

The Australian **COMMODORE** **REVIEW**



THE INCREDIBLE MUSICAL KEYBOARD

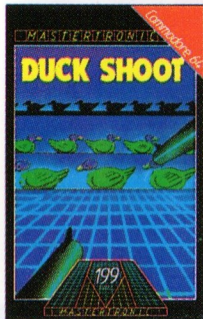
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TUTORIALS ON 64 MANAGER, EASYSRIPT ETC

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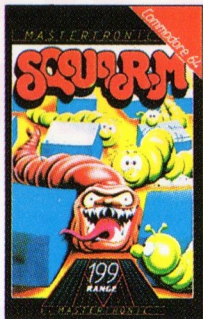
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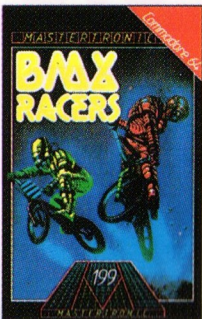
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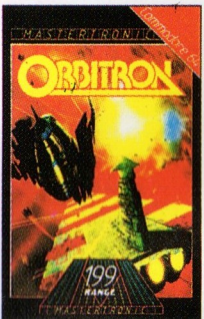
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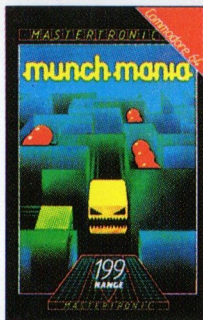
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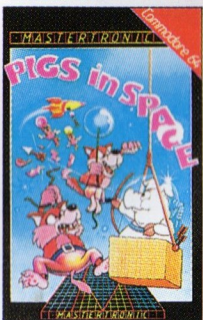
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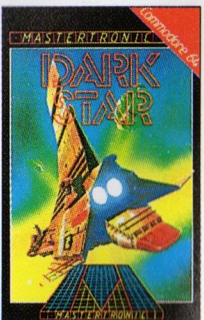
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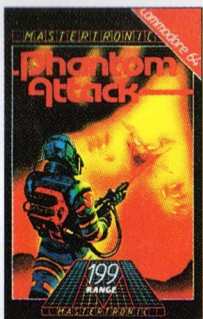
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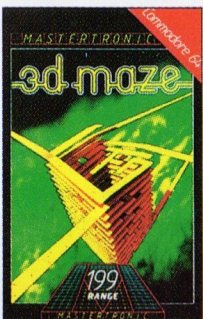
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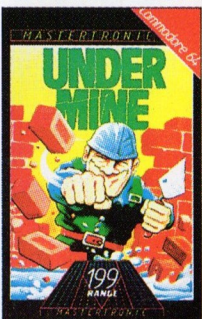
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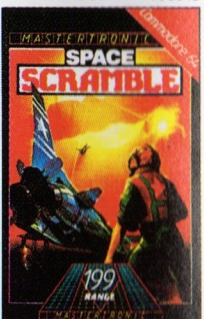
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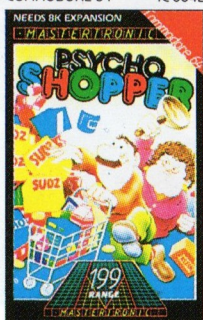
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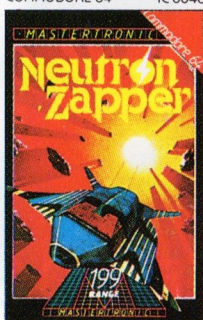
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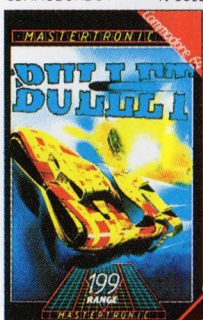
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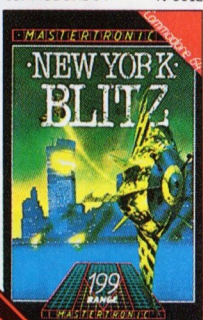
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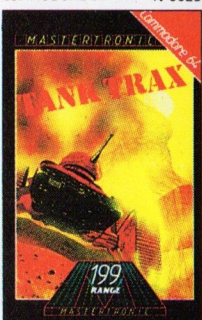
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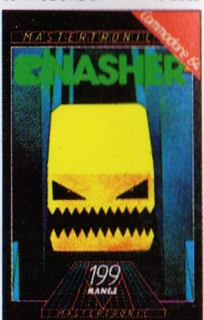
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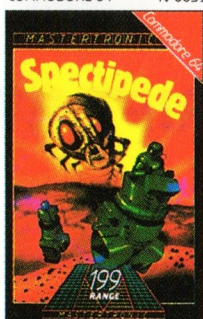
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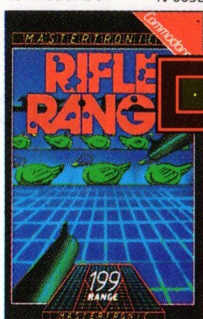
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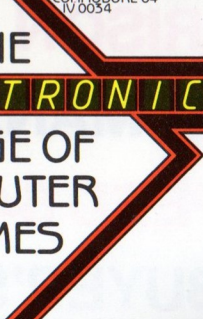
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THE
MASTERTRONIC
RANGE OF
COMPUTER
GAMES

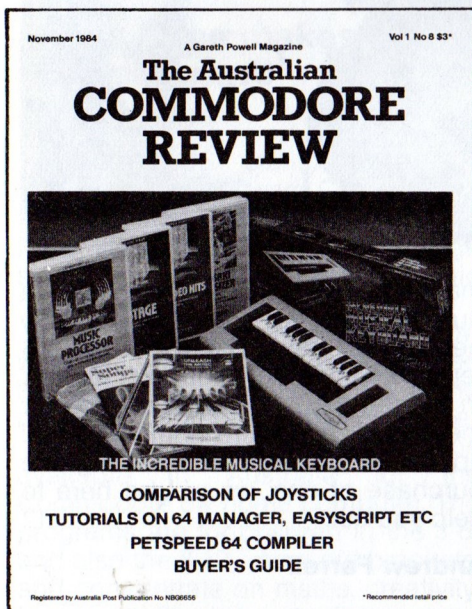
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The Australian COMMODORE REVIEW



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Editorial

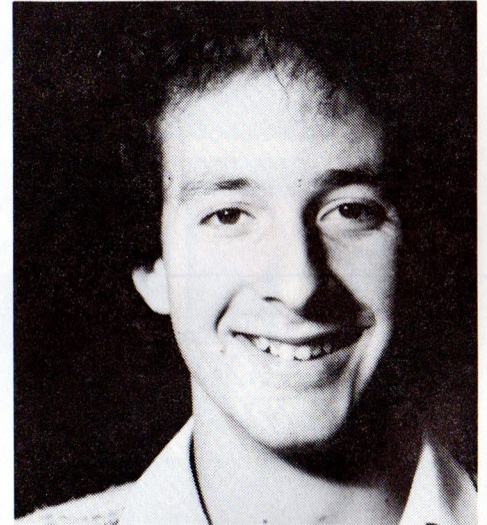
A big thanks must go to all those loyal readers who promptly answered our Reader Survey (page 33, last issue). I was surprised at some of the results, although at this stage it is really a bit early to discover any interesting trends. Many of you included some very constructive comments. They have all been read and will be considered when future plans are discussed. The overall impression is that many people want more programs, more tips and fewer reviews.

In this issue you may notice some of these changes already coming into effect. Please don't hesitate to keep us up to date with your opinion. Several people have inquired regarding a few of our columns, which may appear to be coming and going

at an alarming rate. Just for the record, columnists are extremely temperamental people. Dirk Williams, for example, wrote one and then disappeared just as quickly as he appeared. The result is that "Get Serious" was a one night stand. My apologies to those who enjoyed it.

The next questionable column was the one on writing your own adventure. Although things were left in mid swing, that was intended. The job of keeping adventurers up to date and out of trouble has been taken over by Adam Rigby, who incidentally has just completed Ultima III. Please address any queries you may have relating to adventure or fantasy games to him.

I recently had the pleasure of sitting down and starting the mammoth task of filling the software void which exists for the Commodore 16. This machine is a dream to use, especially with the extended disk and graphics com-



mands. The cursor keys are a nuisance at first, but I will probably get use to them. At \$199 the 16 represents excellent value for money. In future issues a regular section for the new Commodore computers will appear. If you are considering the purchase of one, we will be here to help you out. □

Andrew Farrell

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RAM RUMBLINGS

Fisher-Price makes the software move

In the US earlier this year, Spinnaker Software Corp entered into an agreement with Fisher-Price, who have long had a high standing in the non-electronic games market.

The two companies are now working together and have developed a range of software which is being marketed under the Fisher-Price title.

These learning games will be available in Australia for the Commodore 64 home computer. The programs are for children in the 3-8, and also the 8-12, years old brackets, and concentrate on maths, creativity, learning skills, computer literacy and language skills.

Available from Futuretronics, (03) 579-2011.

Spinnaker software wins US Educators awards

Five Spinnaker computer learning games have won the US National Educator's Association's recommendation to educators.

The titles which won awards were Alphabet Zoo, Story Machine, Kids on Keys, Snooper Troops#1, and In Search of the Most Amazing Thing.

The Spinnaker programs were reviewed by teams of teachers and computer professionals. They evaluated the software and found that it performed all the technical features it claimed.

The reviews also found the programs had solid educational value which was presented in an interesting manner, and that teachers and students found the program's instructions easy to use. Spinnaker is distributed in Australia by Futuretronics, (03) 579 2011.

Ghostbusters

Activision are currently developing a new game based on the motion picture "Ghostbusters" from Columbia Pictures.

Australian distributor Futuretronics said David Crane will create the "Ghostbusters" software for Activision.

Crane's prior software work includes "Pitfall" and Pitfall II", as well as "Lost Caverns", currently the best selling work of entertainment software in the US, for the videogame-home computer industry.

Crane's work is being prepared for the Christmas selling season and will be available for the Atari and Commodore 64 home computers.

Crane's ideas for the game will feature a mixture of adventure, strategy and action based on the events in the film. In Crane's work the player will become a ghostbuster.

Involvement of this type, with a major film, is a first for Activision and is sure to be a popular item.

Available from Futuretronics, (03) 579 2011.

Opinion - pirates get the last laugh

In the coffee rooms of software houses all over the world, the percolators are working for the last time. That may sound a little overdramatic, yet it is very true. Last month a British company went bankrupt to the tune of one million pounds. Perhaps they were an extreme example, but the reason for their sudden decline? Piracy.

Piracy is prevalent wherever you look. User groups, dealers, home users. It is a criminal offence and people are now being taken to court and charged. However, the long arm of the law is unlikely to make any noticeable impact. Piracy is a very safe crime to commit. You don't have to make a lot of noise, or brandish a weapon. There is no need to get violent or risk lives. Little evidence is left behind and the owner never knows anything is missing.

Sounds like the perfect crime. Today it requires only one tool - a good copy program. The latest version will backup anything, any error, any information hidden from normal view. The great battle of wits between pirates and software houses

is over. Disk protection is now a waste of time. In order to protect their software in future, software houses may have to turn to using dongles. More expensive, bulky and a little more difficult to break.

If they do turn to such means, we will have to bear the costs. It seems like some form of madness. People copy programs to save money and as a result software will cost more, and there will probably be less of it. As protection methods are outdated, new ones must be developed. Many man hours are spent in this area, all of which must be paid for by the end user. We can't win. The pirates always get the last laugh.

Speech for your 64



Dolphin Computers has released the Currah Speech Synthesizer for the Commodore 64. 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 with an infinite vocabulary. Any word may be 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.

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 – are 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 and is distributed by Dolphin Computers. Further information from Jon Pratten, Dolphin Computers, 99 Reserve Rd, Artarmon, NSW 2064, (02) 438 4933.

Commodore expands service facilities

More localised service and support for Commodore users and purchaser in education is now available from Melbourne and Perth.

Victorian and Tasmanian service requirements will now be met by the new Melbourne service centre established in January this year.

The Service Centre is staffed by three technicians and one Centre Coordinator.

In Perth, a new Commodore operation has been established for the State, under Manager Wayne Drake. West Australian personnel include two technicians and an office coordinator.

Like Melbourne, the centre provides full warranty servicing as well as administrative support to dealers.

Commodore in Western Australia is based at 198 Daly Street, Belmont, 6104, (09)478 1744.

Life support on a home computer

The lives of intensive care patients at Griffith Base Hospital are being safeguarded by \$499 worth of microcomputer – a Commodore 64 – and a new piece of software.

Called "Cardiac Arrest", the program makes huge cuts to the



delay between the time an emergency happens and when the alarm is raised.

It is the brainchild of former hospital engineer Charles O'Brian, now with St Vincent's Private Hospital, Sydney, who worked with programmer Peter Van Eeken of Wagga.

A system of 17 television monitors linked to the C64 broadcasts alarm calls and locations with a series of different tones to alert the attention of staff.

The whole process takes place in a remarkable four seconds from the time the staff member keys in the initial call or an individual alarm triggers the alarm response to the time when the complete message flashes onto 17 screens.

But the four seconds will be reduced to only half a second when Commodore completes its compiling of the program.

Educators prefer Commodore

Commodore computers have been nominated as preferred computer by educators in South Australia and New South Wales.

The South Australian Education Department has named the Commodore 64 on its preferred listing, while the Catholic Education Office in SA has begun equipping its schools with Commodore 64s.

And the Association of Independent Schools in NSW is using Commodore's 64 and Vic-20 computers at its new computer training centres in Sydney.

Almost 200 schools in Victoria have installed Commodore systems since the inclusion of the Commodore 64 on the State's Government contract list earlier this year.

The story is the same in NSW, where about 200 schools have installed Commodore computer systems in the last five months. Overall Commodore's share of education computer sales in the State is continuing to rise in line with the increasing availability of educational software. □



The Incredible Musical Keyboard

Keyboard

by Phil Campbell 

Very few products have entered the computer marketplace with the fanfare of OziSoft's Incredible Musical Keyboard, and probably with good reason. Very few products are anything like as good. In fact, the Incredible Musical Keyboard will undoubtedly be responsible for a marked increase in the sales of the Commodore 64, for at last the famed musical prowess of the world's most popular computer can be easily used.

The package

The Incredible Musical Keyboard arrives in quite an attractive long flat box, together with instructions, two simple music books, and software on both disk and cassette. Everything is securely packaged in plastic bubble sheets. This is good, as popping plastic bubbles is one of the few simple pleasures in life which is not fattening. The instruction booklet, although brief, is comprehensive, accurate and well written. Clear directions are given for loading the program, attaching the Incredible Musical Keyboard to your computer, using the keyboard, and even reading music. The "World's Easiest Songs" is the encouraging title of the beginner's level music book, which includes tunes such as "Tom Dooley" and "Twinkle, Twinkle, Little Star". Not terribly exciting, but you have to start somewhere! All notes are marked with their letter names, and a set of stickers included in the book can be used to clearly label the keys on the Incredible Musical Keyboard.

The keyboard

Just how incredible is this keyboard? What does it do? How does it work? I'm glad you asked.

A variety of add-on musical keyboards are beginning to appear

on the overseas market. These devices usually plug in to the joystick port, and cost an arm and a leg. The Incredible Musical Keyboard is based on a much simpler principle, as the piano-style keyboard simply clips onto the computer and activates the "QWERTY" keys below.

The keyboard itself is mounted in a casing which closely matches the brown colouring of the computer. Fourteen white plastic keys (from C to B) and 10 black keys protrude over the first two rows of the computer keyboard. A space has been left for the function keys, which are used to control a number of sound parameters. The keys are only about 50mm long and 15mm wide, but (incredibly) are quite comfortable to play. The casing clips firmly into place over the keyboard, with a small "tongue" locking into the lowest of the six grooves which run along the top of the computer. I knew those grooves were there for something.

Being a jaded, cynical type, I must admit to being rather surprised at the secure and business-like fit that was obtained, and at the comfortable "action" of the keys. In fact, in my numerous years playing musical instruments, I have struggled with many keyboards which are much more awkward to get along with. It is possible to play rather quick and complex passages with ease - at least it would be if I could get rid of the rust in my finger joints.

On a cautionary note, however, the instruction booklet advises that a certain amount of care should be taken in handling the keyboard. "Always handle your Incredible Musical Keyboard by the frame. Never pick it up by the keys!" is a message which appears rather often.

The software

As I mentioned earlier, software for the Incredible Musical Keyboard is supplied on both cassette and disk. My first observation about the review cassette was that it did not feature OziSoft's excellent Turbo Load technique. However, this does not

matter much, because the cassette wouldn't load anyway.

The calibre of the Incredible Musical Keyboard software is obvious as soon as the disk version begins to load, due to the cleverly designed "Sight & Sound Music Software" logo which appears on the screen. "Artistic but practical," I thought as I gazed at the perspective view of a bunch of piano keys. After a minute or so, a menu is displayed on the screen. At this point, it is suggested that the Incredible Musical Keyboard be attached to the computer. One option on the menu offers instructions in the attachment process, but experienced blunderers will no doubt cope without this assistance.

Another option offers to explain "How To Play Your Keyboard", again providing information that can equally well be gleaned from the instruction book or picked up with a few minutes trial and error. Finally, you can choose whether you wish to play your Incredible Musical Keyboard, or whet your appetite by looking at a comprehensive demonstration of other programs available in the "Sight & Sound" series.

In play

After selecting the "Play Your Keyboard" option, the disk drive springs (or groans) into life to feed the appropriate program overlay into memory. When loading is completed, a series of horizontal bars appear on the screen. The length of the top bar indicates volume, and can be adjusted by pressing the unshifted cursor keys. The next coloured strip is divided into seven segments, each representing an octave of the keyboard's pitch range. Depressing F1 moves the pitch up by an octave at a time, while F3 has the reverse effect. Using this technique, notes ranging from a rattling growl to an inaudible squeal (where did all these dogs come from?) can be played on the two octave keyboard.

Instrument voices are selected with the F5 key. A choice of Synth, Piano and Bass is offered, but a variety of sounds can be obtained by octave shifting. A good example of this technique is the harpsichord sound which can be obtained by using the bass voice on high



octaves. The F7 key allows selection of special slide and vibrato effects, while the shift keys allow notes to be sustained. Last in the special effect category is the space bar, which can be used to "bend" the pitch of the note being played. The voices and special effects selected are highlighted in the two lowest coloured bars on the screen displayed.

One of the most impressive features of the Incredible Musical Keyboard program is the fact that it allows up to three notes to be played simultaneously. Not only does this represent a fairly clever piece of programming (just try writing a program to detect which three keys you are holding down together!), but it allows tunes to be played in three part harmony. This places the Incredible Musical Keyboard squarely into the category of being a useful educational aid, as chord structures and other elements of intermediate music theory can easily be demonstrated.

The quality of the sound output is very good if you use a Commodore monitor, and absolutely remarkable if you go to the trouble of connecting an external amplifier and large speakers. This, of course, is a tribute more to the Commodore 64 than the Incredible Musical Keyboard, although the preset voice sounds have been very well designed to provide a pleasant and realistic sounding output. Instructions for connecting to your hifi system are contained in your Commodore 64 User Manual. It's definitely worth the effort.

A taste of things to come

When you need a break from music making, take a look at the demonstration program included on the disk. As you are probably becoming wary of my tireless enthusiasm by now, I will be brief. I have never seen my humble Commodore produce more amazing graphics, nor heard it produce more impressive sounds than in this demonstration. No kidding!

The four major programs designed to be used with the Incredible Musical Keyboard are exhibited in considerable detail.

The **Kawasaki Rhythm Rocker** features a multi track recording facility, with percussion and synchronised high resolution graphics

displays. And what graphics! The **Kawasaki Synthesizer** is a two disk package which offers a sound editor, three track recording, and hundreds of preset sounds, for both the beginner and advanced performer. **3001 Sound Odyssey** is a complete music synthesis tutorial, which very effectively combines theoretical explanations with instant practical demonstrations. After the learning process is completed, the principles learned can be put into good use with the complex synthesizer program included on the disk. The **Music Processor** is probably the most comprehensive and useful program in the series. Not only can tunes be played and recorded in Piano and Record modes, but whole arrangements can be written, edited and played with a comprehensive music programming language. The tunes you play or write are all displayed on the screen in standard musical notation.

All these programs are available now, and hopefully I will be able to review them in much more detail in the next few issues.

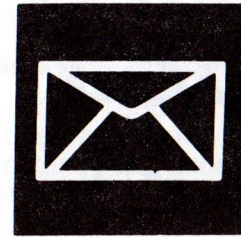
Conclusion

The Incredible Musical Keyboard is a brilliantly conceived and executed product, which deserves a place alongside every Commodore 64. Priced at less than \$70, I would have to say that it is a bargain.

However, the real power of the Incredible Musical Keyboard is not unleashed until it is combined with the Synthesizer or Odyssey packages which, I believe, retail at between \$30 and \$50. This combination takes the Incredible Musical Keyboard beyond an educational toy into the realms of musical instruments worth hundreds of dollars. In fact, I see nothing stopping the Incredible Musical Keyboard taking its place on concert stages around the world. I'd like to make a corny line about that being a good NOTE to finish on, but I'll REFRAIN. Get it? □

Ratings (out of 5)

Hardware	****
Sonics	****
Graphics	****
Education	***
Value	****



Dear Andrew,

Firstly, I would like to congratulate you and your staff on an extremely informative publication. It is good to see an Australian magazine of the standard you are producing.

In your editorial in Vol 1 No 6 you asked for reader feedback and also recommendations of programs for your intended comparison chart. While I think this is an excellent idea and am eagerly awaiting this, I also think users are entitled to hear about the "not so good" programs as well as the good ones. When a considerable amount of money (\$109 in my case) is spent on a piece of software, you at least expect it to be reasonably bug free. This was not so with the general ledger program I bought and I enclose a copy of a letter I sent to the publishers. (You might like to it to the "Rat" as I thoroughly agree with his comments about manuals & lousy programs!)

I am very interested in the articles you have had on disk drives and also the business reviews. Any chance of articles and suggestions on how to get the most out of spreadsheet programs for the home user? Although I have a program, the imagination hasn't been jogged sufficiently as to how to put it to use.

Lastly, a hint to owners of MPS 80 1 printers who have possibly found ribbons expensive and hard to find and the replacement ink pads non-existent! It is possible to re-ink the printer pad by removing the ribbon cartridge to expose the small pad container. The ink is then applied to saturate the pad. We use Casio Super Ink S which comes in a little plastic bottle with a long spout. This should be readily obtainable from your local business machine store and although it seems expensive for such a tiny bottle, when compared to the price of new ribbons this is easily recouped. I have two ribbon cart-

ridges which I alternate, re-inking the one removed from the printer ready to use next time. This allows the ink to soak right into the pad. The only difference to the original is the ink is purple not black.

Keep up the good work!

Maureen Williams,
Boulder, WA.

Dear Sir,

Despite having owned a Commodore 64 for 18 months or more, I am still continually impressed by its power, expandability and flexibility (even after having paid the full retail price for those days: \$699). I also work on, and teach with, much bigger computers, and this only reinforces my views about the C64's value for money, and intelligent structure.

Therefore I am less than impressed by your advice columnist, in the last issue of CR, perpetuating the myths about the incompatibility of the C64 to third party devices. Despite spectacular evidence to the contrary (just browse through a COMPUTE! Gazette, for example), there is still a widespread assumption that the Commodore is quirky, and not to be interfaced with.

Notwithstanding Gareth Powell's penchant for 80 columns, Easy Script is still a fine word processor, and more than powerful enough for a majority of likely users. It is quite possible to attack 3 disk drives, one MPS802 (1526) dot matrix printer, the 1520 printer/plotter, a Centronics (Parallel) daisy-wheel typewriter, and an RS-232C daisy-wheel printer (such as this Brother HR-25) to the Commodore, and to drive them all through Easy Script at virtually the same time.

Your columnist, however, was even less helpful when they gave erroneous, and seemingly counter-productive, advice to a writer trying to connect a "cheap" RS-232C interface and printer to their system.

The writer's letter left it unclear whether the interface and printer failed to work at all, or just with certain software, however I hope the following steps are of some use:

1. Buy the C64 Programmer's Reference Guide. Unfortunately, this was written by engineers, and not by writers, however it is still compulsory for C64 people.

2. Read pages 348-358, which describe (more or less reasonably) how the RS-232C channel functions.

3 Try this small BASIC program:

```
100 OPEN 2,2,2, CHR$(8)+CHR$(17)
```

```
110 CMD2
```

```
120 PRINT "MY NEW PRINTER WORKS"
```

```
130 RS=ST:IF (RS=0) OR (RS=8) THEN 130
```

```
140 PRINT#2
```

```
150 CLOSE2
```

```
160 END
```

EXPLANATIONS:

100: OPEN (2=file number), (2=RS232C Channel), (2=Secondary Address). If a number above 127 is used for file number, a linefeed will be generated (and the printer may require it).

RS-232C devices must be Channel 2 (not 3 as stated), and cannot be changed as far as I know.

Experiment with the Secondary Address, to achieve Upper/Lower Case, Graphics Characters, etc, within the capacity of the printer.

CHR\$(8) sets the Baud Rate, and Byte Length, for the printer. Again, you can experiment to find one (from p350 of PRG) that works for the particular printer. CHR\$(8) = 1200 Baud.

CHR\$(17) sets the Duplex, Parity and Handshaking protocols required for two devices to communicate with each other. Again experimentation will be required, in conjunction with the 8 or 16 Bit Switches that the printer or interface may have.

110: CMD2 directs output to the appropriate buffer, saving the need to write PRINT#2 for each PRINT statement.

130: ST is the C64 I/O system variable which indicates (among other things) whether I/O buffers are empty. The buffer should be empty before the RS-232C file channel is closed (by sending a null field, then a CLOSE statement), otherwise data-in-transit will be lost. This is less of a problem if the printer has an internal memory buffer of say 2-5K.

A few other points should be made:

1. Once the correct Control and Command Registers are known, and bit switches (if any) are set, most comprehensive software (such as Easy Script, Easy Spell, Superbase64, G-Pascal, etc) allow the user to configure data channels for a

particular printer to work with.

2. If the RS-232C (and the printer) is to be used in a home-written BASIC program, it is necessary to OPEN the Channel (2) before setting values to variables, and DIMensioning arrays, since these are cleared by the < OPEN 1fn,2,sa > command. This is because of small conflicts at the top of memory when using RS-232C, but can be easily programmed around.

3. For similar reasons, a very small amount of commercial software (such as games with sophisticated graphics) may not work properly with the RS-232C interface plugged in. It is simply a case of pulling it out (with the C64 turned off), and then loading the software.

If there is still no satisfactory result, keep the printer, and acquire the VIC 1011A RS-232C interface, and read its manual about how to configure for the printer. They cost about \$45, but are also useful for modems, and other RS-232C devices.

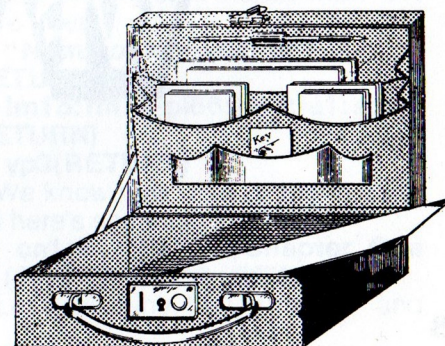
I hope these comments have been of some help, and would request that your technical columnists orient themselves more fully towards software rather than hardware solutions to these types of problems.

One of the sophisticated things about the Commodore 64 is that it is very flexible through changes in software, a characteristic usually reserved for much larger machines.

Just about everything, including BASIC, the screen editor, screen & normal memory, and most of the I/O operations are changeable straight from the keyboard or through the implementation of small utilities.

Let's help dispel the myth that the Commodore 64 does not like to interface with the real world, and therefore to a wide range of serious and frivolous applications and hardware.

Ian Williams



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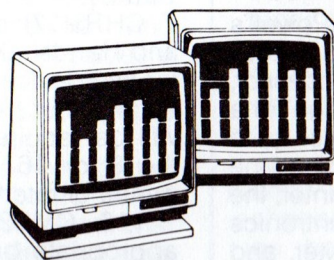
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WF/Z5A

Easy Script is easy

by Bonnie Paris

A look at Easy Script from a beginner's point of view

When I first got my Commodore 64, I had never used a computer before. Everything was confusing and I couldn't understand the basic BASIC book. I was a complete novice. It seemed like another world until I got Easy Script.

Easy Script is Commodore's own word processor for the Commodore 64 and is by far the easiest for a neophyte to learn.

Once you boot up the system, you are in business. Next you've got to tell the system what it is that you want to do.

Let's say you are writing a letter that you want to save to show that you have written it. OK, here we go.

First we've got to name the manuscript or letter that we are writing. So we put

F3 "Letter to XYZ" (RETURN)

Don't forget that (RETURN) or the computer will tell you about it.

Second you must tell the computer where to put the margins for your letter, what spacing to use and so forth. So let's enter:

3 lm20:rm65:pl66:tl55:ju1:sp0 (RETURN)

Now let's examine what we're telling the computer to do.

lm20: You are saying that you want your left margin set at 20.

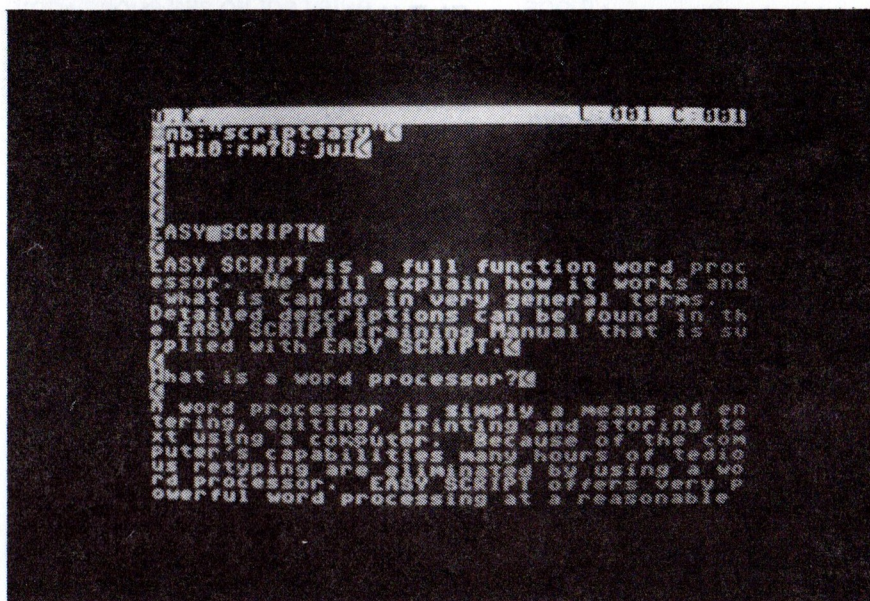
rm65: That means that you want your right margin set at 65.

pl66: The normal page length of printer paper is 66 so that will probably remain constant.

tl55: This tells the computer that you want your text to only cover 55 lines of the total 66.

ju1: This command asks the computer to line up the right side as well as the left side. This is purely optional since some like it one way and others want it the other.

sp0: That says to leave no spaces between lines. Or you might want this to be sp1 to have one space between lines if it is a short letter.



Now we want to tell the computer how many lines down from the top of the page we want to start so we say:

F3 VP6 (or six lines from the top of the page).

Then you can go on and type your letter as you wish. But another thing to remember is, unlike using a typewriter, you don't have to return until you come to the end of a paragraph in the body of the letter. Without worrying about returns, you can type twice as fast as you can on a typewriter.

Now let's say you made a mistake way up at the beginning of the letter. Use your cursor keys to take you back to the spot (SHIFT to go up and non-SHIFT to go down - SHIFT to go left and non-SHIFT to go right). Then type over the word or, if there isn't enough space, use [SHIFT/INSERT-DELETE] and ALAKAZAM! There's a space to type in what you want. If there's too much space and you want to close it up, use the INSERT-DELETE without the SHIFT. Right here I should explain that the computer will ask "Insert Line?" You push RUN/STOP and it will ask "Reset program?". Just push N for no.

OK so far. So now there is a whole line you want to put in or take out.

Take your cursor up to the beginning of the line and hit F1[SHIFT/INSERT-DELETE] and all of a sudden there's an extra line to type on and you haven't destroyed the line either. It's now just a line below. Or if you want to close the line up, use F1 INSERT-DELETE without the SHIFT. Easy, isn't it?

So now you want to see what your letter looks like when you print it. Push F1 (that takes you out of the edit mode), then push O (output) and V (view).

By using your R-L cursor you can move the picture from side to side. To move it down to see the rest, push the key which has the Commodore logo on it. If there is more than one page then push C and it will continue to the end.

So now we've written a letter. How about heading up a manuscript? OK. Here goes.

F3 "Name of Manuscript" (RETURN)

F3 lm15:rm70-pl66:tl60:ju1:sp1 (RETURN)

F3 vp3(RETURN)

We know now what all that means, but here's something different.

F3 cn1;F1 (SHIFT:)Chapter One F1 (SHIFT);F3 cn0 (RETURN)

Let's examine that. The cn1 and

cn0 commands tell the computer to centre the words Chapter One between the margins. The F1 (SHIFT;) and the F1 (SHIFT;) tell it to make the letters twice their regular size. See, that's not so hard.

Now we want to tell the computer that we want a heading and page number on each page and have the pages numbered consecutively. So we give this command:

F3 hd3:Chapter One,,Page(F1 #) (RETURN)

F3 p#1(RETURN)

This tells the computer that you want "Chapter One" on the left side, the page number on the right side, the page numbering to start with page one and you want it three spaces from the top of the script. (Notice the use of two commas in the listing.)

Now suppose you want only a page number centred at the bottom of the page. OK, tell the computer this instead:

F3 ft3:-,(F1 #)-,(RETURN)

This tells the computer that on the bottom of each page you want the page number in the middle (don't forget those commas) with a dash on each side. One thing to remember - if you want the page number on the last page of the document, you'd better put the command at the bottom as well as at the top.

Now we want to be sure that the last page will come out looking like the rest of the pages so we use this command:

F3 fp0(RETURN)

That tells the Commodore 64 that you want it to go completely to the end of the first page regardless of where the printing stopped.

Now let's say that you want to link this to "Chapter Two" so that printing will be easier. Here is the command that comes at the end of the first chapter:

F3 lk:Chapter Two(RETURN)

Now let's say that you want to indent a quotation or other matter. You have already specified that you want the document double spaced (sp1, remember?) and left margin at 15 (lm15) and right margin at 70 (rm70). You want to indent this quotation and make it single spaced. Here's the command:

F3 lm20:rm65;sp0(RETURN).

(Don't forget to put it back to the original spacing by the command of

F3lm15:rm70:sp1(RETURN)

Now that does the trick. But if you want to leave blank lines to set it off, remember to put a RETURN in that space.

If you want to use tabs for your document then use the command:

F1 T H (Horizontal) or **V** (Vertical)

"OK," you say, "but how do I use those tabs?" Good question. To activate the tabs, use the f7 key (straight for horizontal and shifted for vertical).

So now we're finished with "Chapter One" and we want to save it on disk. First we have to format the disk so it will accept the content we want to store, so we do this:

F4 n0:NAME OF BOOK,01 (RETURN)

This puts the computer in the disk mode and tells it that this is a new disk, what the name is and also that this is the first disk (01). It will then ask "Are You Sure?" and you can push "Y" for yes. It will then format the disk. You can take a few minutes to format it and then you return to the edit mode by pushing RUN/STOP and then give this command:

F1 F (for file)

It then asks for the name of the file so to save time you simply put

F2 (RETURN)

"Chapter One" jumps out. Don't forget to press RETURN. Here is a good place to say that if you have a tab in your text, better put a + sign in the title - so it looks like this (remember it's got to be only 16 characters too).

File name:Chapter One +

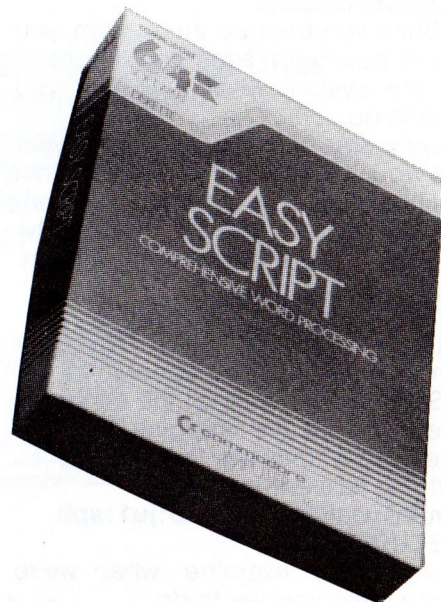
Now that we have it filed, we will want to print it. First make sure the printer is stationed at the top of the paper and then give this command:

F1 O (output) **P** (print)

Say that after you read it, you remember something that you forgot to mention and you want to change a few things. Just load it (F1 L), then put in the name of the document and RETURN. Go ahead and edit it like you did before.

Another good thing to know is that if you get in a position you don't know how to get out of, just push RUN/STOP RESTORE. It puts you back to the beginning but it won't ruin the text that you already have in the computer.

There are a lot more things that you can do with Easy Script, but this should put you on the right track and help you understand the manual better. Don't give up here. I learn something from it every day I use it. It's easy with Easy Script. □



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Petspeed 64 Compiler

by M. Zolin

What's faster than a speeding subroutine and jumps over tall listings? PETSPEED.

Zolin's first law of program velocity states simply that: The chronic intervalation juxtaposed twist the inception and exhaustion of execution of a standardized codesource (see standard specification: "BULL'S WOOL #1,1983, Bull.Soc.Sci.Com. Sta.T Vol.X, No.Y, Page Z-a") is a constant.

For those of an academic bent, the above bulletin will provide an erudite and recondite exposition of the law.

For us keyboard pounders it's easier. It means that you can spend weeks putting together a program bit by byte in assembler and have a result that goes like the clappers or spend some hours pounding out a program in a higher level language and then have it crawl along. So that's a problem. Like all problems, though, some joker always comes along with a solution. Then where are you? There you were with a nice and neat problem to sit on and ponder (philosophically, of course) when somebody pulls it out from under you and you are left on the bare floor boards - academically speaking. The solution in this case is to COMPILE the program.

"?", you say. "!" is my definite answer. OK, kiddies, it goes like this:-

A compiler takes a program and does all the things it can - BEFOREHAND - that the computer may have to do during program running. That means that your original high level program is pre-translated to something which makes the computer do only those things that might change during a program execution. For example, to read a joystick from BASIC might involve these steps:

*
enter a subroutine,
translate all the garbage,
decode decimal values to binary,

read a value in memory, **
drop various bits off the value,
test each bit for one or zero,
decode each condition,
tell BASIC what Samantha or Shane is doing with the joystick. **

*
In this example only the two lines marked with "***" need to be executed at the time S & S are doing their thing.

The rest of the structure and the paths to be taken by the data is set by you, the programmer, at writing time. So why make the computer do the translation all over again? Simply because, usually, it is simpler. In some cases, though, that is not on. For instance, you (or Samantha) are tooling your hyperspace sub-cruiser down the main runway of the space station when a fleet of Glurk Grossenplutters comes in from your port bow. You frantically swing your laser disintegrator around. All Earth is watching on colour telly and . . . the BASIC program decides to compute some new co-ordinates for your laser thingummy and everything comes to a lurching stop. The Glurks are looking down the impotent barrel of your thingummy and their what-sises are suspended in space poised to clobber you (and Earth of course). Some time later (only milliseconds but it seems hours to your highly trained and instantaneous reflexes) things start to move again and you get annihilated (and Earth too, of course, colour tellys and all).

All that could have been prevented and the world saved for future generations by a bit of pre-translation back when the Glurks had not shown up yet.

The PETSPEED compiler will do just that for you. Does that mean that Zolin's famous First Law has been discarded and relegated to the cesspool of historical curios that have not stood the test of time? Never! Read on, dear reader. There is more yet.

So let's see what PETSPEED is all about.

In price it is about a hundred dollars.

In size it is about 310mm by 230mm by 35mm, ie a CBM software box.

Inside it is a manual, a disk and a dongle. (Dongle = gizmo that plugs into the joystick port and without which the program will not run. Copy the disk as much as you like. No donglee, no runee.)

Firstly the manual

Remember, it's a Commodore manual therefore it doesn't fully document the software. It might not be CBM policy but it's CBM reality. As far as it goes, though, it does better than most similar bundles of paper. It's just sad that there are some vital things it doesn't tell you.

The first part of the manual is all about what hardware you can use it on. You learn from it that you need at least one 1541 drive or one of the bigger ones (4040 for example) or two 1541 disk drives. So far so good. The next bit tells you how to convert the disk that came in the box to four (that's right, four) other disks that will actually be used to do the compiling. Well, two will be used, anyhow. The manual tells you to make master copies and not use the main disk in future except to make more master copies. After six months of no use I used my master copy disks for something else. I have not had to make up a new set yet (six months later). What you actually make up is a pair of disks (two of each if you take the manual's advice). The first is the work disk that you use to do the actual compiling. The second has a bunch of utilities including:

- *a program to make backup disks,
- *a program to locate an error,
- *a program to produce a report of variables, memory locations used and so on (it doesn't seem to want to

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SOFTWARE REVIEW

work on large programs using two drives – when you need it most, of course),

*a program to modify multi-dimensional arrays (the compiler only likes two dimensions or less).

There are a very good couple of pages telling you what the compiler will or will not accept in a basic program.

It doesn't tell it all. For example it makes no mention that the FRE(x) command makes the compiled program do very queer things. "So what?" you say. So this:- next time you have a program which generates loads of strings, watch it running. You will note that now and then it stops dead and then starts up again. The computer is doing what is known as garbage collection during the stopped bits. You can get rid of the problem by interspersing your program with the statements

X=FREE(0)

which forces a garbage collection. PETSPEED won't accept it. Here's a better one. If you've read any programs for the C-64/1541 disk drive combination, you will have seen things like this:

```
1000 OPEN 15,8,15
1010 INPUT#15,DE,DE$,DT,DS
1020 PRINT DE,DE$,DT,DS
```

That comes up with a SYNTAX ERROR...

Why? Good question. The software does not like the combination of variables. Change to A,B\$,C,D and all is well. But just imagine how long it takes to find out in the first place. A little documenting would do a lot of good. I cannot believe that nobody at Commodore has come across that little glitch.

What it does document it does well. There aren't too many incompatibilities in the software with standard BASIC. One bit of advice I would give is to keep the BASIC simple and inelegant. The little programming flourishes are the most likely to crash.

There is an excellent section on "Making the Most of PETSPEED 64". There is a good section on memory mapping the compiled program. In fact the rest of the manual is good.

Then there is

The disk

What can you say about a disk? It's about 130mm in diameter with a hole in the middle and a black jacket with a label that says:

COMMODORE 64
PETSPEED COMPILER
PSC6440

and similar things. It did what it was asked to do. What more can you ask?

Then, of course, we have:

The dongle

This was my first introduction to the world of dongles. It's a tan bakelite block with a plug at one end. The block is a little smaller than a matchbox. The plug fits into joystick port 2. Inside are some clever electricians (which can't be detected with an ohm-meter) which provide some vital information to the program.

If the dongle is not plugged in, the program is likely to hang up or give odd results. It means that you are free to make backup copies of disks but that the financial interests of the author and the publisher are safeguarded. A good arrangement. I like dongles. Imagine the effects on your friends if you walk up to your computer and say, with feeling: "Aargh... my dongle just fell off!" Seriously, though, dongles are a good compromise in the fight between pirates and programmers. Sure it's not perfect security – what is? – but it is good.

With all that, what does the compiler do?

It takes a basic program that crawls along and makes it gallop. I wrote a variation of the "sheepdog" program a little while back and compiled it. In BAASIC (pun) the dog scampered and the sheep sort of moved about. In the compiled version the dog was a black smudge tearing about the screen and the sheep, well, best not to be said.

From the point of view of you, the user, it requires that you SAVE the program onto the WORK DISK and run the compiler program. In a time varying between ten minutes and half an hour or more, the program makes four passes through your code. It generates a file with the same name as your original program with '.WOW' appended. Why .WOW?

No idea except perhaps in wonder at its speed. It also generates a file of the original name with .W appended. This file holds information that one of the utility programs can use to locate an error in the compiled program. It can extract the original line number and portion of line. Clever.

The compiled program, by the way, behaves just like a normal basis program that you can LOAD, SAVE, overlay, write and read files from (but not SAVE from within the program). All pokes and peeks are supported, as are all disk commands – including random access ones. It does all this more surefootedly and with a crispness of response that's impossible in dear old BASIC. If you try listing the program, though, you only get

```
10 SYS (2073) PETSPEED
```

But what about Zolin's first law? Well, yes. The original programming in BASIC is quicker. The final running is quicker. Where's the "constant" intervalation?

You see, it's like this: Three time-takers come up immediately. Firstly there is the compiling time. Small but significant. Then there is the problem of fixed code. Once compiled, the program is not maintainable. Any change requires that you go back to BASIC, do your changes there and recompile. A very time-wasting process. Then there are all the little undocumented things that take you a few days to sort out. Then there is the code overburden.

There are no free meals. If a program isn't translated at RUN time it needs to carry some code with it to replace the BASIC translator in the machine. In the case of PETSPEED a typical 8 Kbytes is added to a program. Yes, it does crunch down the BASIC code but adding 32 disk blocks (sectors) to a file is no mean thing. This overburden is very noticeable in smaller programs. At about 70 sectors of BASIC program, the crunching and overburden even out and after that the Compiled program is actually SMALLER than the BASIC one.

This gives a hint of the optimum target of PETSPEED, It does its best work with BIG programs, although it is useful with smaller ones. How big? The biggest I have compiled was

145 disk sectors. For that you need two drives. The compiler uses up an enormous amount of memory, as you may imagine. It uses the disk as a bit of slow RAM. With a program of about 100 sectors it stops in the middle of one of its passes and asks something like "out of disk room, scratch the source code?". A "yes" answer lets it finish the job. Above about 110 sectors you have to have a twin drive or two drives. That may give you an indication of how complex and clever a program it is.

Using PETSPEED changes your programming style. As the compiler just ignores REMs, spaces, style and so on, you can make a very readable program with good spacing, short lines, titles and all the other things that make program reading and maintenance a pleasure rather than a chore. On the other hand, it lets you be as paranoid as you like since the final program version carries no hint of your techniques. You can then guard your source code and feel safe from prying eyes.

The compiler will not support a SAVE command within a program

and seems to have a continuing love-hate relationship with ARRAYS. Somehow, though, it all works out.

A note for gun programmers. Here's something that took me a while to find out but may be useful to you. The piece of the compiled program that lies between \$0826 and \$27ff is common to all programs. You can save a heap of loading time and memory by slotting it in on overlaid programs. That little heap of code accounts for most of the 32 sector overburden.

In conclusion, what will PETSPEED do for you? In one word, "heaps".

Regardless of how many people may make disparaging remarks about BASIC, it is a very useful language, particularly in its STRING handling ability and heuristic approach. What's more, it's built into the 64. Like it or not the Commodore 64 speaks BASIC. Combine CBM BASIC with PETSPEED and you have a powerful combination. My verdict? I'd thump anybody who tried to take it away from me. I have other programs whose absence I would never notice. □

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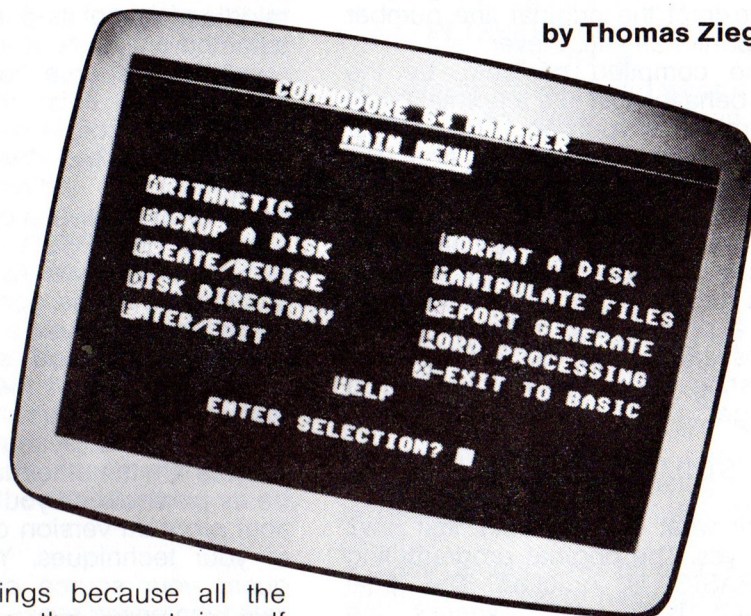
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Creating reports with the Commodore 64 Manager

by Thomas Ziegler

Many first time users of the Commodore 64 "Manager" database package are bewildered by the many options and features this program offers. One area in particular, Report Generate, can be confusing, particularly to a novice. Here's how to use the Manager's powerful report generator to produce sorted reports.



To keep the explanations simple, I will describe a simple mailing list application and show you how to create two reports: a report sorted by last name and a report sorted by last name that also uses the Manager's search criteria. These two reports should provide you with a good introduction to the Manager's report generator. Figure 1 shows the record layout used for the mailing list file, with each field numbered from one to 13.

Before you even turn on your computer, you should first lay out the report on paper, indicating exactly where each piece of information will go. Using grid paper makes designing a report easier because you can indicate the spacing more precisely. When you lay out a report, you must define every single piece of information that is going to appear on the report.

Figure 2 depicts the first report: an alphabetical list by last name. If you look at this report layout, you can see that at the top of each page of the report, as a heading, we want the title of the report centred. Centred below the title is the current date. We then want to skip a space and begin printing the actual data for the report. For each person on the mailing list, we want to show last name, first name, address, city, state, postal code, telephone number and membership status. We also want to skip a line between each person. Finally, at the bottom of each page, we want to put a page number. For this particular report there will be no

column headings because all the information on the report is self explanatory (except possibly membership status). Eliminating column headings allows us to get more records per page, saving paper. (On the second report, however, column headings will be used).

From this description, you can see that there are basically three parts to the report: the heading, the data from the records and the footer (ie the page number). The Manager's report generator calls each one of these parts of a report a print zone. In the Manager, there is a header zone, a list zone (for the data) and a footer zone. For each of these zones you have to define what data will be printed for the zone. Defining the data to be printed is done by setting up print areas in the Manager's report generator. In addition, you also have to consider the following items:

1. Search characteristics. The Manager's report generator has the ability to be selective in its reports. You can print a report based on exact matches, hunts or complex combination searches. The alphabetical list of our mailing list does not require any searching. We are simply listing everyone in the file. However, the second report, which lists only members, will take advantage of the Manager's search abilities.

2. The order of the report. The Manager provides three ways to sort or order a report: entry (file) order, index field order, or single or multiple combination sorts based on any field. Entry-order reports list the data records in the order that they were entered. This type of report is the fastest to produce. Index-field-order reports use the index created in the Enter/Edit option as the basis for the report. Reports sorted by index are very fast. Reports sorted by fields are the most powerful and flexible. However they are also the slowest,

MEMBERSHIP LIST													
LAST NAME	_____												
FIRST NAME	_____												
ADDRESS 1	_____												
ADDRESS 2	_____												
CITY	_____	STATE	_____	ZIP	_____	MEMBER SINCE	_____	MEMBERSHIP NO	_____	MEMBERSHIP Yr	_____	MEMBERSHIP MONTH	_____
MEMBERSHIP STATUS	_____												
PAGE	_____												

rec len= 194 chars. # of records = 40

Figure 1: Layout for each record

XYZ MAILING LIST AS OF: CURRENT DATE				
LAST NAME ADDRESS 1 CITY	FIRST NAME ADDRESS 2 STATE	MEMBER STATUS ZIP	TELEPHONE	
LAST NAME ADDRESS 1 CITY	FIRST NAME ADDRESS 2 STATE	MEMBER STATUS ZIP	TELEPHONE	

Figure 2: Setting up your report

since the file has to be sorted before the report can be printed. In our example reports, we will sort the reports by last name.

3. Will the report be printed, displayed or stored on disk? The Manager allows you to produce reports for the screen or for the printer. It also allows you to direct a report to the disk drive. Reports to disk can be used by Easy Script as fill files.

Once you have entered all the requirements for your report, the Manager permits you to save your report specifications on disk for later use. The next time you want to produce this report, all you do is tell the Manager which report you want and it will automatically start printing.

Let's look more closely at the steps you need to follow to produce the two reports we defined above.

Alphabetical report by last name

The format for this report, as shown in Figure 2, assumes that you have a printer. Here is how to produce it.

From the main menu of the Manager, select R for the Report Generate option. The first prompt is REPORT FROM KEYBOARD OR DISKFILE? The first time you define a report, you are defining it from the keyboard by typing in the report specifications. After the report has been defined and the specifications are saved on a disk, you are using a report from a disk file.

You next have to provide the name of the file you are using for your report.

The next prompt, ENTER SEARCH CRITERIA, is used to select specific records. In this example there are no search criteria required, so you would press RETURN.

Next you have to specify the order

of the report: index, sort or file. In this case we want a sorted report. After you decide you want a sorted report, you have to define the sort. To help define the sort, the Manager prompts: ENTER NUMBER OF SORT KEYS. A key is simply the field or fields we are using in the sort. The Manager allows a maximum of 16 keys. In this case, we only need one key, last name. When the Manager sorts the data for this report, the data will be sorted by last name.

After all your typing, the Manager screen should look like Figure 3. At this point, you have to specify which fields you want to use in the sort. In this case, last name is field one. The prompts shown in Figure 3 are used to specify whether the sort is alphanumeric or numeric and whether the data should be sorted in ascending or descending order. At these prompts, you enter your information and press the arrow-left key to continue.

Next, you have to specify where you want your output to go. If you recall, output can go to the screen, the printer or to a disk. Figure 4 shows the prompts that must be answered. In our example, we want an output to the printer.

The next step is defining the characteristics of the three print zones: header, list and footer. For the sample report, you must first define the header zone. Checking our report layout in Figure 1, you can see that you need to allocate three lines for the header: one line for the title, one line for the date and one blank line to separate the heading from the rest of the report. Consequently, at the next prompt, NUMBER OF LINES IN ZONE? you would type "3". The next prompt is NUMBER OF LINES FROM THE TOP? By changing this number, you can vary the top margin of your report.

Next, the print-position editor is

```

report Generate
-----
sort conditions
enter number of sort keys? 1
field len alpha/num asc/desc
1 20 a a
    
```

Figure 3: Prompts used to specify report fields

```

report Generate
-----
output conditions
output to screen, printer, disk? P
enter device number? 4
enter Printer control character? 0
enter line length? 80
enter number of lines Per Page? 66
    
```

Figure 4: Prompts for report output

```

report Generate
-----
header zone
Print area # 1 10 areas open
data type (N=Numeric) f subscript: 1
text/title
.....1.....2.....3.....4
length of area: 20 line number 1
column number : 1 centering (y/n)? n
# of decimals : accumulate (y/n)? n
break type (None, linfo, Page)? n
    
```

Figure 5: Print-position editor

used to lay out your report. The print-position editor is used in all three zones. Figure 5 shows a blank print-position editor screen and provides explanations of each entry on the screen.

It is important to remember that every item (even spaces or blank lines) that you want to appear on a report must be specified in either the header, list or footer zone. Data specified in the header or footer zone will be printed once per page. Data specified in the list zone will print once per record. All the entries in the print position editor are not used for every print area that you specify. For example, if you enter a text data type, no subscript entry is required.

To enter the print areas for each zone, you simply type in the required data and press RETURN. The data for our example report is shown in Table 1 on page 102. Listed below are keys that perform special functions in the Manager's print-position editor.

f7: Move to the next print area in the zone.

f8: Go back to the previous print area in the zone.

CRSR UP: Move to the previous item on the screen.

CRSR DOWN or RETURN: Move to the next item on the screen.

SHIFT CLR/HOME: Delete the print area displayed on the screen.

f1: Return to the main menu.

f2: Return to the beginning of the Report Generate option.

After you enter data for your first print area, you have to press f7 to enter the information for the next print area. Each time you finish with one print area, you have to press f7 for the next print area. Pressing f8 allows you to go back and edit a previous print area. Pressing f8 allows you to go back and edit a previous print area. When all the print areas for a zone are entered, you have to press the arrow-left key.

When you finish entering the print areas for one print zone, you then follow the instructions on the screen and continue entering data for all the remaining print areas. Finally, you exit the print-position editor.

If you look at Table 1 for the footer zone, you will notice that the register data type is used with subscript 104. Register 104 is a special register that is used to keep track of the page number of your report.

Next, you are asked if you want to save the report conditions. For a sorted report, you must save the report conditions. Otherwise, the Manager will prompt you to insert your data disk over and over again. After the Manager saves your report specifications on disk, you can use the report specifications to print additional reports.

When the Manager prompts: SORT THE FILE? if you enter Y, the Manager will sort your file and prompt you to alternately insert the program and data disks. After the file is sorted, the report will be printed.

XYZ MAILING LIST
AS OF: CURRENT DATE

Clark 611 Windsor Place Anytown	Gail Apt. 312 PA 19000	Y 215-989-4321
Fretz 1101 Walnut Street Anytown	Dr. Walter PA 19000	N 215-989-6789
Jones 1525 Ridge Road Pinebrook	Susan NJ 07005	N 609-123-4567
Smith 421 Broad Street Anytown	Jim PA 19000	Y 215-989-4653
Smith 11 Winding Road Anytown	Joe PA 19000	Y 215-987-1212
Smith 123 Main Street Anytown	John PA 19000	Y 215-989-4567

Figure 6: Sample report of mailing list, alphabetized

If you enter N at SORT THE FILE, the Manager will check your data disk to see if you have already produced a sorted report with your file. If you have, the Manager will use the sort file from this previous report rather than creating a new sort file.

Once the report is printed, you have the option to print it again or return to the main menu. Figure 6 shows a sample report produced from the specifications just described.

Members-only report

This report is similar to the alphabetical list report except that we are going to add column headings and use search criteria to limit the number of records printed in the report. Figure 7 shows the report layout. As you can see, this report is simpler than the alphabetical list report.

The search criteria are fairly simple: we want to list only members. In terms of our file, this means we want to list only people who have a "Y" entered for field nine. When Manager prompts SEARCH CRITERIA, we will enter: F9="Y". This means include only records with field nine equal to "Y" in this report. Any record without a "Y" in field nine will not be included in the report.

The sort specifications for this report are identical to the sort specifications used in the previous report. Table 2 shows the print areas used in this report. Notice that the column headings are part of the header zone.

Remember that you have to press the f7 key to advance to the next print area you wish to enter. The arrow-left key is used to proceed to

the next print zone after all the print areas for a particular zone are entered. Also, remember that sorted reports must be saved before they can be printed. Figure 8 shows a sample report.

Once you master creating simple reports like the two described in this article, you can go on to create more advanced reports that use arithmetic and registers. The possibilities are virtually limitless.

Explanation of prompts

Print Area. Each data item displayed in a report will automatically be assigned a print-area number. You press f7 to advance to the next print area.

Data Type - F R D T. There are four data types available for reports: fields, registers, display areas and text.

Subscript. When used with the field data type, this entry designates the field number. When used with the register data type, this entry designates the register number.

Text/Title. Used to enter the text for a text data type. Whatever is entered here will be displayed as entered in the report. When used with a field or register data type, data entered here will be a column heading.

Length of Area. Defaults to the field size if the field data type is used. If the register data type is used, it defaults to 12. The number entered here may be changed to be less than the default.

Line Numbers. Designates which line in the particular print zone this data item will be placed in.

Column Number. Defaults to the next available horizontal position based on the previous entry. It may be modified.

Centering Y/N. When a Y is entered here, the data will be centered in the area specified.

Number of Decimals. Used for numeric fields or registers to specify the number of decimal places to be displayed.

Accumulate Y/N. If Y is entered here, totals for this column will be displayed at the end of the report or at break points.

Break Type. If a break point is specified, the break can be linefeeds or a new page. □

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XYZ PHONE LIST MEMBERS			
NAME		DATE JOINED	PHONE #
FIRST NAME	LAST NAME	MONTH/YEAR	XXX-XXXX

Figure 7: Setting up member phone list

XYZ PHONE LIST MEMBERS			
NAME		DATE JOINED	PHONE #
Adams	John	10/81	215-123-4567
Brown	William	11/82	215-123-5432
Caldwell	David	05/83	215-432-9876
Dawkins	Joseph	04/83	215-123-1234

Sample Report of Member Phone List

Table 1: Data for alphabetical report

The data in the name column is used for the TEXT/TITLE for text data types.

PRINT AREA	NAME/TEXT	DATA TYPE	SUBS.	LENGTH	CENTER	LINE	COL.
Header Zone: 3 lines in the zone							
1	XYZ MAILING LIST	T	—	80	Y	1	1
2	As of: Current Date	T	—	80	Y	2	1
3	Space	T	—	1	—	3	1
List Zone: 4 lines in zone							
1	Last Name	F	1	20	—	1	1
2	First Name	F	2	20	—	1	21
3	Member?	F	9	1	—	1	41
4	Address 1	F	3	30	—	2	1
5	Address 2	F	4	30	—	2	31
6	City	F	5	25	—	3	1
7	State	F	6	2	—	3	27
8	Zip Code	F	7	5	—	3	30
9	Telephone	F	8	12	—	3	40
10	Space	T	—	1	—	4	1
Footer Zone: 1 line in zone							
1	Page #	R	104	4	—	1	40

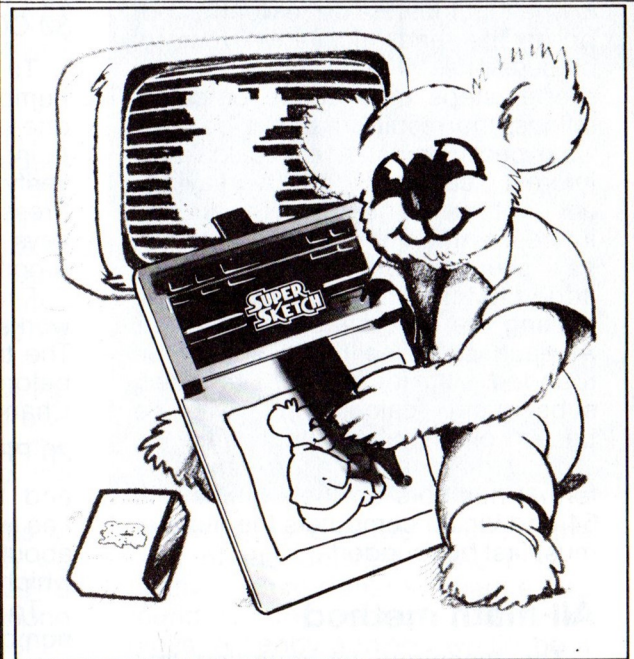
Table 2: Data for members-only report

The data in the name column is used for the TEXT/TITLE for text data types.

PRINT AREA	NAME/TEXT	DATA TYPE	SUBS.	LENGTH	CENTER	LINE	COL.
Header Zone: 6 lines in the zone							
1	XYZ MAILING LIST	T	—	80	Y	1	1
2	MEMBERS	T	—	80	Y	2	1
3	Space	T	—	1	—	3	1
4	Name	T	—	10	—	4	8
5	Date Joined	T	—	11	—	4	42
6	bbPhone #	T	—	9	—	4	64
7	----- (40 -)	T	—	40	—	5	1
8	-----	T	—	11	—	5	42
9	-----	T	—	12	—	5	64
10	space	T	—	1	—	6	1
List Zone: 2 lines in zone							
1	First Name	F	2	20	—	1	1
2	Last Name	F	1	20	—	1	20
3	Month Joined	F	11	2	—	1	44
4	/	T	—	1	—	1	45
5	Year Joined	F	10	2	—	1	46
6	Telephone	F	8	12	—	1	64
7	Space	T	—	1	—	2	1
Footer Zone: 1 line in zone							
1	Page #	R	104	4	—	1	40

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To round or not to round

by Richard H. Goodyear

Your Commodore 64 or Vic 20 may be math wizards – except when it comes to rounding certain numbers

The process of rounding numbers is one that must be done during and/or at the end of many types of calculations. If not done at the proper steps in a series of calculations, the results may not be what we expect. For instance, in calculating interest earnings on a savings account over a number of years, the interest earned must be calculated, say, every quarter and the interest added to the current principle before making the next interest calculation. At each step, the result should be rounded. If it is not rounded, subsequent calculations will be based on numbers that may be slightly incorrect. In addition, to format numbers on the Commodore 64 and Vic 20 computers the number must first be rounded.

All-math method

The technique for rounding that relies completely on mathematics depends on the INT (integer) function for eliminating digits that are to the right of the point at which we wish to round. The INT function eliminates all digits to the right of the decimal point and returns the next lower whole number. In practice, the INT of 1.1 is 1, of 1.9 is 1, of -1.1 is -2 and of -1.9 is -2. As you can see, INT acts in a somewhat unexpected manner when handling negative numbers. Also, it does **not** round before truncating. But ours is not to reason why, ours is to understand **how** it works and then program it to

get the results we need. Key in and RUN the following program to experiment with the INT function.

```
10 INPUT N
20 PRINT INT(N)
30 GOTO 10
```

To observe INT at work, the number entered must have at least one number to the right of a decimal point. Try 1.1, 1.9, -1.1 and -1.9 to verify the examples given above. Press the RUN/STOP and RESTORE keys in combination to exit the program.

Fine, now that we know how INT works, how do we use it to round? The trick is to add .5 to the number before using the INT function. Change line 20 to read

```
20 PRINT INT(N + .5)
```

and try the program again. Works fine with positive numbers, but what about negative numbers? (Try -1.5, which should round to -2.)

To be able to round negative numbers as well as positive numbers using INT, we must elicit the aid of two other mathematical functions: ABS and SGN. Change line 20 to read

```
20 PRINT SGN(N)
   * INT(ABS(N) + .5)
```

and try the program again. Works fine now! The ABS function returns the absolute value of N. If the value of N is positive, there is no change, but if N is negative, then ABS returns a positive N. This allows the formula for rounding to work correctly (we saw above that positive numbers round correctly). The SGN is used to restore negativity. If N is positive,

SGN(N) is one, and multiplying by one will have no effect on the rounded value. But if N is negative, SGN(N) is -1 and multiplying by -1 will restore the rounded value to its original negative condition, a condition that was lost using the ABS function.

We can now round any value, positive or negative, to a whole number, but what do we do to round to one, two or more places to the right of the decimal point? After all, much of our data processing will deal with money and we will usually need to round to two places to the right of the decimal point. Actually, it is pretty easy.

To round to two places to the right of the decimal point we will first multiply by 100 to move the decimal point two places to the right of its present position, then we can round this value, and, finally, we will divide by 100 to move the decimal point back to its original position. Change line 20 to read

```
20 PRINT SGN(N)*INT
   (ABS(N)*100 + .5)/100
```

and try the program again. To see the formula work, you must enter numbers with at least three digits to the right of the decimal point.

The number of digits that remain to the right of the decimal point is controlled by the number you use to multiply and divide. As seen above, multiplying and dividing by 100 leaves two digits to the right of the decimal point. Multiplying and dividing by ten would leave one digit, by 1000 would leave three, and so on.

The formula looks pretty complicated, but I hope that taking its development step by step has enabled you to understand how it works.

If you experiment enough, you will find that this formula will not work in **all** cases. This is not the fault of the formula, but is caused by slight errors in the way the Commodore 64 and Vic 20 computers handle numbers. Errors are not very

1.73205

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common and occur only with certain combinations of numbers.

String method

If you enter and RUN the program for the "all-math method" you will find that it works fine with most numbers. And there is the catch - **most!** For example, if you enter 99.335 you would expect to get an answer of 99.34, right? But both the Vic 20 and the Commodore 64 computers return an answer of 99.33. An input of 33333.445 returns 33333.44 and 567.555 returns 567.55. The problem seems to exist only when the third number to the right of the decimal point is a five, and then depends on what combination of numbers is to the left of the five. You may want to key in the program and experiment with it a bit. Are there any other conditions under which the problem exists?

While it is true that the rounding problem occurs only under special circumstances, we would prefer that our computer always did its homework "right", right? This problem can be resolved by first converting the number into its equivalent string (STR\$), and then using the powerful string-handling functions available to us on the Commodore computers to help us do the rounding.

The following program demonstrates a solution to the problem using strings: The program rounds to two places to the right of the decimal point. What we will be doing is exactly what we do when we round by hand. To round to two places to the right of the decimal point, we look at the third digit to the right of the decimal point. If the number is five or more then we add one to the second number to the right of the decimal point. Finally, we truncate the number to two digits to the right of the decimal point. The order of actions in the program is different, but the principle is the same. You can key it in and try it out, then I will explain its workings (if you haven't figured them out yourself).

And, now for a blow-by-blow account of how the program works.

10 Inputs a number from the keyboard and stores it in N.

20 Converts the number stored in N to its string equivalent using the STR\$ function and stores the string in the variable F\$.

30 Determines the number of characters in F\$(LEN) and stores that value in the variable L.

40 Assigns the value of 0 to the variable PD (for Position of the Decimal point).

50-70 A FOR/NEXT loop that searches for the decimal point. It uses the MID\$ function to examine each character in F\$ and sets PD equal to the numeric position of the decimal point in the event that the decimal point is found. If the decimal point is not found (a whole number) then the variable PD remains equal to 0.

80 This line checks to see if the number needs to be rounded. If the length of F\$(L) is less than or equal to the numeric position of the decimal point (PD) plus two, then there are no more than two digits to the right of the decimal point and nothing to be rounded. If true, then control passes to line 140 where F\$ is printed on the screen.

90 The third digit to the right of the decimal point (PD + 3) is read and saved in the variable R\$. This is the value that will determine how the number will be rounded.

100 This line removes the digits to the right of the point at which we want to round. It uses the LEFT\$ function to read F\$ up to the second digit and replaces the old value of F\$ with this new, truncated value.

110 If the third digit (R\$) is less than five, then nothing more needs to be done to the value in F\$ and program control passes to line 140 to print F\$ on the screen.

120 Having failed the test in line 110 means that we need to add one to the final digit of the number to round up. To accomplish this, we must convert the numeric string in F\$ to a numeric value (VAL), take its absolute value (ABS) to avoid problems with negative numbers, and add .01. The result is stored in the variable F.

130 The value of F is now multiplied by the result of SGN(N) which will restore a negative condition if it existed. The result is converted into its string representation (STR\$) and the result is stored in F\$.

140 The value of F\$ is printed on the screen.

150 Sends control to line 10 to ask for another number.

Well, there it is, a solution to the rounding problem. The routine is



written to round to two places to the right of the decimal point; it is a relatively easy matter to change it to round to any desired number of digits. A handy addition would be a few lines to format the number so that it always prints two digits to the right of the decimal point, adding a ".00" or "0" as required; these lines would begin at line 140. I will leave this task to you. □

```
10 INPUT N
20 F$ = STR$(N)
30 L = LEN(F$)
40 PD = 0
50 FOR I = 1 TO L
60 IF MID$(F$,I,1) = "." THEN PD = I
70 NEXT I
80 IF L <= (PD + 2) THEN 140
90 R$ = MID$(F$, (PD + 3), 1)
100 F$ = LEFT$(F$, (PD + 2))
110 IF R$ < "5" THEN 140
120 F = ABS(VAL(F$)) + .01
130 F$ = STR$(F * SGN(N))
140 PRINT F$
150 GOTO 10
```

Looking before you leap • • • α

by Andrew Farrell

All over Australia the pavements are traversed by bewildered expectant computer owners. As they march to and fro across city streets, and ride trams or trains to reach another potential place of sale, they quickly become entangled in a great web of computer jargon.

At this time of year their numbers increase dramatically. Today a novice, tomorrow an expert. Armed with little more than cash in hand, a disaster may be imminent. Gobbled up by fast talking sales people, whose knowledge may not far exceed their own. Swallowed by the familiar jingles of incessant advertising. Something must be done to point them all in the right direction, for fear they should end up floundering amidst a pile of black and green cables behind some unknown brand of computer.

In a computer store their eyes open wide, their fingers become fidgety and must be restrained by gripping a nearby object. At the sight of a salesperson they run and hide. If cornered, special care must be taken not to intimidate them with computer-speak or strange facts and figures. This new world of unfriendly words is almost unavoidable if they plan to venture further. To help arm this growing crowd I have collated a list of important criteria for them to consider. Features to be avoided, features to fight for.

It is not Commodore orientated, although after reading it you may feel obliged to at least have a look at one. If you already own a Commodore, here are some reasons to keep it. If you own something else (disgust) then perhaps you should be buying a different magazine. Well, here it is. The first unofficial 1984 expectant computer owner buyers guide.

Finding a use

Indeed, uses there are many. Deciding which use is the first choice that must be made. It is likely there will be several, some of which may be more desirable than others.

Education, entertainment, business, hobby or holocaust. Learn to space invade or typewrite, balance the cheque book or break a leg breakdancing. The possibilities are endless. No doubt they have all been written down somewhere.

Most computers can do most of these things. Some can do very few, while others can do hardly any. Wherever possible it is best to stick to the first category. As with most rules there is an exception. If the computer will have one specific use such as word processing or running a cashbook, then don't shop for the computer first. Instead find the right software package that will do all the things required and then buy the computer that it operates on.

Software is the breath of life for a computer. Without it, it is no more than an electronic boat anchor and not a very good one at that. Computers need instructions on what to do. These instructions are placed in a specific order to make up a program or piece of software. Another term often used is hardware, the stuff you can kick, punch or otherwise deface. Software is different. Intangible, invisible, unless it's boxed and sitting on a shelf in a computer shop.

New computers as a rule don't have much software. Computers that are very popular have thousands of titles available for equally as many applications. Two popular systems with such a range are the Apple II and the Commodore 64. Across Australia there are some 30,000 Apple II users and over 100,000 Commodore 64 users. There is a certain amount of truth in the saying there is safety in numbers.

What to expect?

The problem may be not so much knowing what to buy, but knowing what to expect once the screen glows and the keyboard rattles. What to expect when it's first turned on and when to turn it off.

A computer is not a consumer

product you can take straight off the shelf and start using. Some say it should be, but that would be no fun. It's not like a hi-fi system where the components may be assembled at random without reference to the manual and nine times out of ten it will work. It's not like a washing machine, where all the controls are visible on the front panel. There are hidden tricks and traps discovered only by experimentation or sheer accident.

Computers don't come to life by themselves, they need prompting. Before off-the-shelf software can even go to work it is necessary to know how to get it in the computer or LOAD it. Yes, the jargon is unavoidable. But new owners are not alone. Out there, beyond the horizon are thousands of other new owners. Thus the tricks and traps are soon discovered and disseminated outward through user groups, magazines and even newspapers.

Now that the choice has been narrowed, it is time to examine the ground level facts. How to make sense out of the specifications or features. When to ignore a sales pitch and when to ask questions.

Memory

All computers have memory. Today for \$500 it is expected that the computer has a capacity of 64K, which really means around 64,000 characters of storage. Less may be sufficient, but the more the better. Memory gives programs room to move, room to carry out interesting functions, room to store information. At home 64K is plenty. In the office a little more can be very useful, depending on what you want to do. If there is only 32K, there may be occasions when things get too crowded or programs won't fit.

Some salespersons are a little devious when it comes to revealing the true amount of memory inside a computer. Even though there may be 64K built into the machine, the big question to ask is: "How much is free

guide for intending computer buyers

for use when the computer is first turned on?"

Various areas of memory will be taken up by the built-in language of the computer. On the Apple II/e there is about 28K free for use out of 48K. On the Commodore 64 there is 39K free for use out of 64K. On smaller computers, with smaller amounts of memory, there is even less. The Vic 20 has 3.5K free out of 5K. It tends to cramp things a little.

Graphics

Graphics are a great selling point, often referred to as being of a certain resolution, which is really a measure of the amount of detail available. For instance the Commodore 64 has a graphics mode of 320 x 200 dots or pixels. These dots may be turned on and off by the computer to create shapes and pictures. Graphics may also be created using a special feature known as player missile graphics or sprites. These are little shapes that can be designed and can then move about the screen with the greatest of ease and speed. Very useful in games.

Sound

Sound is another popular feature. Some computers just have a tone generator which can make single notes. Others have several which allow a few notes to play together. The most notable is the Commodore 64, which has an inbuilt synthesizer that is very flexible and produces some exceptional music and sounds.

Between the above two features some of the most fun can be had with a personal computer. That is providing there is a powerful language built into the computer or alternatively the right software is available. The Incredible Musical Keyboard, which is a keyboard overlay for the Commodore 64, is a typical example. Educational, and very entertaining. It allows you to design music, save it, play it back or even play top hits.



Vic 20 and accessories

Disk drive/cassette player

To get all these interesting things to actually happen you will need to retrieve programs from storage devices and put them into the computer's memory. A storage device is typically a disk drive or cassette player. These are an essential part of a computer system. Cassette players suitable for use with a specific computer cost around \$50 and disk drives cost up to \$600. Without them progress is slow to say the least.

Most brands will only work with the same type of disk drive or cassette player. Apples use Apple disk drives, although many people make them. Commodores use Commodore disk drives, of which there are several models. A few computers use any old cassette player, but most demand you use their own special version.

If a printer to print a hard copy of work on will be required, certain other matters must also be considered. Will the computer connect to the printer you wish to use? Most computers connect to any printer. A

few hardly connect to any. These connections have strange names such as PARALLEL or SERIAL. These describe the way in which information is sent from the computer to the printer. Similar connections are used for disk drives, cassette players and other devices.

Sometimes an interface is needed to allow everything to understand each other. These may cost up to \$130. A few other ground rules need to be remembered. Software from one computer will not usually operate on a different brand. Neither will hardware (the stuff you can kick) connect easily to a different brand of computer without a lot of persuasion.

Do shop around, but don't expect lots of service if you pay a supermarket price. Do go to a dealer if you can, a good one will point you in the right direction when problems occur. Don't expect him to take you by the hand and lead you through the manual. The manual is there for you to read. But most of all, get hold of a good magazine, and read it every month. □

Solving relative file problems on the 1541

by Larry Greenley

Often users have problems manipulating relative files, especially when it comes to reading a relative file that has already been created on the 1541 disk drive. This problem, however, usually lies in the way the records were **written to** disk rather than the way they are **read from** disk. If you use the following algorithm in a relative file write routine, you will ensure that the data is properly written to disk, which should then eliminate most read errors.

Relative file write routine algorithm

```

10 Open 1,8,15:Rem "Open the command channel".
20 Open 2,8,2"file,L,"+chr$(100):Rem "Open and create the relative file where
file=relative file name, chr$(100)=record length".
25 I=1:Rem "Initialize i (record number) to 1".
30 Input"Enter a record";a$:Rem "Input data to be written to file".
40 Print#1,"p"chr$(2)chr$(I)chr$(0)chr$(1):Rem "Position the record pointer to
the Ith record".
50 Input#1,a,b$,c,d:Rem "Input error channel variables".
60 If a=20 then 100 :Rem "Check for errors less than error 20, if the error is less
than 20 ignore it and go to line 100".
70 If a=50 then print#2,0:go to 40: Rem "Check for error 50 (record not
present)".
74 Rem "If it exists write (print#2) a dummy record (0) to the disk in order to
make a record present and eliminate error 50".
76 Rem "Go back to the original position command (line 40) and re-position the
record pointer to the same place".
80 Print a,b$,c,d:Rem "If any other error occurs, print it and stop".
100 Print#2,a$:Rem "This statement writes the data to the file on disk".
105 Input"Do you want more records (y/n) ";g$:if g$="n"then 120:Rem "Checks
to see if more records are needed, if not, go to line 120".
110 I=I+1 : Go to 30:Rem "Increment record number (I) then go to line 30 to
input another record".
120 close 1:close 2:end:Rem "Close both previously opened channels and
end".

```

During a relative file write routine, it is absolutely necessary to check for error number 50 - "record not present". This is an error condition that can be "trapped" (checked for and corrected at run time) by inputting the error channel variables as in line 50, checked as in lines 60 and corrected as in line 70. Line 60

is the crucial statement that ensures that the data is written to the disk correctly. If error 50 is not checked and it does occur when writing to a relative file, the record pointer defaults to position one and destroys the original record, usually replacing it with a null record or bad data (.). Then the disk drive either spins continually with a red flashing light or it locks up with a solid red light. In either case, read the error channel to clear the error and reset the drive.

If error 50 is detected as in line 70, a dummy (filler) record is written to

the file and control is returned to the original position command (line 30) for re-positioning. The dummy record (0) creates a record that had not previously been present. Once the record pointer is repositioned and no other errors are detected, the data record can then be written to the file. □



The utility itself is a machine language program, for which I have written a BASIC loader. Its main purpose is to convert whatever is on the text screen into PRINT statements for use in BASIC programs. This would be useful for creating menus, character graphics, etc, without having to return constantly to the program to make adjustments.

The loader POKEs the machine code at 49152 while a menu is displayed on screen. This menu is then stored in an out-of-the-way place (under the KERNAL) from which it can later be recalled as a help screen. This done, the program waits for the user to hit a key, then clears the screen and invites the user to activate the utility with SYS 29152.

Note that I have included a checksum routine from line 50000 onwards. This will not be executed whenever the loader is run, but is intended for use once readers come to debugging what they have keyed in. It can be used by entering RUN 50000.

Once the utility has been activated, the user can proceed to construct a screen using the 64's normal screen editor. The utility does several useful things during this stage:

1) f7 and f8 add to the capabilities of the screen editor by taking whatever character happens to be underneath the cursor and placing it in the space either below or above the present cursor position. This is especially useful for putting characters down the right-hand edge of the screen (for borders, etc) without the worry of generating a double-length line.

2) All keys repeat automatically.

3) A screen can be stored for safe-keeping in either of two special storage areas under the KERNAL by hitting either f3 or f5. It is advisable to use this capability regularly, in case the screen is accidentally

Character graphics utility

by Peter Gummer

cleared, scrolled or otherwise ruined.

4) A stored screen is retrieved by hitting either f4 or f6. Because there are two such screen storage areas, the user can use this to choose which version of a display is better by alternately hitting f4 and f6, flipping from one to the other.

5) If the user forgets what the function keys do, the help screen can be recalled by hitting f3. (Note that f3 performs two functions every time it is hit.)

6) The activated utility is compatible with most things one would normally do on the 64. Therefore, if the user needs to look at a program on tape or disk while in the middle of making a screen, it is easy to store what has been done thus far by hitting f5, load the other program, list or run it if necessary, and return to making the screen by hitting f6.

Converting the finished screen to PRINT statements is done by hitting f1. This also deactivates the utility, which can also be done by hitting STOP/RESTORE. Hitting f1 creates a new program with lines numbering from 10 onwards. Line 10 PRINTs the clear-screen character and the character corresponding to either the upper- or lower-case character set. Lines 11 onwards PRINT what was on the screen, including colour changes and RVS ON/OFF symbols. Each program line corresponds to one screen line, unless this would make the program line excessively long, in which case it is spread over two program lines. Note that the end of the final PRINT statement will be constructed a little differently to the rest of the program if the bottom right-hand corner of the screen was occupied by anything other than a blank. This is to avoid the problem of the screen unwantedly scrolling due to a character simply being PRINTed in that corner.

I know of three bugs in the program. The first is that the cursor

temporarily flashes in peculiar ways after storing or recalling a screen. Secondly, storing the screen with f5 sometimes leaves an unwanted reversed character where the cursor lay. Thirdly, converting a screen

containing quotes (") works, but the resulting program does not. (The reason is obvious.)

Lines 10 to 35 of the loader are an example of the output of the utility. □

```

1 REM * CHARACTER GRAPHICS UTILITY *
2 REM BY PETER GUMMER - OCT 1984
3 REM CONVERTS C-64 TEXT SCREEN INTO
4 REM PRINT STATEMENTS
5 REM
10 PRINT{CLR}{SWUC}";REM SWITCH TO UPPER CASE
11 PRINT{RED}";-----";
12 PRINT" (PURP) (RVON) CHARACTER GRAPHICS UTILITY (RVDF) (RED) ";
13 PRINT" (LRED)SYS 49152 (RED) ";
14 PRINT" (CYAN)-----";
15 PRINT" ";
16 PRINT" (LRED)F1 (GRY2)CONVERT SCREEN TO PRINT STATEMENTS (RED) ";
17 PRINT" ";
18 PRINT" ";
19 PRINT" (LRED)F3 (GRY2)HELP: STORE THE CURRENT SCREEN AND (RED) ";
20 PRINT" (GRY2)DISPLAY THIS SCREEN FOR HELP (RED) ";
21 PRINT" ";
22 PRINT" (LRED)F4 (GRY2)RECALL THE SCREEN THAT F3 STORED (RED) ";
23 PRINT" ";
24 PRINT" (LRED)F5 (GRY2)STORE THE CURRENT SCREEN FOR SAFETY(RED) ";
25 PRINT" ";
26 PRINT" (LRED)F6 (GRY2)RECALL THE SCREEN THAT F5 STORED (RED) ";
27 PRINT" ";
28 PRINT" (GRY2) (RED) ";
29 PRINT" (LRED)F7 (GRY2)CURSOR DOWN I (RED) ";
30 PRINT" (GRY2)← DRAGGING CHARACTER (RED) ";
31 PRINT" (LRED)F8 (GRY2)CURSOR UP I UNDER CURSOR ALONG (RED) ";
32 PRINT" (GRY2) (RED) ";
33 PRINT" ";
34 PRINT" (LBLU)PRESS (GRN)F4 (LBLU)TO CONTINUE (RED) ";
35 PRINT"-----";
50 POKES3280,3:POKES3281,1
1000 FORI=49152TO49874:READA:POKEI,A:NEXT
1010 SYS49243:REM STORE HELP SCREEN IN RAM UNDER KERNAL
1020 POKE49418,244:POKE49419,240:REM SET UP SCREEN TRANSFER TABLE
1050 WAIT198,15:GETA#:PRINT{CLR}{GRY2}{C/DN}{C/DN}SYS49152{HOME}";:NEW
49152 DATA 169,128,141,138,2,120,169,18
49160 DATA 141,20,3,169,192,141,21,3
49168 DATA 88,96,165,215,201,133,208,3
49176 DATA 76,20,193,201,134,240,92,201
49184 DATA 138,208,3,76,199,192,201,135
49192 DATA 208,6,32,88,192,76,138,194
49200 DATA 201,139,208,6,32,101,192,76
49208 DATA 138,194,201,136,240,10,201,140
49216 DATA 240,3,76,49,234,169,145,44
49224 DATA 169,17,164,206,32,210,255,174
49232 DATA 134,2,32,24,234,76,138,194
49240 DATA 32,122,194,162,0,32,223,192
49248 DATA 162,1,76,223,192,32,122,194
49256 DATA 169,53,133,1,162,2,32,223
49264 DATA 192,162,3,32,223,192,169,55
49272 DATA 133,1,96,32,122,194,173,24
49280 DATA 208,72,41,253,141,24,208,173
49288 DATA 32,208,72,173,33,208,72,162
49296 DATA 1,142,33,208,162,3,142,32
49304 DATA 208,232,32,223,192,162,5,32
49312 DATA 223,192,169,53,133,1,162,6
49320 DATA 32,223,192,162,7,32,223,192
49328 DATA 169,55,133,1,32,159,255,165
49336 DATA 198,240,249,104,141,33,208,104
49344 DATA 141,32,208,104,141,24,208,32
49352 DATA 122,194,169,53,133,1,162,8
49360 DATA 32,223,192,162,9,32,223,192
49368 DATA 169,55,133,1,76,138,194,189
49376 DATA 0,193,133,252,189,10,193,133
49384 DATA 254,162,4,160,0,132,251,132
49392 DATA 253,177,251,145,253,200,208,249
49400 DATA 230,252,230,254,202,208,242,96
49408 DATA 216,4,244,240,216,4,236,232
49416 DATA 228,224,236,232,216,4,228,224
49424 DATA 216,4,216,4,32,88,192,32
49432 DATA 138,255,169,171,160,194,32,30
49440 DATA 171,32,96,165,134,122,132,123
49448 DATA 32,115,0,32,107,169,169,147
49456 DATA 32,210,255,120,32,101,192,162
49464 DATA 238,160,193,142,2,3,140,3
49472 DATA 3,160,255,132,2,162,4,169
49480 DATA 153,32,117,194,169,34,32,117
49488 DATA 194,169,147,32,117,194,173,24
49496 DATA 208,41,2,208,2,169,128,9
49504 DATA 14,32,117,194,208,110,32,34
49512 DATA 194,230,211,164,211,192,38,208
49520 DATA 52,165,209,201,192,208,46,200
49528 DATA 177,209,41,191,201,32,240,37
49536 DATA 230,211,32,34,194,198,211,32
49544 DATA 34,194,133,206,202,160,0,185
49552 DATA 162,194,32,117,194,200,192,9
49560 DATA 208,245,165,206,32,117,194,230
49568 DATA 211,230,211,208,47,192,40,240
49576 DATA 6,224,72,144,185,176,37,165
49584 DATA 199,48,33,189,251,1,41,127
49592 DATA 201,32,208,24,189,251,1,41
49600 DATA 127,201,32,208,8,202,224,6
49608 DATA 208,242,202,208,19,169,34,32
49616 DATA 117,194,208,12,169,34,32,117
49624 DATA 194,169,59,32,117,194,208,4
49632 DATA 169,0,133,199,169,0,32,117
49640 DATA 194,138,168,76,162,164,164,211
49648 DATA 192,40,208,15,166,214,224,24
49656 DATA 240,25,232,160,0,32,240,255
49664 DATA 32,36,234,162,5,230,20,208
49672 DATA 2,230,21,169,34,32,117,194
49680 DATA 76,102,193,32,83,228,88,165
49688 DATA 43,133,95,165,44,133,96,76
49696 DATA 195,166,164,211,177,209,133,206
49704 DATA 16,15,197,199,16,32,169,128
49712 DATA 133,199,169,18,32,117,194,208
49720 DATA 21,197,199,16,9,169,0,133
49728 DATA 199,169,146,32,117,194,165,206
49736 DATA 41,63,201,32,240,17,177,243
49744 DATA 41,15,197,2,240,9,133,2
49752 DATA 168,185,146,194,32,117,194,165
49760 DATA 206,41,63,6,206,36,206,16
49768 DATA 2,9,128,112,2,9,64,201
49776 DATA 34,208,2,169,39,232,157,251
49784 DATA 1,96,160,0,132,207,200,132
49792 DATA 204,152,164,206,174,135,2,76
49800 DATA 22,234,169,0,32,210,255,76
49808 DATA 49,234,144,5,28,159,156,30
49816 DATA 31,158,129,149,150,151,152,153
49824 DATA 154,155,157,34,199,40,49,52
49832 DATA 56,41,34,147,13,13,66,69
49840 DATA 71,73,78,32,80,82,73,78
49848 DATA 84,32,83,84,65,84,69,77
49856 DATA 69,78,84,83,32,65,84,32
49864 DATA 76,73,78,69,58,32,49,48
49872 DATA 157,157,0
49878 REM
50000 REM * * * CHECKSUMS * * *
50010 FORI=49152TO49303:READA:B=B+A:NEXT:IFB<>18503THEN50100
50020 FORI=1TO49455:READA:B=B+A:NEXT:IFB<>39900THEN50100
50030 FORI=1TO49607:READA:B=B+A:NEXT:IFB<>60012THEN50100
50040 FORI=1TO49874:READA:B=B+A:NEXT:IFB<>90020THEN50100
50050 PRINT"DATA OK":END
50100 PRINT"ERROR IN DATA BEFORE LINE":I:STOP

```

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Best of APC

Software for the Commodore 64 by Thomas Quelly

Ever since the existence of software for home computers, consumers have always fallen for what they thought were "good value" books, eg "Ten Thousand Devastating Games for your Commodore 64", only to find that the \$20 or \$30 spent would have been better invested in a head shrink to cure their frustration on finding that 97% of the programs didn't work! It's happened to all of us at some stage.

The other day I was approached by a sales representative from Computer Reporting Services, boasting about a "good value" software package, "Best of APC Software for the Commodore 64". But this WAS different.

The package contains 25 programs written in a fairly legible form, with a reasonable volume of documentation. So what's different? It comes with a tape containing all of the programs already typed in for you. Yes, you read right, already typed in! No more do you have to type for more than six hours only to find a syntax error in line 10.

There is quite a variety of programs in the package, ranging from shoot-em-ups to Tarot card readings. Also included in the 25 programs are a simple word processor, a calendar generator, a database program, and a couple of fairly boring music programs.

Most of the programs are written in BASIC, but a couple do have machine language routines to pep them up a little. The book also includes a handful of interesting pokes and peeks to experiment with.

The first program I tried was "Balloons", a game so commonly found on computers that I guess I would have been shocked not to find it here. An entertaining piece where the player must guide his balloon through a cave, making sure not to touch the walls. How trite.

This game is typical of the games found on the tape. Not quite Sub Logic's Flight Simulator, but what do

you expect for \$19.95? The package also contains a couple of educational programs (a couple too many), one of which draws a map of England and asks you to name the cities – BORING!

The Data Base is a nice little program, for all you Data Set based users. It's a way for you to store phone numbers, birthdays, etc, on your computer.

This review may sound as though I'm criticising the package – not at all. In my opinion this is the best value software package to come out this year for the C64, but just don't expect too much. Most of the action games allow you to use a joystick,

and the speed of movement of the nasties is acceptable. The music programs – well, what can I say? The utilities are very interesting, although maybe not so practical. As for the educational programs, well, the less said the better.

This package is excellent value for money and I would recommend it to anyone considering buying an "el cheapo" program package. For the budding programmer it is fantastic, you can add/modify the programs to create your own masterpieces and at the same time understand how "they" do what you have been trying to do for ages. □

14 FREE PROGRAMS

with each G-Pascal Compiler purchased on disk for the Commodore 64. *

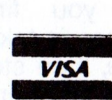
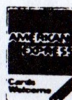
DEMO – G-Pascal demonstration program.
 SUB HUNT – example arcade game (joysticks, paddles or keyboard).
 MODEM64 – data communication program.
 ADVENTURE – Pascal adventure game.
 SPRITE EDITOR – create sprite shapes easily!
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 CENTRONICS PRINT – print G-Pascal programs via parallel port.
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 PRIME NUMBERS – calculate prime numbers quickly.
 PAINT SINGLE – 'fill in' landscapes quickly in single colour hi-res.
 PAINT MULTI – 'fill in' landscapes in multi colour hi-res graphics.
 WORD WRAP – wraps words around at the end of the line.

All of the above programs are supplied free with each purchase of G-Pascal on disk. G-Pascal is available from your local Commodore dealer, Commodore Information Centre Pty. Ltd., or Gambit Games. Recommended retail: \$79.50

* excludes existing older dealer stocks

If you have already purchased G-Pascal these extra programs may be ordered by sending \$20 direct to Gambit Games.

Gambit Games P.O. Box 124, Ivanhoe, Vic. 3079
 Phone: (03) 497 1283.



Adventurer's Corner

by Adam Rigby

If you're always getting hopelessly lost whilst playing adventure games, then read on and discover the secrets that may lead to your success.

To begin mapping, find yourself a large piece of paper and a good pencil. Mark a circle in the centre of the page, then write in the circle the name of the room you start in. Mark in the directions you can travel in as lines connecting this circle with other circles.

Like this:



This means that you can go east from the hall and end up at the dam. To return to the hall, you would not go in the logical direction of west, instead you must go north. Most adventure games are written like this because finding your way around is half the fun.

Another way to map your way around places, especially in complex adventures, is to add numbers to the circles and have another piece of paper on which you write the room numbers, what is found there and any special events that take place. This method is only for the keen, as it takes much patience.

If you find the map-making process is taking you away from the game, then stop there and then and go off exploring at random. You will soon discover what fun it can be to I hope.

Now you've got your map almost finished and you find yourself in a maze. "No worries," you say, "I'll map the maze and eventually get out of it." Not so fast - mazes are tricky things. If you decide the best thing to do is to map the whole episode, then I suggest you buy a few thousand sheets of foolscap paper and heaps of pencils.

Mazes are set out differently from normal areas of the adventure. In some cases the maze is set up so that a combination of moves will set you free, others work on a "wrap-around" principle - so that if you drop something and go east you will see it again in a few moves. The best thing to do in most cases is to discard unwanted objects in the maze as a guide to its dimensions.

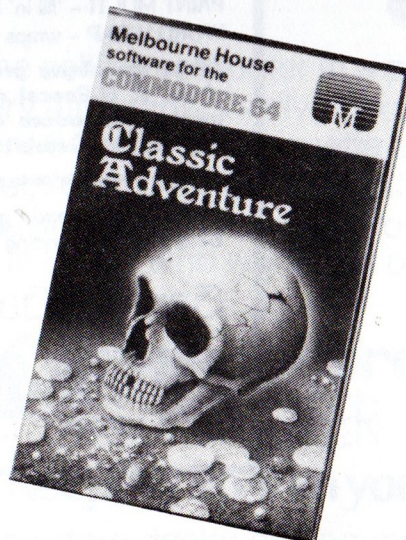
If this gets too much for you, type in "HELP" and hope the computer doesn't reply with "I don't understand the word HELP".

Review:

Classic Adventure

Classic Adventure was the first major computer game, and was the first adventure game I ever played. The game is probably better known as Colossal Caves. It is published by Melbourne House and retails for a small sum of money.

The version I reviewed was on cassette and used "Pavlod", Melbourne House's answer to TurboLoad. The only visible difference is that while the program is loading the screen changes to a moving banner of colour. Melbourne must have taken a shine to the Sinclair Spectrum loading system.



I really enjoyed playing the adventure once again, for last time I didn't get a chance to solve the game, and due to the gap since I played it last, much of it was not familiar. I believe Melbourne House have snuck in a few sneaky new twists which add to the enjoyment.

The command vocabulary is not very large and only allows for two words to be entered at once. Although this may sound restricting to all those avid ZORK players out there, all it does is add to the challenge of the game. Two helpful commands are included, one being "INFO" which basically covers how to play it (shame they didn't put in the documentation) and the other is "HELP" which just gives you a general view of the game.

This is a fantastic beginner adventure game; although it may seem baffling at first, it will increase the novice adventurer's skill tenfold.

I found it very entertaining and enjoyable, and recommend it to beginner and intermediate adventurers.

Please write in - if you have any problems with adventures, or are stuck in a particular place and need help desperately, then enclose a stamped self-addressed envelope and send it to the address on the inside front cover of this magazine. □

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Drawing pictures with a joystick

by Tony Hill

Here is a program, DOODLER, that allows you to draw pictures on the screen using a joystick. It includes extra commands for drawing circles and filling in enclosed shapes. The program can only be run after SCREEN GRAPHICS 64 or ULTRABASIC have been LOADED and RUN first. A hardcopy is possible with ULTRABASIC only. □

DOODLER

```

2 rem doodler by tony hill
3 rem for use with ultrabasic or s9-64
5 clr:restore
10 gosub230
15 x=170:y=100:in=1
20 Print"Want instructions (y/n):"
25 geta$:ifa$=""then25
30 ifa$<"n"then90sub40
35 Printchr$(142):goto265
40 rem instructions
45 norm:Poke53281,0:Poke53280,0
50 Printchr$(14)
55 Print"DOODLER August 1984"
60 Print"
65 Print"Use the joystick to move the Pen around"
70 Print"and draw on the screen. A number of "
75 Print"commands are available. To use these"
80 Print"special commands, you Press the FIRE"
85 Print"button. You will hear a beep. Then Press";
90 Print"the appropriate key (listed below) to use";
95 Print"the special function. If you Press a"
100 Print"wrong button, you will hear two beeps."
105 Print"Press the FIRE button and try again."
110 Print"One beep will sound after Pressing a key";
115 Print"to tell you that you can draw again."
120 Print"PRESS 'C' TO SEE THE FUNCTIONS"
125 geta$:ifa$=""then125
130 Print"Press FIRE, and then any of these buttons";
135 Print
140 Print"KEY FUNCTION"
145 Print"1-9 Chooses a different Pen colour"
150 Print" S Save the Picture to tape"
155 Print" L Load a Picture from tape"
160 Print" C Draw a circle with the centre at "
165 Print" the Pens Point"
170 Print" F Fill an area around the Pen tip"
175 Print" - Erase lines and/or Points"
180 Print" + Cancel ERASE mode. Draw lines as"
185 Print" normal"
190 Print" I Instructions
195 Print" P Printout (Ultrabasic only)"
200 Print" R Reset (restart drawer)
205 Print" Q Quit
210 Print"Press 'C' to continue.
215 geta$:ifa$=""then215
220 ifin=1thenreturn
225 ifin=2then90to395
230 rem opening sequence
235 multil,1
240 char3,0,160,2," DOODLER !"
245 char3,0,90,8," August 1984"
250 fora=1to1500:nexta:norm
255 return
260 end
265 rem

```

```

270 copy4,275:Sprite4,4,0,0,1,1,7
275 bit"000000000000000000001000"
280 bit"0000000000000000000011100"
285 bit"00000000000000000000111100"
290 bit"000000000000000000001111000"
295 bit"0000000000000000000011110000"
300 bit"00000000000000000000111100000"
305 bit"000000000000000000001111000000"
310 bit"0000000000000000000011110000000"
315 bit"00000000000000000000111100000000"
320 bit"000000000000000000001111000000000"
325 bit"0000000000000000000011110000000000"
330 bit"00000000000000000000111100000000000"
335 bit"000000000000000000001111000000000000"
340 bit"0000000000000000000011110000000000000"
345 bit"00000000000000000000111100000000000000"
350 bit"000000000000000000001111000000000000000"
355 bit"0000000000000000000011110000000000000000"
360 bit"00000000000000000000111100000000000000000"
365 bit"000000000000000000001111000000000000000000"
370 bit"0000000000000000000011110000000000000000000"
375 bit"00000000000000000000111100000000000000000000"
380 rem draw routine
385 norm:Print"Plug Joystick into Port #1"
390 fora=1to1000:nexta:Poke198,0:Poke198,10
395 ifin=2then90to415
400 hires1,1:Sprite4,4,0,0,1,1,7:Place4,x,y
405 rem
410 c=2
415 Poke198,0:Poke198,10
420 Place4,x,y
425 Jy=Peek(56321):ifJy=255then425
430 ifJy=254theny=y+1
435 ifJy=253theny=y-1
440 ifJy=251thenx=x-1
445 ifJy=247thenx=x+1
450 ifJy=246thenx=x+1:y=y+1
455 ifJy=245thenx=x+1:y=y-1
460 ifJy=249thenx=x-1:y=y-1
465 ifJy=250thenx=x-1:y=y+1
470 ifJy=239then90to500
475 Place4,x,y:dotx-16,y-45,c
480 rem check Pen limits
485 ifx<17thenx=17:ifx>299thenx=299
490 ify<48theny=48:ify>152theny=152
495 goto425
500 vv=54272:Poke54295,0:Poke54296,15
505 Pokevv+6,8:Pokevv+5,31:Pokevv+1,180:Pokevv+4,33
510 formm=1to100:nextmm
515 Pokevv+4,0
520 Poke54296,0
525 Poke198,0:wait198,1:geta$
530 vv=54272:Poke54295,0:Poke54296,15
535 Pokevv+6,8:Pokevv+5,31:Pokevv+1,180:Pokevv+4,33:
formm=1to100:nextmm
540 Pokevv+4,0:Poke54296,0
545 ifa$="1"thenc=1:goto415
550 ifa$="2"thenc=2:goto415
555 ifa$="3"thenc=3:goto415
560 ifa$="4"thenc=4:goto415
565 ifa$="5"thenc=5:goto415
570 ifa$="6"thenc=6:goto415
575 ifa$="7"thenc=7:goto415
580 ifa$="8"thenc=8:goto415
585 ifa$="9"thenc=9:goto415
590 ifa$="q"thensys64759
595 ifa$="s"then90to690
600 ifa$="-"then90to670
605 ifa$="+"then90to680
610 ifa$="1"then90to700

```



Comparison Chart - Joysticks

Joystick	Distributor	Rec. Retail Price	Construction	Reliability	Handling	Rating x
Wico Command Control	Futuretronics	\$59.95 !!+	*****	*****	*****	*****
Super Stick	OziSoft	\$24.95 !!+	*****	*****	*****	*****
Pro 5000	OziSoft	\$34.95	*****	*****	*****	*****
Pointmaster	Glenwood Speakers	\$39.95	****	****	****	****
Commodore	Commodore	\$12.00	***	**	**	***
Spectravideo Quickshot I	Rose Music	\$19.95	****	**	***	***
Spectravideo Quickshot II	Rose Music	\$24.95	*****	**	*****	*****
Super Champ	Progressive Software	\$24.95 *	****	****	***	****
Boss	Imagineering	\$39.95	*****	****	****	****
Super Joy	G.M.P. Imports	\$18.00	***	**	**	***
Sure Shot	Dolphin Computers	\$29.95 +	*****	*****	*****	*****
Atari	Futuretronics	\$19.95	*****	****	****	****

- x Rating includes value for money
- + Partial steel construction
- !! Contact switches
- * Retractable cord

Compiled by Andrew Farrell and Tom Quelly

PROGRAMMING

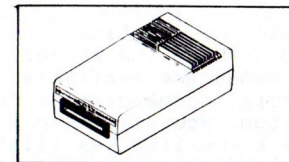
Drawing pictures with a joystick

```

615 ifa$="c"then goto 710
620 ifa$="f"then goto 735
625 ifa$="r"then run
630 ifa$="p"then goto 760
635 ifa$="i"then in=2: goto 45
640 vv=54272:Poke 54295,0:Poke 54296,15
645 Poke vv+6,8:Poke vv+5,31:Poke vv+1,180:Poke vv+4,33
650 for mm=1 to 100: next mm
655 Poke vv+4,0
660 Poke 54296,0
665 goto 525
670 mode 1
675 goto 415
680 mode 0
685 goto 415
690 norm:Print "Press f2 and type a name in quotes & Press return"
695 end
700 norm:Print "Press f4 and type name in quotes to load"
705 end
710 rem circle
715 mode 0
720 norm:Print "Shadius?":inPutr
725 circlex=16.9-45,r,c
730 goto 415
735 rem fill
740 mode 0
745 norm:Print "Scolour (1-15)":inPutc
750 fillx=16.9-45,c
755 goto 415
760 hand(4)
765 goto 415
    
```

ready.

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- * One key inquiry of total monies outstanding to your business
- * Open item or balance forward
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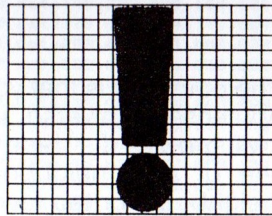
Available from your local dealer.

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Distributed through Ozisoft for Pittwater Distributors

Hammurabi – for beginners

This game is a golden oldie. Here it is again specially for beginners. It is designed to operate on a 40 column screen, so Vic owners may need to crunch things up a fair bit. □



```

100 REM HAMMURABI : PCC
110 REM FIT TO PET BY ANDY GAMBLE 1979
120 REM ALTERED23/12/81.COLUMBIA COLLEGE
130 REM 1619 W10 AVE VANCOUVER BC
140 PRINT{CLR} "CHR$(18)"HAMMURABI"
150 PRINT:PRINT:INPUT"DO YOU NEED INSTRUCTIONS (Y/N) ";Q$
160 IFQ$="N"THEN220
170 PRINTCHR$(147);"HAMMURABI - YOU ARE A KING OF ANCIENT SUMERIA.":PRINT
180 PRINT"THE OBJECT OF THIS GAME IS TO FIND OUT HOW IT WORKS!":PRINT
190 PRINT"(IF YOU WANT TO QUIT, SELL ALL YOUR LAND.)":PRINT:PRINT
200 PRINT"PRESS ANY KEY TO CONTINUE"
210 GETQ$:IFQ$=" "THEN210
220 A1=100:A2=5:A3=0:B1=2800:B2=200:B3=3:B4=3000:C1=1000:J=1
230 PRINTCHR$(147)"HAMMURABI, I BEG TO REPORT THAT LAST YEAR.":PRINT
240 PRINTA3" PEOPLE STARVED AND "A2" PEOPLE CAME TO THE CITY.":
250 IFJ>0THEN280
260 A1=A1-INT(A1/2)
270 PRINT"THE PLAGUE KILLED HALF THE PEOPLE.":
280 PRINT"THE POPULATION IS NOW "A1:PRINT
290 PRINT"WE HARVESTED "B4" KG AT "B3" KG PER HECTARE.":
300 PRINT"RATS DESTROYED "B2" KG LEAVING "B1" KG IN THE STOREHOUSES."
310 PRINT
320 PRINT"THE CITY OWNS "C1" HECTARES OF LAND.":
330 C2=17+INT(6*RND(1))
340 PRINT:PRINT"LAND IS WORTH "C2" KG PER HECTARE."
350 PRINT:PRINT"-----]"
360 PRINT" | POP= "A1;TAB(26); " |"
370 PRINT" | " |"
380 PRINT" | GRAIN= "B1;TAB(26); " |"
390 PRINT" | " |"
400 PRINT" | LAND= "C1;TAB(26); " |"
410 PRINT" | " |"
420 PRINT" | WORTH= "C2*C1;TAB(26)" |"
430 PRINT" |-----]"
440 PRINT:INPUT"HOW MANY HECTARES SHALL WE BUY";I
450 I=INT(ABS(I))
460 IFI=0THEN530
470 J=I*C2
480 IFJ<=B1THEN510
490 GOSUB960
500 GOT0440
510 B1=B1-J
520 C1=C1+I
530 REM
540 PRINT:INPUT"HOW MANY HECTARES SHALL WE SELL";I
550 I=INT(ABS(I))
560 IFI=0THEN630
570 IFI<C1THEN610
580 IFI=C1THEN950
590 GOSUB960
600 GOT0540
610 C1=C1-I
620 B1=B1+C2*I
630 REM
640 PRINT:INPUT"HOW MANY KG SHALL WE DISTRIBUTE AS FOOD";I
650 I=INT(ABS(I))
660 IFI<=B1THEN690
670 GOSUB960
680 GOT0640
690 B1=B1-I
700 A3=A1-INT(I/20)
710 A2=0
720 IFA3>0THEN750
730 A2=-A3/2
740 A3=0
750 REM

```

```

760 PRINT:INPUT"HOW MANY HECTARES SHALL WE PLANT";I
770 I=INT(ABS(I))
780 IFI>C1THEN810
790 J=INT(I/2)
800 IFJ<=B1THEN830
810 GOSUB960
820 GOT0760
830 IFI>10*A1THEN810
840 B1=B1-J
850 B3=INT(5*RND(1))+1
860 B4=B3*I
870 B2=INT((B1+B4)*.07*RND(1))
880 B1=B1-B2+B4
890 J=INT(10*RND(1))
900 A2=INT(A2+(5-B3)*B1/600+1)
910 IFA2<=50THEN930
920 A2=50
930 A1=A1+A2-A3
940 GOT0230
950 END
960 REM ERROR SUBROUTINE
970 PRINT:PRINT"HAMMURABI! THINK AGAIN!"
980 PRINT"YOU HAVE ONLY "A1" PEOPLE AND "B1" KG
    IN THE STOREHOUSES.":PRINT
990 RETURN

```

READY.

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Life in a culture dish

by M. Zolin

This time you don't shoot them up - or down. They are born or die according to strict laws of nature. You take the part of nature and set the laws. Then you plant the spores and watch the population grow. Maybe your bag is growing crystal lattices rather than bacterial cultures? Simple, just change the conditions and watch the crystals grow.

You don't like the way things are going in your creation? The joystick will let you get there and stir things up or quieten them down.

The program's idea comes from one by a gentleman called John Conway who wrote it up in the "Scientific American" some years

back. The point of it is that you set up a computerised universe in which "cells" will grow or die depending on the state of their neighbours. Too many neighbours or too few and the cell dies of pollution or loneliness. A new cell can be born if an empty space is surrounded by the right number of neighbors. In the program, the player sets five parameters:-

overcrowding point - the cell dies if its counted neighbours equal or exceed this figure;

loneliness point - the cell also dies if it has less than this number of neighbours;

a new cell will be born if it has exactly the number of neighbours in the promiscuity or familiarity figures.

A joystick in port 2 allows placing of new cells by the player. The first playing screen is static and lets the player set up a pattern. The space bar gives access to the dynamic screen in which nature (and your joystick) take over.

R resets to the static screen. Q returns to BASIC. Don't be afraid to experiment with variations in the parameters - even if they make no sense in this universe. You can preset how the neighbours will be counted. The four cells in a cross about the cell to be tested are polled automatically. You can set how many of the diagonals will be polled with the "head count".

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Some ideas

High birth rates (promiscuity = 2, familiarity = 3) and low death rates (overcrowding = 5 or greater, loneliness = 1) will give maze patterns.

Medium birth and death rates – like the defaults – give travelling patterns.

A promiscuity figure of 1 gives crystals or mosaics.

Dying cells turn into stars before disappearing and new cells are born as dots. The joystick shows a cursor. When the cursor lands on a live cell, that cell is prevented from dying. It lets you anchor a pattern. □

```

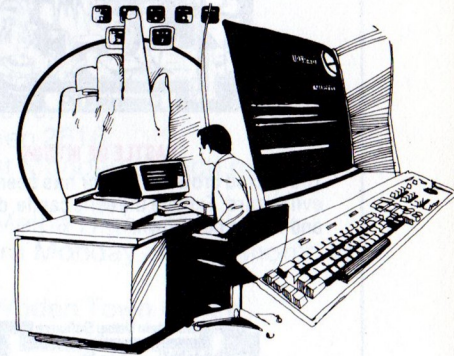
1 rem "
2 rem " | life in a culture dish
3 rem " |
4 rem " | (<C> Copyright 1984 by
5 rem " | Mario Zolin
6 rem " |
7 rem " |
8 :
9 data076,071,065:rem jmp start
10 data000,000,011,007,011,007,000,000
11 data003,002,004,001,000,138,072,152,072,173
12 data000,220,160,000,162,000,074,176,001,202
13 data074,176,001,232,074,176,001,136,074,176
14 data001,200,074,140,009,064,142,010,064,104
15 data168,104,170,096,189,167,066,133,251,133
16 data253,169,004,029,192,066,133,252,041,003
17 data009,216,133,254,096,162,000,169,032,157
18 data000,004,157,000,005,157,000,006,157,231
19 data006,202,208,239,169,000,141,032,208,141
20 data033,208,169,142,032,210,255,169,008,032
21 data210,255,096,072,201,002,144,007,201,038
22 data176,018,104,024,096,173,009,064,048,007
23 data104,024,109,009,064,056,096,104,056,096
24 data173,009,064,016,248,048,239,072,201,003
25 data144,007,201,023,176,018,104,024,096,173
26 data010,064,048,007,104,024,109,010,064,056
27 data096,104,056,096,173,010,064,016,248,048
28 data239,072,169,000,141,205,064,169,016,141
29 data206,064,206,205,064,208,251,206,206,064
30 data208,246,104,096,000,000,174,007,064,172
31 data008,064,032,055,064,177,251,201,032,240
32 data004,201,043,208,010,169,043,145,251,169
33 data003,145,253,208,008,169,087,145,251,169
34 data003,145,253,032,016,064,176,008,169,081
35 data145,251,169,005,145,253,138,142,005,064
36 data032,148,064,176,004,024,109,010,064,141
37 data007,064,152,140,006,064,032,114,064,176
38 data004,024,109,009,064,141,008,064,096,174
39 data005,064,172,006,064,032,055,064,177,251
40 data201,043,208,005,169,032,145,251,096,201
41 data087,240,004,201,081,208,008,169,081,145
42 data251,169,005,145,253,096,032,076,064,162
43 data012,142,007,064,142,005,064,160,020,140
44 data008,064,140,006,064,032,207,064,032,182
45 data064,032,034,065,032,228,255,240,242,201
46 data004,024,109,009,064,141,008,064,096,174
47 data076,210,065,162,002,160,001,032,055,064
48 data177,251,201,081,240,010,201,087,240,006
49 data201,032,240,232,208,023,032,240,065,173
50 data003,064,205,014,064,144,008,205,013,064
51 data176,003,076,164,065,169,042,145,251,032
52 data107,066,176,004,200,076,122,065,032,092

```

```

53 data066,032,115,066,176,006,160,001,232,076
54 data122,065,032,228,255,201,081,240,013,201
55 data082,240,006,032,123,066,076,118,065,076
56 data071,065,076,114,065,032,240,065,173,003
57 data064,205,012,064,240,008,205,011,064,240
58 data003,076,237,065,169,046,145,251,169,005
59 data145,253,076,164,065,169,000,141,003,064
60 data173,015,064,141,004,064,138,072,152,072
61 data202,032,071,066,232,200,032,071,066,136
62 data232,032,071,066,202,136,032,071,066,200
63 data173,004,064,240,039,202,136,032,071,066
64 data206,004,064,240,029,232,232,200,200,032
65 data071,066,206,004,064,240,017,202,202,032
66 data071,066,206,004,064,240,007,232,232,136
67 data136,032,071,066,104,168,104,170,032,55
68 data064,096,032,055,064,177,251,201,081,208
69 data004,238,003,064,096,201,087,208,003,238
70 data003,064,096,138,072,152,072,032,034,065
71 data032,207,064,104,168,104,170,096,192,038
72 data240,002,024,096,056,096,224,023,240,002
73 data024,096,056,096,162,002,160,000,032,055
74 data064,200,032,146,066,032,107,066,144,247
75 data032,115,066,232,144,236,096,177,251,201
76 data042,240,005,201,046,240,006,096,169,032
77 data145,251,096,169,081,145,251,096,000,040
78 data080,120,160,200,240,024,064,104,144,184
79 data224,008,048,088,128,168,208,248,032,072
80 data112,152,192,000,000,000,000,0,0
81 data001,001,001,001,001,001,002,002,002,002
82 data002,002,002,003,003,003,003,003
90 :
100 n=4*4096:cs=0:printchr$(147)chr$(142)chr$(8)
102 print " chr$(165) " chr$(125) " chr$(111) " chr$(111)
104 print " chr$(165) " chr$(125) " chr$(111) " chr$(111)
106 print " chr$(108) " chr$(125) " chr$(165) " chr$(108) in a culture dish"
108 print:print:print " loosely based on the concept of "
110 print:print " the game of life" by john conway "
112 forc=1to9:print:next
114 printtab(11)"7.5 seconds to load"
116 forn=nto17112:read atcs=cs+a
118 poke n,a:next
120 if cs(<)75399 then print"data entry error"
122 printchr$(145)chr$(145):forc=1to30:print " ":next:print
124 printtab(17)chr$(5)"loaded"chr$(154)
126 print:print tab(8)"any Key to enter the dish":ba$=chr$(125)
128 wait198,1:poke198,0
130 printchr$(147)chr$(117):forc=1to37:printchr$(96):next:printchr$(105)
132 printbar$spc(13)"house rules"spc(13)bar$
134 forc=1to3:gosub1000:next
136 printbar$ overcrowding Kills"tab(38)bar$:gosub1000
138 printbar$ loneliness Kills"tab(38)bar$:gosub1000:gosub1000
140 printbar$spc(5)"familiarity breeds"tab(38)bar$:gosub1000
142 printbar$spc(5)"promiscuity breeds"tab(38)bar$:gosub1000:gosub1000
144 printbar$ but it depends on how you count"tab(38)bar$:gosub1000
146 printchr$(106):forc=1to37:printchr$(96):next:printchr$(107)
148 forc=1to3:printspc(10)chr$(18)chr$(18)tab(28)chr$(182):next
150 print:printchr$(18)"tap a Key"
152 wait198,1:poke198,0
154 printchr$(147):print:print " your credentials please ":print:n=4*4096
156 rem "■■■■" indicates 3 cursor left characters
158 input "overcrowding tolerance (1 to 7) 3■■■■":i:poKen+13,i:print
160 input "loneliness tolerance (1 to 7) 2■■■■":i:poKen+14,i:print
162 input "familiarity rating (1 to 4) 2■■■■":i:poKen+11,i:print
164 input "promiscuity rating (1 to 4) 2■■■■":i:poKen+12,i:print
166 input "poll head count (0 to 4) 4■■■■":i:poKen+15,i
168 print:print:print " joystick in port 2, move normally.
170 print:printtab(22)"fire a cell
172 printtab(22)"make a pattern
174 print:printtab(22)"[ space ] start
176 printtab(22)"[r] set
178 printtab(22)"[q] quit
180 printchr$(18)"tap a Key"
182 wait198,1:poke198,0
184 sys4*4096
186 printchr$(19):ford=1to3:forc=1to37:print " ":next:print:next:printchr$(19):
188 print " why not try a little [v]ariation "
190 print:printspc(19)"or [s]quib out
192 geta$:ifa$(<)"s"anda$(<)"v"then192
194 if a$="v"then154
196 end
1000 printbar$spc(37)bar$:return
59999 end
60000 n$="data life":s$="s":+n$
60001 open15,8,15,s$:input#15,a,b$,c:printb$:c:print "saving"
60003 save n$,8:input#15,a,b$:print"saved"b$:print "verifying":
60005 verify n$,8
60007 input#15,a,b$,c,d:print"status ":a;b$:c;d
60009 close15:end

```



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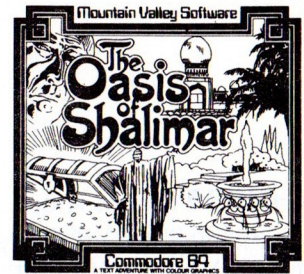
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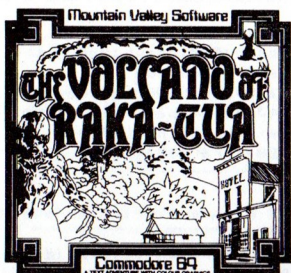
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User Group Grapevine



Ever wondered how you can get access to all that public domain software everyone keeps talking about? A good start is to join your local User Group. Where they meet and who to contact will now appear regularly in the following column. If you run a User Group please don't hesitate to let us know the above details along with any special up and coming events.

Sydney

Sydcom 64,
PO Box 586,
Mona Vale 2103.

Time: 2nd Tuesday of each month at 6.30 pm.

Place: YWCA (4th Floor).

Contact: Secretary, Michael Stead on 99-3370 (between 4 and 6 pm).

Activities: Monthly newsletter - "Peripheral".

NSW

Southern Districts C.U.G.
3 Lucille Crescent,
Casula, NSW 2170.

Time: 1st and 3rd Wednesday of each month at 6.30 pm.

Place: API Hall, Kurrajong Rd, Prestons. (Next to 2FC Tower.)

Contact: Lex Toms (02) 6028691

Queensland

CCUG (Q), PO Box 274,
Springwood 4127.

Time: 1st Tuesday of each month at 7.30 pm.

Place: Milton State School.

Activities: Monthly workshop and newsletter.

ACT

Commodore User Group (ACT),
PO Box 599,
Belconnen 2616.

Time: 1st Monday of each month at 7.30 pm.

Place: Melba High School.

Time: 3rd Monday of each month at 7.30 pm.

Place: Woden Town Centre Library.

Western Australia

Western Australia Commodore
Computer Users Association
- WACCUA,
P.O. Box 31,
Leederville, WA 6007
(09) 381 2988

Time: 1st and 3rd Monday of each month.

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Life Expectancy

by Andy Gamble

This program will run on any 40 column Commodore.



```

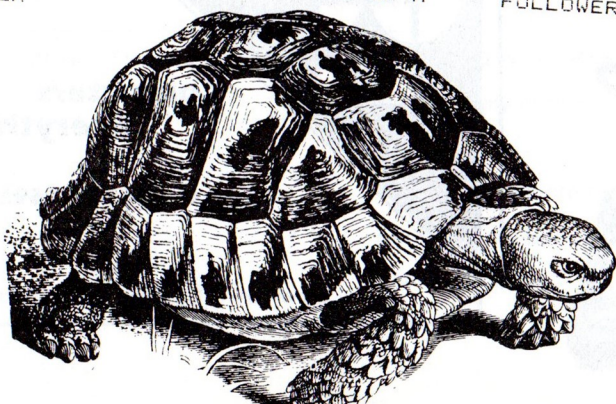
100 REM LIFE EXPECTANCY
110 REM CC BOOK 2
120 REM FIT TO PET BY ANDY GAMBLE SEPT 79
130 REM COLUMBIA COLLEGE
140 REM 1619 W10 AVE VANCOUVER BC
145 PRINTCHR$(14):POKE59468,14
150 PRINTCHR$(147);" (RVON)LIFE EXPECTANCY":PRINT:PRINT:PRINT
160 RESTORE
170 PRINT"THIS IS A TEST TO PREDICT HOW LONG YOU'LL LIVE. ";
180 PRINT"I'LL ASK YOU A SERIES OF SHORT QUESTIONS, ";
190 PRINT"WHICH YOU WILL ANSWER BY PRESSING THE APPROPRIATE KEY.":PRINT
200 PRINT" (RVON)DO NOT PRESS RETURN"
210 PRINT:PRINT:PRINT
220 R5=1
230 Z=72:A$="ABCDEFGHIJKLFNQ"
240 GOTO1440
250 R5=R5+1
260 IFR5>21THEN1620
270 DATA"+++++SEX+++++"
280 DATA"ARE YOU MALE OR FEMALE?"
290 DATA"M=MALE"
300 DATA"F=FEMALE"
310 DATA2,"MF"
320 DATA"+++++LIFE STYLE+++++"
330 DATA"WHERE DO YOU LIVE?"
340 DATA"G=CITY OVER 2 MILLION"
350 DATA"K=TOWN UNDER 10 000, OR A FARM"
360 DATA"I=NEITHER"
370 DATA3,"GKI"
380 DATA"+++HOW DO YOU WORK?+++"
390 DATA"M=DESK WORK"
400 DATA"L=HEAVY PHYSICAL LABOUR"
410 DATA"I=NEITHER"
420 DATA3,"MLI"
430 DATA"HOW LONG DO YOU EXERCISE STRENUOUSLY:"
440 DATA"(TENNIS, RUNNING, ETC)?"
450 DATA"F=5TIMES A WEEK FOR AT LEAST HALF AN
460 DATA"K=2 OR 3 TIMES A WEEK" HOUR"
470 DATA"I=NEITHER"
480 DATA3,"FKI"
490 DATA"+++WHO DO YOU LIVE WITH?+++"
500 DATA"N=SPOUSE,FRIEND OR FAMILY"
510 DATA"H=LIVED ALONE FOR 1-10 YEARS"
520 DATA"G=LIVED ALONE FOR 11-20 YEARS"
530 DATA"M=LIVED ALONE FOR 21-30 YEARS"
540 DATA"E=LIVED ALONE FOR 31-40 YEARS"
550 DATA"D=LIVED ALONE FOR MORE THAN 40 YEARS"
560 DATA6,"NHGMED"
570 DATA"+++++PSYCHE+++++"
580 DATA"DO YOU SLEEP MORE THAN 10 HOURS A
590 DATA"I=NO" NIGHT?"
600 DATA"E=YES"
610 DATA2,"IE"
620 DATA"+++++MENTAL STATE+++++"
630 DATA"M=IF YOU ARE INTENSE,AGGRESSIVE OR
640 DATA"L=IF YOU ARE EASY-GOING, RELAXED OR A
650 DATA"I=NEITHER" EASILY ANGERED FOLLOWER"

```

```

660 DATA3,"MLI"
670 DATA"+++++HOW YOU FEEL+++++"
680 DATA"ARE YOU HAPPY OR UNHAPPY?"
690 DATA"J=HAPPY"
700 DATA"G=UNHAPPY"
710 DATA"I=NEITHER"
720 DATA3,"JGI"
730 DATA"+++++FACTORS+++++"
740 DATA"HAVE YOU HAD A SPEEDING TICKET IN THE
LAST YEAR?"
750 DATA"H=YES"
760 DATA"I=NO"
770 DATA2,"HI"
780 DATA"+++++INCOME+++++"
790 DATA"DO YOU EARN MORE THAN $50 000 A YEAR?"
800 DATA"G=YES"
810 DATA"I=NO"
820 DATA2,"GI"
830 DATA"+++++SCHOOLING+++++"
840 DATA"J=FINISHED COLLEGE"
850 DATA"L=GRADUATE OR PROFESSIONAL DEGREE"
860 DATA"I=NEITHER"
870 DATA3,"JLI"
880 DATA"+++++AGE+++++"
890 DATA"ARE YOU 65 OR OLDER AND STILL WORKING?"
900 DATA"L=YES"
910 DATA"I=NO"
920 DATA2,"LI"
930 DATA"+++++HEREDITY+++++"
940 DATA"K=IF ANY GRANDPARENTS LIVED TO 85
950 DATA"Q=IF ALL GRANDPARENTS LIVED TO 80
960 DATA"I=NEITHER"
970 DATA3,"KOI"
980 DATA"HAS ANY PARENT DIED OF A STROKE"
990 DATA"OR HEART ATTACK BEFORE THE AGE OF 50"
1000 DATA"E=YES"
1010 DATA"I=NO"
1020 DATA2,"EI"
1030 DATA"+++FAMILY DISEASES+++"

```



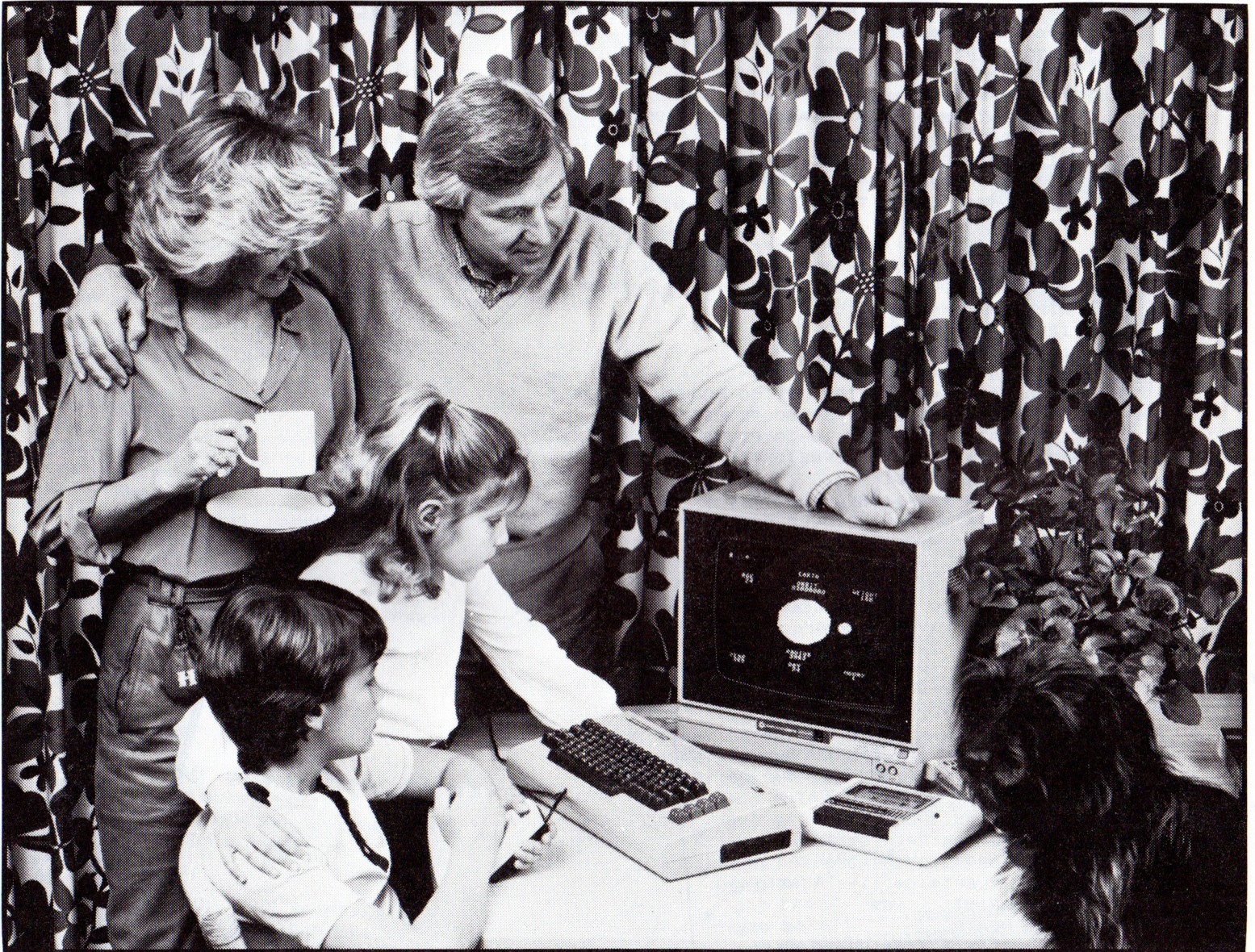
PROGRAMMING

```
1040 DATA"ANY PARENT, BROTHER OR SISTER UNDER 5 HAS (OR HAD):"  
1050 DATA"CANCER, A HEART CONDITION OR DIABETES SINCE CHILDHOOD?"  
1060 DATA"M=YES"  
1070 DATA" I=NO"  
1080 DATA2,"MI"  
1090 DATA"++++HEALTH++++"  
1100 DATA"HOW MUCH TOBACCO DO YOU SMOKE?"  
1110 DATA"A=MORE THAN 2 PACKS A DAY"  
1120 DATA"C=1 TO 2 PACKS A DAY"  
1130 DATA"M=ONE HALF TO ONE PACK A DAY"  
1140 DATA" I=DON'T SMOKE"  
1150 DATA4,"ACMI"  
1160 DATA"+++++DRINK+++++"  
1170 DATA"DO YOU DRINK THE EQUIVALENT OF A "  
1180 DATA"QUARTER BOTTLE OF LIQUOR A DAY?"  
1190 DATA"H=YES"  
1200 DATA" I=NO"  
1210 DATA2,"HI"  
1220 DATA"+++++WEIGHT+++++"  
1230 DATA"A=OVERWEIGHT BY 50 POUNDS OR MORE"  
1240 DATA"E=OVER BY 30-50 POUNDS"  
1250 DATA"G=OVER BY 10-30 POUNDS"  
1260 DATA" I=NOT OVERWEIGHT"  
1270 DATA4,"AEGI"  
1280 DATA"+++++CHECK-UPS+++++"  
1290 DATA"IF A MALE OVER 40: DO YOU HAVE AN ANNUAL CHECK-UP?"  
1300 DATA"K=YES"  
1310 DATA" I=NO OR NOT A MALE OR UNDER 40 YEARS OLD"  
1320 DATA2,"KI"  
1330 DATA"IF A WOMAN: DO YOU SEE A GYNECOLOGIST ONCE A YEAR?"  
1340 DATA"K=YES"  
1350 DATA" I=NO OR NOT A WOMAN"  
1360 DATA2,"KI"  
1370 DATA"+++++CURRENT AGE+++++"  
1380 DATA"I=UNDER 30"  
1390 DATA"K=BETWEEN 30 AND 40 YEARS OLD"  
1400 DATA"L=BETWEEN 40 AND 50 YEARS OLD"  
1410 DATA"F=BETWEEN 50 AND 70 YEARS OLD"  
1420 DATA" N=OVER 70"  
1430 DATA5,"KLFNI"  
1440 READQ$:PRINTQ$:PRINT  
1450 FORQ=2TO7:READQ$  
1460 IFLEFT$(Q$,1)=" "THEN1490  
1470 PRINT" ";Q$  
1480 NEXTQ  
1490 PRINT" ";Q$:READC,C$  
1500 PRINT"CHOOSE ONE OF THE LETTERS ABOVE";  
1510 GETG$:IFG$=""THEN1510  
1520 PRINTG$  
1530 FORC=1TOC  
1540 IFLEFT$(G$,1)=MID$(C$,C2,1)THEN1570  
1550 NEXTC2  
1560 PRINT"(C/UP)(C/UP)":GOTO1500  
1570 PRINTCHR$(147):PRINT:PRINT  
1580 FORN=1TO15  
1590 IFLEFT$(G$,1)=MID$(A$,N,1)THEN1610  
1600 NEXT  
1610 M=N-9:Z=Z+M:GOTO250  
1620 PRINT:PRINT:PRINT"YOU ARE EXPECTED TO LIVE TO THE AGE OF "Z" YEARS.  
1630 IFZ<60THEN1700  
1640 FORY=60TOZSTEP5  
1650 READM$,F$  
1660 NEXTY  
1670 DATA"26%","15%","36%","20%","48%","30%","61%","39%"  
1680 DATA"75%","53%","87%","70%","96%","88%","99.9%","99.6%"  
1690 PRINT"OUT-LIVING "M$" OF THE MEN AND "F$" OF THE WOMEN."  
1700 FORI=1TO9:GETAA$:NEXTI  
1710 PRINT:PRINT:PRINT"ANOTHER RUN (Y/N)?";  
1720 GETAA$:IFAA$=""THEN1720  
1730 PRINTAA$:IFAA$="Y"THEN110  
1740 END
```

READY.



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View from the Hold

The news that David "Old China Hand" Harvey is leaving Commodore comes as a sadness to all of us rats in the hold. The story is that he is moving to fresh fields and woods new at the "Sydney Morning Herald" where he will be involved in the computer page. Now, by a strange coincidence, it appears that the august publisher of this magazine has moved his allegiance from "The Australian", where his Saturday column was replaced with useful information about kites, to the "Sydney Morning Herald" where his artificial pearls of wisdom will appear every Monday morning. Is there some sinister plot here, we wonder? Or is it just one of those coincidences that happen every day of the week. Perhaps.

But consider this. David "Old China Hand" Harvey was brought up in Hong Kong and speaks Cantonese. Stephen Hutcheon, the computer editor of the "Sydney Morning Herald", was also brought up in Hong Kong, where his father is the editor of the "South China Morning Post". And the publisher of this magazine has lived in Hong Kong most of his life and, when discussing trivia with David Harvey (and their conversations consist of little else) talks in Cantonese.

Now do you feel there is some deep laid sinister plot? Certainly it is not something that can easily be explained away. Especially to a suspicious rat such as myself.

Scoop

It was interesting for this rat to observe the other Australian computer magazines proudly proclaiming scoop reviews of the Commodore Plus 4 and the Commodore 16. In both cases the reviews were rewrites of articles that appeared in England and, in the case of the Plus 4, the review was wrong. Because the final shape and style of that machine has still not been decided and what we will see on the Australian market may be a totally different machine.

Will the magazine concerned then blush, hang its head in shame and

confess all to its readers? Certainly not. They will brazen it out in a style reminiscent of that used by the publisher of this magazine when he announced that Nigel Shepherd as a professional footballer had played for Arbroath. He was wrong. The team was Airdrie United.

Different trends

If you are keeping up with the Commodore the Commodore is keeping up with you. I have never been over enthusiastic about that advertising campaign although, if the proof of the pudding is in the eating, then the fact that Commodore is the best selling personal computer in Australia by a country mile must over-ride my ratty opinion.

But I am not alone in this view and you can expect to see a radically new approach to advertising from Commodore Australia in the next few months. The success of the starter pack, which sold 10,000 units in three days and had demand far outstripping supply, made the Commodore management wildly excited.

Now that Commodore is moving to larger and more palatial premises they are obviously going to go flat out to increase their total sales. Not, I think, their percentage hold of the personal computer market - that is already dangerously high - but rather their number of profitable sales.

This rat has several spies within the Commodore organisation, and the current game plan is to keep the Commodore 64 much the same for the conceivable future. This makes good sense, as it is a stunning computer which offers more for the dollar than any other. The Commodore 16 will fit into a sort of Vic 20 slot and there will be a totally separate drive for the business market.

The machines will be very different - the Commodore version of the Bytec Hyperion should create some stir - and the style of selling will be different. It would not surprise this rat in the slightest if even the dealers were totally different. The sort of



dealer who can happily handle the starter pack may not be able to fully service a customer who is looking for a complete business package built around a 16 bit machine.

This rat sees these trends and these directions. And this rat is willing to take a small bet in Bodalla cheese that he is not a million miles away from the truth.

Video tape

This rat has seen a video camera that will fit on to the Commodore 64. The results were not as sharp as they might be and there are obviously some snags to be ironed out. But whereas I don't think the Commodore colour printer is ever going to get off the ground in its present form - they'll wait for the lasers instead - I can see that a video camera is going to be available certainly by the middle of next year. If that is possible then the linking of a Commodore to a video player is feasible. (Feasible, be damned. We've already done it to test a program called ExpandoVision, about which more in the next issue.)

If all of this is likely and possible and you are still with me, then consider the amount of information that could be stored on a standard video tape. It would be measured in Gigabytes rather than Megabytes. And a tape costs, say, \$15. And any VTR can search from one end of the tape to the other in under five minutes. Obviously laser memories on disks are on the way in, but I have heard murmurs down in the hold that the logical extension of using a sound cassette on which to save information is the video tape. □

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