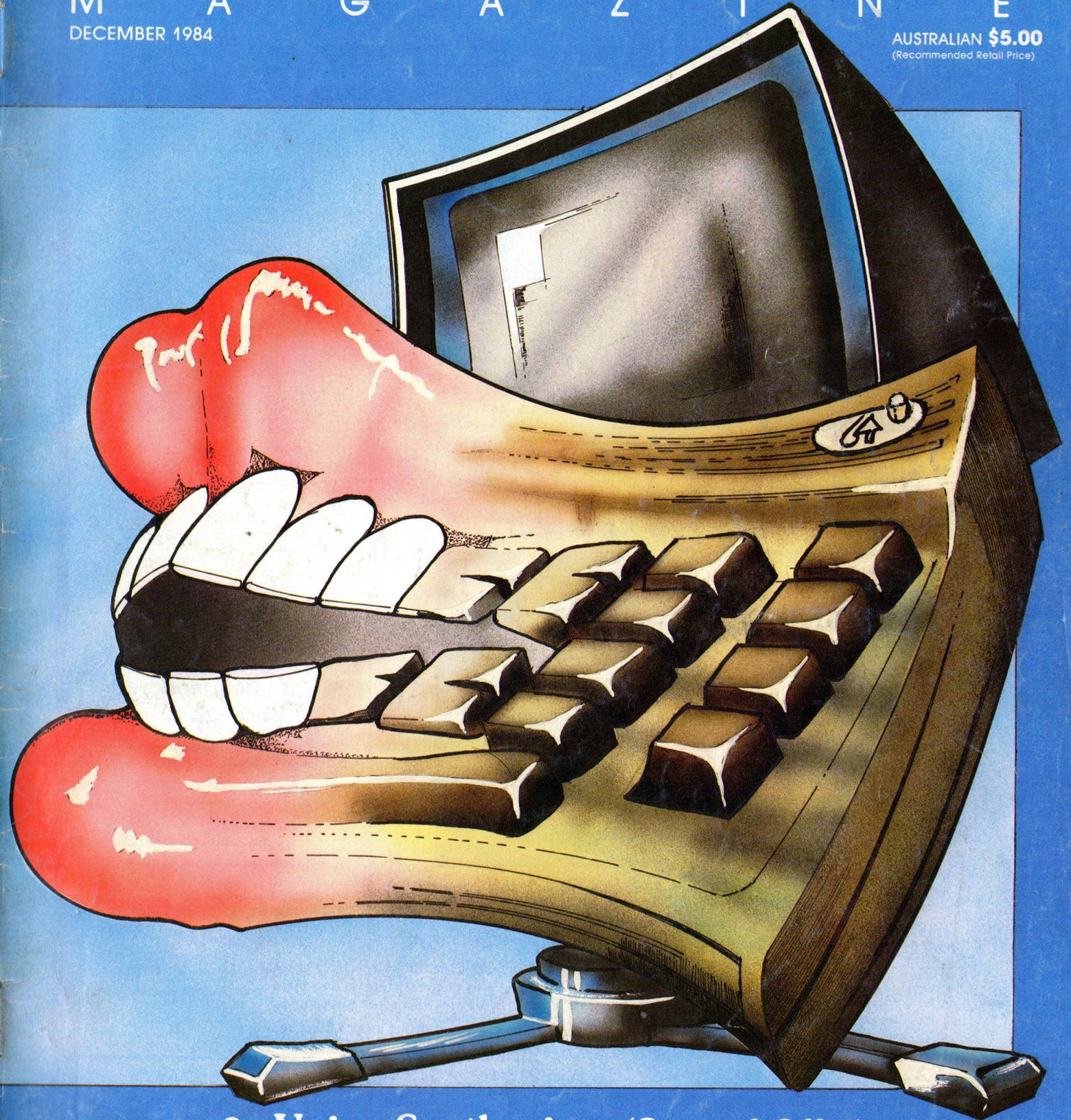
COMMODORE

VOL 4 NO 4

M A G A Z I N E

DECEMBER 1984

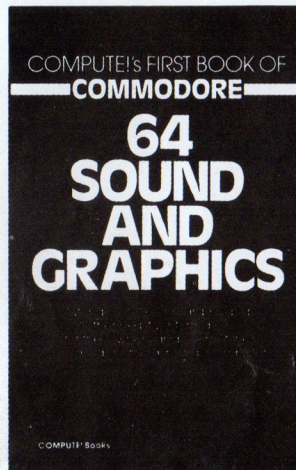
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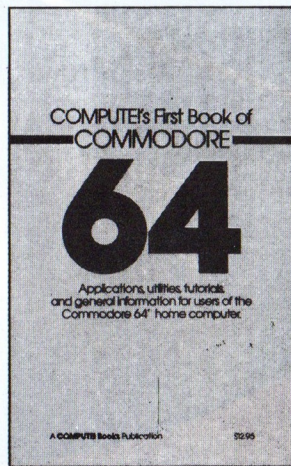
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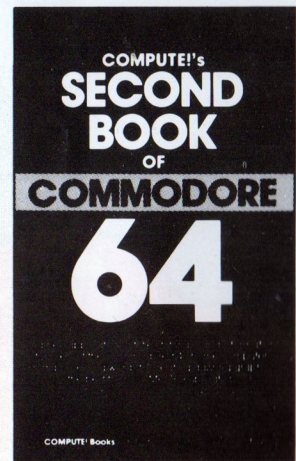
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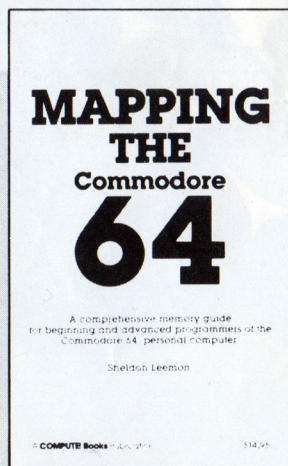
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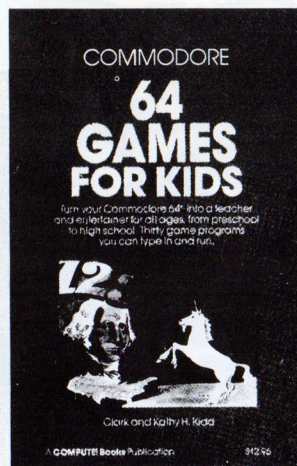
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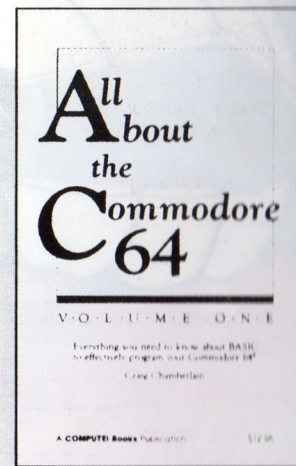
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COMMODORE

M A G A Z I N E

AUSTRALIAN COMMODORE USERS MAGAZINE

VOLUME 4 NUMBER 4 ISSUE 26

The objective of this magazine is to disseminate information to all users of Commodore computer products. This magazine contains a variety of information collected from Australian and New Zealand authors and other Commodore publications.

Contributions from all Commodore User Groups and individual users are encouraged. All copy and advertising should be addressed to the editor.

Commodore Magazine is published 6 times a year. Produced by Mervyn Beamish Graphics Pty Ltd., 82 Alexander Street, Crows Nest 2065, NSW. The cost of annual subscription is \$A30 postage paid within Australia and \$A38 overseas postage paid. Subscriptions available from your local Commodore Dealer or the Publisher.

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EDITORIAL

M E R V Y N B E A M I S H



COVER:

BIG MOUTH our special
COMMODORE MAGAZINE, voice
synthesiser for the Commodore 64,
offer in this issue. Page 20

BACK ISSUES

Volume 4, No 1	AVAILABLE
Volume 4, No 2	LIMITED ISSUES
Volume 4, No 3	AVAILABLE

Well here is your bumper Christmas 84 issue as promised. A few of you may have come across us for the first time on the newsagent's stand. Welcome. We are usually only available by subscription. A small number of the COMMODORE MAGAZINE will, in future, be released to newsagents but we will primarily remain a subscription base magazine. If you like us - SUBSCRIBE and be sure of your next issue.

The New Year has a lot of good things in store for you, the reader. Hang in there!

Commodore, contrary to the prophets of doom, just seems to grow and grow. I believe their market share is in the area of 40%. If you think of the options available to the micro-computer buyer this is a rather incredible bit of marketing. The product is not too bad either! Affordable prices and massive software support are major factors in this success story. However along with the swish new packaging, the innovative marketing and sales support from the chain stores and big discounters we receive an increase (small but noticeable) in letters complaining of lack of dealer support. These generally relate back to the big discounters.

Commodore buyers are no different to other consumers and are attracted by cheaper prices but often the difference between the discounted and recommended retail price is the difference between service and disinterest.

NEXT ISSUE will be a STRATEGIC and ADVENTURE GAMES special. We will commence a multipart series on ADVENTURE WRITING and return to Greg's USING SID series. More from Paul on RELATIVE FILES and of course Michael's VIC MAGICIAN'S APPRENTICE. We hope to see a return of our HIGH SCORE column and there will be more program LISTINGS for you to enter and run.

From us all at KIM BOOKS, Paul, Greg, Michael and myself, BEST WISHES for the festive season and see you in the New Year - about mid february.

Mervyn Beamish - EDITOR

**NEW FOR
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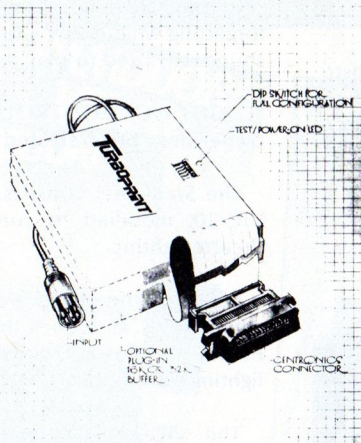
IEEE

- This popular interface is now available for the Commodore 64.

Light Pen

- ★ Fits into the games port at the side of the CBM 64.
- ★ Well known game "Concentration" or cassette tape supplied free.
- ★ Hours of Fun with a wide range of software.

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- Prints **ENHANCED** Commodore graphics including reverse characters.
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News Releases

A selection of releases received since last issue

SHERLOCK LAUNCHED



The display of the new range of Melbourne House Commodore 64 programs created much interest among dealers and press.

Thursday 18th October, 1984 Melbourne House officially launched the most advanced and challenging adventure program ever - Sherlock.

After one and a half years of extensive research and development, a team of programmers led by Philip Mitchell (author of the best selling super-program *The Hobbit*) have recreated the realism of Sherlock's England to a very high degree. The inclusion of many special features makes Sherlock the most sophisticated adventure available for microcomputers.

Sherlock is now available for the Commodore 64 and Sinclair Spectrum.

Melbourne House also introduced a stunning new packaging concept christened 'Hats Off' which makes its debut with a new and exciting range of arcade and adventure games for Christmas 1984.

For further information contact Sue Anderson on (03) 699 6155

DLM Action Games

Dataflow offers DLM Action games to encourage children in logic and problem solving.

Yet another to add to the exciting DLM Arcade games, *Freddy's Puzzling Adventures* presents colourful problems which are logical and fun to solve.

Freddy, the friendly turtle, is no slow poke when it comes to helping children have lots of fun while practising problem solving skills in exciting, animated puzzles.

The child controls Freddy's movements around his pond, to choose and solve four

fascinating word puzzles and six challenging number puzzles --- then the child can even create her own puzzle.

When the child completes the puzzle correctly, she'll be rewarded with lots of action: exploding rockets, hidden monsters, lively music and much more. And while she plays she'll be developing important educational tools - thinking skills like planning, strategy, sequencing and problem solving.

DLM puts it all together: state-of-the-art graphics, sound and music, animation, and most importantly, challenging games that make children think. The result: enchanting, educational microcomputer software that makes learning and thinking fun.

Freddy's Puzzling Adventures is distributed in Australia by Dataflow Computer Services Pty.Ltd. and is available from computer stores and school suppliers throughout the country.

Computerised Sound and Stage Lighting



Stan White the at the Starlighter keyboard.

Professional musicians, stage lighting technicians and discotheque owners could all benefit from two different control devices being marketed for use with Commodore computers.

The first item, called a 'MIDI', links music synthesisers and drum machines to a Commodore 64 or SX 64 portable computer.

'MIDI' stands for Musical Instrument Digital Interface. It allows complex sequencing of musical passages with multiinstrument synchronisation. This means a lone musician can sound like a band, and a band can sound more professional than ever before.

The MIDI plugs into the cartridge part of the Commodore computer, and the electronic musical system is then plugged into the MIDI. The unit, which is smaller than a paperback book, contains its own computer program, which appears on the screen the moment the Commodore is switched on.

The computer can record track after track of sound on sound. It allows program changing, sequence and program changing, analysis of program parameters and performance notation, plus tape recorder synchronisation.

For the musician who is performing live or recording music, attaching the Commodore and MIDI offers huge advantages leading to more efficient recording and better composition and writing.

It can also save the performer from forgetting what music s/he played, and what sound was used to play it.

LIGHTING CONTROLLER Discotheque owners may be interested in the 'Starlighter'.

The Starlighter consists of a Commodore VIC-20, modified to control a full set of theatre lighting.

Built into the unit is a computer program which holds 40 scenes that are preset. This number can be upgraded to 120 different lighting arrangements.

The VIC-20 is connected to a special dimmer rack which controls 40 lights (or pairs of lights).

The operator can control every scene, and then record each setup into the computer's memory for re-use.

The intensity of each light is displayed on the screen in percentages.

Instead of tying down a lighting engineer for each and every performance, the unit allows the engineer to program the wanted

DO YOU OWN A COMMODORE 64?

CHRISTMAS PACKS

PACK A - Burger Chase, Ninja, Olympic Skier, Code Master

PACK B - Xerons, Revenge, Pesky Painter, Ultrasynth

PACK C - Star Command, Shogun, Cracks of Fire, Ultrasynth

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Busimailer
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Vizaspell

PROGRAMMING AIDS

Data Handler
Arrow
Ezasm + Arrow

Graphix 64
Printlink
Petlink

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Debtors
Creditors
General Ledger
Basicalc
Basicalc II

RECREATION

Air Traffic Controller
Code Master
Cosmic Capers
Cracks of Fire
Crazy Kong
Dungeons of Mulgoolie
Forestland
Goblin Towers
Halls of Death
Hunter Killer
Kaktus

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Mangrove
Medicine Man
Music 64
Music Maker
Ninja
Say Simon
Shogun
Stix
Stompers
Streets of London

Tank Atak
Touch Typing Tutor
Weather War II
Worms
3D Gloopers
Ultrasynth
Super Pak
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Southpac programs are available from all good Commodore Dealers. If your local dealer hasn't got Southpac products, ask him to get them in. If you would like a catalogue, ring 29 6087 or write to:

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COMMODORE 64 MACHINE LANGUAGE TUTORIAL

by Paul Blair

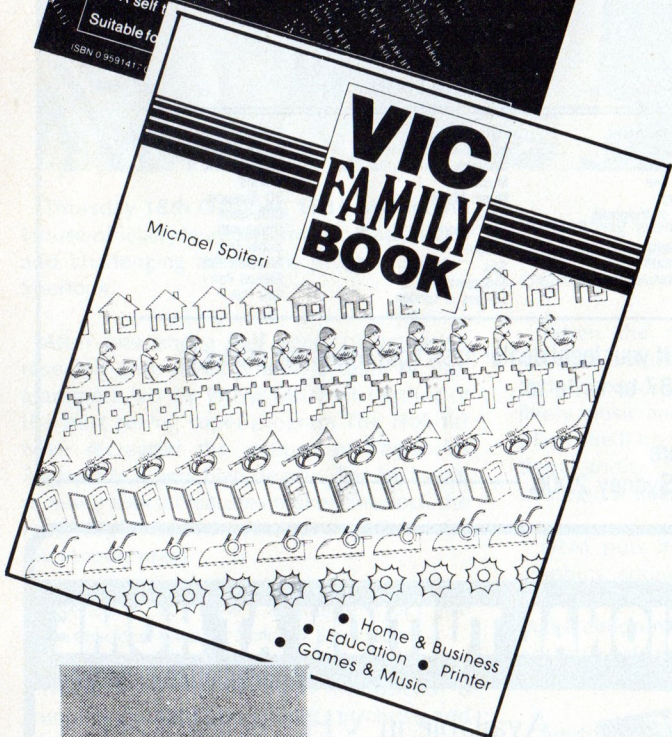
Introduction to Machine Language complete with listing that illustrates and will quickly demonstrate many of the points made in the text.

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Accompanying

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**INCLUDES
MONAD**



THE VIC FAMILY BOOK

by Michael Spiteri

Michael Spiteri's first book is a collection of short and effective programs for the VIC. Programs to use in the home, work and play. A special section for adventure gamers and super expander cartridge owners.

Special introductory offer

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Early
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for Commodore 64 includes

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*P&P included

MONAD MANUAL \$5.00

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News Releases

setups into the computer, which can then be handled by almost anyone.

This makes the unit ideal for lighting in a chain of discotheques, for example. One engineer can do all the settings, and a junior or the Deejay (or 'Veejay', nowadays) end can easily control the system.

Current professional 24-channel lighting control desks cost about \$2,600 while 36-channel desks cost \$3,500. But these have to be run into a dimmer rack. Thus the cost for a 30-channel system is about \$5,300.

The Commodore VIC-20 controlled system with its 40-channel dimmer rack costs around \$5,000.

Information on the 'MIDI' music interface or the 'Starlighter' light switcher, is available from, KOSMIC Concert Sound and Lighting, P.O. Box 10, Bently, W.A. 6102. Telephone (09) 361 1681 or 361 8981.

SPEECH 64

The Currah Speech 64 has been released onto the Australian market.



Speech 64 is a speech synthesizer for the Commodore 64 computer.

Developed and manufactured by Currah Computer Components in the UK, it is the third synthesizer produced by that company, the other units being for the Sinclair Spectrum and the VIC-20.

Speech 64 is a hardware-based synthesizer. It has an infinite vocabulary with any word being made up of sound syllables, called allophones.

With the considerable experience gained from its previous designs, Currah has made the Speech 64 extremely easy to use.

The unit plugs onto the expansion slot at the rear of the Commodore 64 and the sound is modulated onto the TV signal.

A simple Basic command starts the computer talking and most words to be spoken are entered exactly as they read.

Speech 64 provides an excellent educational aid, allowing use in teaching-type programmes and providing a useful basis for speech analysis. The standard 'talking keyboard' feature is valuable in learning to type and introducing people with sight handicaps to computers.


But Speech 64 will mostly be used for the fun of it. Lots of 'speechware' - software programmes incorporating Speech 64 routines - is being released by top-rating UK software publishers. Several games are already available including PC Fuzz from Anirog.

Speech 64 will have a recommended retail price of \$69.00 in Australia. It is distributed by Dolphin Computers, Currah's representative in this country.

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News Releases

SPEED LOAD

SPEED LOAD is an Australian product which Triples the speed of the 1541 and SX disk drive when loading programs.

It consists of a cartridge which plugs into the expansion port on the Commodore 64 or SX. NO special wiring is necessary. Full basic ram (\$0801-\$9FFF) and (\$C000-\$CFFF) are free to the programmer. The cassette buffer is also free.

The cartridge is designed to accomodate BASIC programs. It also handles MACHINE CODE which uses the standard 'LOAD' syntax.

With normal programming the cartridge is transparent. It will also load and run some commercially produced software.

Other features include..

1. Built in DOS Wedge for easy disk handling.
2. Drive CHATTER is eliminated when loading protected programs thus prolonging head life.
3. An 'UNNEW' function to recover basic programs in memory.
4. The disk directory, (LOAD'\$') loads to the screen, leaving memory intact.
5. The cartridge defaults to device 8. Therefore ,(8) isn't required when typing LOAD 'Filename'

SPEED LOAD uses a similar system of reading the disk that the normal DOS uses, thereby giving the user the same reliability as the standard system. Getting the data down the serial line at TRIPLE speed is where the difference lies.

For the price of a game you get a cartridge which will load many of your programs in a 3rd of the normal time, will also load some of your commercially produced software and because no wiring is involved you won't void your warranty by opening up your computer. The cartridge will work with the SX and you can LOAD '\$' without losing your program.

SPEED LOAD costs \$59.95 from your local dealer or direct from EUREKA SOFTWARE the distributor.

CBS ANNOUNCES NEW SOFTWARE LINES

CBS ELECTRONICS, a division of CBS RECORDS AUSTRALIA LIMITED, a market leader in the entertainment industry has now expanded its operations into the computer software market.

CBS will be marketing a range of personal enrichment programmes under the banner 'CBS SOFTWARE' as well as taking over the distribution of strategy game software from the well known EPYX INC.

CBS' software product line ranges in age from pre-school to adult and the subject matter spans five categories: Pre-school Time, Fun and Learning Time, School Time, Career Time and Leisure Time. Titles are available for the Commodore 64, Applie IIe/IIc, IBM PC/PC Jnr. and Atari 600/800XL computers in disk, cassette, or cartridge as appropriate.

The major emphasis with the CBS SOFTWARE will be on personal enrichment and self education. Programmes have been designed by leading software developers and recognised authorities in a broad range of subject areas such as:

- The Children's Television Workshop's range for pre-school students involving youngsters in an interactive learning process with the very popular Sesame Street characters.
- Neosoft, who have developed a range of educational software such as Dinosaur Dig, Coast to Coast America, etc. using the unique keyboard overlay 'Easy Key'.
- Thoughtware Inc. who have developed an excellent series of self improvement computer programmes for home use for instance titles like People Management, Personal Development, Problem Solving, Stress and Conflict, Career Planning and Delegation Time and Tasks.

CBS SOFTWARE are proud to offer a series of entertaining and educational software packages for the whole family ranging from pre-school age to adult.

CBS will also be offering programmes for the strategy game player from one of the market leaders, EPYX. Spearheading the releases will be great new titles such as Summer Games, Breakdance, Impossible Mission, ranging in price from as low as \$19.95 for cassette and \$29.95 for disk.

CBS will also make available the EPYX

favourites/evergreens such as Jumpman, Pitstop, etc. However the best news is that for the FIRST TIME some of these titles will be available in CASSETTE format.

COMMETTE 64

Commette 64 is a cassette-based utility in the form of a mini-BASIC extender. It adds a rapid saving command and two supportive commands to the normal BASIC vocabulary.

The utility is primarily designed for use with BASIC programmes in the same way as the normal SAVE command. However, by changing the BASIC start and finish pointers at 43/44 and 45/46, other areas of memory can be saved, either normally or rapidly.

Two support commands, DEEK and DOKE, are provided so that these pointers, or any others, can be easily read and changed. The commands have exactly the same syntax as PEEK and POKE, except that double bytes are used.

Thus, ?DEEK(43) [return] will give the current start of BASIC address at 43/44, normally 2049. DOKE45,17000 [return] will set the finish of basic address at 45/46 to 17000. These two commands are useful in conjunction with the normal SAVE command.

The major new command is SNATCH. It has a similar syntax to SAVE except that, since it will only write to tape, the normal device number has been used to control snatching speed. A secondary address is not required. The command SNATCH'NAME',R [return] will rapidly SAVE the programme called NAME at a speed setting of R. The speed settings available are fast, medium and slow corresponding to R values of 1,2 and 3 respectively.

Distributed by: P.D. Software of Sydney and available through Commodore dealers retailing at \$19.95. Telephone Enquiries: (02) 922-4893

COMPUTER PROTECTIVES

The protection and security of computer equipment whilst in transit is an area of the computer industry which has been sadly neglected in Australia for many years. A new company called Carrycom Australia (a division of Infocom (Aust) Pty Ltd) operating from Toowong, Qld has been raised specifically to rectify this situation. They have introduced a line of soft and hard shell protective cases for the transit of computers

Continued on page 58

MICROTUTOR

Now you can have fun learning Maths and Spelling!

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Versions for the Commodore 64 and Vic 20 are available for the following titles

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Words in Social Studies (ages 11-13)
- Cassette 4: Words of Australia (ages 9-12)
Words in Science (ages 7-12)

ISBN: 0 949126 99 9
rrp \$15.95 each programme



Maths

- Cassette 1: Junior Plus (ages 4-8)
Junior Minus (ages 5-9)
- Cassette 2: Junior Times (ages 6-12)
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- Cassette 3: Addition (ages 5-12)
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- Cassette 4: Multiplication (ages 7-12)
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- Cassette 5: Times tables (ages 7-12)
Arithmetic problems (ages 7-12)
- Cassette 6: Metric length (ages 9-adult)
Decimal fractions (ages 8-13)
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Long addition (ages 8-12)

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Title

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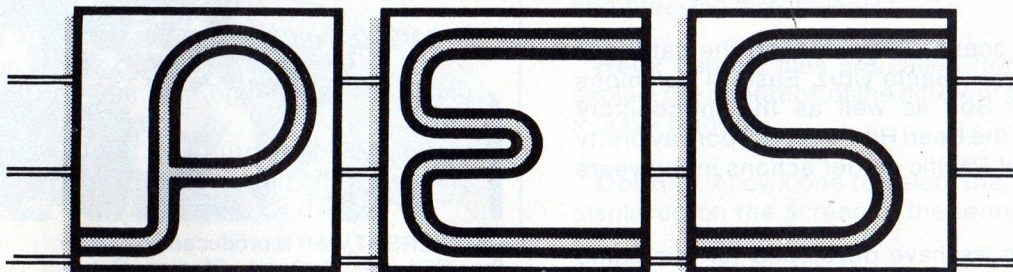
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PITMAN EDUCATION SOFTWARE



CARRIERS AT WAR 1941- 1945

DESIGNERS NOTES

by Ian Trout

In January 1984 we decided not to proceed with a game which we had titled 'Task Force South' (The Falklands War). We weren't sure we knew enough about naval combat to design a serious simulation about it.

We decided to do something easy instead. 'Carriers at War' would only take a few months to finish since we knew so much about the period. Well, eleven months later we know now what we didn't know when we started. To do justice to any historical event requires a prodigious amount of work. Not only must the simulation work, it also must bear at least a passing resemblance to the events it purports to portray.

'Carriers at War' is an enormous program. There is 80K of machine code (with at least nine bits per byte!) driving the game and about 70K of data stored in the scenarios. The map, for example, uses one byte per hex which comes to 6K for the 6048 hexes used by every map. Other data occupies altogether some 18K.

The most frustrating and persistent problem besetting us for the final six months has been memory allocation. A forgotten number of innovative and seemingly brilliant ideas have been stillborn due solely to the crushing constraint of the paltry 64K available to us. What we could have done with half a megabyte!

The six historical scenarios (recreating the battles of the Coral Sea, Midway, Santa Cruz, Eastern Solomons and the Philippine Sea as well as the introductory scenario simulating the Pearl Harbour raid) portray pretty well the full range of Pacific carrier actions in the years 1941-1945.

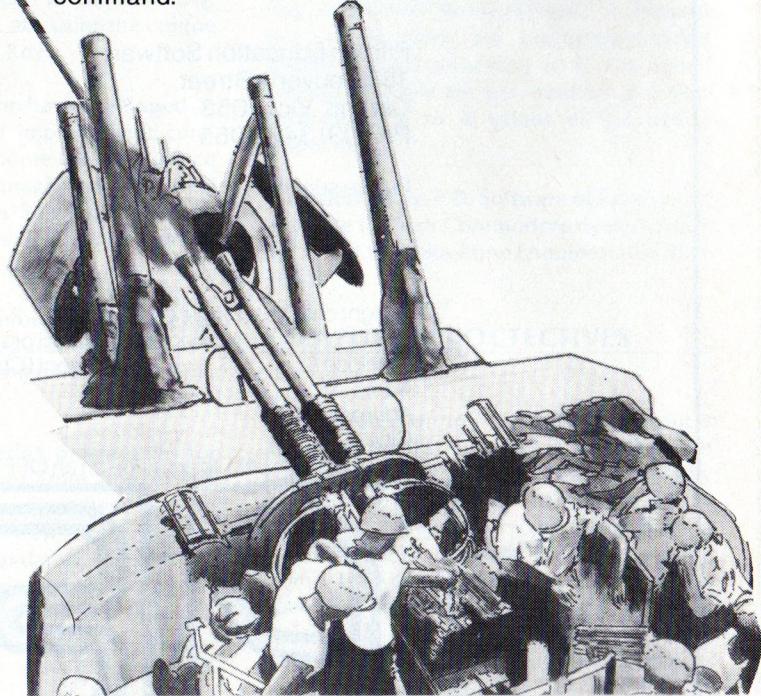
The menu system we have developed for this game allows the player to issue orders to his forces at any time

he likes simply by interrupting the game and making a few simple key strokes. Essentially the game uses only the (RET), (ESC or F7) and the (ARROW) keys to implement every decision.

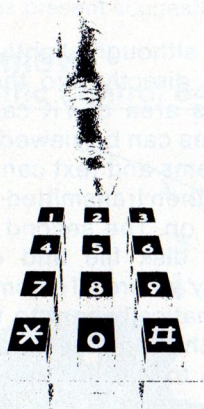
The computer handles all of the staffwork. Once an order is given (such as directing an air squadron to attack a group of ships) the computer handles the arming and fuelling, the launching and formation of the air group, its flight to the target and the resolution of the attack.

'Carriers at War' is a game for both historian and amateur. No prior knowledge is assumed and the introductory tutorial will provide a gentle initiation into the game's mechanics. For the historian, 'CAW' is an active insight into history. The computer can be directed to command all the forces in a game allowing the observer to examine the consequences of various changes in the historical situation.

The game system, and the huge amount of work put into it, is simple and accurate and the computer does a fine job of commanding whatever forces are placed under its command.



CARRIERS AT WAR is produced on disk for the C64 by Strategic Studies Group, Sydney, retails at \$50.00 and is available from most Commodore dealers.



VIP Terminal Tele-Communications System

by Greg Perry

Since our review of the C64 compatible Cicada 300T modem a few months ago, a number of people have asked about terminal programs for communication between 64s and between 64s and data bases. A number of public domain programs are available through user groups (including one in PASCAL), but until now these have either been of the 'dumb terminal' type, which simply emulate a mainframe terminal and do not allow file transfer, or the 'slightly smart' terminal which allows file transfer using a particular set of protocols. (Protocols are the particular characteristics of the terminal and especially the file transfer method which provide some form of error detection to check if information is received successfully.)

The VIP TERMINAL program from Softlaw in the US is the first fully fledged communications package to appear on the Australian market and I am lead to believe that Commodore are about to release the package through their dealer network. The concept of the program is of the 'ultra smart' type and includes task icons (pretty pictures), complete disk access commands, selectable session logging, selectable hardcopy outputs, programmable keys, four methods for program and sequential file transfers, clocks, alarms, and with the appropriate modem auto-dial, auto-answer, automatic electronic mail facility. In fact, it would appear to contain just about facility the writers could possibly think of!

Overview

Unfortunately, I have only had the program for a few days and the following is a report based on a few late night/early morning sessions. Some of the immediately useful features of the package are

- User friendly menu driven program with task icons and several pop-up menus.
- Selectable screen displays of either 40, 64, 80 and even 106 columns with narrow, medium or wide character sizes.
- Four different protocols for upload and download of BASIC or ML programs or sequential files.
- True logging of the complete on-line session using 'virtual memory' disk access.
- User 'workspace' of 7K for automatic logging or upload/download of text/programs and off-line editing of text.

- Full off-line screen editor for text files.
- Built-in clock and alarm.
- VT52 mainframe terminal emulation available.
- Selectable trapping of unwanted characters.
- Hardcopy output to a wide range of printers. (But serial port only.)
- Full disk handling commands.
- User selectable RS-232 parameters between 50 and 2400 (?) baud rates.

Alright, enough of the free advertising I hear you say. But what does it actually do?

Together with a C64 and a suitable modem connected to the RS-323 user port, this program provides a full communications system between you and the outside world so that you can access 'data bases' and 'talk' to other computer users. It provides many nice features which we have only read about and not seen on the Australian market.

The program is actually only one of eight parts of the VIP Program Library (the rest of which I gather we will probably not see) and the quality of the program is evident as soon as you load the 'desktop' loader. This shows a desktop with computer, printer, disk drive etc, together with a shelf containing a row of programs. To load a selected program, one uses the joystick to move the image of a 'hand' to point to the desired program and then presses the joystick fire button. As the program loads, the 1541 drive light flashes and on the screen the light on the drive on the desktop also flashes in sequence!

The main terminal program displays a row of 'icons' or pictures on the bottom of the screen and the various functions can be selected either from the function keys F1-F8 or by moving the 'hand' with the joystick. The hand even has built-in inertia, moving slowly at first then progressively more quickly.

Eight main options are displayed. Pointing the hand and pressing 'fire' reveals

Help: Various files are called from the main disk to explain the operation of the different parts of the program in easy stages.

Options: Allows one to select the number of columns displayed on the screen in the terminal mode between

40, 64, 80 and 106, and other parameters such as colours, cursor blink, whether the key 'clicks' when pressed and so on. The wider column modes are surprisingly good with the 80 column mode being fairly readable even on a normal TV and the 64 column mode is excellent. The 106 (yes 106!) column mode is even vaguely readable on a monitor.

Talk: The terminal mode is the interactive mode where you do the talking to other systems and uploading/down loading of files. Pressing the 'C=' key and 'h' brings up a help menu which allows you to select various sub-modes such as file transfer, disk logging, switch back to 40 columns, turn on the printer for hardcopy of the on-line session in real time, and a number of other facilities.

Time: allows you to set the clock for date and time (which is automatically displayed at the top of the terminal mode screen) and to set an alarm. The system even allows quarter hourly chimes (- which remind you that you have to write another article to pay for this month's phone bill !)

Print: Select printer parameters for a range of printers.

Keys: Allows you to set to 20 programmable keys each of which can be set to display a message of up to 127 characters at the press of a key. This is very useful for holding your log-on usernames and passwords for various systems. After logging on, one simply presses, for example, 'C=' and '1' to send your username and password.

File: A complete file management menu to allow you to view the disk directory, scratch or rename files, view saved files, save, load, edit, clear your 'user workspace' etc.

Telephone: Part of a full auto-dial facility which is not of much use to most users at present but is useful for storing up to 16 often used phone numbers and the terminal characteristics used by each system.

Also the complete terminal 'environment' containing different settings for screen parameters and terminal characteristics can be saved to or loaded from disk.

Using VIP TERMINAL

Overall the program is quite a joy to use after some of the simpler programs around. It provides a wide range of useful facilities. One of the main features which I particularly like is the ability to selectively log the communication session. The process of logging means to save a copy of selected parts of the session and view it later at leisure. This is an extremely important money saving feature when using commercial data bases. It means that you can quickly scan several areas of a data base, keeping a complete copy of the bits in which you are interested (or the whole on-line session if you wish), log off to save money, then carefully examine the information at some later time.

VIP TERMINAL provides two methods of logging your

sessions. The first and fastest, although slightly limited method is to log the session directly into the C64's memory. This method provides area of 7K called the 'workspace'. This workspace area can be viewed, edited, and saved to disk. Small programs and text can also be loaded into the workspace and then transmitted directly. A good idea for letters and so on. The second logging method involves opening a disk file and using a technique called 'virtual memory' where all incoming and outgoing characters are automatically sent to the disk file. This method slows down the terminal mode since every so often the system has to wait for the 1541 to catch up! However, with this method, the length of sessions and files is only limited by the amount of free disk space.

Four different protocols are provided for sending and receiving text and program files. I haven't had the opportunity to test these out fully, but I quite easily transferred a copy of this review to a couple of people.

The package seems to work well with only one minor problem—the system cannot correctly detect if the carrier signal from the modem is present. With the modem (CICADA) switched off, the words 'carrier present' appear but when you actually are on-line, the system things that carrier is not present. This should only be a problem for anyone using the auto-answer, auto-dial features. I am also told that this version has a timing defect which requires the user to enter two POKES before use, however it seemed to work ok for me. Commodore are apparently prepared to modify the software for local conditions if the product generates sufficient orders.

The user manual and help files are well written and make a reasonable attempt at explaining all the facilities of the program as well as computer communications in general.

Summary

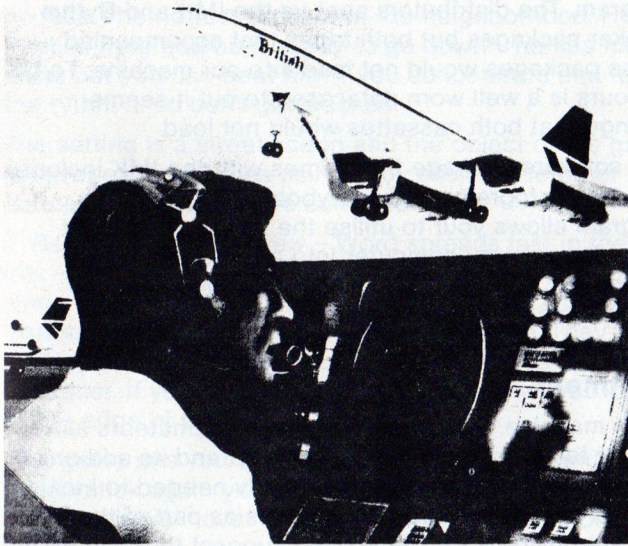
Undoubtedly the best communications package I have seen for the C64. One its most annoying features is that VIP TERMINAL has a whole host of facilities such as auto answer and electronic dialing, automatic redialing if the number is engaged, graphics modes, BBS access, automatic electronic mail facility, and so on which we cannot take advantage of at present because of the limits of readily available technology. The program is also designed to support the Commodore 1600 and 1650 modems but I've never seen either! 'Tis a pity Commodore in Australia doesn't support communications more fully. Although it must be said that with the release of this program they appear to be moving in the right direction. Rumours also suggest some interesting developments may be in store for us in the near future when Telecom's national Viatel videotext network comes on-line in the new year. Stay tuned!

Available from Commodore Dealers as of mid November. Retailing at \$100.



Christmas present suggestions for Commodore owners.

HEATHROW Air Traffic Control 64



If you're tired of navigating spaceships, flying planes and the like - 'Have we got a job for YOOU!!' Become an Air Traffic Controller at busy Heathrow Airport. HEATHROW simulates as closely as possible the real-life operation of Air Traffic Control Radar at London Heathrow Airport.

Yes it is a difficult game at first but it only took us about 20 minutes to get the gist of it and we were away - Heathrow this year has a record number of Concorde crashes. I think we've wiped out more than the total ever produced. You see they couldn't land because of the wrecked 747s on the runway!

The best way to describe the game is to take you quickly through the ropes. By-the-by this is how you learn the game by watching a demo and comparing it to notes set out in the instruction leaflet.

Overview

Once into the demonstration the radar screen is displayed together with information on the aircraft. The aircraft arrive in four holding stacks which are radio beacons around which the aircraft fly in race track pattern. Air Traffic Control (ATC) then gives instruction to position the aircraft onto a pair of radio beams, called ILS (Instrument Landing System) with which the aircraft can complete the landing at Heathrow airport.

Radar Screen

The screen is a dark rectangle with four holding stacks shown as small white plus signs around which the aircraft (shown as white blocks with a trail of white dots) circle.

In the centre of the screen is two short thick horizontal lines representing Heathrow and on either side are shown the extending centerlines of the double runways. The small dots on the centerlines are range marks located every two miles.

Aircraft circle around the stacks. Above and to the right of each aircraft is a label produced by the Secondary Surveillance Radar (SSR). This label consists of a one

letter call sign and one digit showing the altitude of the aircraft in 1000 feet eg. A6 means aircraft A at altitude between 6000 and 6999 feet.

Stack Display

To the right of the radar screen is the stack display. This shows information about each aircraft from the time it first appears on the radar until it lands. It is divided into four sections one for each holding stack. Each section lists aircraft name, type, altitude, speed, heading and other direction information

There are five types:

- c Concorde
- h Heavy jet (such as Boeing 747)
- m Medium jet (such as Trident)
- s Small propeller driven airliner
- l Light aircraft

Each type has max and min speeds that must be adhered to and a ILS maximum speed.

Radio Communication

On the left hand side of the radar screen in a box marked RT, this is the equivalent of Heathrow radio communications.

From here you can instruct the aircraft to maintain or alter altitude. If you ask the impossible a message will come up 'BAD ALTITUDE'. When the altitude is altered the time it takes to achieve its new height is determined by the aircraft type. Instructions are accepted by the computer with the reply 'ROGER'.

The aircraft can be told to change their headings to the left or right to take up a new compass bearing - eg. A Left>240 means aircraft A turn from its present heading onto heading 240 degrees with a left hand turn.

You can also control the speed through the RT section. "QUOTE" - This is a radio inquiry to an aircraft followed by one letter which specifies the information that is required - eg Quote 'A will return 3.8 meaning aircraft A altitude = 3800 feet.

Level

There are seven levels of play in the game:

1. *Basic vector, slow traffic* - light aircraft only. This is the best level to learn on.
2. *Mixed traffic with air space restrictions.*
3. *Landing intervals and separation* - increase in the things you have to worry about.
4. *Vortex spacing with outward bound aircraft.*
5. *Emergency traffic.*
6. *Additional problem* - as if you need one! Unknown aircraft, loss of contact, loss of runway (all those wrecked 747s) etc.
7. *Random problem with extra outbounds* - !!!!

Comment

This is a game for someone who has everything. Value for money is here because once hooked you'll play it time after time. The screen is easy to read and the computer responsive to your commands. Don't be fooled by the seemingly slow speed that the radar operates at.

Excellent and entertaining game distributed by International Software Distributors of Bayswater Victoria retails at \$19.95 and is available through most Commodore Dealers.

The Incredible Musical Keyboard



If there is anything that is just a born natural for a C64 Christmas present it has to be the Incredible Musical Keyboard (IMK).

All those things we have been told that the C64 can do with SID – the built in musical synthesiser, the sound effects, the combined graphics/sound capacity. Here they are!

The producers claim, and I seem to have proved, that with no musical experience, you can unleash music that is hidden deep within your computer.

At first it is very easy to dismiss the IMK as a gimmick and to the professional musician I don't think the actual hardware content of the IMK will ever be anything but just that.

However once you start into the demo programs, that are included on the disk and/or cassette, that comes with the IMK, you realise just how powerful a musical instrument you have at your finger tips.

DEMOS

There are four demo programs:

☆ *Kawasaki Rythm Rocker* – A creative music program that offers a variety of electronic percussion and synthesiser sounds that you lay down on top of different pre-programmed bass lines. Or program in your own bass line and co-ordinate it all with hi-resolution graphics.

☆ *3001 Sound Odyssey* – A complete tutorial on music synthesis. Includes a sophisticated music synthesiser on which you can make your own music, create your own sound effects or simply experiment with any of the hundreds of preset sounds.

☆ *Kawasaki Synthesizer* – A programmable synthesiser and sound processor. Menu driven and friendly two disk set including 'The Performer' and 'The Composer'.

☆ *Music Processor* – Create, edit, record, play and compose your own arrangements. It has joystick control and prints the notes onto the screen in full musical notation.

The demo disk acts as an appetiser for all of the above which are purchased as separate add-ons to the IMK.

Also in the package that your IMK comes in are two books of simple printed music for you to play. One includes keyboard stickers for the simple to use 'Letter Music' system.

The IMK itself is a reasonably solid plastic sub-

assembly that fits over the top of you existing keyboard. It is very simple to attach. I thought that it could have been a neater fit but it works like a charm.

It is unfortunate that I could only get into the IMK program. The distributors sent us the IMK and Rythm Rocker packages but both tapes that accompanied these packages would not load into our machine. To be fair ours is a well worn datacassette but it seems strange that both cassettes would not load.

The software package that comes with the IMK includes the demo programs and a keyboard program. This program allows your to utilise the keyboard straight away. It turns you computer into a three voice polyphonic synthesiser. Which means you can play three notes at the same time.

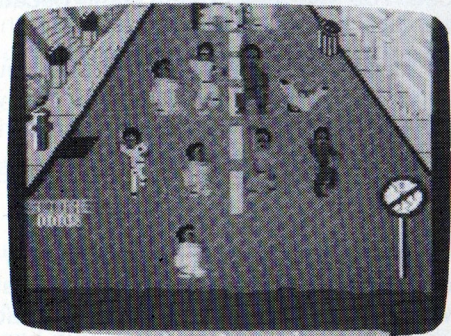
Comment

A fun machine. Both professionals and amateurs alike should take a serious look at the IMK and its add-ons. I felt that the IMK package itself really needed to include at least one of the add-on packages as part of the kit. If you are buying it for Christmas I suggest that you have the man at the shop do a test load of the cassette.

I was very impressed with the unit and the price of \$49.95 is not unreasonable, although with add-ons ranging from \$24.95 to \$49.95 a total setup could become quite expensive.

□ □ □ □

Break Dancing on the 64



This program will only just be in the shops before Christmas.

Originality and flair is rare in software at the present what with the 205th new variation of Kong and Space Invaders and the like. This one is NEW!

BREAKDANCE offers four different ways to enjoy the fun of breakin'. Each game offers a new challenge, and the 'freedancing' section will entertain you for hours.

What happens is that there are sprites, in the form of dancers, on the screen that are programmed to move according to a sequence of numbers that you have entered (a max of 14 dance steps combined into a max of 255 moves). Alternatively the joystick can control up to 9 movements instantaneously. Confused? Seeing is believing!

The game comes in disk or cassette form, we have the

disk version, and there are five game options:

1. *Hot Foot Dance Contest* – "Its only your first day in town, and the local b-boys already want to see your moves. They call you to the street corner dancing battle, no less. The hottest breaker in the neighborhood, Hot Feet, is here and he is ready to go down – he has lots of juice, but you can beat him if you concentrate and feel the rythm so don't get wacked.

The setting is a street scene and the object of the game is to repeat the moves using a joy stick of the other dancer controlled by the computer.

2. *Battle the Rocket Crew* – Word spreads fast in the city –everybody's heard about the moves you made when you burned Hot Feet. Now, the Rocket Crew has invaded your turf, challenging you to a battle. They're moving down you street, pushing you towards the water front pier. If you can't out dance them in time, you'll fall of the edge of the pier.

This game pits you against a gang of dancers and using the joystick again you must align yourself with a dancer and match his moves to 'burn' him before you move on to the next.

3. *Perfections Dance Puzzle* – Now your getting good so good that nobody in the neighborhood will break with you – they're sick of getting burned. Its time to match moves with Boogaloo Brewster...the one they call the king.

In this game, you have to match a four, six or eight move routine performed by a computer controlled dancer. Numerical sequence matching is used in this game.

4. *Choreograph Your Own Dance* – An invitation came today. You're going to be in the city Breakdance Festival. This could be the break you've been waiting for, the chance to really show off. You choose the music and the routine.

Make up your routine out of a combination of 14 different moves and move around the stage under the control of a joystick.

5. *Grand Loop* – This takes you through all four games in sequence.

If you don't understand what a Moonwalk is or a Suicide or if it comes to that, a boogaloo then there is a Breakdance Glossary in the instruction leaflet.

With two joysticks (get your friend to bring her own) one player can challenge and match skills with another. You can save a routine and hold a concert if you wish.

Being of 'mature' age and as round as I am high the chance to breakdance without running out of breath is marvellous.

Comment

Definitely a breath of fresh air in the software market. Interesting, exciting and different. Good clean family fun.

Distributed by CBS at a retail cost of \$19.95 cassette and \$29.95 disk. Available from most Commodore dealers.

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NEW for COMMODORE 64

VIP Terminal
The finest terminal software available for your Commodore 64. Talk to any computer and most of the bulletin boards 50 to 2400 baud operation, simultaneous on-line printing and saving of files to disk. 40-64 80-106 column screen display without any hardware change. Easy to use, for the novice, just look at the task icons on screen and press a key. **D-\$90.00**

PFS File.
Easy to use information management system that records, files, sorts and retrieves information. Allows users to design their own forms on screen. Requires no previous computer experience. **D-115.00**

Wordcraft 64
The professional wordprocessing programme for the Commodore 64 or Executive SX 64. Incorporates the powerful features for which this programme is renowned world-wide. "Wordcraft is a steal" - Y C **D-95.00**

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Participate in 6 world class events. Sprints, hurdles, diving, archery, weightlifting, long jump. There's even an instant replay feature. **D-56.99**

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An excellent, intriguing way to develop spelling skills. This programme includes 500 spoken words in 10 spelling levels and the Wizard actually talks to you in clear human speech. Top seller. Ages 8 to Adult. **D-28.50**

Murder by the Dozen
Mystery buffs can put their powers of deduction to the test. Twelve tangled webs of Crime and Puzzlement with 700 clues. 1-4 players. **D-37.95**

Pogo Joe
"Golden Fluffy Award" Most original award game C E S US 1984. Pogo Joe bounces merrily away over 32 screens pursued by all sorts of nasties. Lively music. **T-28.99, D-33.99**

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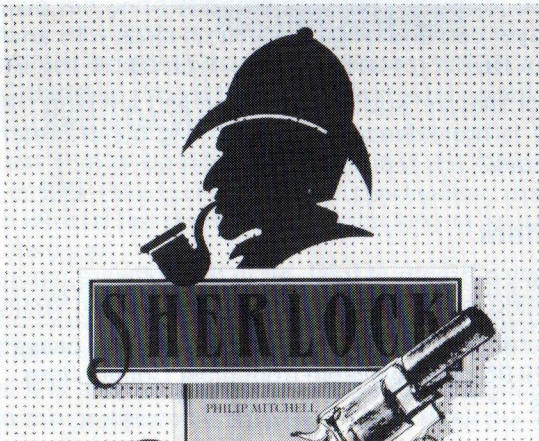
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SHERLOCK 64

Be the world's greatest sleuth – in the most advanced and challenging adventure game ever.

For the first time ever, an adventure game in which you can talk with intelligent characters, ask them questions and argue with their conclusions – all in everyday English sentences.

Work against time to solve the mystery as you travel about Victorian England. Villians, suspects and witnesses all live out their lives in a realistic manner, and you can never be sure of who or what you will find anywhere.



You must be alert because nobody is above suspicion.

In 'Sherlock', the world of the famous private detective comes vividly to life. Time passes naturally, day turns to night, racing towards the inescapable deadline. You must ensure Sherlock has sufficient time for sleep, money to travel on public transport and other necessities. And you can rely on Dr. Watson to help you collate information, or gather clues.

SPECIAL FEATURES OF SHERLOCK

- ★ Sherlock, for the first time in any adventure, allows the player to enter into a dialogue with some of the characters and to question them about their motives and reactions.
- ★ It's ability to accept full English sentences.
- ★ The ability to make suggestions to the other characters in the adventure as to what they should do.
- ★ The independence of the other characters in the adventure.
- ★ The use of high resolution graphics in a complex adventure game.
- ★ All the characters that the player will encounter in Sherlock have complex and well defined personalities of their own, making this truly the most sophisticated adventure game ever published.
- ★ In this adventure you can write notes and receive notes. This makes it possible to communicate with other characters who may be in totally different locations by writing a note to them and sending it with a courier.
- ★ A real time clock is used in the program and time passes in a natural manner.
- ★ The entire adventure also has a built in time limit –

exactly how long is for the player to determine as he plays the game.

★ The realism of Sherlock's England has been recreated to a very high degree.

Fear not the game does not take ages to LOAD of cassette because its on a cassette using Pavloda and LOADs in a very short time. The game comes in an attractive box with newspaper clippings – from the TIMES (or is it the OBSERVER?) my dear Watson –, train time tables and instructions.

We haven't done a proper review on this one because it needs more time than we had for this issue. Commodore Magazine volume 4 number 5 is an ADVENTURE GAMES issue and we'll attempt to do this game justice then.

A quick play however showed the game to be engrossing and innovative. We came across a curious gotcha – if you say 'OPEN DOOR' (or a similar command) the computer is apt to reply 'WHICH DOOR?'. Now if you don't know which one and you enter 'LOOK', or some other statement unrelated to the computer's question, it is highly probable that the screen will freeze and you have to start all over again! This gotcha is a little annoying but does little to spoil the game – just be careful and SAVE at regular intervals. A knowledge or street map of inner London would be of assistance.

Available for the C64 from most Commodore dealers at \$39.95. Distributed by Melbourne House.

□ □ □ □

Catcha Snatcha for the VIC-20



CATCHA SNATCHA brings you the mad world of the maddest supermarket in the world. Using your trusty joystick or even trustier finger tips you become Barney Bootlac. Poor Barney, he has been demoted from Ace shop detective to zero. You – sorry I mean Barney – are/is trying desperately to climb back up the ladder of success by showing the boss how efficient he is.

There are hordes of harassed housewives doing there weekly shopping, there is lost property for you to collect and take to the lost property room and lost kids to take to the lost kids room.

Of course there is the shop lifters and an occasional parcel bomber to deal with. All the time the boss is watching your process. When he awards you 99% you can go up a level.

Life wasn't meant to be easy! Well it sure isn't for

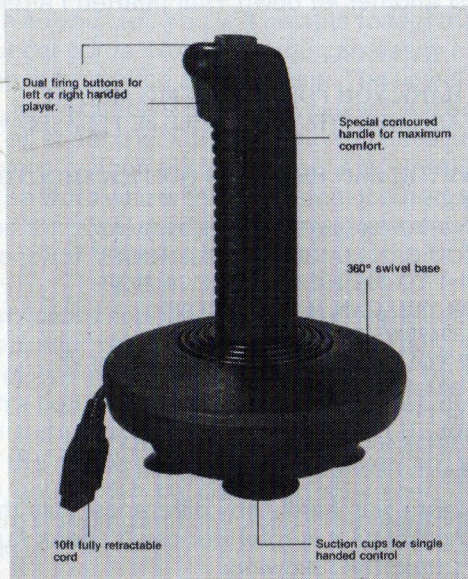
Barney up to work by 9 a.m and home at 8 p.m. I wonder if he is in a union?

The VIC 20 must be one of the most supported micro computers in the area of computer games – CATHA SNATCHA is only one of them but one of the better ones. Easy to play, fast moving and joystick optional CATCHA SNATCHA is distributed by Corgi Bantam retails at \$12.95 and is available through most Commodore dealers.

□ □ □ □

SUPER CHAMP a joystick for a man!

SUPER CHAMP is a most impressive looking joystick. It does not add to that mangrove swamp of cords surrounding your computer because it has a 10-ft. retractable cable.



Compared to other sticks I've seen this is a giant – you can get a good firm grip on this one. Left or right handed, with SUPER CHAMP's two fire button positions, you'll find it easy to use.

The thing I noticed straight off was its sensitivity. When you moved the thing it moved it did not seem to hang around for a consensus of opinion like others I've used.

The stick has a nice firm grip and very solid suction fixing for those who don't like hand holding.

There is very little you can write about a joystick – does it work [yes]. Do I think it is of solid construction? [yes]. Is it ergonomically sound [yes]. In short this joystick looks good.

SUPER CHAMP was sent to us by Computerplay – SCISYS of Wheeler Hill, Victoria it retails for a low \$29.95 and I believe it is generally available through computer retailers.

P.S. It has a very good feature in a 360 degree swivel handle.

Colossus Chess for the 64

As long as there have been microcomputers there has been chess software. Now we have one of the latest and the producers claim the greatest. But they back up their claims.

“Colossus 2.0 has been tested against numerous other chess programs and has beaten them all. In the tests, sixteen games were played, on various levels, with an equal number of whites and blacks for each program. One point was awarded for a win, half a point for a draw, no points for a loss. The results of these tests were as follows:

Colossus 2.0 beat the following programs by:

White-Knight MkII – BBC Productions – BBC – 11.5
 Superchess 3.0 – CP-Software – Spectrum – 12.4
 Grandmaster – Audiogenic – CBM 64 – 12.4
 Cyrus IS Chess – Sinclair – Spectrum – 13.3
 Spectrum Chess II – Artic – Spectrum – 14.2
 Chess – Acomsoft – BBC – 16.0
 Chess – Bug-Byte – BBC – 16.0
 Chess – Computer Concepts – BBC – 16.0
 Chess – Program Power – BBC – 16.0
 Chess – Atari – Atari – 16.0
 Chess – Oric – Oric – 16.0
 Chess – Psion – Spectrum – 16.0
 Master Chess – Mikro-Gen – Spectrum – 16.0
 Sargon 2.0 – Hayden – Apple II – 16.0
 ZX chess – Artic – ZX81 – 16.0

Note: White-Knight was the 1983 Home Computer European Champion!!!”

O.K. having established its pedigree how does it go.

Not being a chess player I called in Frank Said a player who, by his own admission, is not a Russian Grand Master – “I'm fairly average really.” That makes him just the right person to check this unit out.

Frank is somewhat wary of any of this new technology guff. He brought his traditional chess board along just so the evening wouldn't be wasted.

Within 15 minutes of starting the game he was mesmerised. Eventually he made a few comments.

- ★ It plays an interesting game. (!)
- ★ Impressed with its automatic castling moves.
- ★ The screen is easy to read and has a minimum of glare (you can change the colour if you wish.)
- ★ Frank liked the ability to move backwards retracing his steps to find his mistakes, or replay a certain move. You can also move forward again to get back to where you were. There is a facility for the computer to replay a game from the start so that you can retrace a total game.
- ★ In Frank's case he noted that the program played a blocking rather than grabbing game. Later on we reduced the time limit for the computer to make its move and it started grabbing.
- ★ The computer seemed to make unorthodox moves especially with longer move times – shorten the time and there were less surprises. Colossus chess has an openings 'book' of about 3,000 positions, which is used to play the first few moves.
- ★ Excellent learning tool.

★ Tended to start like a game of draughts – about a week later we had a member of the local chess club here and he made a similar comment.

★ We had a degree of trouble getting Colossus to solve Mate in 2 problems. The computer, I feel sure, could do it but the instructions were not all that clear on how to go about it.

Consensus of non computerist opinion

Colossus chess is the best electronic chess game our reviewers have seen. "Beats anything we've got at the club."

It has a wide range of features and offers any number of levels of play – this can be achieved by adjusting the 'Move Time.' and/or selecting one of six playing modes.

Play by mail chess gamers will be glad to hear that you can save your game to tape and in infinity mode give Colossus all night to decide the next move if necessary.

Chess players who have used Colossus have agreed to a man that it plays a tough and 'interesting' game and offers a serious challenge.

Distributed by Corgi & Bantam, retails at \$39.95 disk \$29.95 cassette and is available through most Commodore dealers.

□ □ □ □

What a – BIG MOUTH this 64 has!

by Richard Chalmer

I've had a Speech Synthesiser, in the form of a plug-in cartridge, knocking around in my draw since I got my first VIC many moons ago. I played the demo-tape and was suitably impressed. I then went to the operator's manual and my enthusiasm went.

To get this cartridge to work one needed to know an alphanmemonic code and all in all it was quite complicated. Maybe good for the serious programmer but too bothersome for a hack like me.

It was with a certain amount of negative attitude that I loaded up 'BIG MOUTH'. But quite soon after pressing SHIFT/RUN STOP my monitor emitted a cheery – "THANK YOU FOR BUYING BIG MOUTH"

The 'DEMO' program instilled more confidence as, in its own words, my C64 told me what its BIG MOUTH could do. It informed me that:

- ★ It was a smooth talker – ✓
- ★ That it had variable pitched voice control – ✓
- ★ That I could vary the speed at which it talked – ✓
- ★ That I would have fun using BIG MOUTH – ✓

In anticipation I LISTed the demo and my enthusiasm started to fluctuate.

```
5 POKE 39439,60: POKE 39438,60
10 SPK"THANK YEW FOR BYING BIG MOUTH"
20 SPK"EYE AM SHURE THAT YEW WILL BE PLEEZED WITH MEEE"
30 SPK"AS YEW CAN HEAR,EYE AM QUITE,A SMOOTH TAWKER"
35 FOR F=1 TO 200: NEXT : POKE 39439,40
```



```
40 SPK"YEW CAN MAKE MY VOYCE HY"
45 FOR F=1 TO 200: NEXT : POKE 39439,80
50 SPK"OR YEW CAN MAKE IT LOW"
55 POKE 39439,60: POKE 39438,40
60 SPK"IF YEW WANT EYE CAN TAWK,KWIKLY"
65 POKE 39438,80
70 SPK"OR EYE CAN TAWK VERRY SLOWLIE"
75 POKE 39438,60: FOR F=1 TO 200: NEXT
80 SPK"HAVE PHUNNN YEWZING MEE,BY BY"
```

Phonetics! another let down. Half hearted I altered the listing to:

```
90 REM :
100 SPK"THANK YOU FOR BUYING BIG MOUTH"
110 SPK"I AM SURE THAT YOU WILL BE PLEASED WITH ME"
120 SPK"AS YOU CAN HEAR,I AM QUITE,A SMOOTH TALKER"
130 FOR F=1 TO 200: NEXT : POKE 39439,40
140 SPK"YOU CAN MAKE MY VOICE HIGH"
145 FOR F=1 TO 200: NEXT : POKE 39439,80
150 SPK"OR YOU CAN MAKE IT LOW"
155 POKE 39439,60: POKE 39438,40
160 SPK"IF YOU WANT I CAN TALK,QUICKLY"
165 POKE 39438,80
170 SPK"OR I CAN TALK VERY SLOWLY"
175 POKE 39438,60: FOR F=1 TO 200: NEXT
180 SPK"HAVE FUN USING ME, BYE BYE"
```

On RUN there was hardly any difference. This thing speaks English! As it is rote! But can it speak Aussie STRINE? I tried the following:

```
199 REM :
200 SPK"GAD-DAY HOW YA GOING? STRUTH! BUT IT'S HOT! AINT IT?"
```

Not bad for a foreigner. But I did have to work a little bit

```
210 REM :
220 SPK"GAD-DAY HOW YA GO ING? STROOTH! BUT IT'S HOT! AINT IT?"
```

The little blighter now sounded as Irish as Paddy's pigs. But it passed with flying colours.

```
299 REM :
300 SPK"9,8,7,6,5,4,3,2,1,BLAST OFF"
```

Counts well too! Full stops are called 'periods' and 20 is "two zero", 100.5 is "one zero zero period five". 'Blast' was a little problem so a minor change was in order.

```
310 SPK"9,8,7,6,5,4,3,2,1,BLARST OFF"
```

As you can see from the hardcopy 'BIG MOUTH' introduces the command (both program and direct) SPK. SPK seems to be able to be used exactly the same as a PRINT command. There are three POKES you need to

Continued on page 60

Speech Synthesis

Making Computers Talk

Human Speech Production: Many of the techniques used in adding voice to computers depend on an understanding of human speech production so its a good idea to start with a brief review of how you and I create speech everyday as we communicate with one another. The three major parts of the human speech mechanism include the lungs, the vocal cords and the vocal cavity.

Human Speech

In the human generation of speech sounds, air is forced from the lungs past the vocal cords and through the vocal cavity. The force of the lungs determines the final amplitude, or loudness of the speech. When the vocal cords vibrate, they interrupt the air stream entering the vocal cavity and this adds the "buzzing" sound present in most speech sounds. For a demonstration of this place your hand on your voice box or "adam's apple" in your throat and say the word "voice", stretching out the vowel sound as much as you can. You will be able to feel the vibration of the vocal cords. Note that you can easily change the vibration rate or pitch of your voice. The vowel sounds of English are examples of what is called "voiced" speech. But not all speech is "voiced". You may have noticed that in the word "voice", you didn't feel any vibrations at the end of the word where the "s" sound occurred. In this kind of sound the vocal cords don't vibrate and they are called "voiceless" or "unvoiced" sounds.

The unvoiced sounds in speech are produced when air is forced past relaxed vocal cords. Usually, the actual sound of unvoiced speech is generated by forcing air through a constriction in the vocal tract which produces audible turbulence. You can feel the turbulence in the front of the mouth by saying a long "s" or "sh" sound. Any speech sound can be classified as voiced if the vocal cords are vibrating and unvoiced if the vocal cords are not vibrating.

The vocal cavity extends from the lips back to the vocal cords. This is the most complicated part of the system because depending on the shape of the vocal tract, certain frequency components of the speech signal are emphasized or attenuated. Musical instruments do the same thing and we change the frequencies that are emphasized (these are called resonances) by an instrument by moving fingers over different holes in a flute or clarinet or by opening and closing different paths in a trumpet. We change the resonance of our vocal tract by moving our tongue, jaw or by opening and closing a connection to the nasal cavity by moving the velum.

Speech Synthesis with Mathematics:

The complete mathematical representation of the effect of the vocal tract on the breath stream pushed from the lungs and past the vocal cords has its basis in the physical laws describing the propagation of sound waves

in a tube of varying crosssectional area. The full description is quite complex but with suitable simplifying assumptions, an approximate solution can be generated.

The basis for one such solution to the speech modeling problem is shown in figure 1. It illustrates a basic two-source model used to generate speech. The two different excitation signals are fed to a switch that connects one of them at a time to the vocal tract model. In this way, the system can generate voiced and unvoiced sounds. The vocal tract model is a small processor that performs a large number of multiplications and additions on the input signal to simulate the effect of the vocal tract on real excitation signals. The result is a signal that is perceived by our ears as being very close to natural speech.

Figure 1 also shows the parameters that must be defined to specify an artificial speech signal. Once a set of these parameters is specified, a constant steady state sound can be generated. Speech, however, consists of rapidly varying sounds and in order to use the model to generate speech like sounds, the parameters must be rapidly varied. For example, at a voicing transition, the position of the voicing switch must be changed. Also, since the frequency content of speech signals is constantly changing, the parameters defining vocal tract shape must be frequently changed. At stops, such as the "p" and "d" sounds, the amplitude parameter must be quickly changed.

When the parameters shown in figure 1 are carefully determined, the resulting speech signal sounds quite natural and is highly intelligible.

Varying the talking speed

The parameters listed in figure 1 include amplitude, pitch, and several vocal tract parameters. Usually these parameters are updated at a 20 millisecond rate, although some commercial synthesisers allow the users to choose from several update periods. If the same parameters are fed to the synthesiser at different rates, the speed of the resulting speech is changed. The effect is not the same, however, as changing the speed of a tape recorder or a phonograph since the pitch of the voice is not changed. Instead, the words themselves appear to be spoken faster or slower.

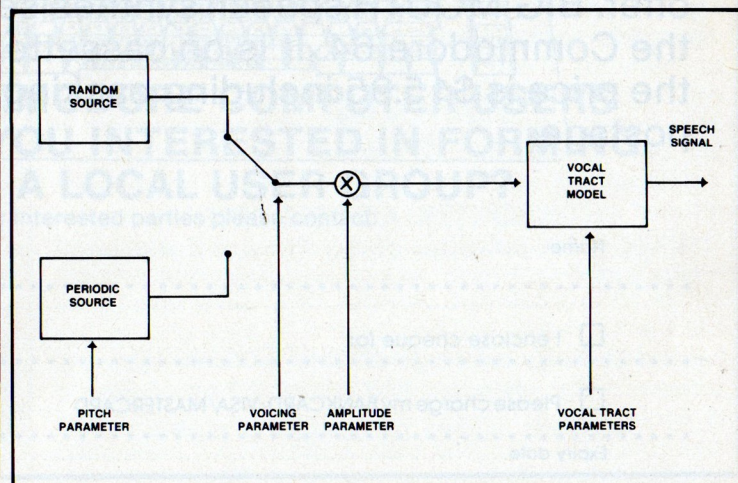


Figure 1—The basic speech synthesis model showing the control parameters

Special Offer

BIG MOUTH is the **ULTIMATE** speech synthesis program for the **Commodore 64**.

Using the command **SPEAK** (abbreviated to **SPK**) opens a whole new field of interest to the computer **USER**.

- ★ **CASSETTE** (no additional hardware required)
- ★ **ADDS** new command **SPEAK** to **BASIC**
- ★ **NO** complicated mnemonic codes.
- ★ **Simple** and **fun** to use.

\$15.95
INCLUDES P&P



ORDER FORM

I/We wish to take advantage of the **COMMODORE MAGAZINE's** special offer. **BIG MOUTH** speech synthesiser for the Commodore 64. It is on cassette and the price is \$15.95 including packing and postage.

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Crows Nest, N.S.W. 2065.
(02) 439 1827

Name Address

..... Phone

I enclose cheque for

Please charge my **BANKCARD/VISA/MASTERCARD**

Expiry date Signature

USER GROUPS



User groups are formed for various reasons some being quite specialised for instance the study of educational software, adventure gaming, specific languages (FORTH, PASCAL). In Australia and New Zealand most groups are more general in their outlook. The exceptions being those built around specific computer models i.e. VIC-20 and Commodore 64.

As a general definition a User Group is a gathering of enthusiasts for the dissemination of information. A well organised group can offer such facilities as a software library, bulk buying discounts, periodical newsletters, group sponsored tutorials, de-bugging evenings and special interest groups.

On page 28 of this issue is a list of known Commodore User Groups. Some have contacted us with information on their activities, meeting dates and office bearers.

How do you go about forming a user group if you are not fortunate enough to be within the area of an existing group?

FIND INTERESTED PEOPLE

After ascertaining that there definitely is no other user group within your area make use of the bulletin boards that are readily available through supermarkets, churches, schools, Commodore dealers, Public libraries, video shops etc. asking other interested people to contact you. Figure 1 is a sample 3x5 card that you may wish to complete and photostat for this purpose.

FIRST GET-TO-GETHER

Call an informal meeting of those people who have expressed interest. At this meeting define the exact purpose of the group. Determine suitable meeting time and date. Because of other commitments of members,

finding a suitable meeting time can be quite difficult. A number of groups, Commodore Users Group (ACT) for example, meet twice a month at two different venues to try to fit in with their member's other commitments.

Location is fairly important. Suitable venues include:-
 Scout Halls
 Church Halls
 Public Libraries
 Dealer's Shops
 Schools

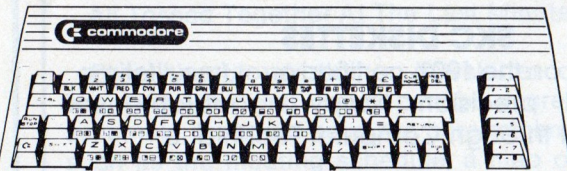
It is not good policy to have a meeting at a members home. While a small number may attend the initial meeting, the quantity can (we hope will) grow and place a burden on the host or hostess.

The local school can be a very good venue especially if it uses Commodore computers. Here the user group can offer something to the community by working hand in hand with the teachers on various computer projects. The teachers expertise can also be utilized to develop the groups tutorial program. By using a school you are utilizing a public facility, however, not all areas permit the use of schools in this fashion, but it is worth a try. Very few user groups do not have an abundance of enthusiastic teachers.

LET PEOPLE KNOW YOU EXIST

At this stage you can consider yourself an established user group and should notify Commodore Business Machines Pty Ltd, 5 Orion Road, Lane Cove, 2066 and THE COMMODORE MAGAZINE so that they can publicize the fact

It would also be worthwhile contacting some of the other user groups for assistance i.e. newsletters, record of activities, software library support and general advice. With very few exceptions the Commodore User Group Network is very friendly and anxious to help new groups get started.



COMMODORE COMPUTER USERS ARE YOU INTERESTED IN FORMING A LOCAL USER GROUP?

Users and other interested parties please contact:

.....

.....

.....

MEMBERSHIP

The most likely source of membership are schools, colleges, TAFE's and local businesses – especially in the high-tech and engineering area. But your prime source of membership will be through your local dealer. A good working relationship with the local dealer will pay dividends for both of you.

Piracy of software, an accusation made by many dealers about user groups, will be the thing that kills any chance of a working relationship. No matter how you justify or moralise piracy it is illegal. You would not want someone to take your bread and butter so why take theirs. It was not so long ago that many software packages gave you permission to make backup copies – this privilege has been so abused that it is very seldom offered now to the inconvenience and cost of the end user.

Don't forget the mail-order companies, many of them publish Newsletters and will give you publicity if you tell them of your group.

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Level 2, 52 High Street Toowong
Telephone (07) 371 9714
Hours: 10am to 8pm - 6 days

Typical Townsville User Group programme

NEXT MEETING

The next meeting will be held in the computer room of Ignatius Park College at 7.30pm on Wednesday 7 November.

1. Wes Koeman will demonstrate a programme he has to test disk head alignment.
2. Keith Kikkert will give the machine language lecture, in which he will demonstrate how to use an assembler to write programs in machine language.
3. Trevor Davies will demonstrate Flight Simulator II.

Drop a line to your local radio station and newspaper. Don't expect the editor to write the article for you – you write it. A hint from a hack is to make your three closing paragraphs so that they can be cut out without altering the meaning of the article. When the artist lays up your article he/she will cut from the bottom without reading it. A good quality photograph will generally get printed especially if it is topical or has interest e.g. Local dealer handing over some small item to assist the group. The local minister of religion (who's church hall you meet in) looking 'in wonderment' at a monitor screen etc.

Computer demonstrations can also generate interest in the group. Our local Scout Group held a 'father & son' evening with five Commodore demonstrated games, spreadsheets, music etc. The evening was so successful that the only way to get people to go home was to pull the plug. The local dealer was fairly happy too, for as a direct result at least five C64s were sold.

GENERAL MEETINGS

By now you should have started a round of general meetings to write a constitution. Elect office bearers. Determine membership fees and policies. Like any organisation a User Group needs to have some structure to know what it is doing. Plans need to be made for activities, the development of a newsheet; a software library etc.

The ACT Users Group has given us permission to print their constitution as an example that you may wish to work from.

OTHER TIP-BITS

Insurance: The group may be able to arrange special computer insurance deals.

Discounts: Bulk purchase of disks, paper etc. can be made by the group at a saving that is partially passed on to its members and also assist its kitty. The COMMODORE MAGAZINE has a special User Group Subscription for User Groups which could save the group up to 30% off subscription rate. Your local dealer may offer members a special user group discount for items bought from his store.

Continued on page 60

True Confessions of a User Group Newsletter Editor

or

Byting the Bullet Without Really Trying

By Walt Lounsbury - Wichita Commodore User Group

A newsletter can be the glue that holds a user group together. Here's how to keep the newsletter's editor from coming unglued.

Every now and then, since assuming the duty of editor for the Commodore Users Group of Wichita's newsletter, I have reflected on the role that the newsletter plays in our club. I think about it late at night, usually, when the newsletter is not coming together on schedule, and a few more hours of work could make all the difference.

It seems obvious that the members can and will trade programs and ideas on their own, regardless of the club. (For example, how many fellow Commodore owners do you know at work or in your neighborhood? Are many of them in a club?) And despite all the effort of those trying to save money by buying things in quantity, they often end up getting much better service and value through the local dealers or even by regular mail order. Like most organizations, only one-fourth of the members really make it to the meetings, and the ones that want to attend a workshop always seem to miss it.

As a result, it seems as if the newsletter is the glue that binds the whole organization together. It is where the members really find out what is going on. The newsletter provides entertainment, and communication. Certainly it is worth that extra ounce of effort to produce a newsletter that hundreds of people have been impatiently waiting for?

Nowadays, I ponder all these things for a few seconds, roll over and fall into a deep and restful slumber.

NEWSLETTER PHOBIA

Having made my cruel point, perhaps it would be best to state it another way before my club ranges a lynching party! (These are quite popular in Kansas, even more than Tupperware parties.)

Although a newsletter can be an essential part of any club's activities, there is an almost universal fear of writing and publishing something so simple. The job is seemingly so awesome that many clubs don't have newsletters, although they would dearly like to put out one. I have seen people that worked on high school newspapers cringe at the very idea of writing for the club newsletter, much less trying to produce one. But sadly, the lack of a newsletter often means the death of a fledgling club. This is hard for me to understand because a computer club should be fun and working on computer club projects should be even more fun and rewarding. It is a matter of attitude, of philosophy, if you will. Every

computer club officer should keep in mind Lynd's Law: Life is worth living, but only if we avoid the amusements of grownup people.

YOU MUST PUT IN WHAT YOU PUT OUT

Perhaps the best way to start a newsletter for a computer club is simply to start one. Make it a single page to begin with. Add pages as people start to contribute and before long there will be plenty of food for thought in every issue. Keep in mind that every club is unique and the newsletter should reflect the nature of the club, not of its editor. This is how the best newsletters start and grow.

But if the editor does not shape the newsletter, what the heck does the editor do? What we have here is a chicken-or-the-egg situation. The newsletter obviously does not assemble itself out of everyone's ideas. The editor must decide how to put the articles together, what news might be worth including in an issue and how to get the newsletter to the members. In the beginning, the dedicated editor may even have to write most of the articles.

I am going to offer some suggestions that should help in publishing a newsletter. It is possible to put out an interesting gazette without a lot of effort. On the other hand, the most difficult part is really what to put into those issues from all the material at your disposal.

A Newsletter Is Like A Salad:

All Tossed Together At The Last Minute!

Even though starting a newsletter can be nerve wracking, the first issue can be incredibly easy to assemble. It should have the bare minimum club news, such as the meeting schedule, a map of the meeting location, minutes of the previous meeting and the names of the club officers and how they may be contacted. Now that the contents of the first page are determined, the second page should include any pleas for newsletter articles and participation in future club activities. This will take about one sheet of paper if printed on both sides of the sheet. There should only be one more sheet of paper as a cover sheet, with a return address printed at the appropriate spot. The third and last sheet is the most important for you, it should be a stamped, self-addressed questionnaire for the club members. Although this costs a bit of money, it is well worth finding out what kinds of computers the members have and what their interests are. With this information in hand, it is possible to

determine the best content for the following newsletters.

OK, so once you have achieved one issue's respite with the old membership questionnaire trick, what do you do now? It is necessary to start on the next issue just as the last goes out, and editing that next newsletter really shouldn't be a chore. After the first issue, you, the editor, must use all the cunning at your disposal. You have to remember Peter's Proposal: Anything worth doing is worth getting someone else to do.

Peter's Proposal operates in this manner. Every club should have several officers, each of whom may have something to say in each and every issue of the newsletter. The president is always wanting more help with meeting programs, tutorials and workshops. The secretary has to publish the minutes. The librarians are always pleading for more programs. The membership chairperson has to flaunt a long list of the people that joined the club last month. The treasurer is obligated to point out that the club is losing money. In fact, as editor you may have difficulty getting them to shut up!

There is also the small matter of the club membership and that survey you sent out. Even though the officers were elected by the majority of the club, they are just a small minority taking up lots of expensive paper in a newsletter. An editor must try to defy the precepts of Kitman's Law: Pure drivelt tends to drive ordinary drivelt off the TV screen.

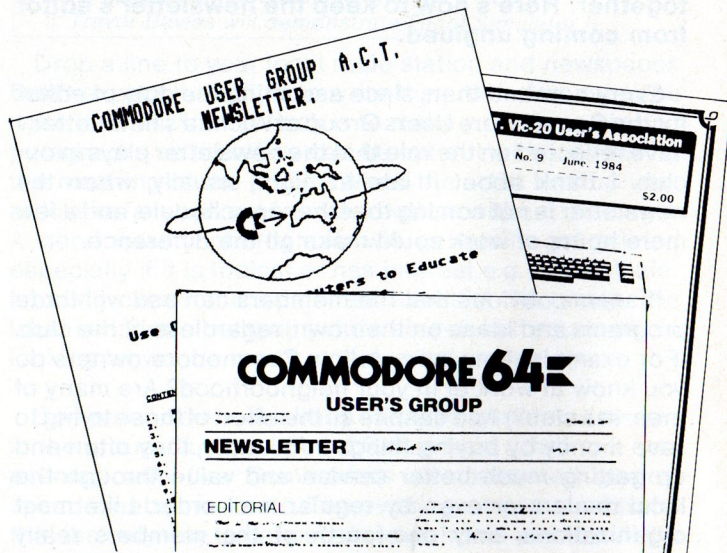
Until the members get over an initial reluctance to write for the newsletter, it is usually necessary to provide good examples. This also helps prove to the other officers that they aren't writing all the newsletter! Before I discuss sources of material, consider Table 1, a typical list of items in a newsletter. Certainly there is no minimum number of these in a good newsletter, just as there are many more possibilities not listed here.

Table 1 Computer Club Newsletter Items

Club officer Names and Telephone Numbers
Table of Contents
Club Officer's Messages:
 President's Page
 Librarian's Letter
 New Members
 Treasurer's Report
 Minutes of the Last Meeting
Meeting Schedule
Meeting Map
Program Library Access
News and Rumours
New Products
Club Classified
Product Reviews
How To Do It (Tutorial)
Program of the Month
Hardware Construction
Modem Talk
Cartoons

The Great Paper Chase

I have always believed that a club newsletter should consist of articles written by the members. Sometimes, though, all those articles that were supposed to arrive before the deadline, don't. Every now and then a new development just has to be in the next newsletter. The first few issues, of course, should contain some articles of interest until the local articles are written. Where does this material come from?



One of the best places to start looking for newsletter material is the magazine you are reading right now. Try contacting some of the other user groups around the country, listed elsewhere, and you can get examples of some of the best newsletters. Generally, it is good manners to return the favor and place those clubs on your mailing list. Besides providing articles and gossip, they will show many creative formats for a club newsletter. Computer bulletin boards and teletext services also provide a good source for up-to-date material. The magazine itself, of course, will have some of the latest news that may bear repeating. If you are industrious, it is worthwhile to scan several magazines and trade journals for that interesting tidbit. I regularly look at about thirty publications a month, which is just a fraction of what is available.

Don't forget to send Kim Books and Commodore your club's name and address! This will be published in our Magazine, showing everyone that a new active user group has been formed. Several third party manufacturers mail to this list, so your club will also eventually be sent a lot of new product announcement literature.

One of the astounding things about editing a computer club newsletter is how easy it is to get review material. New programs and hardware are being produced so fast that many dealers cannot possibly keep up. Most dealers will appreciate the opportunity to work with the local user group and to hear exactly what their customers think of a product, so it should be fairly easy to borrow evaluation samples. Make sure to give proper credit to the dealers in your newsletter; this is one way they are supporting your club. And, naturally, some care is required in recruiting people to do the reviews!

The Nitty Gritty Newsletter Band

Once the sources of material have been located and tapped, the newsletter editor must face up to the really difficult decisions. It is necessary to collect the articles, lay out the newsletter format, perhaps make up a mailing list, get the newsletter printed and send it out. After the first few issues it is easy to see that the writing and article solicitation is the fun part; getting the issues out can easily become a chore. But it is possible to nearly eliminate that tedium and still produce something your club can be proud of.

Format, Printing and All That Jazz

When it comes time to put together a publication and send it out, no matter what it is, there is one thing that should be foremost in the editor's mind. MONEY!!! Yes, it sounds petty, even cheap. Certainly the editor should be concerned about quality, good layout and content. But think about this: the newsletter can be the single greatest expense for a club. Finding some way to save a penny here or there means both lower dues and more funds to purchase needed equipment and supplies or maintain a club computerized bulletin board. In the case of our user group, the dues are set entirely on the cost of producing a newsletter, estimated at US\$1.25 per member per issue, or US\$15 per year if we can produce 12 issues. Of course the actual cost can vary a lot, as we shall see.

There are several ways a newsletter can be laid out. The simplest format is very easy. Simply set the margins to 23.5mm (¾") that is 7 characters at 10 cpi, on the left and 12.5mm (½") on the right (5 characters), and provide enough margin at top and bottom to allow for misalignment during the copy process (12.5mm). A standard A4 sheet (297mm x 210mm) should be used. To make the process easier, the items should be typed or printed out separately, and then pasted up on the final sheet. 'Paste' is a generic term. The articles can be attached to the final page with 'magic' transparent tape, rubber cement, special layout gluesticks or wax, if you have access to a waxing machine. (Those of you with access to professional typesetting services that provide camera-ready copy on an adhesive backing may not need the advice in this article anyway!). Adhesive backed typesetting is very rare in Australia but most typesetters can wax your typesetting which is almost the same thing.

The easiest method for an editor is wax, which the printer despises. Rubber cement is unhealthy and your thinking tends to get distorted just when you need it most. Tape is a one time operation that requires a sharp knife if you make a mistake. It is best to try all the methods to find what you can get along with. After paste-up, it is essential to apply page numbers for easy reference during printing and collation.

Now isn't that simple? Not if you are a penny-pincher! First, it is wasteful of paper. Second, if you are concerned with providing copy that is easy to read, the long line lengths just won't do. The first improvement is to print on

both sides of the paper. This requires laying out pages so that one edge can be punched for notebooks (the wide margin). Half the layout pages will have the wide margin on the left side, the rest will have it on the right side. Since the printer will copy both sides, you should use a separate layout sheet for each page in case of mistakes. Carrying things to great extremes, it is possible to use a size-reduction step before the final copy. This allows putting four pages of full-sized printing on a single sheet of A4 (297mm x 210mm) paper, with the lines aligned along the length of the paper and two printed pages side-by-side. However, this process requires at least letter-quality printing with a good quality copying process. It also makes your job a lot more difficult, since pages and sheets of paper no longer coincide. Numbering the pages isn't easy, and the printer will really get a headache collating and stapling the thing. However, this is exactly how many magazines are assembled. With the reduction step, it is possible to actually put the equivalent of five pages on a single sheet of paper, since the layout page can be thirteen inches (330mm) long.

Photo-reduction is great if paper is expensive, or you send all your newsletters airmail, but what if your main concern is legible issues? In our group, we found that far too many people simply couldn't see that kind of print. (I won't say that this had anything to do with age. They might club me to death with their canes.) Also, program listings cannot be reduced well at all.

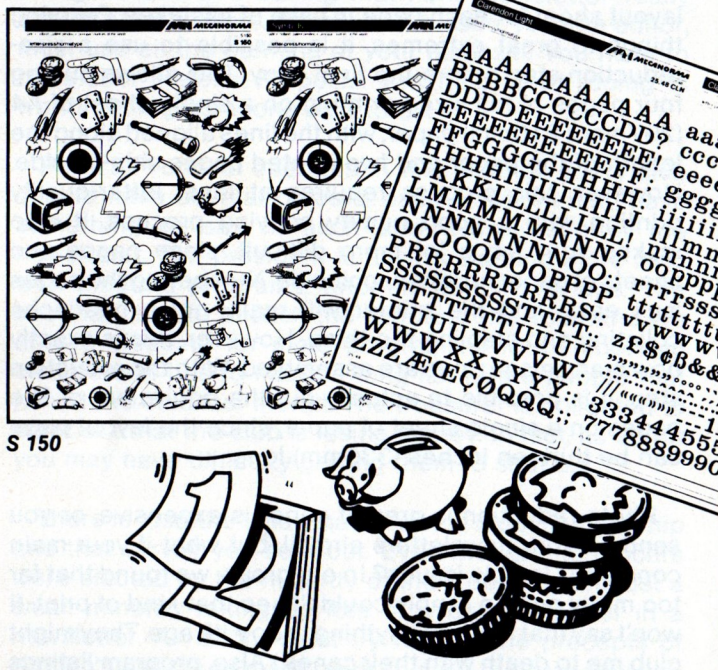
If you are mainly concerned with legible copy, line length must be dealt with. The reason that newspapers are printed in narrow little columns is that narrow columns make it easier to read that tiny print and it is easier to lay out the pages. We can take the same principles to heart and put multiple columns on a page. If the standard page size is used, two columns are practical. If the page is laid out sideways or on larger paper, then three columns may be used. In any case, make sure about three-eighths inch (approx 7mm) separates the columns. One drawback to columns is the use of right-justification with word processors. Unless you use a word processor with a very sophisticated word-split capability, the columns will end up with large gaps as the word processor tries to align the words.

Before we move on I should mention printing costs. This varies a lot from area to area. Some clubs even have sponsors willing to donate printing. If you must go to a printer, be sure and send out a request for bids to several printers to obtain the best rate. The request should tell how many issues you will be printing, how many pages per issue, what type of printing process and if you anticipate much growth in circulation. Don't forget any stapling or collating requirements.

Old Artists Never Die, They Just Paint Themselves Into A Corner!

Of course, this is a fate that an editor avoids each and every issue. A good part of this is because the editor adapts the artist's tools for the sake of good text presentation, entertainment, but above all, to get rid of those unsightly gaps between the articles. Sometimes

the filler material can overwhelm a newsletter, but it is essential for a pleasing appearance. I cannot really do justice here to all the many ways to apply graphics to newsletters. Instead, I suggest looking at magazines and other newsletters to get some ideas.



MECANORMA

Probably the best source for graphic material is the transfer sheets available in office supply stores. These dry transfer sheets have interesting letter styles for titles, short items and page numbers. Some have oddball items like mathematical symbols, pointing hands or border graphics. If you have a hard time drawing uniform lines where needed and you don't feel like purchasing an expensive drafting pen set, adhesive pin striping may be applied. If your newsletter circulation is sizable, it is possible to purchase computer cartoons for use. Many cartoonists will send sample material out to clubs listed this in magazine. (Unfortunately in Aussie many of the lesser cartoonists charge by their ego and not by their skill. They are also reluctant to send samples unless you are a known publisher or recognised agency - but give it a try.)

Roundup At The OK Post Office

Everyone knows how to mail things, but how many mail bulk? Among the many ways an editor can save money, the main consideration is always postage costs. Say your issue is firming out to sixteen pages or eight sheets of paper copied both sides. You can Pre-Sort and Bulk mail these if you are posting more than 1000,(very generous!!) or you can apply for a Category B classification, which will cost:

- Application for category B Registration - \$30 p.a.
- Renewal of category B Registration - \$30 p.a.
- If your newsletter is up to 50gms Post should cost 18 - 19c/unit.

For example The Commodore Magazine weighs 190gms. This falls into Category B (100-250gms), costing 23 cents to mail anywhere in Australia. These charges apply only to pre-sorted articles. We advise you to ask at your local post office for further information. Pre-sorting is really no chore if your mailing list is computerized, and we know there is no excuse for that, right?

Any Sufficiently Advanced Technology Is Indistinguishable From Magic

Oh yes, all of this article collecting, editing, printing and mailing is supposed to be easy. Almost like magic (ahem!). A computer club can turn on the magic like no other, for computers are the name of the game. With a reasonable collection of word processors at your disposal, it is easy for a member to write an article to go directly into your newsletter format. Spelling checkers and utilities can help find errors and perform the newsletter layout. Items can go directly from a computerized bulletin board into the next issue. Mailing list programs can help keep a current list of members and subscribers, sorting and printing mail labels and reports.

As I mentioned before, there is only one tough job a newsletter editor has: deciding the organization of an issue. Sometimes the content must also be judged. There will be some demand for commercial advertising, so rates will have to be set (I recommend adding 30% to your cost of publishing a newsletter in six months. This prevents subsidizing the ads). How many reviews are too many? Is quantity better than quality? Should each issue have a program listing or two? Whose article gets put on page one? Should circulation be promoted, even if it means stepping on the membership chairperson's toes?

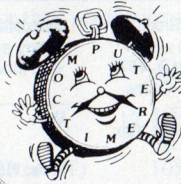
In this case, there is one good lesson we can learn from video games. It's not fun unless it is a challenge. Editing a newsletter is fun. It's a service to the club and the computer community. It raises the low and entertains the mighty. Progress marches on. Newsletters instill confidence and good manners. Above all, like this article right here, they totally conform to Feuchtwanger's Law: There's only one step from the sublime to the ridiculous, but there's no road leading back from the ridiculous to the sublime. AMEN.

from POWER/PLAY Aug/Sept 1984



- Australianized by Denise Elkins

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	\$39.95 (T) \$34.95	

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Commodore	801	Printer's
Commodore	802	Printer's
Commodore	1101	Printer's
Epson	RX80	Printer's
Epson	RX80FT.	Printer's

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Typing Tutor (T)	\$19.95	\$18.50
Typing Tutor (D)	\$24.95	\$23.50
Calc Result Advanced (D)	\$200.00	\$189.00
Calc Result Easy (C)	\$100.00	\$93.50
Multiplan (D)	\$150.00	\$142.00
CPM (C/D)	\$80.00	\$75.00
Assembler (D)	\$60.00	\$55.00
Koala Pad (D)	\$149.50	\$142.50

MERIDIAN BUSINESS PACKS FOR THE C64

Debtors (D)	\$100.00	\$95.00
Creditors (D)	\$100.00	\$95.00
Stock Control (D)	\$100.00	\$95.00
Invoice/Sales Analysis (D)	\$100.00	\$95.00
General Ledger (D)	\$100.00	\$95.00

ENTERTAINMENT SOFTWARE

Flight Simulator (D)	\$79.95	\$77.95
International Soccer (C)	\$30.00	\$28.00
China Miner (T)	\$24.95	\$23.50
China Miner (D)	\$29.95	\$28.50
Thermonuclear War Games (T)	\$19.95	\$18.50
Thermonuclear War Games (D)	\$24.95	\$23.50
Ski Devil (T)	\$19.95	\$18.50
Vortex Raider (T)	\$24.95	\$23.50
Vortex Raider (D)	\$29.95	\$28.50
Zone 6 (T)	\$19.95	\$18.50
Zone 6 (D)	\$29.95	\$28.50
Secret of Barstow Manor (T)	\$19.95	\$18.50
Secret of Barstow Manor (D)	\$24.95	\$23.50
Metro Blitz (T)	\$29.95	\$28.50
Metro Blitz (D)	\$34.95	\$33.50
Crosswords (D)	\$24.95	\$23.50
Crosswords (T)	\$19.95	\$18.50
The Hobbit (C)	\$39.95	\$37.95
Guide to playing the Hobbit		\$9.95
Blogger (T)	\$19.95	\$18.50
Blogger (D)	\$24.95	\$23.50

ENTERTAINMENT SOFTWARE

Son of Blagger (T)	\$19.95	\$18.50
Son of Blagger (D)	\$24.95	\$23.50
Loco (T)	\$19.95	\$18.50
Loco (D)	\$24.95	\$23.50
Miner 2049 er (C)	\$59.95	\$57.95
Cuddly Cuburt (T)	\$24.95	\$23.50
Cuddly Cuburt (D)	\$29.95	\$28.50
Mummy's Tomb (T)	\$29.95	\$28.50
Space Mayhem (T)	\$19.95	\$18.50
Neoclyps 64 (T)	\$29.95	\$28.50
Climber (T)	\$19.95	\$18.50
Star Post (C)	\$30.00	\$27.95
Kickman (C)	\$30.00	\$27.50
Stella Wars (T)	\$12.00	\$10.50
Labrinth (T)	\$12.00	\$10.50
Sooper Fruit (T)	\$12.00	\$10.50
Depth Charge (T)	\$12.00	\$10.50
Super Grider (T)	\$24.95	\$22.95
Stock Market (T)	\$25.95	\$25.00
Data Form (D)	\$24.95	\$23.50
Data Form (T)	\$19.95	\$18.50
Beach-Head (G)	\$29.95	\$28.50
Beach-Head (D)	\$39.95	\$38.50
Pit Stop (C)	\$39.95	\$38.50
Pogo Joe (D)	\$34.95	\$33.00
Pogo Joe (T)	\$29.95	\$28.50
Strip Poker (D)	\$39.95	\$37.95
Choplifter (C)	\$54.95	\$52.50
Loderunner (C)	\$39.95	\$37.95
Cops & Robbers (T)	\$24.95	\$23.50
Dragonsden (C)	\$30.00	\$28.50
Gridrunner (T)	\$21.95	\$20.75
Grand Master (T)	\$24.95	\$23.50
Grand Master (D)	\$34.95	\$33.50

ADVENTURE GAMES

Lords of time (T)	\$25.00	\$23.50
Colossal Adventures (T)	\$25.00	\$23.50
Dungeon Adventures (T)	\$25.00	\$23.50
Snowball (T)	\$25.00	\$23.50
Ultima II (D)	\$44.95	\$42.95
Ziggurat (D)	\$39.95	\$37.95

ADVENTURE GAMES

Dunzhin (T)	\$35.00	\$33.50
Kaiv (T)	\$35.00	\$33.50
The Wylde	\$35.95	\$34.50
The Institute (D)	\$39.95	\$37.95
Zork I (D)	\$25.00	\$23.50
Zork II (D)	\$25.00	\$23.50
Zork II (D)	\$25.00	\$23.50
Reach for the stars (D)	\$39.95	\$37.95

ENTERTAINMENT

Retro Ball (C)	\$56.95	\$55.50
Slinky (D)	\$25.95	\$24.50
Cave Kooks (T)	\$16.95	\$15.95
Crush, Crumble and Chomp (T)	\$45.95	\$44.50
O Riley's mine (D/T)	\$59.95	\$58.25
Snokie (C)	\$59.95	\$58.25
Jawbreaker 11 (D)	\$41.95	\$40.00
Laserzone (T)	\$22.95	\$21.95
Summer Games (D)	\$29.95	\$28.50
Brands (T)	\$19.95	\$18.95
Eagle Empire (T)	\$19.95	\$18.95
Gridtrap (T)	\$19.95	\$18.95
Jumpin Jack (T)	\$19.95	\$18.95
Triad (T)	\$19.95	\$18.95
Turmoil (D)	\$49.95	\$48.50
Rootin Tootin (C)	\$49.95	\$48.50
Squish'em (D)	\$48.95	\$47.50
Curse of RA (D)	\$29.95	\$28.50
The Factory (D)	\$54.95	\$53.50
Fast Eddie (D)	\$48.95	\$47.50
Bat Attack (T)	\$19.95	\$18.95
Super Dogfight (T)	\$19.95	\$18.95
Snooper Troops (D)	\$54.95	\$53.50
Snake Byte (D)	\$50.95	\$49.50
Cosmic Tunnels (D)	\$49.95	\$48.50
Trains (D)	\$49.95	\$48.50
Aerobics (D)	\$49.95	\$48.50
Sea Fox (C)	\$48.95	\$47.50
Dino Eggs (D)	\$54.95	\$53.50
The Blade of Blackpoole (D)	\$59.95	\$58.25
Perplexian Challenger (D)	\$44.50	\$43.00

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USER GROUPS

Continued on page 58

The Who, where and what of user groups.

User Groups who have made contact

NSW ACT

Name: 486 SQN Commodore User Group
Secretary: R.J. Nichols
Address: 486 SQN Elec Sect, RAAF Base, Richmond, NSW, 2755
Meetings: Whenever Possible, 486 SQN
Description: To assist each other with operation of computers.

Name: The ACT VIC-20 Users Association
President: Chris Groenhout
Address: 25 Kerferd St, Watson, ACT, 2602
Meetings: First Monday of the Month, 7.30pm-10pm, Boy's Grammar Scout Hall
Description: We do not have members as such but run a magazine to which people subscribe and are thought of as members. The association also runs a software library of over 530 programmes.

Name: Commodore User Group (A.C.T.)
Secretary: Peter Thompson
Address: P.O. Box 599, Belconnen, ACT, 2616

Meetings: Fortnightly
Description: Very active group that produces an informative newsletter and a comprehensive software library. This group has actively assisted several groups in their formative stages.

Name: Southern Districts Commodore Users Group
Secretary: Lex Toms
Address: 3 Lucille Cr., Casula, NSW, 2170
Meetings: Not Advised
Description: Very active and growing group. It encourages country members and produces an informative newsletter (50c). Has a software library.

Name: Wollongong C64 Users Group
Secretary: Peter Stanhope
Address: 155 Jacaranda Ave, Figtree, NSW, 2525
Meetings: Monthly
Descriptions: Two groups (beginners and advanced), each of which meets once a month. Magazine, disk and tape libraries. Members have access to over 100 different tape programmes. Classes for beginners, and for the more experienced.

VIC

Name: Geelong Commodore Computer Club
Secretary: D. Gerrard
Address: c/- 15 Jacaranda Place, Belmont, VIC, 3216
Meetings: Not Advised
Description: New Group

Name: Commodore 64 User Group
Editor: F.A. Martin
Address: 46 Studley St, Abbotsford, VIC, 3067
Meetings: Not Advised
Description: A very professionally produced newsletter. Software library. It seems to be a combination of a number of groups ie. PRAHAN GROUP, DONCASTER CENTRAL GROUP etc.

QLD

Name: Southport Commodore Computer User Group
Treasurer: J. Smith
Address: P.O. Box 790, Southport, QLD, 4215
Meetings: Labrador State School, Mondays 7pm-10pm
Description: Further knowledge of computing. Software library and computer newsletter.

Name: Cairns Commodore Users Group
Secretary: Walter Kindt
Address: 42 Langan St, Cairns, QLD, 4870
Meetings: Tuesday each fortnight. Cairns Education Centre
Description: Programming and Games. Has newsletter.

Name: Saint La Salle PC Users Group
Secretary: M. Tyler
Address: De La Salle Library, Scarborough Rd, Scarborough, QLD, 4020
Meetings: After School in Library, Mon & Fri
Description: Not Advised

Name: Commodore Computer User Group (Townsville)
Secretary: Tony Moore
Address: 1 Paxton St, Townsville, QLD, 4810
Meetings: Computer Room, St Ignatius Park College, 7.30pm, 1st wednesday of the Month

Description: Very active group with software library and newsletter. Strong contacts with other groups.

WA

Name: VICHIPS Computer User Group
Secretary: Ron Teague
Address: 48 Hercules St, Rockingham Park, WA, 6168
Meetings: Rockingham High School, Mon - 7.30pm
Description: We differ from most user groups as we have taken as part of our charter to establish a wide and active community base and have worked to ensure that Commodore Computers are introduced into the schools in our area, with the commitment to those schools that we would support them in every way, I am happy to say that we have had a great deal of success.

NEW ZEALAND

Name: Christchurch Commodore Users Group
Secretary: John Kramer
Address: P.O. Box 15-024, Christchurch, 8000, New Zealand
Meetings: 4th Monday 7.30pm Chefs Hall, Bedford Row
Description: We are one of the largest groups in NZ with members spread right throughout the country and a few overseas. At present we are in the process of getting enough members with modems to warrant the setting up of a bulletin board.
Name: Nelson Commodore Users Group
Secretary: Steph Cocker
Address: P.O. Box 860, Nelson, New Zealand
Meetings: Stoke School, 7.30pm, third Thursday
Description: Group lists its interest as education and general computing

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Sample Constitution

We'd like to thank the COMMODORE USER GROUP (ACT) for their permission to print this draft constitution as a sample for other groups.

THIRD DRAFT THE CONSTITUTION OF COMMODORE USER GROUP (ACT)

1. The name of the group shall be: COMMODORE USER GROUP (ACT)
2. In this constitution unless inconsistent with the context or subject matter: wherever expressed the singular includes the plural and vice versa and words importing gender include both male and female.
"annual meeting" means the annual general meeting.
"member" means a fully paid subscriber.
"month" means calendar month.
"group" means COMMODORE USER GROUP (ACT).
"the committee" means the duly elected committee for the time being, until the next annual general meeting.
"quorum" means; for the committee - 7 committee members, for general meetings - 20% of members, or a minimum of 25.
3. **AIMS.**
 - i. exchange of ideas and information amongst members,
 - ii. assisting new computer owners in getting started, and
 - iii. promoting the use of personal computers for educational and recreational use.
4. **MEMBERSHIP.**
 - i. The group shall consist of:
 - a. Ordinary members,
 - b. Life members,
 - c. Honorary members.
 - ii. Membership shall be open to all persons upon application on the prescribed form, and upon payment of a subscription
 - iii. Acceptance of an application for membership may be reserved if it is considered by a quorum of the committee that acceptance may be contrary to the best interests of the group. Acceptance of the application is to be referred to the members of the group for decision at a general meeting.
5. **ORDINARY MEMBERSHIP.**

Payment of subscription entitles the person nominated on the application form and members of his immediate family to all rights and privileges of membership. The nominated person only receives voting rights.
6. **LIFE MEMBERSHIP**
 - i. On the recommendation of the committee, and with the consent of a two thirds majority of the members present at the annual meeting, a person may be granted Life Membership with all the rights and privileges of membership without payment of annual subscription;
 - ii. Grounds for the award of Life Membership shall include:
 - a. exceptional service to the group,
 - b. seven (7) years service on the committee.
7. **HONORARY MEMBERSHIP.**

On the recommendation of the committee, and with the consent of a two thirds majority of the members present at the annual meeting, a person, company, or group may be granted Honorary Membership. Honorary Members shall be entitled to all rights and privileges of membership except that they shall not be entitled to vote at meetings and shall not be eligible for election to the committee.
8. **SUBSCRIPTIONS.**

The amount of the annual subscription is to be determined at the first annual meeting and may be reviewed at a general meeting. A reduced rate of subscription will apply to new members joining midway through the subscription year, the amount to be determined at a general meeting.
9. **PAYMENT OF SUBSCRIPTION.**
 - i. Annual subscriptions shall be due and payable on the 1st day of July each year. For 1984 only subscriptions will cover the period 1 January to 31 December. On 1 January 1985 a subscription of one half (1/2) the annual subscription shall be due and payable. The full annual subscription shall be due and payable on 1st of July 1985.
 - ii. Membership will lapse after subscription is two months overdue.
 - iii. Unfinancial members may not vote, or receive the benefits of membership.
10. **MEMBERSHIP CARDS.**

Membership Cards will be issued to all members.
11. **REGISTER OF MEMBERS.**

The Secretary shall keep and maintain a register of members in which shall be included the full name and address of each member, and the status of the

member ie. Ordinary, Life, or Honorary. An updated copy of this register shall be given to the Treasurer and Editor at least every three months.

12. **LEVIES.**

At annual general meetings or special general meetings a levy not exceeding 10% of the annual subscription may be imposed.

13. **RESIGNATION OF A MEMBER.**

A member may resign his membership at any time by letter addressed to:
The Secretary
Commodore User Group (ACT)
PO Box 599
BELCONNEN
ACT 2616

14. **SUSPENSION OF A MEMBER.**

- i. The quorum of the committee may suspend, for a period not exceeding three (3) months, the rights and privileges of membership of any member who, in its opinion, has wilfully infringed or disregarded any rules or whose conduct as a member has, in the opinion of the quorum, been contrary to the best interests of the group.
- ii. A quorum of the committee shall not suspend such rights and privileges without first giving that member the opportunity to appear before them to show cause why his rights and privileges should not be suspended.
- iii. Should a member be suspended for a second time within 18 months, consideration will be given to termination of membership at a general meeting.

15. **LIABILITY OF MEMBERS.**

No member shall be personally liable to contribute to the discharge of any debts or liabilities incurred by the committee.

16. **FUNDS.**

The funds of the group shall be derived from:

- i. Annual subscriptions payable by the members of the group,
- ii. Moneys received from the sale of goods and the provision of services,
- iii. Donations and bequests.

BY-LAWS

1. **ANNUAL GENERAL MEETING.**

The annual general meeting shall be held once yearly on or before the thirtieth of April.

2. **NOTICES.**

Twenty one (21) days notice of the annual general meeting shall be given to every member by the placement of an advertisement in the Canberra Times and in the groups' newsletter not less than 21 days before the meeting.

3. **MEMBERS MAY CALL AN ANNUAL GENERAL MEETING.**

If the committee does not call an annual meeting on or before the thirtieth (30th) of April in any year, fifteen (15) members may call the annual meeting for any day in May not less than fourteen (14) days before the date appointed by them for the meeting.

4. **SPECIAL GENERAL MEETINGS.**

Special general meetings may be called at any time by a quorum of the committee by giving twenty one (21) days notice to each member by notice in the group newsletter. No business other than that specified in the notice shall be transacted at a special general meeting.

5. **COMMITTEE MEETINGS.**

The committee shall meet as necessary to conduct the business of the group. Committee meetings shall be held at least once each quarter. Group members other than committee members may, at the invitation of the President, attend committee meetings and contribute to the business of the meeting but may not vote on resolutions taken by the committee.

6. **ORDINARY MEETINGS.**

- i. The group shall normally hold regular twice monthly meetings. These are not business meetings but are for the purpose of providing activities and talks of interest to members.
- ii. An ordinary meeting may become a special general meeting, provided that the required notice is given within the provisions of clause 4 of the by-laws.

7. **NOTICE OF MOTION.**

Notices of Motion for the annual general meeting must be received by the Secretary before the twenty eight (28th) of February.
For 1984 only - 31st March.

8. QUORUM.

No business shall be conducted unless a quorum is present. If a quorum is not present a special general meeting shall be called as soon as practicable.

9. AGENDA FOR ANNUAL GENERAL MEETING.

- i. Opening of the meeting.
- ii. Apologies.
- iii. Minutes of the previous Annual General Meeting and committee meeting.
- iv. Reports from the committee.
- v. Election of officers.
- vi. Notices.
- vii. General business.

10. VOTING.

Voting at general meetings shall be by show of hands or otherwise as the President may direct.

11. PRESIDENT.

At all business meetings the President shall preside, in his absence the meeting shall be conducted by the:

- i. Vice-President.
- ii. Treasurer.

12. MINUTES.

The Secretary shall record the proceedings of general meetings and committee meetings and make them available for perusal by any member.

13. FINANCIAL YEAR.

The financial year for the group shall end on the twenty eighth of February in each year, to which day the accounts of the group shall be balanced and audited. For 1984 only, the financial year shall end on the thirty first (31st) of March.

14. POWER TO VARY CONSTITUTION AND BY-LAWS.

This constitution and by-laws may be added to, repealed, or amended by resolution at any general meeting provided that no such resolution shall be deemed to have passed unless it be carried by two thirds (2/3) of members present.

15. ELECTION OF COMMITTEE.

At the annual general meeting of the group, nominations having been called, six (6) members shall be elected to the following offices:

- i. President
- ii. Vice President
- iii. Secretary
- iv. Treasurer
- v. Librarian
- vi. Editor

plus six (6) ordinary committee members to assist with the preceding offices. All nominations shall require a seconding voice and consent of the nominated member to be accepted.

16. TENURE OF OFFICE.

Committee members shall hold office until the next annual general meeting or as otherwise determined at a special general meeting.

17. CASUAL VACANCIES.

If a casual vacancy occurs, due to the death of a committee member or resignation from the committee, the vacancy may be filled by a show of hands, or by appointment by the committee until the next annual general meeting or special general meeting.

18. DUTIES OF OFFICE BEARERS.

- i. President.
 - a. The President shall preside at business and committee meetings.
 - b. The President or his representative shall represent the group on official business.
 - c. The President shall present to members at the annual general meeting a report on activities or business that have significantly affected the state of affairs of the group.
- ii. Vice-President.
 - a. The Vice-President shall assist the President in the discharge of his duties, and in the absence of the President shall act in his place.

iii. Secretary.

- a. The Secretary shall record the proceedings of all general meetings and committee meetings and make them available for perusal by any member.
- b. The Secretary shall maintain a register of members as in clause II of the constitution.
- c. The Secretary shall issue all notices for meetings and other such notices as may be directed by the committee and members.
- d. The Secretary shall present to the committee all correspondence directed to the group which may be received and shall prepare outgoing correspondence.
- e. The Secretary will present to the Treasurer a monthly detailed account of moneys spent by him with receipts for any item in excess of twenty dollars (\$20).

iv. Treasurer.

- a. The Treasurer shall collect and receive all moneys on behalf of the group, shall give receipts for the same, and bank such moneys in an account in the name of the group at a financial institution approved by the committee.
- b. The Treasurer shall maintain a proper system of accounting for all moneys received and disbursed on behalf of the group.
- c. The Treasurer shall produce a statement of accounts each quarter and publish the statement in the groups newsletter.
- d. The Treasurer shall submit accounts for audit for the year ended the twenty eighth (28th) of February for submission at the annual general meeting.
For 1984 only - 31st March.

v. Librarian.

- a. The Librarian shall maintain the group library of publications, periodicals and public domain software.
- b. The Librarian shall arrange for the provision of public domain software from the group library to members as requested.
- c. The Librarian shall collect and receive, on behalf of the group, all moneys from members in payment for provision or copying of public domain software, and shall account to the Treasurer for this money.

vi. Editor.

- a. The Editor shall edit and publish the group newsletter.
- b. The Editor shall distribute the group newsletter to members at meetings or by post if so requested.
- c. The Editor will present to the Treasurer a monthly detailed account of moneys spent by him with receipts for any item in excess of twenty dollars (\$20).

19. POWERS OF COMMITTEE.

The committee shall have the power to:

- i. conduct the general business of the group.
- ii. reserve acceptance of an application for membership subject to the provisions of clause 4 iii of the constitution.
- iii. suspend a member subject to the provisions of clause 14 of the constitution
- iv. produce and circulate a newsletter, and to pay for the same out of club funds.
- v. purchase or otherwise acquire books, periodicals, programs and disks for the group library.
- vi. open an account with a financial institution for the purpose of conducting the group's business. Cheques (Withdrawal forms) to be signed by any one of the committee members nominated from the President, Secretary, Treasurer, or Editor.
- vii. spend a maximum of two hundred dollars (\$200) on capital equipment on any one occasion without a majority vote from members.
- viii. fill positions falling vacant on the committee until the next annual general meeting or special general meeting.

20. INTOXICATING LIQUOR.

No person, whether a member of the group or not, shall bring to or consume intoxicating liquor at meetings of the group without the approval of the committee.

21. DISSOLUTION OF THE GROUP.

If at any annual general meeting or special general meeting a resolution for the dissolution of the group shall be passed by a majority of the members present and such resolution shall at a special general meeting held not less than one month thereafter at which not less than one half of the members shall be present be confirmed by a resolution passed by a majority of two thirds of the members voting thereon the committee shall thereupon or at such future date as shall be specified in such resolution proceed to realise the property of the group and after the discharge of all liabilities shall divide the same either equally among all the current ordinary and life members, or in other ways as determined by the members, and upon the completion of such division the group shall be dissolved.

Random Numbers on the C64

by Greg Perry

Want to calculate your Pools or Lotto entries, or write a simulation program (or game) that mimics statistical results? You need random numbers! Unfortunately, many users seem to get confused when trying to use random numbers on the VIC/C64. (Especially those who have grown up with the earlier PETs!) In this article, we will take a look at the RND function and how to use it on the VIC/C64.

The first principle to establish is that random numbers are not in fact truly "random", if indeed such can exist. The RND(X) function calculates a determinate floating-point number between 0.0 and 1.0 by a mathematical formula. Depending on the sign of the argument fed to the argument fed to the equation (X can be +ve, -ve or 0) a particular pseudo-random number will be generated. The "seed" for each calculation is stored in memory locations 139-143. These are set to a constant when the computer is switched on (on my C64 (all?) to 128,79,199,82,88 to give the first RND(1) of .185564016), and every subsequent call of RND resets (re-seeds) this value.

RND(+ve)

Any positive argument generates the the next pseudo-random number from the current seed, then resets the seed for the next calculation. The actual value of the argument is irrelevant, RND(1) and RND(1256) do the same job. This process generates numbers in an apparently infinite sequence. However, West in "Programming the PET/CBM" suggests that after about 45000 repetitions the numbers lose their "randomness". This is the argument that should be used in most cases.

RND(0)

A zero argument takes its seed from the system hardware clock which changes every millionth of a second over a range of 0-16383. (From the CIA timer at locations 56324 and 56325.) It DOES NOT seed from the TI variable as some books say. Although RND(0) probably can be considered to generate the most "random" numbers, the problem is that the seed can only be one of 16384 possible values at best. And, since every 60th of a second the SAME seed value is used, as well as the fact that most programs perform a sequence of repetitive instructions, there is a fair chance of generating a very similar "random" number, for example 0.308594167 and 0.308594823. This causes difficulty when we wish to generate numbers over a small range, say 0-30.

RND(-ve)

A negative argument is quite different. It seeds the random number generator with a specific value depending on the value of the argument. This is always the same for the same argument. A RND(-ve) is used specifically to initialize the random seed to a set value so

that we may generate a specific repeatable sequence of random number with subsequent calls to RND(+ve). The best way to generate a "random" seed for a non-repeatable sequence is with the jiffy clock variable TI. That is, use X=RND(-TI) at the beginning of the program, then get the random numbers with RND(+ve).

The best way to see the difference between RND(0) and RND(+ve) is by a small program which POKES the screen in a supposedly random fashion.

```
100 REM RANDOM SCREEN POKE
110 FOR I=0 TO 10000
120 N=RND(1)*1000
130 POKE 1024+N, 1 :REM SCREEN RAM
140 POKE 55296+N,1 :REM — COLOUR RAM
```

** Line 140 is only needed on C64s made before approximately January 1984.

RUN the program and see what happens. The program will fill the screen with the 'A' character in a fairly random pattern until, at the end, if we let it run for long enough, the whole screen will be filled.

Now, change line 120 to use RND(0), clear the screen and re-RUN the program. Notice the difference? This time the 'A' character fills the screen in a definite pattern. No matter how long we let the program continue, the whole screen will never be filled! In this case, RND(0) will generate only 256 different numbers.

Using random numbers

Since the RND function generates a number between 0.0 and 1.0, it is not of much direct use for most cases. What is normally required is a random whole number (integer) between limits, say between 1 and 36 for the pools. This is done by

```
N=INT (RND(1)*(E-S+1)+S)
```

where S=1 and E=36 then N=INT(RND(1)*36+1). This will also generate the special case of numbers between - 1 to +1 by

```
N=INT(RND(1)*3-1)
```

Let's finish with a full "6 from 36" pools program (or lotto, or whatever your addiction).

```
100 DIM N(6)
110 X=RND(-TI)
120 X=INT (RND(1)*36+1)
130 FOR I=1 TO N: IF X=N(I) THEN 120
140 NEXT: N=N+1: N(N)=X
150 IF N<6 THEN 120
160 PRINT "YOUR WINNERS (!) ARE"
170 FOR I=1 TO 6: PRINT N(I);: NEXT
```

.. ps the Commodore Magazine (and me!) will expect a donation if you win!

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STRATEGY

Reprint from PANDORA - KIM BOOKS Adventure Club Newsletter

Ever wondered how a computer can play against a human player in strategy games? Well AI (Artificial Intelligence) is a study on it own. The program below might give you a little insight into AI.

If you are fighting a battle then your strategy has to take into account the weather conditions, location of the enemy, terrain etc.

Many adventures ignore these and other elements, such as range of influence of magic spells.

Map weighting is the art of reducing or increasing the hero or enemy's power according to the grid location he or she is in. You are virtually creating a template or second map that fits over your adventure map reflecting the various elements.

For example your hero may only use 2.5% of energy when walking on flat ground or 12.5% when climbing a hill. He/she then has the decision to take a short cut across a hill and end up with less physical strength or a slower route around the hill but get there with more physical strength.

Imagine an adventure. You and your friend are moving through a 10 x 10 adventure grid, within this grid are two wizards who have combined their forces to over power you.

MW 1.1 is a slow BASIC listing of how you might handle this (ML is really necessary to speed things up).

First set up the program. - LINES 1-60

Now determine where on the 10 x 10 (11-110) grid that you wish to place the heros and give them each a value of +50 - LINE 62

Same for the wizards only with a value of -50 - LINE 63

Let us now look at the map on the screen - LINES 69-100

So far nothing extraordinary. But now we will put a -1 in every grid location that is adjacent to a -ve value and +1 when adjacent to a +ve. We will also introduce colour to help identify areas of influence. - LINES 120-310

To do this we have to create a second grid to transfer the adjacent values from the first. - LINES 358-420

Now we have a useful pattern of influence and you can move heroes and wizards around the grid trying to corner and separate each of the opposing forces (reRUN for each move.)

The influence values can give the computer the information to evaluate various move. This program is to demonstrate the process only.

```
1 GOTO 50
2 SAVE "@0:MW 1.1",8: VERIFY "MW 1.1",8: STOP
50 B=-4
54 DIM A(121): DIM C(121)
60 PRINT "[CLR,DOWN3]"
62 INPUT "A1";M1: INPUT "A2";M2:A(M1)=50:A(M2)=50
63 INPUT "D1";M3: INPUT "D2";M4:A(M3)=-50:A(M4)=-50
69 FOR I=11 TO 110: IF I=M1 OR I=M2 OR I=M3 OR I=M4 THEN
71
70 A(I)=0
71 B=B+4
80 IF B>36 THEN PRINT CHR$(13) CHR$(157):B=0: IF A<10
THEN PRINT CHR$(17);
90 A=A(I)
100 PRINT TAB(B) CHR$(145)A: NEXT I
120 PRINT "[HOME,DOWN]":X=1
259 PRINT "[CLR,DOWN3]"
260 FOR I=11 TO 110:C(I)=0
261 IF A(I)>0 THEN C(I)=A(I)+1
262 IF A(I-1)>0 AND B<<32 THEN C(I)=C(I)+1
263 IF A(I+1)>0 AND B<>32 THEN C(I)=C(I)+1
264 IF A(I-10)>0 THEN C(I)=C(I)+1
265 IF A(I+10)>0 THEN C(I)=C(I)+1
266 IF A(I+11)>0 AND B<<32 THEN C(I)=C(I)+1
267 IF A(I-11)>0 AND B<36 THEN C(I)=C(I)+1
268 IF A(I+9)>0 AND B<36 THEN C(I)=C(I)+1
269 IF A(I-9)>0 AND B<>32 THEN C(I)=C(I)+1
271 IF A(I)<0 THEN C(I)=A(I)-1
272 IF A(I-1)<0 AND B<36 THEN C(I)=C(I)-1
273 IF A(I+1)<0 AND B<>32 THEN C(I)=C(I)-1
274 IF A(I-10)<0 THEN C(I)=C(I)-1
275 IF A(I+10)<0 THEN C(I)=C(I)-1
276 IF A(I+11)<0 AND B<>32 THEN C(I)=C(I)-1
277 IF A(I-11)<0 AND B<36 THEN C(I)=C(I)-1
278 IF A(I+9)<0 AND B<36 THEN C(I)=C(I)-1
279 IF A(I-9)<0 AND B<>32 THEN C(I)=C(I)-1
285 B=B+4:C=C(I):Z=150: IF C>=0 THEN Z=5: IF C>0 THEN
Z=154
290 IF B>36 THEN PRINT CHR$(13) CHR$(157):B=0: IF C(I-1)<-
10 AND C(I-1)<10 THEN PRINT CHR$(145): GOTO 300
291 IF B=0 AND C<10 AND C>-10 THEN PRINT CHR$(13)
CHR$(145)
300 PRINT TAB(B) CHR$(Z) CHR$(145)C
310 NEXT
320 PRINT "[HOME,DOWN]"
340 IF X=3 GOTO 340
358 PRINT "[CLR,DOWN3]"
359 FOR P=10 TO 250: NEXT : PRINT "[CLR,DOWN3]"
360 FOR I=11 TO 110:A(I)=0
361 IF C(I)>0 THEN A(I)=C(I)+A(I)+1
362 IF C(I-1)>0 AND B<36 THEN A(I)=A(I)+1
363 IF C(I+1)>0 AND B<>32 THEN A(I)=A(I)+1
364 IF C(I-10)>0 THEN A(I)=A(I)+1
365 IF C(I+10)>0 THEN A(I)=A(I)+1
366 IF C(I+11)>0 AND B<<32 THEN A(I)=A(I)+1
367 IF C(I-11)>0 AND B<36 THEN A(I)=A(I)+1
368 IF C(I+9)>0 AND B<36 THEN A(I)=A(I)+1
369 IF C(I-9)>0 AND B<>32 THEN A(I)=A(I)+1
371 IF C(I)<0 THEN A(I)=C(I)-1
372 IF C(I-1)<0 AND B<36 THEN A(I)=A(I)-1
373 IF C(I+1)<0 AND B<>32 THEN A(I)=A(I)-1
374 IF C(I-10)<0 THEN A(I)=A(I)-1
375 IF C(I+10)<0 THEN A(I)=A(I)-1
376 IF C(I+11)<0 AND B<<32 THEN A(I)=A(I)-1
377 IF C(I-11)<0 AND B<36 THEN A(I)=A(I)-1
378 IF C(I+9)<0 AND B<36 THEN A(I)=A(I)-1
379 IF C(I-9)<0 AND B<>32 THEN A(I)=A(I)-1
385 B=B+4:A=A(I):Z=150: IF A>=0 THEN Z=5: IF A>0 THEN
Z=154
390 IF B>36 THEN PRINT CHR$(13) CHR$(157):B=0: IF A(I-1)<-
10 AND A(I-1)>10 THEN PRINT CHR$(145): GOTO 400
391 IF B=0 AND A<10 AND A>-10 THEN PRINT CHR$(13)
CHR$(145)
400 PRINT TAB(B) CHR$(Z) CHR$(145)A: NEXT I
420 PRINT "[HOME,DOWN]":X=X+1: GOTO 259
```


DATA DODGER

Paul Blair

The idea for this little routine came from a friend of mine whose work entails a lot of statistical processing. He was having difficulty handling data, because the arrays he set up for efficient operation were not big enough if all data was to be read in at any one time. Could he enter all the data, but operate selectively on only parts of it?

Basic uses a pointer to keep track of DATA values. You may have a table of 200 items, and read them ten at a time at various parts of your program. When you READ for the first time, the pointer is aimed at the very first DATA item. With each READ, the pointer moves on to the next value. You may jump back to the start of your DATA with RESTORE, but there is no standard way (apart from READING all the intermediate values) of jumping forward. Or so I thought.

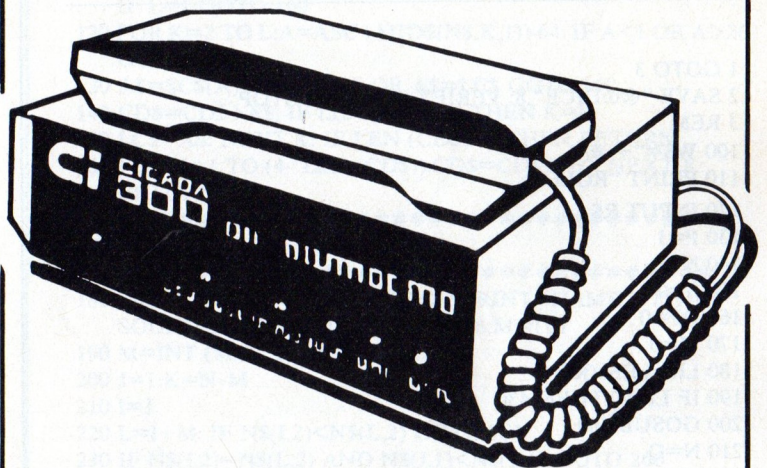
The C64 DATA pointers are stored in locations 65 and 66 (62 and 63 in PET's). By POKEing the values found at locations 61 and 62 (58 and 59) into the DATA pointers, the computer is fooled into READING the DATA beyond the current pointer to the program - hence the physical set up of the demonstration program that follows.

Try it for yourself - it works!

```

10 REM:DATA DODGER
20 :
30 REM:PAUL BLAIR
40 :
50 REM: TO PERMIT SELECTION OF
60 REM: DATA FROM A LONG LIST.
70 :
500 INPUT"WHICH BLOCK";A
510 ONAGOSUB 600,700,800,900:END
520 :
600 PL=PEEK(61):PH=PEEK(62)
601 POKE65,PL:POKE66,PH
620 READA$,B$,C$:PRINTA$,B$,C$
640 DATA FIRST,FRED,3
650 RETURN
660 :
700 PL=PEEK(61):PH=PEEK(62)
701 POKE65,PL:POKE66,PH
710 DATA SECOND
720 READA$:PRINTA$
750 RETURN
760 :
800 PL=PEEK(61):PH=PEEK(62)
801 POKE65,PL:POKE66,PH
810 DATA THIRD
820 READA$:PRINTA$
850 RETURN
860 :
900 PL=PEEK(61):PH=PEEK(62)
901 POKE65,PL:POKE66,PH
910 DATA"FOURTH"
920 READA$:PRINTA$
950 RETURN
    
```

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DICE

all machines

Reprinted from PANDORA the Kim Books Adventure Club Newsletter.

The program allows you to throw any number of die of any number of sides and modify the results.

If you wish to ROLL 3, twelve sided die and multiply the results by 100 you enter:-

3D12*100

```
1 GOTO 3
2 SAVE "@0:DICE",8: VERIFY "DICE",8: STOP
3 REM
100 W$="+*/"
110 PRINT "ROLL";
120 INPUT R$
130 P=1
140 N=0
150 S=0
160 OP=0
170 M=0
180 LR=LEN (R$)
190 IF LR=0 THEN 430
200 GOSUB 660
210 N=Q
220 IF P>=LR THEN 430
230 P=P+1
240 GOSUB 660
250 S=Q
260 IF P>LR THEN 430
270 OP=1
280 IF Q$="+" THEN 360
290 OP=2
300 IF Q$="-" THEN 360
310 OP=3
320 IF Q$="*" THEN 360
330 OP=4
340 IF Q$="/" THEN 360
350 OP=0
360 IF OP=0 THEN 430
370 P=P+1
380 IF P>LR THEN 350
390 GOSUB 660
400 M=Q
410 IF M>0 THEN 430
420 OP=0
430 IF N>0 THEN 450
440 N=1: IF S>0 THEN 470
450 IF S>0 THEN 470
460 S=6
470 IF N<>1 THEN 500
480 R=INT ( RND (1)*S)+1
490 GOTO 520
500 R=INT (.5+N*(S-1)*.51 RND (1))+N
510 IF RND (1)<.5 THEN R=N*(S+1)-R
520 ON OP GOSUB 580,600,620,640
530 PRINT "FOR";N;"D";S;
540 IF OP=0 THEN 560
550 PRINT MID$(W$,OP,1);M;
```

```
560 PRINT "THE RESULT IS";R
570 GOTO 100
580 R=R+M
590 RETURN
600 R=R-M
610 RETURN
620 R=R*M
630 RETURN
640 R=R/M
650 RETURN
660 Q=0
670 Q$=MID$(R$,P,1)
680 IF VAL (Q$)<> ASC (Q$)-48 THEN 720
690 Q=Q*10+ VAL (Q$)
700 P=P+1
710 IF P<=LR THEN 670
720 RETURN
```

ADVENTURE WORKSHEET

- all machines

From Michael Spiteri's new book VIC FAMILY BOOK.

You'll need a printer for this one. The program prints out worksheets for adventurers to keep their mapping notes on.

```
1 GOTO 3
2 SAVE "@0:ADVENTURE WORKSHEET",8: VERIFY
  "ADVENTURE WORKSHEET",8: STOP
3 REM # LINES 1, 2 & 3 OPTIONAL #
10 PRINT "[CLR,SPACE]ADVENTURE WORKSHEET"
15 PRINT "[DOWN2,SPACE](C) MICHAEL SPITERI 1984"
20 PRINT "[DOWN2,SPACE]PREPARE PRINTER."
25 PRINT "[DOWN,SPACE]HIT ANY KEY."
30 GET A$: IF A$="" THEN 30
35 OPEN 2,4
40 CMD 2
45 FOR I=1 TO 10
50 PRINT#2
60 PRINT#2,"[O,<Y><Y><Y>,P,SPACE2,O,<Y><Y><Y>,P,
  SPACE2,O,<Y><Y><Y>,P,SPACE2,O,<Y><Y><Y>,P,
  SPACE2,O,<Y><Y><Y>,P,SPACE2,O,<Y><Y><Y>,P,
  SPACE2,O,<Y><Y><Y>,P,SPACE2,O,<Y><Y><Y>,P,
  SPACE2,O,<Y><Y><Y>,P]"
65 PRINT#2,"[<H>,SHSPACE3,<N>,SPACE2,<H>,SPACE3,<
  N>,SPACE2,<H>,SPACE3,<N>,SPACE2,<H>,SPACE3,<N>,
  SPACE2,<H>,SPACE3,<N>,SPACE2,<H>,SPACE3,<N>,
  SPACE2,<H>,SPACE3,<N>,SPACE2,<H>,SPACE3,<N>,
  SPACE2,<H>,SPACE3,<N>]"
70 PRINT#2,"[<H>,SHSPACE3,<N>,SPACE2,<H>,SPACE3,
  <N>,SPACE2,<H>,SPACE3,<N>,SPACE2,<H>,SPACE3,
  <N>,SPACE2,<H>,SPACE3,<N>,SPACE2,<H>,SPACE3,
  <N>,SPACE2,<H>,SPACE3,<N>,SPACE2,<H>,SPACE3,
  <N>,SPACE2,<H>,SPACE3,<N>]"
75 PRINT#2,"[L,<@><@><@>,@,SPACE2,L,<@><@><@>,
  @,SPACE2,L,<@><@><@>,@,SPACE2,L,<@><@><@>,
  @,SPACE2,L,<@><@><@>,@,SPACE2,L,<@><@><@>,
  @,SPACE2,L,<@><@><@>,@,SPACE2,L,<@><@><@>,
  @,SPACE2,L,<@><@><@>,@]"
80 NEXT I
85 PRINT#2
90 PRINT#2, CHR$(14)"INVENTORY:[SPACE8]NOTES:"
95 PRINT#2, CHR$(15)
100 CLOSE 2
```


Fuzzy Sort on the C16

Ever wondered how a computer could handle peoples names that are spelt in peculiar ways. If we can get confused between 'Johnston and Johnstone' the poor old computer is also going to get perplexed.

There is a way; its called SOUNDEX CODE. Developed for the 1890 USA census. The code is based on pronunciation. The system uses a special method of coding text so that similar sounding names are conveniently grouped under the same or almost the same code number.

The technique consists of the following steps:-

1. Retain the first letter of the name.
2. Remove all other occurrences of a, e, i, o, w, y, q and punctuation marks.
3. Use a given code to number all remaining letters starting from the second one.
4. Retain only the first letter if two or more adjacent letters have the same code number.
5. The final code number is the first letter followed by the first three numbers. i.e. LLOYD - L is the initial letter, the second L is ignored because it would have the same code as the first letter, O and Y are ignored (see 2) and D has a code number of three. Code is L3 expanded to three number L300.

SOUNDEX CODES

letters	Code
f p v	1
c g j k s x z	2
d t	3
l	4
m n	5
r	6

The program below demonstrates how this works and is suitably REM'd so that you can lift out sub-routines for your own C16 programs.

This listing is easily modified to run on any Commodore computer.

FUZZY SORT 16

```

1 GOTO 3
2 SAVE "@O:FUZZY SORT",8: VERIFY "FUZZY SORT",8: STOP
3 REM
4 REM #####

```

```

10 REM FUZZY SORT USING SOUNDEX CODES
11 REM #####
30 DIM SC$(26),N$(200,2)
39 REM #####
40 REM SOUNDEX CODES FOR ALPHABET
41 REM #####
50 FOR J=1 TO 26: READ SC$(J): NEXT
59 REM #####
60 REM READ IN NAMES
61 REM #####
70 PRINT "[CLR]"; TAB(8);"SOUNDEX CODING DATA": PRINT
80 TN=130: FOR J=1 TO TN: READ N$: GOSUB 110
90 N$(J,1)=N$:N$(J,2)=CD$: PRINT N$;" = ";N$(J,2): NEXT:
    GOTO180
99 REM #####
100 REM TRANSFER TO SOUNDEX CODE
101 REM #####
110 CD$=LEFT$(N$,1): L=LEN (N$): LC$=SC$( ASC (CD$)-64):
    IF L=1 GOTO 160
120 FOR K=2 TO L:A=ASC ( MID$(N$,K,1))-64: IF A<1 OR A>26
    GOTO 150
130 A$=SC$(A): IF A$="0" OR A$=LC$ GOTO 150
140 CD$=CD$+A$: IF LEN (CD$)=4 THEN K=L
150 LC$=A$: NEXT K: IF LEN (CD$)=4 THEN RETURN
160 FOR K=1 TO (4- LEN (CD$)):CD$=CD$+"0": NEXT K:
    RETURN
169 REM #####
170 REM SHELL-METZNER SORT
171 REM #####
180 PRINT "[CLR]SORTING INTO": PRINT "NAME WITHIN
    SOUNDEX CODE ORDER":N=116:M=116
190 M=INT (M/2): IF M=0 GOTO 290
200 J=1:K=N-M
210 I=J
220 L=I+M: IF N$(I,2)<N$(L,2) GOTO 260
230 IF N$(I,2)=N$(L,2) AND N$(I,1)<N$(L,1) GOTO 260
240 F$=N$(I,2):N$(I,2)=N$(L,2):N$(L,2)=F$
250 F$=N$(L,1):N$(L,1)=N$(I,1):N$(I,1)=F$:I=I-M: IF I>0
    GOTO 220
260 J=J+1: IF J>K GOTO 190
270 GOTO 210
279 REM #####
280 REM OBTAIN INPUT FROM USER
281 REM #####
290 PRINT "[CLR]"
300 PRINT : PRINT "DO YOU WISH TO ENTER A NAME (N)":
    PRINT
310 INPUT "OR A CODE (C)";A$: PRINT
320 IF A$="N" GOTO 440
330 IF A$<>"C" THEN PRINT " INVALID ENTRY.": GOTO 300
340 PRINT "CODE MAY BE A LETTER FOLLOWED BY A
    [SPACE6]MAXIMUM OF THREE NUMBERS.
350 PRINT: INPUT "PLEASE ENTER CODE";CD$: PRINT
360 A=ASC ( LEFT$(CD$,1))-64
370 IF A<1 OR A>26 THEN PRINT "FIRST CHARACTER MUST
    BE A LETTER.": GOTO 350
380 L=LEN (CD$): IF L>4 THEN PRINT "CODE TOO LONG.":
    GOTO 350
390 J=2: IF L=1 GOTO 430
400 K=ASC ( MID$(CD$,J,1))-48

410 IF K<0 OR K>9 THEN PRINT "LETTER MUST BE
    FOLLOWED BY NUMBER(S).": GOTO 350
420 J=J+1: IF J<=L GOTO 400
430 A=L: GOTO 510
440 PRINT "[CLR]": INPUT "PLEASE ENTER NAME";N$
450 GOSUB 110: PRINT: PRINT "THE SOUNDEX CODE IS ";CD$:
    L=4
460 PRINT : PRINT "YOU MAY SEARCH SOUNDEX CODES:-"
470 FOR J=1 TO L: PRINT: PRINT TAB(10);J;MID$(CD$,1,J): NEXT
480 PRINT : PRINT "WHICH NUMBER (1 -";L;")": INPUT Y$
490 A=VAL (Y$): IF A<1 OR A>L THEN PRINT:
    PRINT "INVALID NUMBER.": GOTO 480

```


programs

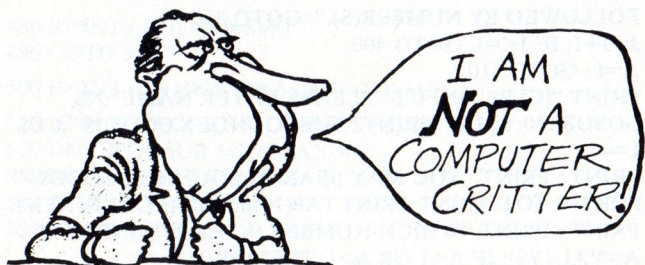
```

500 CD$=MID$(CD$,1,A)
510 PRINT "[CLR]MATCH AGAINST ";CD$
520 PRINT "=====
530 TT=0: FOR J=1 TO TN:N$=MID$(N$(J,2),1,A)
540 IF CD$>N$ GOTO 570
550 IF CD$<N$ THEN J=TN: GOTO 570
560 PRINT N$(J,1):TT=1
570 NEXT J: PRINT : IF TT=0 THEN PRINT "NO MATCHES
    FOUND."
580 PRINT: PRINT "PRESS SPACE TO CONTINUE"
590 GET A$: IF A$<>" " GOTO 590
600 GOTO 290
609 REM #####
610 REM SOUNDEX CODES FOR ALPHABET
611 REM #####
620 DATA 0,1,2,3,0,1,2,0,0,2,2,4,5,5,0,1,0,6,2,3,0,1,0,2,0,2
629 REM #####
630 REM NAMES
631 REM #####
640 DATA ABEL,ABLE,ADAMS,ADAMSON,ALDISS,ALDOUS,
    ALLAN,ALLEN,ALLENBURY,ALLENBY
650 DATA ANDERSEN,ANDERSON
660 DATA BAILEY,BAILY,BAILLIE,BROWN,BROWNE,
    BROWNING,BROWNLEE
670 DATA CLARK,CLARKE,CLARKSON,COLLONGS,COLLINS,
    COOK,COOKE,COOKSON
680 DATA D'EARTH,DE'ATH,DE ARTH,DEATH,DAVIES,
    DAVIESON,DAVIS,DAVISON,DAVY,DAVYS
690 DATA EDMONDS,EDMONDSON,EDMUNDS,
    EDMUNDSON,FORSTER,FOSTER
700 DATA FEATHERSTONE,FEDROSS,FITHERSTON
710 DATA GARDENER,GARDNER,HAIG,HAIGH,HAIN,
    HAINES,HAYNES
720 DATA HEWES,HEWETT,HEWITT,HEWISON,HEWSON,
    HUGHES,HUGHS,HUGHSON
730 DATA IRVINE,IRVING,JOHNSON,JOHNSTON,JOHNSTONE
740 DATA KNIGHT,KNIGHTLEY,KNIGHTON,KNOGHTS,LEA,
    LEE
750 DATA LLOYD,LOYD,MACINTOSH,MACKINTOSH,
    MCINTOSH,MATHEWS,MATTHEWS
760 DATA MARQUAYS,MARS,MARWAYS,MARRYS,
    MCINTYRE,MACKINDER,MCANTRY
770 DATA MOORE,MORE,NICHOLAS,NICHOLLS,NICHOLS,
    NICHOLSON
780 DATA OSBORN,OSBOURNE,PHILIPS,PHILLIPS,
    PHILIPSON,PHILLSPON
790 DATA QUIN,QUINN,READ,REED,REID,ROBERTS,
    ROBERTSON,ROBBINS,ROBINSON
800 DATA THOMAS,THOMPSON,THOMSON,UNDERHILL,
    UNDERWOOD,SMITH,SMYTH,SMYTHE,SCHMITT
810 DATA VINE,VYNE,WALLACE,WALLIS,WALLS,WILLIAMS,
    WILLIAMSON
820 DATA XERXES,XERKSES,YATES,YEATS,ZACKS,ZAKS,
    ZAX

```

REFERENCE

"Fuzzy Matching", by Bob Chappell, MICROCOMPUTER PRINTOUT, August 82



EASY FILE READING

by Paul Blair

Type in this short program and keep it for a rainy day. It will allow you to print SEQUENTIAL files direct to your computer screen. It uses machine code for speed. I find it very useful for scanning EASY SCRIPT files.

To pause at any time, hold down the SPACE bar. Release it to continue. To quit at any time, press the STOP key.

```

100 REM: READ SEQUEANTIAL FILE TO SCREEN
110 SB=828:FB=929:REM BUFFER @ $033C
120 FORI=STOF:READA:POKEI,A:CK=CK+A:NEXT
130 IFCK<>13110THENPRINT"DATA ERROR!":END
140 PRINT:PRINT:PRINT"SYS" S"TO RUN PROGRAM":PRINT
150 NEW
160 DATA 160, 3,169,145, 32, 30,171, 32, 96,165,169, 0,133,187,169, 2
170 DATA 133,188,169, 2,133,184,133,185,169, 8,133,186,162, 0,
    189, 0
180 DATA 2,240, 3,232,208,248,134,183, 32, 74,243,166,184, 32,
    198,255
190 DATA 32,207,255, 32,210,255,165,197,201, 60,240,250, 32,234,
    255, 32
200 DATA 225,255,208, 2,240, 4,165,144,240,230,165,184, 32,145,
    242, 32
210 DATA 204,255, 76,116,164,147, 13, 70, 73, 76, 69, 32, 84, 79, 32, 82
220 DATA 69, 65, 68, 63, 32, 0

```

TURBO-64

BY COCKROACH

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Commodore Screen Handling

by Greg Perry

One of the factors which often distinguish a good professional program from one written by the average user is the effective use of good screen formatting. Many programmers write brilliant programs and then spoil them by displaying the results in a matter-of-fact manner. In this article, we shall look at just some of the more advanced methods of setting up and displaying information on the screen of the VIC and C64, not forgetting the Commodore 4000/8000 series. I am not talking about sprites, fancy graphics, or multicolour displays, but simply methods of displaying information on the screen in an ordered manner that is both pleasing to the eye and clear to the user. Don't be put off by the word advanced; the concepts are easy to learn and use in everyday programming.

First, allow me to suggest a few general rules for formatting the screen output. Here we have a small problem in that every programmer has their own ideas, however, for the sake of this article, let us agree on the following

1. Reserve the top 1-5 lines for screen headings. Use these to display the program name, main menu heading and any sub-headings as required.
2. Line 5 is for column titles maybe.
3. Reserve the bottom three lines (23-25) for error or other messages. The user then always knows where to look for information.
4. Never allow the screen to scroll under its own accord. (Maybe use smooth scrolling if it is required?) When printing a long list of information, display it one screen at a time, in sections, and preferably with an option between screens which allows the user to move backward or forward or abort the procedure.
5. Always display ALL the title or field names on the screen before inputting any information. This shows the user what is expected for each entry and minimises confusion.
6. Don't use too many colour changes, two, maybe three are enough. More than this rapidly becomes annoying. Use colour to highlight special features not to show off how many different colours you can program. Pick suitable colour matches for screen and border (often the same), and character colours that are easy on the eye and STICK TO THEM except for special occasions.

Ok, now let's look at how to implement some of these ideas with particular reference to screen positioning.

Many versions of the BASIC languages used on micros have included a PRINT AT facility where the line and column for input or output of screen information can be specified. With most of the Commodore machines so far, such a direct command has not been part of the BASIC language. However, since the operating system prints the next character at the current cursor position, if we set this to the desired position first, we can print anywhere on the screen, in any order, at any time. This is the key to good screen handling.

There are several methods we can use. Let's look through the three most common ones and you can choose the one which suits you best.

The oldest and most universal method, which works on all machines without alteration (except for minor changes for the screen width of the VIC or the 8000 series), is to use two strings of cursor movements such as

```
V$ = "[DOWN25] : H$ = "[RIGHT40]
```

and then use the LEFT\$ function to select the required number of cursor movements. For example to print "HELLO" on line 10, starting at column 10, we could use

```
PRINT "[HOME]"; LEFT$(V$,10); LEFT$(H$,10);"HELLO"
```

For the horizontal positioning to a specific column, it often may be easier to use the old faithful TAB(10) instead. Only problem is that with the TAB command we cannot go backwards along a line.

The second method also works on all machines, but requires different values for the different versions of BASIC between the PET 2000, 4000/8000 and VIC/C64 machines. Since the computer itself has to keep track of the current position of the cursor, all one has to do is fool the operating system into putting it where we want. If we know where to look that is!

There are a number of locations in the lower memory of all Commodore machines which control the cursor. (Take a look at a good memory map.) These not only control the current screen line and column, but also control whether the cursor should flash (useful for getting the cursor to flash on GET statements), the current character under the cursor, the current character colour, and many others. For now let's stick to the point. The cursor line and column are contained in the locations

CBM	2000**	4000/8000	VIC/C64
Line	245	216	214
Column	226	198	211

** Does anyone out there still use an early PET with 'Rev. 2' BASIC 1.0 ?)

All we now have to do is set these locations with the required values (with POKE statements) right? Unfortunately, it's not quite that simple. Try the following. Clear the screen and enter the following line. (NOTE: for other than the VIC/C64 change the locations according to the table)

```
POKE 214,10 : PRINT "HELLO" : PRINT "PAUL"
```


PROGRAMS

What happens?. HELLO is on the second line and PAUL is on the twelfth!

The problem lies in location 214. This contains not the current line, but the next line instead. One other problem, screen lines are numbered from the top as 0,1,2... etc. Therefore use as follows

```
POKE 214,L-1 : PRINT : POKE 211,C
```

where L is the required line and C the column. For example,

```
POKE 214,9 : PRINT : POKE 211, 10: PRINT "HOW'S THE WEATHER"
```

The blank PRINT after the POKE of the screen line is VITAL. You cannot use PRINT "HELLO" or the like. Also, since it is not possible to POKE a negative value, this method will not allow one to position to the top screen line - that's what PRINT "[HOME]" is for anyway! There are several advantages with this method as we shall see later.

The third method only works on the VIC/C64 as far as I know. The KERNAL (the set of operating system instructions in higher memory) has a built in routine called PLOT which can be readily accessed through machine code to set the cursor position or read the current cursor position. (Maybe this was originally to provide an a BASIC 'PRINT AT' command?) It can be used to set the cursor as follows

```
POKE 781, Line  
POKE 782, Column  
SYS 65520
```

For example,

```
POKE 781, : POKE 782,10 : SYS 65520  
PRINT "BIT COLD IN CANBERRA EH PAUL?"
```

WARNING: With both methods 2 and 3, NEVER set the line number greater than 24 or column greater than 79 or the computer may crash. Try it and see. (The computer actually keeps a list of the addresses (memory locations) of the start of each screen line therefore setting the line to greater than 24 upsets this sequence with strange results.)

From here on, let us use method 2 (since it's my favourite!) to demonstrate some examples of screen positioning. Unfortunately, I'm running out of space in this article, therefore, you should enter the following, RUN them to see what happens, and if you do not understand any points drop me a line.

Example 1:

With the TAB command it is impossible to print leftwards of the current cursor position. With location 211, this is easy, allowing one to do some things that are quite difficult to do by other methods.

```
100 PRINT "[CLR]USING NOTHING"  
110 FOR C=39 TO 0 STEP -1 : PRINT C; : NEXT  
130 POKE 214,5 : PRINT : PRINT "USING TAB"  
140 FOR C=39 TO 0 STEP -1 : PRINT TAB(C)C; : NEXT  
150 POKE 214, 15 : PRINT : PRINT "USING POKE 211"  
160 FOR C=39 TO 0 STEP -1 : POKE 211,C : PRINT I; :  
NEXT
```

Example 2:

General screen positioning

```
10 FOR I=1 TO 1000  
20 L= RND(1)*22:C=RND(1)*35  
30 GOSUB 100  
40 PRINT "HERE"  
50 FOR J=1 TO 500: NEXT  
60 GOSUB 100  
70 PRINT "   "; REM ERASE MESSAGE  
80 NEXT : END  
100 REM POSITION CURSOR  
110 POKE 214,L : POKE 211,C : RETURN
```

Example 3:

One can use this method effectively for positioning the cursor for INPUTs. Only now, to allow for the '?' and space printed by the INPUT statement, the cursor should be positioned 3 characters to the left of the actually desired position.

```
100 LN$= "[CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC  
CCCCCCCC]"  
110 REM PRINT SCREEN HEADING  
120 PRINT "[CLR,SPACE10]ENTER PERSONAL  
DETAILS"  
130 PRINT LN$  
140 REM POSITION TO 6TH LINE FOR MAIN INFO  
150 POKE 214,5: PRINT  
160 REM PRINT FIELD TITLES  
170 PRINT "NAME : " ;A$(1)  
180 PRINT "ADDRESS 1 : ";A$(2)  
190 PRINT "ADDRESS 2 : ";A$(3)  
200 PRINT "POSTCODE : ";A$(4)  
210 PRINT "PHONE : " ;A$(5)  
220 REM RE-POSITION CURSOR FOR INPUTS  
230 POKE 214,5 : PRINT  
240 FOR I=1 TO 5 : POKE 211,10 : INPUT A$(I)  
250 NEXT  
260 REM CHECK IF ALL CORRECT ON LINE 23  
270 POKE 214,22 : PRINT  
280 INPUT "ALL CORRECT[SPACE3]N[LEFT3]";A$  
290 IF A$<>"Y" THEN 130 : REM NO ? THEM TRY  
AGAIN  
300 END
```

Notice how efficient this method is when you have to re-enter any fields. The cursor is repositioned to the beginning of the info on the screen. The field can be edited with the INST/DEL keys and (or) RETURN pressed to enter the correct field.

QUICKIES

by Paul Blair

Example 4:

Both the screen line and cursor positions can be PEEKed to see where one actually is on the screen so as to avoid scrolling the screen or other problems which will affect our nice screen format. For example, printing a long list of random numbers by 'screenfull'

```
10 HS="[CLR,SPACE10]EXAMPLE 1"
20 LN$="[CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
  CCCCCCCC]
30 GOSUB 130
40 FOR N=1 TO 200
45 REM CHECK IF CURSOR PAST LINE 19
50 IF PEEK(214)>20 THEN GOSUB 100
60 PRINT N, RND(1)
70 NEXT : END
100 REM POSITION CURSOR FOR MESSAGE
110 POKE 214,22 : PRINT
120 INPUT "PRESS RETURN FOR NEXT PAGE";A$
130 REM PRINT SCREEN HEADING AND PAGE
  NUMBER
140 P=P+1
150 PRINT HS: PRINT LN$: PRINT "PAGE:"P: PRINTLN$
160 PRINT "NO","RANDOM": RETURN
```

These examples cover the main applications but I'm sure you can think of many more. One last one which I include in my programs is a routine I call 'Idiots' - a subroutine to print a message on line 22, only accept a 'y' or 'n' answer, then clears the line and returns from whence it came. (Can also include sound or colour changes to good effect.) It needs to have a string, for example SP\$ set to be 39 spaces before it is used. It also turns the cursor flash on for the GET statement. This is done in location 204 (167 for 4000/8000 machines) but is a bit suspect for the VIC/C64s depending on the screen colours.

```
10 SP$="[SPACE39]
. other lines of program eg
20 GOTO 200
.
50 REM IDIOTS
55 REM POSITION MESSAGE, C FLASH ON
60 POKE 214,22 : PRINT : PRINT M$; " Y/N "; POKE 204,0
70 GET A$: IF A$ <> "Y" AND A$ <> "N" THEN 70
80 REM C FLASH OFF, RE-POSITION AND CLEAR
90 POKE204,1: POKE 214,22: PRINT: PRINTSP$: RETURN
.
200 REM SET UP MESSAGE AND CALL IDIOTS
210 M$="IS IT REALLY COLD IN CANBERRA"
220 GOSUB 50
230 POKE 214,10 : PRINT
240 IF A$="N" THEN PRINT "I BET IT IS!"
```

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1. TO RESTORE FROM NEW

POKE2051,0:SYS42291 or

POKE2051,0 then type in a line number of any non-existent line and press RETURN. Don't try editing a REWEd program. Save it to cassette or disk, reset the computer, and reload the program before attempting anything along those lines.

□ □ □ □

2. A NON-REM

Did you know that the apostrophe can be used as a REM statement after GOTO or GOSUB? Try entering a line like

2000 GOSUB 4999 'DISK ERROR

with the appropriate lines at 4999 and prove it for yourself.

□ □ □ □

3. SAVING MACHINE CODE

So you've got 20 lines of DATA statements typed in, but don't know how to make a direct loading binary file. Add two lines to the start of your program:

```
10 OPEN 1,8,1,"NAME": PRINT#1,CHR$(L);PRINT#1,CHR$(H);
20 FORT=STOF:READX: PRINT#1,CHR$(X);: NEXT:CLOSE1:
  END
```

This will work for cassette by changing "1,8,1" to "1,1,1" in line 10. The variables L and H are the low and high values of the program load address - e.g., a program to be stored at \$C000 would have L=0, H=192. S and F are the addresses of the first and last byte to be saved.

□ □ □ □

4. JUST FOR FUN

On your C64, load a Basic program and type LIST, press RETURN. Now, POKE 22,35 and repeat the LIST. That's unusual! Now I suppose you want them back. OK, cause a syntax error deliberately (type PRUNT and press RETURN will do). Ah, that's better. For the same effect on the PET, poke 19,32.

Two for the VIC-20

SOUND EFFECTS

by Michael Spiteri

```

5 REM **SOUND EFFECTS**
10 S1=36874:S2=36875:S3=
  36876:S4=36877:POKES5,1
  0:S4=36877
15 POKE36879,8:PRINT"
  SOUND EFFECTS"
20 PRINT"1)SCALE 1.":PR
  INT"2)SCALE 2."
25 PRINT"3)BOMBS.":PRINT
  "4)EXPLOSION."
30 PRINT"5)LASER.":PRINT
  "6)SIREN."
35 PRINT"7)RED ALERT.":P
  RINT"8)LANDING UFO."
40 PRINT"9)BIRDS.":PRINT
  "10)TELEPHONE."
45 PRINT"11)UFO SHOOTING
  .":PRINT"CHOOSE SOUND
  (1-11):"
50 INPUTS:IFS>11THEN50
55 IFS=1THEN110
60 IFS=2THEN125
65 IFS=3THEN140
70 IFS=4THEN155
75 IFS=5THEN165
80 IFS=6THEN180
85 IFS=7THEN195
90 IFS=8THEN210
95 IFS=9THEN225
100 IFS=10THEN240
105 IFS=11THEN255
110 FORI=250TO200STEP-2:
  POKES3,I:FORM=1TO100:NE
  XTM,I:FORI=205TO250STEP
  2:POKES3,I
115 FORM=1TO100:NEXTM,I:
  POKES3,0
120 GOTO15
125 FORI=250TO200STEP-2:
  POKES3,I:FORM=1TO100:NE
  XTM,I:FORI=205TO250STEP2
  :POKES3,I
130 FORM=1TO100:NEXTM,I:P
  OKES3,0
135 GOTO15
140 POKES5,10:FORL=230TO
  128STEP-1:POKES3,L:FORM
  =1TO20:NEXTM,L:POKES3,0
  :POKES4,200
145 FORL=15TO0STEP-.05:P
  OKES5,L:NEXTL:POKES4,0
150 GOTO15
155 POKES5,0:POKES4,220:
  FORL=15TO0STEP-1:POKES5
  ,L:FORM=1TO300:NEXTM,L:
  POKES4,0:POKES5,15
160 GOTO15
165 FORL=1TO30:FORM=250T
  0240STEP-1:POKES3,M:NEX
  TM

```

```

170 FORM=240TO250:POKES3
  ,M:NEXTM:POKES3,0:NEXTL
175 GOTO15
180 FORL=1TO10:POKES2,20
  0:FORM=1TO500:NEXTM:POK
  ES2,0:POKES3,200:FORM=1
  TO500:NEXTM
185 POKES3,0:NEXTL
190 GOTO15
195 FORL=1TO10:FORM=180T
  0235STEP2:POKES3,M:FORM
  =1TO10:NEXTM,M:POKES3,0
200 FORM=1TO100:NEXTM,L
205 GOTO15
210 FORL=1TO20:FORM=220-
  LTO160-LSTEP-4:POKES3,M
  :NEXTM
215 FORM=160-LTO220-LSTE
  P4:POKES3,M:NEXTM,L:POK
  ES3,0
220 GOTO15
225 FORL=1TO20:FORM=254T
  0240+INT(RND(1)*10)STEP
  1:POKES3,M:NEXTM:POKES3,
  0
230 FORM=0TOINT(RND(1)*1
  00)+120:NEXTM,L
235 GOTO15
240 FORL=1TO5:FORM=1TO50
  :POKES3,220:FORM=1TO5:N
  EXTN
245 POKES3,0:NEXTM:FORM=
  1TO1500:NEXTM,L
250 GOTO15
255 FORL=1TO15:FORM=200T
  0220+L*2:POKES3,M:NEXTM
  ,L:POKES3,0
260 GOTO15

```

DRAW POKER

by Paul Elvery

F7 = play cards
SPACE BAR = shuffle cards
1 - 5 = select cards.

If you have trouble with the graphic characters try the function keys.

```

0 0=36876:POKE0+2,15:T=R
  ND(-T):POKE0+3,31:GOTO
  110
1 ONN(J)GOTO3,4,5,6,7,8,
  9,10,11,12,13,14
2 PRINT" B#:B#:D#" "S
  #" "B#:B#:B#":RETURN
3 PRINT" D#" "S#" "B#
  ;B#:B#:D#" "S#" "B#;RE
  TURN
4 PRINT" S#" "B#:B#:D#"
  "S#" "B#:B#:D#" "S#" "
  ;:RETURN
5 PRINT" D#:S#" "S#:B
  #:B#:B#:D#:S#" "S#:B#:
  :RETURN
6 PRINTS#" "S#:B#:B#:D#"
  "S#" "B#:B#:D#:S#" "S#
  ;:RETURN

```

```

7 PRINTS#" "S#:B#:B#:D#:
  S#" "S#:B#:B#:D#:S#" "S
  #:RETURN
8 PRINTS#" "S#:D#" "S#"
  "B#:D#:S#" "S#:B#:B#:D#
  ;S#" "S#":RETURN
9 PRINTS#" "S#:D#" "S#"
  "B#:D#:S#" "S#:B#:D#" "
  S#" "D#:S#" "S#":RETURN
10 PRINTS#" "S#:B#:D#:S#"
  " "S#:D#" "S#" "D#:S#"
  "S#:B#:D#:S#" "S#":RETI
  RN
11 PRINTS#" "S#:D#" "S#"
  "D#:S#" "S#:B#:D#:S#"
  "S#:D#" "S#" "D#:S#" "S
  #:RETURN
12 PRINTS#" "B#:D#" "
  "D#" "D#" "B#:D#"
  " "S#":RETURN
13 PRINTS#" "B#:D#" "
  "D#" "D#" "B#:D#"
  " "S#":RETURN
14 PRINTS#" "B#:D#" "
  "D#" "D#" "B#:D#"
  " "S#":RETURN
110 T=0:PRINT"
  TAB(16)" "BET| |"
  CREDIT| |"TA
  B(60)" "
112 PRINT"
  "
114 FORI=1TO9
116 PRINT" | | | | |
  | | | | |":NEXT
118 PRINT"
  "
120 PRINT"ROYAL"TAB(11
  )"FLUSH":PRINT"
  TAB(11)"STRAIGHT"
122 PRINT"KIND"TAB(11
  )"3 KIND":PRINT"
  TAB(11)"TWO PAIR"
124 PRINT"
  "
130 DIM C%(53),H%(5),N(5
  ),P(8),S(5)
140 P(0)=1:P(1)=2:P(2)=3
  :P(3)=4:P(4)=5:P(5)=7:P
  (6)=25:P(7)=50:P(8)=250
150 B=0:GOSUB800
160 GETA#:IFA#="| |"ANDB<5
  THENB=B+1:T=T-1:POKE0,2
  0:GOSUB810:POKE0,0
170 IFA#<>"ORB=0THEN16
  0
200 R=52:FORI=1TOR:C%(I)
  =I:NEXT
220 FORJ=1TO5:GOSUB700:H
  %(J)=0:GOSUB770:NEXT:PR
  INT
270 GETA#:IFA#=" "THEN32
  0
280 IFA#<"0"ORA#>"5"THEN
  270
290 A=ASC(A#)-40:IFA=0TH
  EN310
300 H%(A)=1:PRINTTAB(4*A
  2)"*":GOTO270
310 FORJ=1TO5:H%(J)=0:NE
  XT:PRINT"
  ":GOTO270
320 FORJ=1TO5
330 IFH%(J)=0THENGOSUB90
  0
340 NEXT
350 FORJ=1TO5
360 IFH%(J)=0THENGOSUB70
  0:GOSUB770

```

Continued on page 58

Reviews

Publications, software and hardware INSIDE COMMODORE DOS

My first introduction to the work of Disk Immers was a DISK UTILITY PACK that he produced for the Commodore 4040 dual disk drive. I was told that it was his work on deciphering the disk operating system, and his subsequent production of many extremely useful disk utilities that gained him his PhD, but that may or may not be true. His latest opus, produced in co-operation with another PhD, Gerald Neufeld, has been no less diligently researched and written. It is probably the best book written about the 1541 disk drive for all levels of disk user who want to know more.

Before you start to read, you will notice the very tidy layout of each page, and the crystal-clear computer hardcopy used in the text. No grey ghosts there!

The first four chapters will lead even the most rank beginners to a working knowledge of how the 1541 works, including hints and cautions that may save the life of a disk or two. Then, if you want to go further, direct access programming is explained, so that you may enter what Dick calls the 'netherworld' of using the 1541 to its quite considerable limits.

Then it's into the murky world of software protection. Aha! The terror of an Error 20 or the puzzle of formatting a disk with multiple ID's will have you burning the midnight! If you get into trouble, read "Getting Out of Trouble". What a considerate book.

The later chapters give a full run-down on many other aspects of the 1541 DOS. The explanation of inbuilt routines is very professional, better than anything else currently offering.

A disk containing all the programs in the book, plus as many again that aren't, is offered to complement the tome. Grab it.

The book has just been released in the USA, and my copy comes courtesy of Disk Immers. Cover price is US\$19.95, with US\$15.95 for the disk. The publisher is DATAMOST, 20660 Nordhoff Street, Chatsworth, California, 91311. If you want to phone them, try 818-709-1202. With ISD, first ring 00111, then the number above.

Given the speed with which books are reaching our shores, a local distributor should appear soon. Keep an eye out, and we'll do the same and let you know.

Review: PAUL BLAIR

VIDEOS ON COMPUTERS

Every now and then something new comes into our letter box. Recently two VHS Video tapes arrived for review from Auska Videobooks. The tapes were entitled "Master Class Commodore VIC 20 Level 2" and "Master Class Commodore 64 - Introduction to Computing."

The concept of videos produced by and on computers have attracted me for sometime and I was busting my boiler to get to a VCR to view them.

Each tape had programs on their sound track that you could copy off onto cassette and load into your computer. These programs formed the bases of the tutorials.

Introduction to Programming

This tape was split into three sections

Firstly it discussed the part of the computer, what memory was, how we input and output information and assigning values to variables.

Second session dealt with colour codes on the keyboard, expanding print statements to include colours and clearing the screen and cursor controls.

Third session covered using character string variables, defining arrays of variables and using a loop to process all elements of an array.

VIC 20 Level 2

This tape was split into two sessions.

The first deals with the writing of a simple adventure program using text, upper and lower case and the use of colours and random numbers. This section included a program to lift off the tape and run.

Second session covered the programming of the VIC 20 using the micro's internal functions and shows the user how to use the micro's memory, generate colour, coding effect and animation.

Comment

These tapes are professionally packaged and presented. They were written by a leading programmer, David Redclift, (presumably British). While the manufacturers of this series may have employed a leading programmer they definitely did not match him with a 'leading' Audio Visual producer. Unfortunately while the content seemed good the background voice was monotonous to the point of distraction and the length of time that each listing was on the screen was longer than one could expect any concentration span to last. Here was a beautiful chance to develop a total new medium but it had the appearance of a 1955 Education Department 16mm monologue.

I suggest that if you are interested in these videos that you evaluate them for yourself. Content is good and my criticism of production is very subjective.

Competitions

As usual, my mail bag is just overflowing with entries for our competitions! Well, if people don't like my competitions, we will also give prizes for anyone who comes up with a better one! Send us details of any interesting little problems or useful tips you have come up with.

COMPETITION 1.

The most interesting ONE LINE program. This may be a sound, graphics or other useful (?) routine. A one line game perhaps?

There are only two conditions.

- The routine must provide a continually changing output.
- It must be able to be typed in directly from the keyboard. But, you may use as many abbreviations of the BASIC keywords as you can fit in 80 characters - two 40 column screen lines or four on the VIC.

COMPETITION 2

The best computer solution to a set problem, or a good problem (which can be solved more easily by computer than by hand), with which we can tempt our readers.

It's good to hear that there are still a number of CBM users out there and this months winner is Bill Sands from Lane Cove with the following interesting maths routine for a CBM 4032.

```
1 X=PEEK(143):Y=PEEK(142):PRINT X"+"Y"=";:  
INPUT Z:AS$(0)="NO":AS$(1)="YES":  
PRINT AS$-(X+Y=Z):GOTO 1
```

Remember, you MUST leave out ALL spaces and abbreviate most of the BASIC keywords to fit it all on one line. Use pE for PEEK, ? for PRINT, and gO for GOTO. Don't abbreviate INPUT to iN since this means INPUT#.

Memory locations 142 and 143 are from the TI jiffy clock and these change continually. C64 and VIC users, change 142, 143 to 161 and 162. Think about how it works, quite cunning isn't it?

Regards, Greg Perry

ML listing for 24HR TIMER & ALARM

CONTINUED FROM Vol 4 No. 3

CLOCK.SRC.....PAGE 0001

```

LINE# LOC  CODE      LINE
00001 0000
00002 0000
00003 0000      ;PUT'G CLOCK.SRC"
00004 0000      *****
00005 0000      * DISPLAY C64 TOD CLOCK *
00006 0000      * IN 12HR AM/PM FORMAT *
00007 0000      * AND CHECK FOR ALARM *
00008 0000      *
00009 0000      * (C) GREG FERRY, 1984 *
00010 0000      *****
00011 0000
00012 0000      ;INTERNAL LABELS/SYMBOLS
00013 0000      SCREEN=#0400
00014 0000      COLRAM=#D000
00015 0000      BORDER=#D020
00016 0000      TENS=#DC00      ;START OF CIA TOD CLOCK
00017 0000      SECS=TENS+1
00018 0000      MINS=TENS+2
00019 0000      HRS=TENS+3
00020 0000      PAL=#DC0E
00021 0000      ICR=#DC0D
00022 0000      HIRO=#0314      ;INTERRUPT VECTOR
00023 0000      IRO=#EA31      ;C64 INTERRUPT ROUTINE
00024 0000      TEMP=#A6
00025 0000      AFLAG=#02      ;FLAG TO SET IF ALARM RINGS
00026 0000      *=#033C      ;START ROUTINE BY BYD 020
00027 033C
00028 033C      ;SET NEW INTERRUPT VECTOR
00029 033C      SETIRO SET      ;STOP INTERRUPTS
00030 033D A9 59      ;PUT NEW IRO ADDRESS
00031 033F 8D 14 00      ;IN IRO VECTOR
00032 0342 A9 03
00033 0344 8D 15 00      ;START
00034 0347 AD 0E DC      ;START HIRO+1
00035 034A 09 20      ;ENSURE PAL FLAG
00036 034C 8D 0E DC      ;BIT 7 IS SET
00037 034F A9 08      ;STORE IT
00038 0351 85 A6      ;SET UP INDIRECT
00039 0353 A9 DC      ;POINTER TO TOD
00040 0355 85 A7
00041 0357 58
00042 0358 60      ;OK RETURN TO C64
00043 0359
00044 0359      ;DISPLAY TOD CLOCK
00045 0359 A2 00      START LDY #00      ;STARTING COLUMN FOR PRINT
00046 035B A0 03      LDY #03      ;OFFSET POINTER TO CIA
00047 035D A9 50      LDA #P      ;TIME IS PM
00048 035F 2C 0B DC      BIT HRS      ;IF BIT 7 OF HRS SET
00049 0362 30 02      BMI CONT1      ;YES IT IS
00050 0364 A9 41      LDA #A      ;NO IT'S ACTUALLY AM
00051 0366 20 B3 03      CONT1 JSR PRINT3
00052 0369 A9 4D      LDA #M
00053 036B 20 B3 03      JSR PRINT3
00054 036E E8
00055 036F B1 A6      INC (TEMP),Y      ;LEAVE EXTRA SPACE
00056 0371 48      LDA (TEMP),Y      ;GET TOD HRS
00057 0372 29 70      PHA      ;SAVE READING
00058 0374 20 AD 03      AND #201110000      ;LEFT NIBBLE ONLY LESS AM/PM
00059 0377 68      JSR PRINT1
00060 0378 29 0F      PLA      ;RECOVER READING
00061 037A 20 B1 03      AND #200001111      ;RIGHT NIBBLE ONLY
00062 037D 88      JSR PRINT2
00063 037E A9 2D      DEY      ;PREPARE FOR NEXT TOD READ
00064 0380 20 B3 03      CONT2 LDA #"/
00065 0383 B1 A6      JSR PRINT3
00066 0385 48      LDA (TEMP),Y      ;READ TOD
00067 0386 20 AD 03      PHA      ;SAVE READING
00068 0389 68      JSR PRINT1      ;PRINT TENS
00069 038A 29 0F      PLA      ;RECOVER READING
00070 038C 20 B1 03      AND #200001111      ;RIGHT NIBBLE ONLY
00071 038F 88      JSR PRINT2
00072 0390 D0 EC      DEY      ;PREPARE FOR NEXT TOD READ
00073 0392 A9 2E      BNE CONT2      ;REPEAT IF NOT FINISHED
00074 0394 20 B3 03      LDA #"/
00075 0397 B1 A6      JSR PRINT3
00076 0399      LDA (TEMP),Y      ;READ 1/10 THS
00077 0399 20 B1 03      AND #200001111
00078 039C      JSR PRINT2
00079 039C
00080 039C      ; CHECK IF ALARM CAUSED INTERRUPT
00081 039F 29 04      ALARM LDA ICR      ;CHECK IF ALARM CAUSED INTERRUPT
00082 03A1 F0 07      AND #F0      ;RINGS A BELL ?
00083 03A3 A9 06      BEQ DONE      ;NOPE
00084 03A5 85 02      LDA #86      ;BLUE PLUS -VE FLAG
00085 03A7 8D 20 D0      STA AFLAG      ;SET ALARM FLAG
00086 03AA 4C 31 EA      STA BORDER      ;SET BORDER COLOUR
00087 03AD      JMP IRO      ;CONTINUE NORMAL INTERRUPT
00088 03AD
00089 03AD PRINT1 LSR A      ;CONVERT HIGH NIBBLE
00090 03AF 4A      LSR A      ;HEX BYTE TO LOW NIBBLE
00091 03B0 4A      LSR A      ; BY DIVIDING BY 8
00092 03B1 09 20      LSR A
00093 03B3 9D 00 04      PRINT2 ORA #30      ;CONVERT TO ASCII NUMBER
00094 03B6 A9 00      PRINT3 STA SCREEN,X      ;STORE ON SCREEN
00095 03B8 9D 00 D8      LDA #00
00096 03BB E8      STA COLRAM,X
00097 03BC 60      ;SET TO NEXT COLUMN
00098 03BD      RTS
00099 03BD      .END

```

ERRORS = 00000

SYMBOL TABLE

SYMBOL	VALUE						
AFLAG	0002	ALARM	039C	BORDER	D020	COLRAM	D000
CONT1	0366	CONT2	037E	DONE	03AA	HIRO	0314
HRS	DC0B	ICR	DC0D	IRO	EA31	MINS	DC0A

SYMBOL TABLE

SYMBOL	VALUE						
PAL	DC0E	PRINT1	03AD	PRINT2	03B1	PRINT3	03B3
SCREEN	0400	SECS	DC09	SETIRO	033C	START	0359
TEMP	00A6	TENS	DC08				

END OF ASSEMBLY

BASAD FOR THE 64

PROJECT 2.

by Paul Blair

Now that we have an effective monitor program for our Commodore 64's, MONAD (Commodore Magazine, Vol 4, Issues 2 and 3), it's time to look at some additional useful extensions for use within the environment of our BASIC language.

If you are familiar with the Commodore computing world, skip over this next bit. It's just to set some background to the program that follows.

Commodore computers have used some different versions of BASIC. Basic 2.0 was used for a few years, and more recent pre-C64 Commodore computers used an upgraded Basic, Basic 4.0. The great leap forward in Basic 4.0 was a series of commands described as "Disk Basic". This simplified disk access, and facilitated use of relative files. Most of the facilities were actually in Basic 2.0 and Disk Operating System (DOS) 2, but they require clumsy syntax to use. Maybe some day Commodore will tell us why.

To give an example: to read the directory of a disk, Basic 2.0 requires LOAD"\$",8 then LIST. Your program in memory will be erased when this syntax is used.

In Basic 4.0, you simply type CATALOG or DIRECTORY and the directory goes straight to the screen without disturbing your program. If you are familiar with the WEDGE or DOS SUPPORT program, then Basic 4.0 gives you all that (and more) without the hassle of loading in a program every time the computer was powered on.

Commodore Magazine now brings you BASAD, the second of our specially written major utility programs. BASAD gives disk users the joy of many Basic 4.0 disk oriented commands, plus some additional features to make your programming more enjoyable. It also includes a special disk handling section so that you may access disk sectors directly for review and modification!

Here is a short form description of the new BASAD commands:

AUTO	automatic line numbering
OLD	recover from NEW
PAGE	review a pageful of your program
SETPAGE	set parameters for PAGE
COLLECT	validate a disk
HEADER NEW	an unformatted disk
RENAME	rename a program on disk
SCRATCH	erase a file on disk
UNSCRATCH	recover a SCRATCHed file
COPY	copy a file
DVERIFY	verify a saved program on disk
DLOAD	load a program from disk
DSAVE	save a program to disk
DS\$	read the disk error channel
BLOAD	load a binary file from disk
BSAVE	save a binary file to disk
BXLOAD	load a binary file from disk to a specific address
PROTECT	to protect a disk file against erasure
RELEASE	to un-PROTECT a disk file
SEND	to send any DOS disk command
DISK	to read/write any disk sector
KILL	and home to tea

That should whet your appetite! The full program follows in Basic loader format. I have used a formatted program this time to guard against errors (mine and yours!) following a suggestion from David Balean. Our special disk service will again be available if you feel the task is too daunting.

Take your time and type the program in easy stages. A checksum section has been included to help you check your accuracy. Each "block" of 512 bytes has a checksum, and that is probably a convenient way to split the work.

Use the screen editor to enter Lines 1127 to 1141 - it will save you a lot of work.

When you finish a section, SAVE it to disk before trying any tricks. When it's all done, RUN 1007 for a final check. Then, to save loading time later on, make a binary file using BASAD to save itself. Type SYS49152 <RETURN> and the opening screen should appear. Then, use:

```
BSAVE"BASAD.A.BIN",49152,53248 <RETURN>
```

and you will have a reloadable binary file on disk.

Next issue we will bring you a full instruction set, so watch out for it.

Parts of the program were written by Thomas Wysocki, and are used here with his permission, and that of the Pet Benelux Exchange. Our thanks to them.

```

1000 REM: BASAD.A BASIC LOADER
1001 REM: LOCATION $C000
1002 :
1003 PRINT CHR$(147): PRINT "LOADING...": SR=49152: FH=53247: GOTO 1028
1004 :
1005 REM: CHECKSUMS=RUN1007
1006 :
1007 SR=49152: FOR I=SRTOSR+511: READ A: P1=P1+A: NEXT
1008 FOR I=SR+512TOSR+1023: READ A: P2=P2+A: NEXT
1009 FOR I=SR+1024TOSR+1535: READ A: P3=P3+A: NEXT
1010 FOR I=SR+1536TOSR+2047: READ A: P4=P4+A: NEXT
1011 FOR I=SR+2048TOSR+2559: READ A: P5=P5+A: NEXT
1012 FOR I=SR+2560TOSR+3071: READ A: P6=P6+A: NEXT
1013 FOR I=SR+3072TOSR+3583: READ A: P7=P7+A: NEXT
1014 FOR I=SR+3584TOSR+4095: READ A: P8=P8+A: NEXT
1015 IF P1 <> 62436 THEN X=1: GOTO 1024
1016 IF P2 <> 60287 THEN X=2: GOTO 1024
1017 IF P3 <> 62970 THEN X=3: GOTO 1024
1018 IF P4 <> 74135 THEN X=4: GOTO 1024
1019 IF P5 <> 68955 THEN X=5: GOTO 1024
1020 IF P6 <> 61076 THEN X=6: GOTO 1024
1021 IF P7 <> 65339 THEN X=7: GOTO 1024
1022 IF P8 <> 50999 THEN X=8: GOTO 1024
1023 PRINT "DATA CHECKS OK": END
1024 PRINT "DATA ERROR IN BLOCK": X: END
1025 :
1026 REM: LOADER PROGRAM
1027 :
1028 FOR Y=SRTOFH: READ A: POKEY,A: NEXT
1029 PRINT "SYS"SR"TO ACTIVATE BASAD.A"
1030 NEW
1031 :
1032 DATA 169,111,160,192,141, 4, 3,140, 5, 3,169, 23,160,193,141, 6
1033 DATA 3,140, 7, 3,120,169,148,141, 20, 3,169,200,141, 21, 3, 88
1034 DATA 169, 80,160,193,141, 8, 3,140, 9, 3,169, 10,133,252,169, 0
1035 DATA 141,241,207,141,242,207,169, 15,141, 33,208,141, 32,208,169,220
1036 DATA 160,206, 32, 30,171,160,255,200,192, 64,208, 3, 32,138,195,185
1037 DATA 126,194, 48, 7,240, 15, 32,210,255,208,236, 41,127, 32,210,255
1038 DATA 32,135,195,208,226, 32,138,195,169, 10,133,251,133,252, 96,166
1039 DATA 122,160, 4,132, 15,189, 0, 2, 16, 7,201,255,240, 74,232,208
1040 DATA 244,201, 32,240, 67,133, 8,201, 34,240, 98, 36, 15,112, 57,201
1041 DATA 63,208, 4,169,153,208, 49,201, 48,144, 4,201, 60,144, 41,132
1042 DATA 113,160, 0,132, 11,134,122,169,127,133,100,169,193,133,101,208

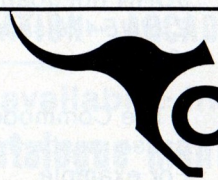
```


1043 DATA 7,232,230,100,208, 2,230,101,189, 0, 2, 56,241,100,240,241
1044 DATA 201,128,208, 48, 5, 11,164,113,232,200,153,251, 1,185,251, 1
1045 DATA 240, 59, 56,233, 58,240, 4,201, 73,208, 2,133, 15, 56,233, 85
1046 DATA 208,147,133, 8,189, 0, 2,240,223,197, 8,240,219,200,153,251
1047 DATA 1,232,208,240,166,122,230, 11,177,100, 8,230,100,208, 2,230
1048 DATA 101, 40, 16,244,177,100,208,176,189, 0, 2, 16,185,153,253, 1
1049 DATA 198,123,169,255,133,122, 96, 48, 3, 76,243,166,201,255,240,249
1050 DATA 36, 15, 48,245,170,132, 73,160,127,132,100,160,193,132,101,160
1051 DATA 0, 10,240, 16,202, 16, 12,230,100,208, 2,230,101,177,100, 16
1052 DATA 246, 48,241,200,177,100, 48, 5, 32, 71,171,208,246, 76,239,166
1053 DATA 32,115, 0, 32, 89,193, 76,174,167,240, 35,233,128,144, 28,201
1054 DATA 35,144, 18, 56,233, 76,144, 16, 10,168,185,254,194, 72,185,253
1055 DATA 194, 72, 76,115, 0, 76,247,167, 76, 8,175, 76,165,169, 96, 69
1056 DATA 78,196, 70, 79,210, 78, 69, 88,212, 68, 65, 84,193, 73, 78, 80
1057 DATA 85, 84,163, 73, 78, 80, 85,212, 68, 73,205, 82, 69, 65,196, 76
1058 DATA 69,212, 71, 79, 84,207, 82, 85,206, 73,198, 82, 69, 83, 84, 79
1059 DATA 82,197, 71, 79, 83, 85,194, 82, 69, 84, 85, 82,206, 82, 69,205
1060 DATA 83, 84, 79,208, 79,206, 87, 65, 73,212, 76, 79, 65,196, 83, 65
1061 DATA 86,197, 86, 69, 82, 73, 70,217, 68, 69,198, 80, 79, 75,197, 80
1062 DATA 82, 73, 78, 84,163, 80, 82, 73, 78,212, 67, 79, 78,212, 76, 73
1063 DATA 83,212, 67, 76,210, 67, 77,196, 83, 89,211, 79, 80, 69,206, 67
1064 DATA 76, 79, 83,197, 71, 69,212, 78, 69,215, 84, 65, 66,168, 84,207
1065 DATA 70,206, 83, 80, 67,168, 84, 72, 69,206, 78, 79,212, 83, 84, 69
1066 DATA 208,171,173,170,175,222, 65, 78,196, 79,210,190,189,188, 83, 71
1067 DATA 206, 73, 78,212, 65, 66,211, 85, 83,210, 70, 82,197, 80, 79,211
1068 DATA 83, 81,210, 82, 78,196, 76, 79,199, 69, 88,208, 67, 79,211, 83
1069 DATA 73,206, 84, 65,206, 65, 84,206, 80, 69, 69,203, 76, 69,206, 83
1070 DATA 84, 82,164, 86, 65,204, 65, 83,195, 67, 72, 82,164, 76, 69, 70
1071 DATA 84,164, 82, 73, 71, 72, 84,164, 77, 73, 68,164, 71,207, 68, 73
1072 DATA 83,203, 67, 79, 76, 76, 69, 67,212, 75, 73, 76,204, 83, 69, 78
1073 DATA 196, 79, 76,196, 80, 65, 71,197, 83, 69, 84, 80, 65, 71,197, 65
1074 DATA 85, 84,207, 67, 65, 84, 65, 76, 79,199, 68, 83,164, 68, 76, 79
1075 DATA 65,196, 68, 86, 69, 82, 73, 70,217, 66, 76, 79, 65,196, 66, 88
1076 DATA 76, 79, 65,196, 68, 83, 65, 86,197, 66, 83, 65, 86,197, 80, 82
1077 DATA 79, 84, 69, 67,212, 82, 69, 76, 69, 65, 83,197, 67, 79, 80,217
1078 DATA 83, 67, 82, 65, 84, 67,200, 72, 69, 65, 68, 69,210, 82, 69, 78
1079 DATA 65, 77,197, 85, 78, 83, 67, 82, 65, 84, 67,200, 0, 42,195, 13
1080 DATA 199, 28,199, 69,199,120,199,182,199, 18,200, 24,200,169,200,113
1081 DATA 202,212,202, 30,203, 84,203, 99,203,153,203,185,203,237,204, 46
1082 DATA 205, 64,205, 79,206,155,206,178,206,201,206,169, 71,160,197, 32
1083 DATA 30,171,162, 13,169, 62, 32, 21,196,169, 0,141, 1, 2, 32, 93
1084 DATA 196,201, 62,240,249,201, 32,240,245,162, 5,221,143,195,208, 12
1085 DATA 142, 0, 2,189,149,195, 72,189,155,195, 72, 96,202, 16,236, 76
1086 DATA 50,195,133,151, 32,135,195,185,235,197, 32, 6,196,200,208, 3
1087 DATA 238, 1, 2,198,151,208,237, 96, 32, 40,196,144, 3,153,235,197
1088 DATA 200,198,151, 96,169,147, 44,169, 32, 44,169, 13, 76,210,255, 58
1089 DATA 87, 82, 77, 64, 88,195,196,196,195,196,227,234,162,162,160,104
1090 DATA 122,160, 0,140, 3, 2,136,140, 4, 2, 32,207,255,201, 13,240
1091 DATA 23, 32, 40,196,144, 18,141, 3, 2, 32,207,255,201, 13,240, 8
1092 DATA 32, 40,196,144, 3,141, 4, 2,172, 3, 2, 32,225,255,240, 24
1093 DATA 32,209,197, 32,225,197,152, 32, 6,196, 32,135,195,169, 8, 32
1094 DATA 98,195, 32,162,197, 76,203,195, 76, 50,195, 32, 40,196,144,248
1095 DATA 168,169, 8,133,151, 32, 93,196, 32, 93,196, 32,120,195,208,248
1096 DATA 32,162,197, 76, 50,195, 72, 74, 74, 74, 32, 30,196,170,104
1097 DATA 41, 15, 32, 30,196, 72,138, 32,210,255,104, 76,210,255, 24,105
1098 DATA 246,144, 2,105, 6,105, 58, 96,169, 0,141, 2, 2, 32, 93,196
1099 DATA 201, 32,208, 9, 32, 93,196,201, 32,208, 15, 24, 96, 32, 82,196
1100 DATA 10, 10, 10, 10,141, 2, 2, 32, 93,196, 32, 82,196, 13, 2, 2
1101 DATA 56, 96,201, 58, 8, 41, 15, 40,144, 2,105, 8, 96, 32,207,255
1102 DATA 201, 13,208,248,104,104, 76, 50,195, 32,207,255,201, 13,208, 6
1103 DATA 32,114,202, 76, 50,195,201, 36,240, 32, 72,169, 8,133,186, 32
1104 DATA 177,255,169,111,133,185, 32,147,255,104, 32,168,255, 32,207,255
1105 DATA 201, 13,208,246, 32,174,255, 76, 50,195, 32,176,200, 32,204,255
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1107 DATA 196, 32, 40,196,144,228,141, 60,197, 32,103,197,173, 0, 2,201
1108 DATA 1,240, 30,169, 49, 32,255,196,162, 13, 32,198,255,162, 0, 32
1109 DATA 207,255,157,235,197,232,208,247, 32,204,255, 32,139,197, 76, 50
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1111 DATA 255,232,208,247, 32,204,255,169, 50, 32,255,196, 76,219,196,141
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1113 DATA 173, 60,197, 32,149,197,142, 60,197,141, 61,197,162, 15, 32,201
1114 DATA 255,162, 0,189, 49,197, 32,210,255,232,224, 13,208,245, 76,204
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1116 DATA 80, 32, 49, 51, 32, 48, 35, 13, 68, 73, 83, 75, 65, 68, 46, 65
1117 DATA 0, 86,162, 15, 32,201,255,162, 0,189, 62,197, 32,210,255,232
1118 DATA 224, 8,208,245, 76,204,255,169, 15,168,162, 8, 32,186,255,169
1119 DATA 0, 32,189,255, 32,192,255,169, 13,168,162, 8, 32,186,255,169
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1122 DATA 58, 96,152, 56,233, 8,168, 32,135,195,169, 18, 32,210,255,162
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1144 DATA 187, 32,168,255,230,151,198,183,208,243, 32,174,255, 96,169, 81
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1156 DATA 170,240, 6, 76, 80,203, 32,107,169, 32, 19,166,165,251, 24,101
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1182 DATA 0, 1,208,250,224, 3,240, 30,169, 3,142, 62, 3, 56,237, 62
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1188 DATA 210,255,206, 61, 3, 32,228,255,201, 34,208,243, 32,210,255,169
1189 DATA 32, 32,210,255,173, 61, 3,240, 10,169, 32, 32,210,255,206, 61
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Letters

Address mail to: The Editor, Commodore Magazine, Kim Books, 82 Alexander Street, Crows Nest, N.S.W. 2065

Dear Sir,
I am writing this letter to inform you that I have just presently bought myself a Commodore 64 Home computer.

I therefore hope that you might be able to help me out with my problem.

Now, I purchased the computer from (---a well known supermaret store - we're as bad as the ABC in this place!) store, and didn't get an instruction book with the computer.

I went back to the store where I bought the computer, and all they told me is that they don't supply these computers with an instruction book.

I know it sounds a bit stupid, but in fact there isn't any thing I can do, so thats why I am writing this letter to see if I can obtain a Commodore 64 book.

Also I believe your organization prints magazines, could you send me some information on these magazines.

At this present moment I am making good use out of the computer, but don't know enough features about the computer, till I can obtain myself an instruction book.

I was wondering if you can help me out with this problem.

J. Payet
Perth W.A.

ED - We've had some other letters similar to this and it is a little concerning. Commodore informs us that ALL machines should go out with Users Manuals. All I can recommend is that you write direct to Commodore Business Machines Pty Ltd Customer Service Section, 5 Orion Road, Lane Cove NSW 2066 or ring Commodore in Perth on (09) 478 1744.

It is all very well for the big discounters to sell Commodore computers but when the guy behind the counter has no concept of his products there is somethings wrong.

This, however, is a two sided thing - you get what you pay for - service and

product knowledge often costs the difference between recommended retail price and discount price.

Good luck in the future and I hope you join the growing numbers of subscribers.

P.S. Contact your local User Group they can help.

□ □ □ □

Dear Sir,
I am trusting you may be able to help with some information.

With the growing number of people doing Genealogy (Tracing your Family Tree) do you know of any books with programmes on this subject suitable for Commodore 64 or any programmes available in Australia for this purpose? There appears to be programmes in America and England per the article in 'Your Computer' of May '84.

Trusting you may be able to help as I am anxious to get started just having purchased a 64, Disk Drive & DPS-1101 Daisy Wheel Printer.

D. Fagg
Bundaberg, Qld.

ED - We recently received the following information in the form of a press release which might help.

GENEALOGY PROGRAM FOR COMMODORE 64 COMPUTERS

A program that will produce six generation pedigree charts on the Commodore 64 computer is being marketed for \$85 by Chambers Computer Supplies of Endeavour Hills, Melbourne.

575 names, plus notes on each person, will fit on a data disk and several disks can be used if unlimited genealogies are required.

The program is fully indexed, has easy screen editing and produces family record sheets. Output can be to screen or any Commodore or compatible printer.

Each file can accomodate up to 255 characters of information and as only about 100 characters are required for a

person who has been married once, there is ample room for further notes.

Features which would be of interest to members of the Church of Jesus Christ of Latter-Day Saints are provisions for Baptism, Endowment, Sealed To Parents and Sealed To Spouse. There is also a demo program and provision for alphabetic and numeric name search.

Because it extensively interacts, the program requires a disk drive. It works well on the standard Commodore 1541 but reaches its full potential with even more generations on a MSD dual drive, which has 354, 000 bytes of storage, or the Commodore 4040.

Telephone enquiries (03) 700 2451

Hope this assists you. Have any of our readers got any other information please?.

□ □ □ □

Dear Sir,
Thank you for publishing my last letter in the October issue. Two errors
1. Mr Mahoney's christian name is JOHN not Joan! - (ooops sorry!?)
2. LINE 470 should read IF T > 15 or T < 0 etc.

The Commodore 64 arithmetic can cause nasty things in programmes. For example
N = 6.55 : A = N - INT(N): PRINT A
does not give .55 but .550000001. Similarly if N = 4.45 the answer given is .449999999!!

This caused me a days headache which I solved by deciding that I only wished to look at three decimal places and so made
A = INT((N - INT(N))x1000 +.5)/1000
which always gave me the right answers.

I hope this note will help other programmers from many hours of anguish.

I attach a solution to the property question which uses the principle above.

David Belson.
Buderim, Qld.

ED - Thanks David. I've forwarded your competition solution to Greg. Good to hear from you again.

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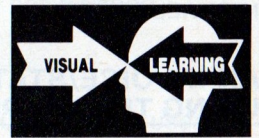
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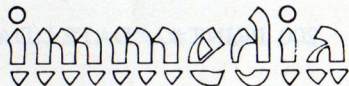
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THE VIC MAGICIANS APPRENTICE

MICHAEL SPITERI

AN INVOICE/STATEMENT USING THE VIC PRINTER

There are many advantages of owning a printer, one is being able to print out business forms, receipts invoices, etc. The only problem though is finding a program that will do such a thing, and as you may have discovered, business type software are not very cheap, and you can find yourself forking out quite a bit of money. What I will try to do is teach you how to write your own printer software. As an example, we will write a short program that will print out INVOICE/STATEMENTS (these are usually given to you when you buy more than one product from a store). These record the invoice number, date names, addresses, description of product, number of each product, price of each product, total price of all products. There is no limit to the amount of products you may print. The finished invoice will look something like **figure 1**

INVOICE/STATEMENT

INVOICE NUMBER: 22234

DATE 21/5/84

TO: MR FRED CARRYHOME - NEWCASTLE - NSW 4444

FROM: BUNDLE BOOKS - SYDNEY - NSW 5555

QUANTITY	DESCRIPTION	PRICE	\$
1	BIG BOOK OF JOKES	2.66	2.66
5	SUPER CRIME MAGAZINE	10	50
100	FULLSCAP LINED PAPER - TOP QUALITY	.7	70
2	INTRODUCTION TO HANDWRITING IN COLOUR	25	50
33	SPECIAL COLOURED TEXTAS WITH FINE HEADS	2.33	76.89
99	SPARE ERASERS	99	9801
4	SUPER COMPUTER BOOK	37.96	151.84
TOTAL			10202.39

You can build this program as a core, and build around it to suit yourself if you wish. You will need an 80 column printer.

I will explain each line of the program step by step, and inform you of some other features you can add. Let's start writing the program!

The first two lines are usually REM statements, just small bits of information to remind the user what the program is about (NOTE: anything printed after a REM statement will not be printed on the screen!)

```
100 REM # INVOICE/STATEMENT #
110 REM # REQUIRES VIC PRINTER #
```

The next line will just print on the screen (after clearing it) INVOICE/STATEMENT.

```
120 PRINT "[CLR]INVOICE/STATEMENT"
```

Since the printer uses files to store and print the data, we will open a file. CMD2 directs the computer to the printer (the printer's device number is 2). - We will open file number 2.

```
130 OPEN 2,4:CMD 2
```

Read the printer manual for information about files.

The command used for printing something onto the printer is PRINT#x (it means print something to file x) Since x is 2 in our case, the command will be PRINT#2.

I want to print "INVOICE/STATEMENT" onto paper, so the command will be

```
140 PRINT#2, "INVOICE/STATEMENT"
```

To leave a line on the printer I would use PRINT#2 BY itself:

```
150 PRINT#2
```

The next line will get the user to enter the INVOICE NUMBER.

```
160 INPUT "ENTER INVOICE NUMBER: ";IN
```

We will give the invoice number the value of 'IN'. Now we have to get the printer to print out the invoice number:

```
170 PRINT#2, "INVOICE NUMBER: "IN
```

When I run the program the printer will print out INVOICE/STATEMENT, then the computer will ask me to enter the INVOICE NUMBER. If I enter 55 then this is what will be printed on the printer:

```
INVOICE NUMBER: 55
```

Simple isn't it!

Line 180 will leave another line on the printer:

```
180 PRINT#2
```

Next we have to get the user to enter the date, we will give the date the value of DA\$.

```
190 INPUT "ENTER THE DATE: ";DA$
```

and now to print it out:

```
200 PRINT#2, "DATE: ";DA$
```

Next we input the name of the person the form is to:

```
210 INPUT "TO: ";N1$
```

Leave another line on printer:

```
220 PRINT#2
```

Print out what has just been entered onto the printer:

```
230 PRINT#2, "TO: ";N1$
```

Repeat the same thing for the business's name and address:


```

240 INPUT"FROM: ";N2$
250 PRINT#2
260 PRINT#2,"FROM: ";N2$
270 PRINT#2

```

The rest of the program will draw up the chart and ask the user to enter the details of the product.

Line 280 will print out a straight line on paper, the line is formed by joining 70 dashes.

```

280 PRINT#2,"-----
      "

```

The next line uses a special feature of the Vic Printer – the CHR\$(16). This puts the printer into tabulator mode, it is very simple to use. Suppose I want the printer to print "BOOK" at tabstop 44, this is what I do:

```
PRINT#2,CHR$(16)"44BOOK", and this will print this:
```

```
(44 spaces) BOOK
```

Using this system I can divide and print information into columns. Type out line 290, and I will explain what it does.

```

290 PRINT#2,"QUANTITY";CHR$(16)
    "15DESCRIPTION";CHR$(16)"50PRICE";
    CHR$(16)"60$"

```

When the program reaches this line, this is what it will print on the printer:

```

    15 SPACES
    |-----|
    |-----| 50 SPACES
    |-----| 60 SPACES
QUANTITY  DESCRIPTION                PRICE      $

```

The word QUANTITY is printed at the start of the line, DESCRIPTION is printed 15 spaces from the start of the line, PRICE is printed 50 spaces from the start of the line and \$ is printed 60 spaces from the start of the line.

NOTE: REMEMBER, EACH WORD OR SENTENCE MUST HAVE THE CHR\$(16) BEFORE IT THEN THE TWO FIGURE NUMBER, if the number is below ten then print 03 or 04 etc.

Line 300 will print another line made up of 70 dashes on the printer.

```

300 PRINT#2,"-----
      "

```

Line 310 leaves another line on the printer.

```
310 PRINT#2
```

Now we have to get the user to enter the details, first the quantity or number of that certain product:

```
320 INPUT "ENTER QUANTITY: ";Q
```

Then enter the description of the product:

```
330 INPUT"ENTER DESCRIPTION";D$
```

The next line will cause the program to stop if the user has finished entering all his products: The user has to enter END for the description if he has finished.

```
340 IF D$ = "END" THEN 400
```

The program will proceed to line 400 when the user has finished. If he has not finished then it will continue entering more products.

Line 350 asks the user to enter the price for the product.

```
350 INPUT "PRICE";P
```

If we multiply the PRICE by the QUANTITY we will be left with the final amount, e.g. if the person bought 3 books at 5 dollars each, the total will be 15 dollars.

```
360 FP = Q * P
```

We gave the final price the value FP.

The next line will add up all of the final prices to give us a grand total.

```
370 TP = TP + FP
```

If you do not understand I will explain:

A man buys 3 books at 5 dollars each, the invoice will look like this:

QUANTITY	DESCRIPTION	PRICE	\$
3	Books	\$5	15

– this is the final price.

The man also buys 10 markers at 2 dollars each

10	Markers	\$2	20
----	---------	-----	----

– another final price.

The grand total is the cost of the BOOKS and MARKERS added together, which is 35. Line 380 prints out the quantity, description and price etc.

```

380 PRINT#2, Q;CHR$(16)"10"D$;CHR$(16)"50"P;
    CHR$(16)"60";FP

```

This line looks very confusing. I will explain it step by step PRINT#2,Q – print quantity CHR\$(16)"10"D\$ – prints description at TAB 10 (ten spaces from start) CHR\$(16)"50"P – prints price fifty spaces from start, and finally CHR\$(16)"60";FP – prints final price sixty spaces from start. So all we are actually doing is lining up the inputs with the right column (see example invoice/statement).

Line 390 returns the program back to line 320 for the next input of product. It is just a continuous loop that stops when the user types in "END" for the description!

Continued on page 56

TURBO-64

Previously known as TURBO-DOS

by Paul Blair

I'm using Easy Script to write up this review. It took me ten seconds to load from disk with Turbo-64.

Stop and think about that for a moment. If you have sat and waited for Easy Script to load from a normal disk, you will realise that I have loaded it about five times faster than normal. At last there is a way to make the cantankerous, funereal 1541 do something at acceptable speed, thanks to the clever lads at Cockroach. If you have been driven to despair by the speed (I use the word advisedly) of the 1541, then Turbo-64 is for you.

It works like this. Load the Editor from the Turbo-64 system disk, and you're away. Turbo-64 uses a special disk format, so the first thing to do is to create a storage disk. If you haven't read the instructions yet, simply follow the clear screen directions.

After accepting your choice of disk name and disk ID, the formatting starts, and takes about 30 seconds. If you wish, you can repeat this step to create a store of special disks.

Now it's time to transfer programs from your standard disks to the Turbo storage disk. Turbo-64 will read the directory from a disk, and prompt you to select the programs for transfer. As Turbo-64 will accept 20 programs or 664 blocks on each disk, you have plenty of room for lots of material. Each program will be read into your computer, then (after swapping disks) written out to your special disk.

This read/swap/write process can go on with different standard disks until the special disk is full, or you have nothing more to transfer.

Now, how to use it. LOAD'T,8,1 will get you a directory of your Turbo'ed disk in a few seconds. From there it's one keystroke to load and autorun the program of your choice. And is that load fast!!

What then? Want to change a program name? Erase a program? Change the colours on the directory? Print a hardcopy (with a lot of program information)? Turbo-64 takes care of all that for you, which greatly enhances the flexibility of the system. Disks created this way may be backed-up with fast backup (snapshot type) programs. They will run without special software on any C64/1541 combination without hardware changes. Multi-user systems (such as VIC-SWITCH) love Turbo'ed disks.

Now, some no-noes. Some programs are not suited to the Turbo process. Programs on DOS-protected disks will most probably transfer, but may not run because the disk errors will not be in correct locations. Chained (multi-part) programs will not find second or subsequent sections, because Turbo-64 stores program names a little differently. I can't chain from Easy script to Easy Spell from a Turbo'ed disk, but I can work from a standard disk at normal speed.

In my own perverse way, I tried to crash Turbo-64, and the disk it creates. I didn't succeed, thanks to the error trapping built in. Short of dunking the disk in vegetable soup (a weakness of our Editor) I can't figure out how to muss things up. The only difficulty I can envisage would be with an out-of-alignment 1541, but let's not dwell on that one.

Cockroach (don't ask me where it came from) offer warranty on all products, but I doubt if its ever needed. But, for your protection, a warranty card is included with each disk.

Product: Turbo-64
Rating: 9.5 out of 10
Price: \$45
Supplier: Cockroach Software

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ISAM-KRAM

by Paul Blair

One of the more useful tasks for your computer is data storage and retrieval. It doesn't matter whether you are storing recipes, stamp collection indexes, a Christmas card list or racing form. Given the correct approach, designing and using a computer-based information system will not only broaden your programming skills, but it is likely to be useful as well. That's two for the price of one, which is good value in anyone's language.

Data is data whatever is to be stored, so let's set about learning some more about setting up a file or two. There are some useful tricks that can make the job easier, and the final product more fun to use.

Commodore has provided the tools to create different methods of data storage. Depending on the type of program that we want to create, we may choose the best to suit our ends.

FILE TYPES

The principal forms of storage take two distinct formats. SEQUENTIAL files store data in 'streams', much as music is recorded on tape. Sequential files may be used with both cassette and disk, and are a quite satisfactory way of handling small amounts of information. Because the information is stored byte after byte in a long chain, it can be very difficult to find specific parts of any file. It is usual to read complete files into the computer, fiddle with them, then write them back to storage as a complete block. As mentioned, this is quite satisfactory for small files.

But suppose we want to set up a mailing list for 800 families, and we figure out that each entry will need about 60 characters to store the information about each family. Eight hundred times 60 is 48,000 (or 48K) and 48 into 39 won't go. If we did manage to set up a sequential file, some form of subdivision would be required to handle the files. But there is an easier (and quicker) way.

This brings us to RELATIVE files, for which we will need a disk drive. This type of file is really a clever form of random access file - clever because the disk drive will do most of the work for us. Why 'relative'? The only explanation that I can give is that the relative position of each record on the disk is known to the disk drive so very fast access times are possible.

Once a relative file has been properly created, we need only tell the computer the number of the 'record' that we want, and it will be ours in short time order. This Record Number is all important, so if we can figure a convenient way of remembering all the numbers of the records in our file, we will be able to use relative files effectively.

One suggestion would be to set up a card index containing all the names of the families on file, with the record number (RN) for each. But we have a computer, so why not use that? Could we set up an index file, so that we may manage the principal file to best effect?

The answer is, of course, to use an index file, small enough to be easily accommodated in computer memory, and clever enough to permit access to our main file. This type of approach has a name - well, two really. ISAM stands for Indexed Sequential Access Method. KRAM stands for Keyed Random Access Method. To all intents and purposes, they are the same thing. Each makes an index which relates keys and RN's. By hunting for a key, we can get the correct RN, and the rest is easy.

Suppose we use surnames as our key. As we create each record, we will add the RN to the key. If we had the Jones family, and they are the third entry in our list, the index file would contain JONES003 - key plus RN.

We also need a way of marking empty entries, or entries that have been deleted, so that we can find a vacant place in the main file when we want to make a new entry. To do this, we will use the 'O\$' character in place of the surname (key) in our index. So, let's set up an index file for 50 records, and mark them all as blank (i.e., available for use)

```
100 REM: FILEMAKER
110 REM: COMMODORE 64
120 REM: TODAY'S DATE
130 PRINT CHR$(147)"SETTING UP SEQ FILE"
140 SX=2:RS=CHR$(13):FES=CHR$(91):OPEN15,8,15
150 OPEN 2,8,SX,"O:MASTERLIST,S,W"
160 FOR T = 1 TO 50
170 T$ = RIGHTS$(STR$(1000+T),3)
180 T$ = FES+T$
190 PRINT#2,T$
200 NEXT:CLOSE 2
```

Some disk error checking would be in order, so add:-

```
155 GOSUB 400
205 GOSUB 400
400 INPUT#15,EN,EM$,ET,ES
410 IF (EN=50) OR EN<20 THEN RETURN
420 PRINT"STATUS:"EN,EM$,ET,ES:CLOSE15:END
```

The routine open a sequential file named MASTERLIST ready to write ('S,W'). T\$ is set up to contain the empty record marker '[', plus a record number padded out with zeroes (the reason for adding 1000 and then chopping off the 'thousands' digit) so know that the RN is a particular part of every index entry. The end product is then written to file, followed by a carriage return.

The resulting file will contain 50 strings that look like:

```
[ $001
[ $002
[ $003 and so on to
[ $050
```

Why the '['? Well, it is the character after 'Z', and the reason for that choice will become clear soon. Don't run the program yet, we have some more to add to it.

We can now turn to our relative file-to-be. If you have struggled with the examples given in the 1541 Disk Drive Manual, let me try to set out the simple and correct way of creating a relative file for use.

To set up a relative record file, our computer

only needs to know what name to give the file, how many individual records we want to write, and how long each record will be. After that, we may sit back and let the machine do the work.

We can set up a new file with just one record in it, or we can think ahead and set up a complete file of records. The first method is quick to set up, but slow to use, because the computer has to extend the file each time we want to add a record. The second way is a bit longer to start with, but quicker in use because space for a new record is already reserved. It's safer, too, because we can ensure that we don't run out of disk space. Pre-extension, to give it a name, is pre-ferred!

The syntax that follows will work. There are some erroneous versions around, and some books (eg, 'Commodore 64 Exposed') don't mention anything! To pre-extend a relative file, the trick is to write to the LAST record we think we will need. If we plan on 50 records, then we set up a new file by simply writing record 50, and the disk operating system will write the other 49 for us. Each record will contain CHR\$(255), which is Pi. This handy little character is used by the computer to signal end of information - that is, there is no more data to follow, or, in other words, end of a record.

Let's set up our 50 records (RN), allowing room in each record for 60 characters (LR). Add these lines to the others.

```
210 PRINT CHR$(147)"SET UP RELATIVE FILE"
220 RN=50:BN=1:LR=60
230 D$="L,"+CHR$(LR)
240 OPEN 3,8,SX,"MASTER FILE"+D$:GOSUB400
250 GOSUB300
260 PRINT#3,CHR$(255):GOSUB400
270 CLOSE3:CLOSE15:END
```

Now a short subroutine to set up the syntax for 'pointing' to any record we want:

```
300 RH=INT(RN/256):RL=RN AND 255
310 P$="P"+CHR$(SX)+CHR$(RL)+CHR$(RH)
```

RL and RH are the low byte/high byte representation of the record number, RN. To position to a specific byte (BN) within a record, we need to add one more parameter to P\$:

```
320 P$=P$+CHR$(BN)
330 PRINT#15,P$
340 RETURN
```

If we don't add the positioning pointer BN, the program will assume Position 13, which it 'reads' from the carriage return sent with the position command.

Note that the second comma in line 230 is all important, and is often missing when people describe relative file syntax. An important point to note here concerns the maximum length of a relative record. The design of the Disk Operating System sets an upper limit per record of 254 bytes. That may appear restrictive, but in practice it works out to be a more than generous allowance.

WHAT DO WE DO NOW?

Now that the system files have been set up, we can get down to using ISAM for real. You should refer to the program listing for any specific points if you are in any doubt.

When listings such as this cross your path, it is a good idea to take a pencil and mark those parts that are purely utility, such as input routines, disk error checking and so on. Do it now with the listing, marking out:

Lines 190-240	Menu
Lines 1500-1520	Key wait
Lines 2000-2030	Disk errors
Line 2100	Pause
Lines 14000-14010	Front page
Line 17000	Screen header

That clears away some space to think. What is left is pretty fundamental stuff, but useful.

The Menu is set up so that we may add records, delete or amend them, or simply view the file entry or the key index file at any time. By and large, those items would form a good base for any data collection program.

Let's step through the types of actions associated with the principal commands, trying to set out a logical order of operations.

1. ENTER A NEW RECORD

- Find a vacant record space to use
- Get the record number (RN) of that space
- Get the new entry key (surname)
- Change the index element from '□RN' to 'KEYRN'.. key+RN
- Get the rest of the record entry
- Write the record to disk
- Flag that the index file has been changed

2. AMEND A RECORD

- Ask user for key
- Find key, get RN associated with it
- Get record from disk, show it
- Get amendment from user
- Make a new index element if the key has been changed
- Write the record to disk
- If (e) then flag that index has been changed

3. DELETE A RECORD

-)
- (-As for AMEND
-)
- Ask whether deletion should continue or abort

- (e) If continue, reset index element to [RN, i.e., remove key and replace with the '[' character
- (f) If deletion, mark that index has been changed

When a deletion occurs, the index is altered, but note that we don't waste time erasing the old record on disk. Sooner or later we will add another record, and the old record will be overwritten with the new. As the RN is marked vacant (the '[' in the index entry) there is no risk of accidentally using the old entry.

All of these modes use a simple but effective input routine, where characters are taken in one by one, and some keys give special functions. The left-arrow key deletes the last character typed, and the DEL key permits a fresh start to entry.

To keep things moving, the most crucial sections have used very fast routines. The sorting routine is in machine code, freely available from most User Groups around the country. A Basic sort would do, but there would be a noticeable slowing down of the program.

The binary chop search (BCS) makes use of the index file very fast. Dear heaven, you mutter, what's a binary chop?

Our index file is only tiny, but consider for a moment how it would be if there were 500 entries in it! To find our key in it, we would have to search through it, item by item, comparing our key with each one to find a match. We could have to do 500 comparisons if we were looking for Mr Zxwyxchr!. That where BCS comes in. It goes like this.

Before starting in with BCS, we need an ordered list - alphabetic or numeric. Our first action then is to sort the index array. This is where our '[' character comes into play. By sorting alphabetically, all the index array entries in use get sorted to the top of the list, keeping the index tidy for later use.

Suppose H\$ is the name of the family we are seeking. Call the index array SA\$(.), and SA\$ has 500 elements, SA\$(0) to SA\$(499). If we select the middle element from SA\$ - which would be element 250 - and compare H\$ with SA\$(250), we would know whether H\$ was smaller (alphabetically or numerically) or larger than it. If H\$ was 'JUMBO' and SA\$(250) was 'MUMBO', and because the array is in sorted order, then there is no point in looking beyond SA\$(250) because the entries will simply continue to get 'larger'.

So we can ignore all entries from SA\$(251) to SA\$(499). OK, let's repeat the step by chopping the remainder of the array in two, and comparing H\$ with SA\$(125). This time, H\$ is larger, so our hunt focuses in on SA\$(125) to SA\$(250). Notice that after only two (2!!) comparisons we know that we can ignore at least three-quarters of the index array? With each compare and chop we get closer and closer to our target. Notice too that if our index array contained 1000 elements, not 500, we would not

increase our searching time to any significant degree. Put this routine where you can find it again.

If you pause and reflect for a moment, consider the way you might look for a name in the telephone book. You take a stab at where the name might be, and go forwards or backwards depending on what you find on the page you open. BCS is rather like that.

There is a small twist at the end of the routine, to permit a search on as many characters as provided - sometimes called a wild card or partial match. The routine will provide you with a search accuracy that matches the search input quality.

In the example, the list halving process takes place in line 9010. The pointers, ZT, ZM and ZB point to the top, middle and bottom elements, and are swapped around as the search progresses. If the pointers ZT and ZM meet, then no match has been found.

The other parts of the demonstration program are self explanatory. Notice that the relative file is both opened and closed with every access, which may seem a nuisance, but it does mean that file integrity is maintained by only having open files when needed, and each file access is tested through the disk error channel.

In this explanation, we load the index file into memory at the start (lines 155-165). If it has been altered in some way, it is written back in updated form in lines 20010 on. Having the index file in memory permits sorting and BCS activities, with their great speed benefits. There is an alternative method, where the index file is kept on disk and read whenever it is necessary to update it or get a record number. With fast disk drive response times, this method is excellent, particularly for large files. But on the 1541 drive, performance is disappointing, so there are good reasons for designing to have the index array in memory. A program for disk search is available should anyone be interested.

FOR THE MORE ADVANCED

Ever since relative files were first introduced on single disk drives, there has been an elusive bug about that can cause problems under some conditions of 'write', i.e., when you are actually sending information to be written to the disk. The problem has surfaced in the form of garbage written to disk, particularly during lengthy write sequences. In the demonstration program above, it will not occur because only small amounts of data are being written, and then only at infrequent intervals during input or amendment time.

The problem appears to be when the disk drive head is being positioned to write to disk. Jim Butterfield has suggested that the problem arises when the information flowing to the disk drive arrives faster than it can be written, and the excess is 'buffered' (stored) temporarily until the queue has shortened. Buffering seems to cause the operating system a few problems, and the data gets jumbled.

Continued on page 55

Fileuser

by Paul Blair

```
100 REM"  
101 REM"   ## FILEUSER ##  
102 REM"  
103 REM"   EXAMPLE FILE  
104 REM"   - RELATIVE FILES  
105 REM"   - BINARY CHOP  
106 REM"   - ISAM+KRAM  
107 REM"  
108 REM"   COMMODORE 64  
109 REM"   1541/4040 DR  
110 REM"   USES SSORT64  
111 REM"  
112 REM"   PAUL BLAIR  
113 REM"  
114 REM"  
125 :  
130 IFPEEK(52430)=165THEN140           :REM SEE IF THERE  
135 LOAD"SSORT64",8,1                 :REM THEN LOAD IT  
140 CLR:M=53280:LN$="" :FORA=1TO6:LN$=LN$+LN$:  
    NEXT:LN$=LEFT$(LN$,39)  
145 GOSUB14000:DIMMF$(60):R$=CHR$(13):BL$="" :  
    FORA=1TO6:BL$=BL$+BL$:NEXT  
150 POKEM,14:POKEM+1,2:OPEN15,8,15:GOSUB2000  
    :REM ERROR CHANNEL  
155 OPEN2,8,2,"0:MASTERLIST,S,R":GOSUB2000:A=-1  
    :REM READ INDEX  
160 A=A+1:INPUT#2,MF$(A):TS=ST:IFLEFT$(MF$(A),1)="[ "  
    THEN TL=TL+1  
165 IFTS=0THEN160  
170 CLOSE2:PRINT"[CRDN]"A+1"RECORDS IN FILE"  
180 PRINT"[CRDN]"TL"RECORDS UNUSED":PRINT"[CRDN]"  
    LN$:GOSUB1500:GOSUB10000  
187 REM"  
188 REM"   MAIN MENU  
189 REM"  
190 HD$="MAIN MENU":GOSUB17000:PRINT"1...TO ADD TO  
    FILE":PRINT"Q2...TO DELETE"  
200 PRINT"Q3...TO FIND RECORD":PRINT"Q4...TO AMEND":  
    PRINT"Q5...TO DISPLAY"  
210 PRINT"Q6...TO QUIT":PRINTLN$:PRINT"[CRDN]PLEASE  
    MAKE YOUR CHOICE"  
220 GETAN$:IFAN$=""THEN220  
230 AN=VAL(AN$):IFAN<1ORAN>6THEN220  
240 ONANGOSUB4000,5000,6000,7000,8000,20000:GOTO190  
1497 REM"  
1498 REM"   WAIT A BIT  
1499 REM"  
1500 POKE198,0:PRINT"[CRDN]PRESS ANY KEY  
    TO CONTINUE"  
1510 GETAN$:IFAN$=""THEN1510  
1520 RETURN  
1997 REM"  
1998 REM"   DISK ERROR  
1999 REM"  
2000 INPUT#15,EN,EM$,ET,ES  
2010 IF(EN=50)OREN<20THENRETURN  
2020 POKEM,14:PRINT"[CRDN]ERROR="EN;EM$;ET;ES  
2030 CLOSE15:END  
2100 FORDL=1TO3000:NEXT:POKEM,14:RETURN  
3997 REM"  
3998 REM"   ADD A RECORD  
3999 REM"  
4000 GOSUB10000:FL=1:HD$="ADD A RECORD":  
    GOSUB17000:FORUY=0TO49  
4005 ILEFT$(MF$(UY),1)="[ "THENID$=RIGHT$(MF$(UY),3):  
    ID=VAL(ID$):GOTO4020  
4010 NEXT  
4020 PRINT"ENTER KEYNAME "P3=15:GOSUB12000:  
    PRINT"QYOUR KEY IS: "P$J$=P$  
4025 MF$(UY)=P$+ID$  
4030 PRINT"[CRDN]ENTER DETAILS "P3=35:GOSUB12000:  
    PRINT"QYOUR ENTRY IS: "J$+" "+P$  
4040 OP$=J$+" "+P$:UY=ID:GOSUB13000:GOSUB1500:RETURN
```

```
4997 REM"  
4998 REM"   DELETE RECORD  
4999 REM"  
5000 HD$="DELETE":GOSUB17000:GOSUB6010  
5010 PRINT"[CRDN]TYPE D TO DELETE OR M FOR MENU"  
5020 GETAN$:IFAN$=""THEN5020  
5030 IFAN$="M"THEN190  
5040 IFAN$="D"THENFL=1:GOTO5060  
5050 GOTO5020  
5060 MF$(ZZ)="[ "+ID$:GOSUB1500:RETURN  
    :REM RESET INDEX  
5997 REM"  
5998 REM"   FIND RECORD  
5999 REM"  
6000 HD$="SEARCH":GOSUB17000  
6010 PRINT"WHICH RECORD PLEASE? "P3=12:GOSUB12000:  
    ZT$=P$:GOSUB9200:GOSUB9000  
6020 IFNF=0THENGOSUB11000:RETURN :REM NOT FOUND  
6030 NF=0:GOSUB2100:RETURN :REM FOUND  
6997 REM"  
6998 REM"   AMEND RECORD  
6999 REM"  
7000 HD$="AMEND RECORD":GOSUB17000:PRINT"WHOSE  
    RECORD TO AMEND? "P3=15  
7010 GOSUB12000:ZT$=P$:GOSUB9000:UY=ZZ:  
    PRINT"[CRDN]AMEND TO- "  
7020 GOSUB4020:GOSUB2100:FL=1:RETURN  
7997 REM"  
7998 REM"   PRINT KEYS  
7999 REM"  
8000 GOSUB10000:HD$="LIST OF RECORDS":GOSUB17000  
8010 PRINT"PRESS ANY KEY TO SEE LIST OF RECORDS":  
    PRINTLN$"[CRDN]"  
8020 GETAN$:IFAN$=""THEN8020  
8030 AR=0:FORUY=0TO50:AB$=LEFT$(MF$(UY),1):  
    IFAB$="[ "ORAB$=""THEN8050  
8040 PRINTRIGHT$(MF$(UY),3)". . . . ."LEFT$(MF$(UY),  
    LEN(MF$(UY))-3):AR=AR+1  
8050 NEXT:PRINT"[CRDN]"LN$:PRINT"[CRDN]TOTAL USED  
    RECORDS "AR:PRINT"[CRDN]"LN$  
8060 GOSUB1500:RETURN  
8997 REM"  
8998 REM"   CHOP SEARCH  
8999 REM"  
9000 GOSUB10000:ZT=0:ZB=49 :REM SET TOP, BOTTOM  
9010 ZM=ZT+INT((ZB-ZT)/2):ZIS=MF$(ZM):GOSUB9200  
    :REM CENTRE ELEMENT  
9020 IFZIS=ZT$THEN9060  
9030 IFZT=ZMTHEN9190  
9040 IFZIS=""ORZT$>ZISTHENZT=ZM:GOTO9010  
    :REM KEEP BOTTOM HALF  
9050 ZB=ZM:GOTO9010  
    :REM KEEP TOP HALF  
9060 ZB=ZM  
9070 IFZB-1<0THEN9100  
9080 ZIS=MF$(ZB-1):GOSUB9200:IFZIS<>ZT$THEN9100  
9090 ZB=ZB-1:GOTO9070  
9100 ZT=ZM  
9110 IFZT+1>ATHEN9140  
9120 ZIS=MF$(ZT+1):GOSUB9200:IFZIS<>ZT$THEN9140  
9130 ZT=ZT+1:GOTO9110  
9140 FORZZ=ZBTOZT:PRINT"[CRDN]"LEFT$(MF$(ZZ),  
    LEN(MF$(ZZ))-3)  
9150 NEXT  
9160 IFZZ=0THENID$=RIGHT$(MF$(ZZ),3):ID=VAL(ID$):  
    GOTO9180  
9170 ZZ=ZZ-1:ID$=RIGHT$(MF$(ZZ),3):ID=VAL(ID$)  
9180 RETURN  
9190 POKEM,2:PRINT"[CRDN] NO MATCH FOUND "NF=1:  
    RETURN  
9200 IFLEN(ZIS)>LEN(ZT$)THENZIS=LEFT$(ZIS,LEN(ZT$))  
9210 RETURN  
9997 REM"
```



```

9998 REM" SORT IT ALL
9999 REM"
10000 POKE905,1:SYSS2430:RETURN
10997 REM"
10998 REM" ACCESS FILE
10999 REM"
11000 OPEN4,8,4,"MASTER FILE":GOSUB2000
11005 PRINT#15,"P"CHR$(100)CHR$(ID)CHR$(0)CHR$(1):
INPUT#4,INS$
11010 PRINT"[CRDN]RECORD IS-":PRINTINS$:CLOSE4:
GOSUB2000:GOSUB1500:RETURN
11997 REM"
11998 REM" INPUT INPUT
11999 REM"
12000 P$="":FORQ=1TOP3:PRINTCHR$(166)::NEXT:
FORQ=1TOP3:PRINT"[CRRT]":NEXT
12010 GETA$:IFAS$=""THEN12010
12020 IFAS$=CHR$(13)THENPRINTLEFT$(BL$,P3-LEN(P$)):
RETURN
12030 IFAS$="" THEN12070
12040 IFAS$<>CHR$(20)THEN12100
12050 IFP$=""THEN12000
12060 FORQ=1TOLEN(P$):PRINT"[CRRT]":NEXT:GOTO12000
12070 IFP$=""THEN12010
12080 IFLEN(P$)=1THENP$="":GOTO12060
12090 P$=LEFT$(P$,LEN(P$)-1):PRINT"[CRLFT]"CHR$(166)
"[CRLFT]":GOTO12010
12100 IFAS$<<"OR(A$>"Z"ANDAS$<<"[")THEN12010
12110 IFP3=1THENP$=AS$:PRINTP$CHR$(13)::RETURN
12120 IFLEN(P$)=P3THENPRINTCHR$(13)::RETURN
12130 P$=P$+AS$:PRINTAS$:GOTO12010
12997 REM"
12998 REM" OUTPUT FILE
12999 REM"
13000 OPEN4,8,4,"MASTER FILE":GOSUB2000
13010 P$="P"+CHR$(100)+CHR$(UY)+CHR$(0)+CHR$(1):
PRINT#15,P$:PRINT#15,P$
13020 PRINT#4,OP$R$:CLOSE4:GOSUB2000:RETURN
13997 REM"
13998 REM" PRETTY PAGE
13999 REM"
14000 PRINT"[CLS WHT] ISAM/RELATIVE FILES "
14005 PRINT"[CRDN] COMMODORE 64 CRDN]
14010 PRINTLN$:RETURN
16997 REM"
16998 REM" PAGE HEADER
16999 REM"
17000 PRINT"[CLS CRDN]":MM=(LEN(HD$))/2:
PRINTTAB(20-MM)HD$:PRINTLN$:RETURN
19997 REM"
19998 REM" FINISH OFF
19999 REM"
20000 IFFL=0THENPRINT"[CLS]":END
:REM NO CHANGES
20005 HD$="REWRITING INDEX FILE":GOSUB17000
:REM NOTE CHANGES
20010 OPEN2,8,2,"@0:MASTERLIST,S,W":GOSUB2000
20020 FORV=0TOA:PRINT#2,MF$(V),"R$:
20030 NEXT:CLOSE2:GOSUB2000:PRINT"[CLS]":END

```

N.B. [= CHR\$91

Well, that's the program. Remember, it's intended as a framework to give you some ideas on how the modules fit together to make a data base using relative files. There is loads of scope for you to add bells and whistles, alter the record size and numbers to suit your own needs, and so on.

SSORT? What's that. OK, it's a pretty slick machine code sorting routine. If you don't have a copy, try your

local User Group, or maybe the Editor will find it in his heart to publish the extra material that goes with this series, and you can type it in for yourself. All else failing, try our Reader Service, who could arrange to send you the routine on disk.

Ed: We will try and publish this additional information in next issue - also include it on DISK#2.

CONTINUED FROM
ISAM ARTICLE

The suggested solutions seems to me to conflict, but here they are:

- (a) Always send the 'position' command twice. This ensures that it is received and (hopefully) understood.
- (b) Slow down data transmission to the disk drive, by a small time loop or some such technique.

It is possible to demonstrate the problem by writing to a record in small steps, particularly if the record is large and likely to be stored spanning across two sectors on disk. There does not seem to be a universal syntactical fix for the problem, but if more people work at it, the chances of a solution improve.

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Continued from page 49

390 GOTO 320

After the user has finished entering the products, the TOTAL must be printed at the bottom; to make it neater we will separate it with a straight line drawn between the last product entered and the total. The line is drawn using the same way was in lines 280 and 300, with 70 dashes.

400 PRINT#2

410 PRINT"2,"-----
-----"

Next we shall print the word TOTAL and the total figure 60 spaces from the start.

420 PRINT#2,;"TOTAL";CHR\$(16);"60"TP

And then we will print another line beneath the total.

430 PRINT#2"-----
-----"

Since we have opened the file at the start of the program, we must close it when we have finished, so we type CLOSE2 (close file number 2)

440 CLOSE 2

Now our program is finished. Test it by entering the details as shown on the example invoice Try improving the program, or rewriting it to suit your own needs. There is no limit to what your printer can do!

ERRATUM

We're calling Paul back from the Antarctic and replacing him with Mervyn - dressed only in a pair of shorts!

MONAD MANUAL

ACTIVATING THE MONITOR

SYS 8096 <CR> for the \$2000 version

VERIFY

.V "FILENAME" DV (no . after DV)

PROGRAM TRANSFER

-.T 8000 8FFF X000

.,X004 will be 80 : make X0

.,X00A will be 89 : make X9

.,X014 will be 80 : make X0

.,X027 will be 8D : make XD

.,X033 will be 8D : make XD

.,X10A will be 89 : make X9

.F C03A C041 EA

(replace O's with zeros)

LOAD it, SAVE it, DOS it

Utilities for your C64

All of a sudden there is an influx of C64 utility programs on the market. You can now get software to make your 1541 run faster, tapes load faster, disks copy faster and tape/disk conversions. We'll have a quick look at some items that are available.

DISCO

This is a tape to disk transfer program. So you've got yourself a disk drive and it is frustrating transferring all those programs from tape to disk - not to say time consuming.

The distributor tells us that DISCO copied programs run many times faster than the original cassette.

Other features include automatic file to file transfer on disk, programs can be auto run if required, copies loaded from disk in the normal way and DISCO is menu operated.

I've looked at DISCO it seems quite user friendly but has one annoying little aspect. It does not list on the screen when the actual program you are copying is finished. It is quite easy to start copying the next program on the tape without realising that you are. To get over this take a note of your beginning and ending count on the datacassette.

Works well, user friendly and costs \$24.95. Distributed by G. S. Webber & Associates, Gymea, NSW

FASTBACK

You've no doubt seen the new games out on cassette that claim to load as or faster than disk. Trade names such as Turbo and Pavloda. Well now you can get the same facility for your own programs.

The distributor sums up the program as "...a backup copier that would copy these oh-so-terrific but oh-so-slow programs in ultra high speed format."

I tried FASTBACK on TAREK the Kim Books adventure club adventure. TAREK can take up to 15 minutes to load with FASTBACK it takes 2 - 3 minutes!

A good point for any utility program is that a FASTBACK copy runs independently of FASTBACK. This means you can spread your programs around to friends without the necessity of them owning a copy of FASTBACK.

Another little item is that if you try doing a traditional save of a FASTBACK copy it reverts to its original speed.

Distributed by G.S.Webber & Associates, Gymea, NSW and costs \$24.95

COMMETTE 64

Came in as we were typing this page up. The product looks good and we'll let you know how it shapes up when we get to test it.

COMMETTE is a speed LOADER for your cassette programs it, from a quick glance, would seem to also transfer your cassette programs to disk. This program gives additional BASIC commands DEEK and DOKE which allows the SAVEing of programs not in the BASIC memory area.

Distributed by P.D. Software House, Sydney and available through dealers. (Refer News Releases).

TURBO - ROACH

A disk backup utility for Commodore 64 and 1541 disk drive. TURBO-ROACH will format and backup an entire disk in less than 3 minutes.

An interesting note on the sleeve reads. "Any attempt to copy Turbo-Roach itself may result in permanent damage to your 1541 disk drive, haemorrhoids and severe headaches." Funny? No! Quite serious because TURBO-ROACH actually speeds up the mechanics of the disk drive.

It is most annoying that many manufacturers of software do not offer facilities to make backups off your own computer. It is also quite understandable commercially. TURBO-ROACH will enable you to make backup copies so that you can store and protect your master copies.

TURBO-ROACH is very user friendly, menu driven, professional and fast. It will not copy disks protected via soft errors.

An Australian product of Cockroach Software, Southport, QLD. and retails at \$35.00

BACKADISK II

This is also a high speed disk copier. The Australian manufacturers claim that it will back up a disk in 4 minutes. This is correct depending on the source disk.

The program is menu driven and friendly to a degree. Its written by enthusiasts for enthusiasts - once you've got the hang of it your O.K. It takes only a short session for the average computerist to learn to fly this one.

The program (disk) comes complete with a photostated manual which is clear and easy to understand. It also comes with a cheat-sheet for people like me who detest reading manuals!

Features of this unit include:
Disk formatting in 20 seconds
Analyse disk for errors
write errors
Software write protect option.

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```

380 NEXT
390 D=1:FORK=2T05
400 IFS(K)<>S(1)THEND=0
410 NEXT
430 X=0:FORK=1T04
440 IFN(K)>N(K+1)THENX=N
(K):N(K)=N(K+1):N(K+1)=
X
450 NEXT:IFXTHEN430
470 IFN(2)=N(1)+1ANDN(3)
=N(1)+2ANDN(4)=N(1)+3AN
DN(5)=N(1)+4THEN620
480 IFN(1)=1ANDN(2)=2AND
N(3)=3ANDN(4)=4ANDN(5)=
13THEN620
490 IFDTHENQ=4:GOTO640
500 X=1
510 IFN(X)<N(X+1)THEN575
520 IFX=4THEN610
530 IFN(X)<N(X+2)THEN577
540 IFX=3THENQ=2:GOTO640
550 IFN(X)=N(X+3)THENQ=6
:GOTO640
560 Q=2:IFX=1ANDN(4)=N(5
)THENQ=5
570 GOTO640
572 IFN(4)<N(5)THEN610
574 Q=1:GOTO640
575 X=X+1:IFX<5THEN510
576 GOTO150
577 IFX=3THEN610
580 IFX=2THEN572
590 IFN(3)=N(5)THENQ=5:G
OTO640
600 IFN(3)=N(4)ORN(4)=N(
5)THENQ=1:GOTO640
610 IFN(X)<10THEN150
615 Q=0:GOTO640
620 IFD=0THENQ=3:GOTO640
630 Q=7:IFN(4)=12THENQ=8
640 J=62:I=8196-Q*44
645 IFQ>4THENI=I+176:J=3
1
650 POKEI+30720,0:FORK=1
TOP(Q)*B
660 POKEI,J:FORX=1T0300:
NEXT
670 POKE0,200:T=T+1:GOSU
B800:POKE0,0:POKEI,32:N
EXT:GOTO150
700 K=INT(R*RND(1)+1)
710 D=C%(K)+12:R=R-1
720 FORI=KTOR
730 C%(I)=C%(I+1):NEXT
740 S(J)=INT(D/13)
750 N(J)=D+1-13*S(J):RET
URN
770 POKE0,150:C#=MID$("2
3456789XJQKA",N(J),1):S
#=MID$("#####",S(J),1)
775 PRINTMID$("#####",S(J)/
2+.5,1):POKE0,0:B#=""
777 E#="" "+C#:"C#="C#+":
IFN(J)=9THENC#=""10":E#=""
"10"
780 PRINT"#####TAB(4*J-
3):C#"#####":GOSUB1:PR
INT"#####E#;
790 PRINT"#####":RETURN
800 PRINT"#####RIGHT
$(STR$(B),1);TAB(39):RI
GHT$(" "+STR$(T),4):R
ETURN
810 IFB=1THENFORJ=1T05:G
OSUB900:NEXT:PRINT"

```

```

815 GOSUB800
820 PRINT"#####TA
B(6);RIGHT$(" "+STR$(P(
8)*B),4);TAB(20);RIGHT$
(" "+STR$(P(4)*B),2)
830 PRINTTAB(7);RIGHT$("
"+STR$(P(7)*B),3);TAB(
20);RIGHT$(" "+STR$(P(3
)*B),2)
840 PRINTTAB(7);RIGHT$("
"+STR$(P(6)*B),3);TAB(
20);RIGHT$(" "+STR$(P(2
)*B),2)
850 PRINTTAB(8);RIGHT$("
"+STR$(P(5)*B),2);TAB(
20);RIGHT$(" "+STR$(P(1
)*B),2)"
890 RETURN
900 PRINT"#####:FORI=1T
09:PRINTTAB(4*J-3)"
:NEXT
910 RETURN
READY.

```

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Other Groups

NSW

Name: VIC 64 User Group
Address: 11 Solander Rd, Kings Langley, NSW, 2147.

Name: Compu-Tech Computer Club
Address: 8 Quilai St, Charlestown, NSW, 2290

Name: New England Micro-Computer User Group
Address: Unit 1/7 Fitzroy St, Tamworth, NSW, 2340

Name: CYSS Tamworth
Address: 242 Marius St, Tamworth, NSW, 2340

Name: Albury-Wodonga User Group
Address: 240 Butt St, East Albury, NSW, 2640

Name: Commodore Users Group
Address: 472 Anzac Pde, Kingsford, NSW, 2032

Name: Hornsby Commodore Users Group
Address: 452 Somerville Rd, Hornsby Heights, NSW, 2077

Name: SYDCOM Address: P.O. Box 451, Spit Junction, NSW 2088.(??? one of three different addresses)

Name: Cumberland Micro User Group
Address: Granville Library, Granville, NSW, 2142

Name: VIC 20 User Group
Address: 53 Lytton St, Wentworthville, NSW, 2145

Name: Deniliquin Commodore User Group
Address: 139 Davidson St, Deniliquin, NSW, 2710

VIC

Name: Western Suburbs User Group
Address: 16 McNamara Rd, Laverton, VIC, 3028

Name: Laverton Commodore User Group
Address: School of Radio RAAF, Laverton, VIC, 3028

Name: Melbourne VIC20 User Group
Address: P.O. Box 252, Northcote, VIC, 3070

Name: Bendigo Commodore Users Group
Address: 5 Board Court, Kangaroo Flat, VIC, 3555

Name: Warragul Commodore User Group
Address: Walkers Rd, Warragul, VIC, 3820

Name: Mornington District Commodore Group
Address: Tanti Park Community Centre, Mornington, VIC, 3931

QLD

Name: QLD Commodore User Group
Address: 151 Jubilee Terrace, Bardon, QLD, 4065

Name: Rockhampton User Group
Address: c/- 50 Ocean Pde, Yeppoon, QLD, 4703

Name: Mackay User Group
Address: c/- 8 Eaglemount Rd, Andergrove, QLD, 4740

Name: Mt Isa Commodore Computer User Group
Address: 3 Crystal St, Mt Isa, QLD, 4825

Name: Ingham Computer Club
Address: P.O. Box 899, Ingham, QLD, 4850

Name: Commodore User Group Tedita Pty Ltd
Address: 116 Griffith St, Coolangatta, QLD, 4225

S.A.

Name: Commodore Users Association of SA
Address: P.O. Box 60, Clarence Gardens, SA, 5039

Name: S.A. User Group
Address: 19 Right Ave, Northfield, SA, 5085

Name: Commodore/VIC 20 User Group
Address: 13 Miranda Rd, Palowie, SA, 5108

W.A.

Name: WACCUA
Address: P.O. Box 31, Leederville, WA, 6007

Name: VIC UPS
Address: 4 Shield Rd, Lesmurdie, WA, 6076

Name: Cooloongup Commodore Users Group
Address: 16 Variety Crescent, Cooloongup, WA, 6168

NEW ZEALAND

Name: Combined Microcomputer User Group
Address: P.O. Box 6210, Auckland, New Zealand

Name: Commodore Users Group
Address: Hazel Ave, Mount Roskill, New Zealand

Name: Commodore User Group
Address: New Zealand Synthetic Fuels Corp., Private Bag, New Plymouth, New Zealand

N.T.

Name: N.T. User Group
Address: P.O. Box 1195, Nhulunbuy, NT, 5797

Name: N.T. Commodore User Group
Address: 349 McMillans Rd, Anula, NT, 5793

TAS.

Name: Hobart Commodore Users Organisation
Address: GPO Box 391D, Hobart, TAS, 7000

Continued from page 8

and other electronic equipment.

The home user or business person now has the opportunity to take the computer and all its necessary attachments (in one tidy package) where ever it can be of the most use and know that it will be well protected from sun, water and dust.

Computer theft, a large industry in it's own right, has featured a great deal in the design of the Carrycom cases. The deliberate absence of a computer company logo or symbol makes these cases hard to identify from other travel luggage. The cases range in price from \$120.00 for a briefcase size model up to \$600.00 for those parties wishing to transport larger and heavier equipment. They even have a model with flip-out wheels.

For further information contact the company on Brisbane (07) 371 9515.

FOR COMMODORE-64 HACKERS ONLY!

The ultimate source for Commodore-64 Computer Information



THE ANATOMY OF THE COMMODORE 64

is the insider's guide to the lesser known features of the Commodore 64. Includes chapters on graphics sound synthesis, input/output control, sample programs using the kernal routines, more. For those who need to know, it includes the complete disassembled and documented ROM listings. **\$29.95**

THE ANATOMY OF THE 1541 DISK DRIVE

unravels the mysteries of using the misunderstood disk drive. details the use of program, sequential, relative and direct access files. Include many sample programs - FILE PROJECT, DIRECTORY, DISK MONITOR, BACKUP, MERGE, COPY, others. Describes internals of DOS with completely disassembled and complemented listings of the 1541 ROMS. **\$29.95**

TRICKS & TIPS FOR THE COMMODORE 64

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Abacus  Software

Continued from page 57

Australian product by Bananasoft, Woodridge, Qld
retail \$45.00

TURBO - 64

NOTE: This product was previously known as TURBO-DOS but had to change its name for copyright reasons.

TURBO 64, in short, reformats your disk so that the it will LOAD (and presumably SAVE) at 5 (five!) time the usual speed of the 1541.

Paul Blair has reviewed this product else where in the magazine.

SPEED LOAD

SPEED LOAD speed up the 1541 and SX disk drives by a factor of 3 when loading programs.

For details of this program refer News Releases section of the magazine.

Distributed by Eureka Software of Niddrie Victoria at a retail price of \$59.95.

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COMMODORE DOCTOR

by Greg Perry

In this monthly column will endeavour to answer any software or technical problems for any Commodore equipment or compatible software. Send your queries to

Commodore Doctor
The Commodore Magazine
82 Alexander Street
Crows Nest, NSW 2065.

Q. Can the VIC-20 remain on all the time and do I need an air conditioner to keep the room cool where the computer will be housed.

Tim Laird, Crows Nest, NSW

A. In general, the best policy with computers is to turn them on once and then leave them on forever. However this is not possible with home computers. Far more 'strain' is put on the circuitry by frequently turning the machine on and off than by leaving them on. As far as the heat problem is concerned, in most computers, Commodore included, the machine should work better once its has warmed up a bit and I've never found this to be a problem. I use my air conditioner for myself, not the computer! Disk drives do present somewhat of a problem however in that it seems not a good idea to run Commodore drives in poorly ventilated areas when temperatures are above approximately 35 degrees Celcius. Some of the earlier 1541 drives (12 months ago) had a heat problem but this appears to be due to a particular mechanical problem caused by expansion of the drive spindle. Overall, providing temperatures are between roughly 5 and 35 Celcius you should not experience any problems. We've installed C64s in sealed boxes in Western Queensland and these seem to run continually with no problems.

Q. Is there any way I can connect sensors to the VIC-20. I am thinking of using a VIC-20 to control and monitor feeding and lighting on a small chicken farm.

A. The simple answer is yes. However, it is not as simple as it first appears. It is quite easy to connect various sensor equipment to either the user or cartridge or joystick ports providing the right isolation is maintained between the computer and the sensors using relays, opto-couplers or the like. And remember the joystick simply consists of 5 switches and paddles are simply a variable resistor. The problem is that you also have to write the software to process the signals to and from the ports. Unfortunately, I can't provide any more specific information in this space however there are several books on interfacing equipment to the Commodore PETs and the VIC REVEALED provides some introductory information. I've seen others advertised in US magazines (COMPUTE!) on VIC and C64 interfacing. Maybe some of our readers could write in and tell us about interfacing projects they have done?

Q. Not long ago I bought a Commodore approved Stack light pen for my VIC-20. Is it possible to obtain correct data instructions for my light pen, plus some additional literature regarding its use? No local dealer has the information in Adelaide.

A Gough (?), Frewville, S.A.



A. After a few brief calls to dealers, it would appear that the best idea would be to write direct to the company in the UK with your problem. Their address is

Stack Computer Services
290-298 Derby Road,
Bootle,
Liverpool L20 8LN
United Kingdom.

Continued from page 22

Library: There are several sources of software for your library:-

1. Local Dealer
2. Other Commodore Users Groups
3. The Telephone - The Australian Beginning and other information networks
4. Third Party Software vendors.

Public Domain software means copyright free it may be used, copied and modified by anyone who can get their hands on it. Your local dealer or other user groups can generally get you a wide range of public domain software. Public domain does not however automatically mean 'free' there is usually a copying fee attached. A very interesting and authoritative article on User Group Software Libraries - 'The Pitfalls, Pains and Pleasures of a User Group Software Library' was written in the American POWER/PLAY magazine August/September '84 issue. It is available in some newsagents. Commodore has given us permission to reproduce it and we will do so if enough groups show interest, unfortunately we ran out of space in this issue.

Good luck with your User Group - don't forget any User Group that registers with us and Commodore Business Machines Pty Ltd will receive two free issues of the Commodore Magazine in exchange for their newsletter or keeping us in touch with their activities.

Continued from page 18

know.

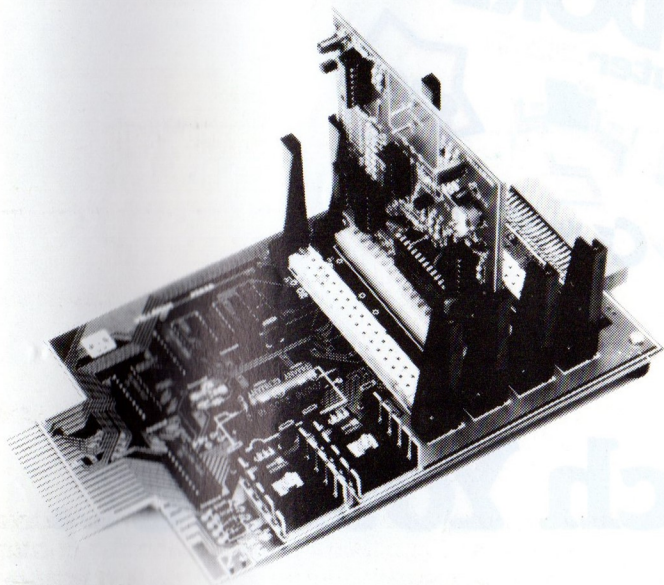
- ★ POKE 39439,0 - 255 to adjust the depth of the voice.
- ★ POKE 39438,0 - 255 to achieve the speed of talking.
- ★ POKE 39440,1 an option to turn the screen on/off. When the screen is off the voice is both faster and clearer.

Another interesting item is that some punctuation marks give intonation to the voice. The cover notes only list ' ' as having this effect but experiment and I'm sure you'll find more.

All in all BIG MOUTH has revived my confidence in voice synthesisers. Now I'm going to see if it can sing the 'Hallelujah Chorus' by a bloke called Handle.

Currently on special offer from KIM BOOKS at \$15.95 (p&p included). Usually retails at \$19.95. Refer page 20.

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K2618 - D/A converter. Generates an analogue voltage signal for servosystems (directing of antennas, spots, etc.), model construction controls, motor speed controls.	\$64.96
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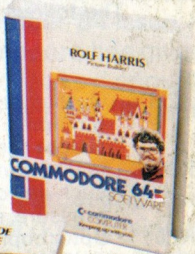
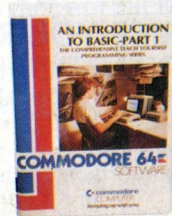
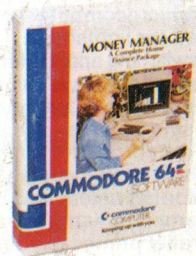
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