

Commodore NETWORK AUSTRALIA

Vol 5 No 2 February 1996

SUPPORTING THE 8 BIT RANGE OF COMMODORE COMPUTERS

NEWSWATCH

JDB SHIFT HOUSE

JDB Software, Australian distributor of Loadstar and several American software titles, has moved! Their new address is: JDB Software, P.O. Box 621, Cobram, Vic. 3644. Phone: (058) 76 2200. John Buckingham, JDB's proprietor, and his family have moved into the Cobram district because of increased work opportunities. As a result, John will be taking a greater involvement in C.N. in the future.

ALTERNATIVE SOFTWARE FOR SALE

Heath Kirby Miller, Alternative Software's proprietor, has announced that he is selling his P.D. library! Recent enrolment in, and the added strain of University education has forced Heath to re-evaluate his priorities, and unfortunately (for C64 users), Alternative Software was the loser. All enquiries should be sent to: Heath Kirby Miller, RMB 221 Sunraysia Highway, Stuart Mill, Vic. 3478

MODPLAYER

Nate Dannenberg has announced a new MODplayer program, due out in a month or so. This program is for the C128 with an REU, and plays Amiga MOD.* NST.* and *.MOD files. Four track, 15 or 31 samples, and up to 64 patterns. If you have stereo SID chips, the program operates in true stereo, using standard Amiga LRRL positioning. The creator has apparently managed to squeeze 8.2KHz out of the program, and it runs in 8 bit resolution (mono or stereo) using Pulse Width Modulation and a controllable filter, as well as 4 bit resolution (STEREO only) using the standard \$D418 method of digitised music (8580 volume fix installed). The programmer Hopes that by the time this is ready to go out, it will also have the drivers done for accessing Shaun "Tesla" Halstead's SID-Surround (24 track) sound card, as well as my own 16 bit 4 channel digiboard. This software will be available from Threshold Productions. Contact Jonathon Mines, manager of Threshold for help and ordering info at: Threshold Productions, 17730 15th Ave. NE, Seattle, WA 98155, U.S.A.

THE WAVE

The Wave is a new GEOS terminal program being worked on by the inimitable Maurice Randall. It will be designed to enable users to surf the Net and Web and view the graphics, etc. Basically, its a brand new GUI for the Commodore with 14.4+ baud rates, graphics, etc. Apparently, Maurice is working on the bugs right about now, and will be releasing a freeware version soon. A full-fledged commercial version should then follow within a few months. Naturally, it will be much more capable and have lots more bells and whistles. C.N. is hoping to source the shareware version as soon as possible and to make it available on a future Disk-Coverer.

SUPERCPU 64/10 MODEL CANCELLED

In a press release recently supplied by CMD, the following was announced: Advanced orders for the SuperCPU have been instrumental in helping us track the demand for this product. Due to the extremely low percentage of orders we have received for the 10 MHz version of this product, however, we cannot justify the extra costs involved in stocking parts for this version. We have therefore decided to eliminate the 64/10 mhz model, and from this point forward we will only accept orders for the 64/20 mhz model.

SUPERCPU 128 ANNOUNCED

CMD went on to announce:

The most significant announcement is that we have determined that a C-128 version of the accelerator will be released. This decision has been based on the overwhelming number of requests we have received from C-128 users. Due to this response, we are confident that sufficient demand for a 128 version exists, and that we can justify the expense associated with its development. The specifications of the C-128 version will be virtually identical to its C-64 counterpart, and will support both C-64 and C-128 modes.

Naturally, the SuperCPU 128 will have additional RAM, ROM and custom logic to support these capabilities.

In order to accommodate the development of the C-128 version, our engineers have had to alter their initial development schedule to allow additional time to co-develop portions of the C-128 version. Due to this we estimate that an additional six to eight weeks will be required, which will push initial deliveries for the C-64 version into April (the C-128 version should be available approximately 90 days later).

The main thrust of this co-development is to attempt to utilize the same PC board for both the C-64 and C-128 versions. If we are successful with this approach, we can reduce the overall development cost of the C-128 version by amortizing many of the fixed costs associated with the design and production over both versions.

While we may be able to use the same circuit board for both units, the chip sets for the two versions will be substantially different, and this may prohibit our ability to upgrade a 64 version to a 128 version. In addition, the extra circuitry required to produce the C-128 version may effect the retail price of this unit by as much as U.S.\$100.00. Our goal is to keep the cost of the C-128 version below U.S.\$300.00, but a firm estimate will not be available until later in the development cycle. Until then, we will not be taking advanced orders on the C-128 version.

With the additional development time we believe that both the C-64 and C-128 versions will benefit. This time allows us to explore the possibility of additional features and capabilities which had previously been scrapped due to the tight development schedule. Additional information will be released as we are able to confirm the feasibility of these additional features.

Although we're disappointed that our initial production schedule for the C-64 version cannot be met, we're excited about the potential this decision brings to the Commodore market. By supporting the C-128 platform, we believe that we will see more third party development as a whole, which will benefit both C-64 and C-128 users by further strengthening our market.

Any questions concerning the SuperCPU series products should be channelled to CMD via mail or E-mail using the addresses listed below.

We will not be fielding questions about these products by phone until such time as the designs have been finalized.

Mail Inquiries:

SuperCPU Inquiries, c/o Creative Micro Designs, Inc., P.O. Box 646, East Longmeadow, MA 01028-0646, U.S.A.

E-Mail (Internet):

cmd.support@the-spa.com (Technical Info)

cmd.sales@the-spa.com (General Info)

Commodore NETWORK

AUSTRALIA

SUPPORTING THE 8 BIT RANGE OF COMMODORE COMPUTERS

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Welcome to another month's Commodore Network. I hope you like what we've got in store for you this time around! Before I get on to other matters, in last month's "Letters Link" column, we published a list of some Commodore 8-bit specific publications (disk and paper based) that we knew of. Amongst these was Loadstar, for which we published the American address, but not that of local distributor, JDB software. The reason was simple. We knew they were moving down here to sunny Cobram town, and simply did not know their new Post Box number. For those interested, JDB's new address is:

JDB Software, P.O. Box 621, Cobram, Victoria, 3644
Phone: (058) 76 2200

Speaking of Loadstar, next months edition of Network will be our first "special edition". We will be carrying several Loadstar articles and hopefully include a specially produced Loadstar demo disk containing a selection of programs from past Loadstar issues. This disk should be something of a collector's item as it will be exclusive to C.N. subscribers.

MISSING DISKS

We've received numerous enquiries regarding the missing disks that everyone expected with last months "twin" issues. We were expecting to send out the relevant disks with the two magazines (hence the "Magnetic Media" and "Do Not Bend" stamps on the envelopes), but they were still unavailable at a time when we felt that we could not wait any longer for them, and C.N. was posted out alone.

My apologies for the confusion, but they will be sent with the first available issue of C.N. after they are received here in Cobram.

THE WRITE STUFF

We have finally got this powerful wordprocessor in stock (see ad this issue), along with its associated programs, The Illustrator, The Illustrator II, BB Speller, BB Talker, and Reading Teacher. These are now available, and full reviews will appear over coming issues. We have also acquired several P.D. items associated with TWS, and these will appear on the upcoming Disk-Coverer disks for those who already own this program, and for those that may choose to purchase it. I hope to be able to offer the latest P.D. updates and add-ons for these programs as an ongoing thing on our disks in future.

FEATURE ARTICLES

Two feature articles appear in this months CN. They are "Feeding The 64" by Peter Boothman, and an article taken from Loadstar which we've retitled "Using Maverick with GEOS". Naturally, Loadstar were kind enough to give us permission to reproduce this through their Australian distributors, JDB Software.

The first article outlines a number of places where us diehard Commodore 8-bit users can find support in Australia, and offers a few hints and tips on saving yourself a little unnecessary expenditure. It mainly concentrates on hardware for this month, but a follow-up article concerning software should appear in the April edition.

The second article, "Using Maverick with GEOS" was such a nice little article that, when it was offered for use in CN, I jumped at the chance. It not only gives a good description of Maverick, that doyen of archiving utilities, and its ability to work both with and on GEOS, but also on using Maverick's Track and Sector editor. Many readers seem to find these just a little daunting, and I hope to have a short series of articles ready shortly on not only the uses of, and the using of Track and Sector Editors, but also of any number of Computer tools which one may use. If anyone out there has a suggestion or two for something to be covered in these articles, please let me know.

I'd also be interested in in-depth articles on the use of any widely used application or utility, tips and tricks in their use, shortcuts, and anything else which could help a novice user get the most from a particular piece of software. If you feel that you can offer something suitable, please write.

VENTURING INN AND ON THE SCENE

I have just received a letter of resignation from long-time writer, Heath Kirby Miller, who has been forced to give up writing these two columns because of study commitments. I am now seeking a new writer for either or both, and am inviting applications. If you are interested and feel you can contribute, please let me know!

Warney

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I first wrote about GEOS games {with screen pictures}, in 1993 for the 'Bits And Bytes' Newsletter of the local Commodore [now renamed Combined] Club {SACCUG} that I have been a member of since 1987. Over the months from Nov93 through to, and including Apr94, I covered various styles of Public Domain GEOS games. I thought it was about time to bring them to the general populace {being CN readers}.

INTRODUCTION

Most users when they try GEOS, don't get past the Boot disk, others get no further than geoPaint and geoWrite, and making Work disks, or not making Work disks, as the case may be. By now, some of you GEOS users can already recognize yourselves in these words. If that is the case, it is sad indeed. There is a whole world out there that you haven't bothered to think about !.

No-one can give you imagination of course, you either have it or you don't. What you don't know about, are GEOS Games. That's right, games !. So, you thought it was only productivity and creativity that

GEOS offered. No way, some of us GEOS users muck around with games too !.

There are many, and I mean many, GEOS games, both in the Public Domain, and in Commercial packages. Some of the games are



exceptional. You may not be able to find all the games to be mentioned, but certainly, some will be around. Remember though, you must be using GEOS to play any of the games. In the following columns I will be discussing the PD games you can come across.

GEOS GAMES - PART 1

The first PD game is Mah Jong, by Irv Cobb, CORNY WARE. Most people have heard of this as a board game. This GEOS version is excellent, and addictive, with a high rating for playability. The actual board on the screen is in

different colors for the various layers. As you remove the top layers, the one underneath is revealed. If you get stuck, click on the New icon to start a new game, or the deskTop icon to exit to the deskTop.

Shangrila by H J Ciprina, is also a Mah Jong style game, except that this one comes from Germany. Shangrila plays much the same as Mah Jong, just with different pictures, and the menus are in German. The tiles are displayed in three dimensions, so it is easier to see which layer your tiles are on. You point and click on matching tiles to remove them. GEOS is intuitive like that. If you get stuck, from the 'Spiel' menu select 'beginnen' to start a new game, or 'beenden' to exit to deskTop. Germany is incredibly active when it comes to using GEOS, and creating new products for GEOS.

GeoTris, by Volker Goehrke, is a Tetris inspired game from Germany. To select Joystick or Mouse, select 'Optionen' from the 'Spiel' menu. Click directly on the box to toggle the device. To begin playing, click on 'Starten' from the 'Spiel' menu. Manoeuvre the falling blocks into position. When the blocks align correctly they will flash and disappear, allowing the blocks above them to fall into their space. When the blocks stop new ones from falling, the game is over. To exit, select 'Verlassen' from the 'Spiel' menu.

GeoMimic, by Sean Huxter, is a type of 'Simon Says' Desk Accessory {DA} game. Mimic the music sequence by clicking on the correct panel. A box will flash and a tone will sound. The sequence will become increasingly complicated, pushing your memory

Footnote : SACCUG stands for South Australian Combined Computer Users Group Inc. Contact them at PO Box 427 North Adelaide SA 5006 if you want.

to the limit. The ? in control box {in the centre of the game arena} will display an information box over the game. To exit, click on the square icon. Being a DA, you can start the game from within another Application.

Superhirn, by Volker Goehrke, is a Mastermind style DA game from Germany. Match the sequence of colors correctly to win. You are given the number of matches, and the completely correct matches when you click on the OK box. To select the current play color, click on one of the six pegs displayed below the menu, then click on a peg in the row being matched. Change color until you think the pegs are correct, then click on the OK box. Make your decisions on the next row of pegs depending upon the results you get.

Solo Poker, by K D Turner, is a multiple row and column Poker game. Solo Poker, by K D Turner, is a different style of Poker card game for one player. You try and build points by placing the card displayed into a row or column, with the intent to build a hand, in either row or column, or both, that will give you the highest points. It is not especially easy, considering the card from the pack could be totally useless for your hand, but you have to put it somewhere on the 'table'. You really need a great deal of foresight to work this one out in a satisfactory manner.

Draw Poker, by Gary M Reynolds, is pretty much a JackPot, come Casino one-arm bandits, type game {not that I am qualified to know, you understand}. It is not hard to play, and is quite good fun really. The operation of the game is point and click on the gadgets. To hold a card, you click on the appropriate Hold gadget, and then click on Draw to get your new cards. If your hand has none of the options shown

above the cards, you lose your credits. This game is fun and has quite a good play.

Patience, by Walter Knupe, is from Germany. The principal of the game starts as most games of Patience or Solitaire start out. You click on the appropriate card to move it to another position, in descending order and alternate colors. You move any Ace on to the twin rows on the right hand side, to build melds of ascending order in each suit. Two packs are used, which complicates the play. When you can not move any other cards, you click on 'Karten' menu and the pack will have cards fly off to each row, the problem is, the new cards may have ruined a meld you were working on !.

BreakThru, by Ciprina & Bonse, from Germany. BreakThru is similar to the traditional Krakout game. It is an incredibly good play, with at least 44 levels, each one more complicated than the last. The bricks are in different colors, with dots indicating the degree of difficulty required to eradicate them. The bat can speed up the ball by increasing the angle of deflection. From the 'Modus' menu you can select '1 or 2 Spieler' {player}, and from 'Spiel' menu select 'Wettkampf' to play standard, or 'Training' for extended play. Select 'Ende' to exit to deskTop.

Missile Defense, by Volker Goehrke, from Germany, is a Defender style game. You place the cursor where you want an explosion to destroy in-coming missiles. There are quite a few levels to this game, although a bit 'samey'. From 'Spiel' menu select 'Starten' to begin playing, when finished, select 'Verlassen' to quit back to deskTop. When you click once, any missiles in the immediate surrounds will be destroyed. Any missiles you don't destroy, will continue on and blow

up your city. A mushroom cloud erupts from where your city once stood.

Yahtzee1, by Terry R Mullett, is a traditional two player dice Yahtzee game. To hold a dice, you only click on the ones you want re-rolled, and then click on the Roll gadget. If you don't need to roll, click on the Use gadget, and then click on the appropriate box next to the option of your choice, 3 OF A KIND, SIXES, etc. Yahtzee calculates your points, and places the value in the correct player column. This game has very good playability, and is extremely easy to use and understand. You could have quite a lot of fun playing it.

GeoTacToe v2.1, by Ed Pflager, is a computerized Noughts and Crosses game. Game play is very simple, the grid contains positioning numbers from 1 to 9. When it is your turn, you click on a number and it is replaced with a nought, being your piece. When you first start the game, you are prompted with a 'go first' Dialog Box {DBox}. Select Yes or No by clicking on the gadget. During game play, you can access the 'game' menu and select from 'restart' or 'quit'. You had best be alert though as the computer is no slouch.

3D TicTacToe, by Marc F Brouillette, is very similar in game play to the ordinary TicTacToe {Noughts and Crosses}, except that you are playing on four boards vertically, {imagination helps}, as well as horizontally. The computer tends to win more often in 3D, it is a very cunning opponent. Vertical diagonals and lines constitute a win as well as Horizontal ones in the standard game. The computer also plays so fast it is difficult to see where it has made its last move, and it always seems to be your turn !.

GeoNim, by Ed Pflager. It is difficult to describe this game as there is no game board on the screen at any time. Essentially, you begin with a given number of unseen objects. Either you or the computer can go first to 'pick' a number of pieces from the stack. You click on the 'PICK 1 - 3' gadgets to indicate how many you pick. Who ever is forced to take the last piece is the loser. Sounds simple !. It is, except that the computer wins a lot more often because it projects moves ahead of time.

Orpheus, by Knupe & Bonse of Germany, is a DA. You can begin play immediately on the board displayed, or select from an 8x8 or 16x8 board. You play the black pieces, and the object is to 'trap' as many grey pieces between your black pieces as possible, which will turn them all to black. The computer opponent is very cunning, and will win more often than you. If you select 'Demo', the game will play until the board is filled. Select 'Ende' to quit back to deskTop.

Alles Kaese, by Volker Goehrke of Germany, is a lines game in which you place the lines as 'fill' boundaries. Try and get as many 'filled' areas as you can to win. The computer opponent is very fast. You begin with an empty play field. When it is your turn the pointer has

a 'I' attached to it. Simply click where you want a line. From the 'Spiel' menu select 'beginnen' to start with a 'Leer' empty field, or 'Zufallsfeld' pre-filled field. Select 'Voreinstellung' for game options, or 'verlassen' to quit to deskTop.

Black & White, by Volker Goehrke of Germany. When you start, a DBox prompts with 'nicht gefunden', for a high scores table on disk. Click OK to continue. In this game, by clicking on the groups of pieces, you can flip them to the opposite color. Turn as many pieces black as you can. From the 'Optionen' menu, select 'Name' to enter your initials. From 'Spiel' menu, select 'starten' to play a new board, or 'verlassen' to quit to deskTop. If you click on the menus during play, a DBox with 'Spiel abbrechen ?' pops up. Click YES to access the menus.

To be continued next month

READERS THREE WISHES AND ALL THAT ...

From John Telfer of Clare SA, ".... I very much enjoy your articles in Commodore Network as I use GEOS both 64 & 128 exclusively, and I find your articles very easy to follow."

Gg. Thanks for your kind comments regarding my column with Commodore Network. I am especially glad that my articles are easy to follow, I just write it the way it comes out, off the cuff !. Without good feedback like yours I would be writing 'blind'.

From Brian Holmes of Virginia SA, "I don't know if you remember me, we spoke on the phone for a while a few weeks ago regarding printers {which to get}, being a new member of GEONEWS and GeoClub OZ.

After much ringing around I finally bought a STAR NX1000C with a spare machine [C64] and 1541 II, all working well. But being new to computers I picked it all up after trying it out, but forgot to put the card in the disk drive, so I have had no luck trying to run it since. I think a trip to the repairers is in order to realign the read/write head.

I tried the 'reverse knock' program in last months GEONEWS but could not get it to work, found out in this months issue there was an error in the program but even after trying the new program it still comes up 'error in 40' and I don't know the first thing about programming.

I hope that your book will help me as I have all these GEOS programs and I haven't a clue what they are for, or what they do !. These are the GEOMETRIX disks by Commodore World disks 1 to 24. Please could you tell me how to print a directory of the GEOMETRIX disks so you don't have to keep opening them up to see what is on them. Any help would be greatly appreciated".

Gg. Yes Brian, I do recall your telephone call on the 14Oct95. I am pleased that you took my advice on testing equipment first, and only buying when the equipment was right. Good on you. Sad news about the 1541 II. I would not have tried that program from GEONEWS, in fact I was disappointed that Frank Cassidy published something so dangerous, especially to new users. DON'T use it !!!, especially when you don't understand the direct DOS commands.

If you need a good technician for Commodore, here is my tech's name and number ... and mention that I sent you Modbury Electronic Services Steve Gavins

G-OS BBS



GeoZ Online Services presents G-OS BBS, the Australian support BBS for users of Geoworks products. Supported versions include Geos 64/128 Geoworks PC/Pro and Geoworks Ensemble v2.0

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Commodore Network

[Phone {018} 087 277] Modbury SA

I believe that there are drivers for the STAR NX1000C. Let me see I just waded through my rather bulky catalog of GEOS things, and found the exact driver for your printer. So I have just now added it, especially for you, to the B side of the WOGHB disk.

The GeoMETRIX disks, are really for GEOS users who already have a reasonable working knowledge of GEOS. Don't try and use anything until you have brought your general knowledge up to date. You will only get more and more confused and frustrated, until you are more experienced. Print out the directories yes, but leave them at that for now. Yes, I do have the original suite of disks #1 - #13, when they actually came from the GEOMETRIX GEOS club, USA. On the B side of the WOGHB disk are two programs GeoList2.0 and geoDirPrint2. I use the latter one

the most. I think that you will be pleased at the extent of GEOS information these programs will print out about your disks.

Through out all of my HandBooks, I have covered many of the points you are asking about. I published them because I had learned all of that stuff, but there were new users out there who hadn't. Everything that I know about Commodores, Disk Drives, and GEOS, is in ALL of them, and programming is also covered comprehensively. The WOGHB {with disk} was my entry into publishing using geoPublish, the following HandBooks reflect what I truly learned from the experience, and show that I improved vastly from there. I can only encourage people with the Handbooks, but I can't make them want them. The knowledge is there if people seriously want more information. More than that I can't do.

Next month, we continue with Part

Two of the GEOS Games story. Until then, happy GEOSing people.

Send in your comments, or great GEOS discoveries, and I will respond when I can in this column, unless you wish a private reply, in which case please send a SSA{Business}E and I will write you back. Special thanks to Rick Coleman {Photo Mover fame}, our USA GENie BBS correspondent for your continued support, and to Michael Renz {Performance Peripherals Europe}, our German correspondent, for your continued support.

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South Australia 5084

{**} The World of GEOS Handbook Series {I, II, III}, along with others, are currently available from JMV Grafix

JMV GRAFIX

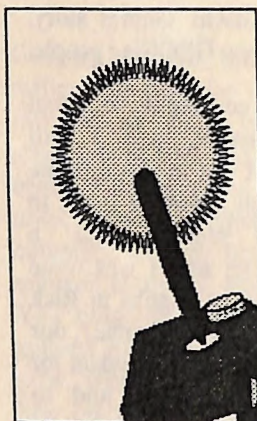


The Handbook of Commodore Disks	\$15
The Handbook of Commodore 128	\$15
The Handbook of Commodore 64	\$15
The World of Geos Handbook	\$15
The World of Geos Handbook II	\$15
The World of Geos Handbook III	\$15
Geos in Review	\$10

Prices include Postage and Handling within Australia, and are quoted in \$A. Overseas orders please add \$A5.00

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Power Drift

With the cricket out of the way, we can all return to the more typical activities of our lives - like playing away at those games all day and all night! After our first glimpses of the new titles being put out onto the market by Threshold Productions in the United States, it's time to return to our more traditional task of setting wayward players back on track by providing the usual feast of hints, tips, pokes and cheats to keep everyone rolling, running and motoring along in their favourite games.

This month we have help for those of you who enjoy a dabble with the likes of the old platform-cut 'em up Green Beret, The Eidolon by Activision, Rainbird's epic Starglider and Doomdark's Revenge, as well as some assistance with Little Computer People. If you've been waiting around for aid with this little lot, then the wait is certainly over.

Read on and discover what marvellous secrets The Power Drift will unveil...

LAZER DUEL COMPETITION

Before we begin, however, there are formalities which require attention. You should recall the competition

which has been running over the past few months for a copy of the first Threshold game to reach us over here, Lazer Duel. The mind-boggling question which competitors had to answer was: How many points are awarded for a successful kill? And the correct response was 1000 points... or "1000 BIG points", as printed in very colourful fashion by the ultimate winner: John Antoniw of Cheltenham here in South Australia. Congratulations to John, as I'm sure that he'll relish the task of firing his way through the levels of his new game, thanks to Threshold Productions. Commiserations to everyone else who sent in an entry - better luck in the next competition which will no doubt be coming your way very soon.

GREEN BERET

Imagine hit a real winner when they ported a popular coin-op machine entitled Green Beret to the Commodore, releasing the commando hack'n'slash platformer to the masses who snapped it up eagerly. It was the excellent conversion as much as the original gameplay which grabbed the attention of the public, and this game is to be found in many a collection across the globe. Naturally, a good game is generally

a difficult one which can't be knocked over in a single session, and Green Beret is true to the rule.

So if you've been tackling the challenge over the years and just can't stab that last karate warrior after your bazooka has run out of shells in frying the front line, you could be after a little help. If you have the tape version or can put your disk copy to tape, this listing might provide some relief. For infinite lives, rewind the tape, enter the following listing, run it and press play on the tape:

```
10 FOR A = 8192 TO 8230: READ
B: POKE A, B: NEXT A
20 SYS 8192
30 DATA 169, 1, 170, 168, 32,
186, 255, 169, 0, 32
40 DATA 189, 255, 169, 0, 32,
213, 255, 160, 7, 185
50 DATA 31, 32, 153, 205, 5,
136, 16, 247, 108, 36
60 DATA 3, 169, 173, 141, 53,
21, 76, 253, 61
```

On the other hand, you might just want to rid yourself of all the regular infantry who clog up the real battles between yourself and those green karate fellas, the white bazooka men and the generals who run around doing precious little for much of the time. In that case, rewind the tape, enter the following listing, run it and press play on the tape:

```
10 FOR A = 0 TO 33: READ B:
POKE 52224 + A, B: NEXT A
20 SYS 52224
30 DATA 169, 1, 170, 168, 32,
186, 255
40 DATA 169, 0, 32, 213, 255,
162, 7, 189
50 DATA 26, 204, 157, 205, 5,
202, 16, 247
60 DATA 108, 36, 3, 169, 4,
141, 14, 33
70 DATA 76, 253, 61
```

Now you can go about the real business of the game - killing the nasty people who matter.

THE EIDOLON

An offering from Activision some time back, this has caused its fair share of troubles down the years.

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For those with the tape version, try this listing for infinite energy and time. You know the routine... rewind the tape, enter the listing, run it and press play on the tape:

```
10 FOR A = 320 TO 383: READ B:
C = C + B: POKE A, B: NEXT A
20 IF C <> 6983 THEN PRINT "AN
ERROR HAS BEEN FOUND IN THE
DATA": END
30 SYS 320
40 DATA 169, 1, 170, 160, 0,
32, 186, 255, 169, 0, 32, 189,
255, 162
50 DATA 1, 160, 8, 32, 213,
255, 169, 76, 141, 242, 3,
169, 102, 141
60 DATA 243, 3, 169, 1, 141,
244, 3, 76, 13, 8, 169, 1,
141, 29, 16
70 DATA 169, 115, 141, 28, 16,
76, 0, 16, 169, 173, 141, 238,
92, 169, 205
80 DATA 141, 78, 115, 76, 0,
76
```

Now, those of you with the disk version and no way to convert it to tape might have steam coming out of your ears by now - but don't fret, we haven't forgotten you in our quest to look after the tape users in our community! Load up the game, hit reset, enter this listing and run it:

```
10 A = 679
20 FOR B = 0 TO 56: READ C
30 POKE A + B, C: D = D + C:
NEXT B
40 IF D <> 6348 THEN PRINT
"THESE IS AN ERROR IN THE
DATA":END
50 SYS 688
60 DATA 32, 32, 49, 57, 56,
53, 32, 32, 32, 169, 1, 162,
8, 168, 32, 186
70 DATA 255, 169, 9, 162, 167,
160, 2, 32, 189, 255, 169, 0,
32, 213, 255
80 DATA 169, 211, 141, 235,
17, 169, 2, 141, 236, 17, 76,
109, 17, 169
90 DATA 173, 141, 56, 91, 169,
205, 141, 230, 113, 76, 0, 74
```

There are also some general tips here which could come in handy for all gamers - disk, tape and besides. To kill the seven headed dragon on level eight, you must dispose of

each head in the same manner because it is a combination of all the other dragons you should have previously encountered in the game. To accomplish this, shoot the dragon with three red fireballs to get rid of the first head. Follow this with four yellow, five green, six blue, seven red, eight blue and finally nine red. Conserve your energy level (common sense that) and if you have friends nearby, grab one of them to help you by hitting the space bar to collect any fireballs that might be thrown at you by the poor helpless dragon in its defence.

STARGLIDER

This sweet game from Rainbird has attracted a number of enthusiasts since its release - but not all of them seem to have been as successful as they would have wished. If you fall into this category, try this on for size. For infinite everything (that's right, everything) on a tape version, it's the same procedure - rewind that tape, enter this listing, run it and hit the play button:

```
10 A = 576: B = 11
20 READ C: IF C <> 256 THEN
POKE A, C: GOTO 20
30 POKE 53280, B
40 A = 679: B = 12
50 READ D: IF D <> 256 THEN
POKE A, D: GOTO 50
60 POKE 53820, B
70 A = 12288: B = 15
80 READ E: IF E <> 256 THEN
POKE A, E: GOTO 80
90 POKE 53280, B
95 SYS 12355
100 DATA 234, 234, 234, 120,
238, 32, 208, 162, 1462, 7,
189, 85, 2, 157, 115, 0
110 DATA 202, 757, 16, 247,
76, 13, 194, 0, 2, 0, 548, 9,
0, 95, 93, 2, 162, 2, 189
120 DATA 552, 107, 2, 157, 64,
144, 202, 16, 247, 939, 76, 0,
144, 76, 200, 2, 498, 256
130 DATA 32, 0, 201, 169, 99,
141, 252, 2, 896, 32, 65, 201,
206, 252, 2, 208, 248
140 DATA 1214, 169, 0, 133,
168, 169, 192, 133, 169, 1133,
```

234, 234, 234, 234, 234

150 DATA 234, 76, 64, 1544, 2,
169, 165, 141, 130, 114, 141,
65, 927, 91, 162, 2, 189

160 DATA 240, 2, 157, 100,
943, 89, 189, 243, 2, 157,
111, 89, 189, 1069, 246, 2,
157

170 DATA 131, 89, 189, 249, 2,
1065, 157, 170, 89, 202, 16,
229, 76, 0, 939, 66, 76

180 DATA 111, 89, 76, 122, 89,
76, 705, 144, 89, 76, 192, 89,
590, 256

190 DATA 160, 0, 132, 251,
132, 253, 169, 201, 1298, 162,
92, 133, 252, 134, 254

200 DATA 177, 253, 145, 1702,
251, 230, 251, 208, 2, 230,
252, 230, 1654, 253, 208

210 DATA 2, 230, 254, 165,
252, 201, 1565, 203, 208, 234,
169, 16, 141, 158, 201

220 DATA 1330, 141, 177, 201,
141, 241, 201, 141, 112, 1355,
202, 162, 2, 189, 64

230 DATA 48, 157, 125, 949,
201, 202, 16, 247, 76, 167, 2,
96, 1007, 167, 2, 169, 1

240 DATA 133, 2, 32, 84, 590,
48, 169, 0, 133, 2, 32, 84,
48, 516, 76, 0, 48, 169, 1

250 DATA 168, 170, 32, 664,
186, 255, 169, 0, 32, 189,
255, 165, 1251, 2, 133, 10

260 DATA 32, 213, 255, 96,
741, 256

A fair listing indeed, but well worth it if you've been slaving away without results for far too long.

DOMINATOR

A powerful title but one of the less known games in the "D" selection.

If you've come across it and don't like getting whipped every time, then these goodies might be very welcome. Disk people! Load the game, hit reset, and then enter these pokes:

- POKE 2215,234
- POKE 2216,234 (INFINITE LIVES)
- POKE 2157,234
- POKE 2158,234
- POKE 2159, 234 (ENSURES THAT YOU DON'T MISS)
- POKE 2542,0 (AIDS WITH THE STEERING ON ALL LEVELS)



Micro Mart

FOR SALE

- 1 Commodore 64C, slimline case, excellent condition including manual, power supply and video cable... \$60
- 1 Maestro 2400 ZXR modem complete with manual and power supply, allows 300, 1200/75, 1200 and 2400 baud transfer, fully automatic and software controlled, battery-backed RAM... \$99

CONTACT:

Andrew Gormly
PO Box 123, Walkerville, SA 5081

FOR SALE

- The Following Copies of Commodore magazines at 50 cents each, plus postage.
- Your Commodore C16/Plus 4 - November '88
- RUN - March '88

- Commodore Magazine - December '84, January '87, August '88, December '88, March '89
- Commodore User - December '87, January '88, April '88, May '88, November '88
- Your Commodore - May '87, July '87, April '88, August '88
- Zzap 64 - October '88, November '88, December '88, March '88
- Commodore Computing International - April '88, August '88, September '88, October '88, January '89
- Compute! - May '84, March '85, April '85, May '85, August '85, September '85, November '85, December '85, January '86, March '86, August '87
- Compute Gazette - July '84, September '84, October '84, April '85, June '85, September

- will send COD

CONTACT:

Bill Bratby
27 Smith St., Old Bar,
N.S.W. 2430
Ph: (065) 537 540

FOR SALE/SWAP

- Microsoft Multiplan 64 with docs, willing to consider any swap or offer

CONTACT

Aaron Kernbach
P.O. Box 927, Nairne
S.A. 5252
Ph: (08) 388 0014

FOR SALE:

- A C64 system including:
- a 1541 disk drive
- 1749 256k REU
- 1351 mouse and software
- Snapshot 64 Cartridge
- Datasette, Joysticks, and a

'85, October '85, November '85, December '85, January '86, July '87, August '87, March '88, November '88, March '89

CONTACT:

Gordon Screen
18 Windsor St., Edgeworth,
N.S.W. 2285

FOR SALE

- Mini Office II - original, boxed, with manual - \$35 + post
- Chessmaster 2000 - original, unused, boxed, with manual - \$30 + post

- will send COD

CONTACT:

Bill Bratby
27 Smith St., Old Bar,
N.S.W. 2430
Ph: (065) 537 540

Power Drift Continues....

- POKE 4499,2 (GIVES EXTRA SPEED)

So go forth and play away, for the land of entertainment awaits.

FAREWELL...

Another month down, another month to come. Don't worry, we'll be back before you know it to bring

you more of the hints and tips to keep you one step ahead of the monsters which threaten to pull you down, not to mention a few more competitions and reviews from around the globe. If there's anything you'd like to see in The Power Drift or any queries you want answered, the address is:

The Power Drift
PO Box 123
Walkerville
SA 5081

And with that, it's time to sign off.

Cheers Andrew

**Commodore
Network**

- parallel printer interface
- MAE Macro Assembler/Editor
- G Pascal Software
- Music Keyboard overlay
- complete GEOS system, including GEOS, GeoProgrammer, GeoPublish, GeoSpell, and geoFile.
- Over a dozen books about the C64 system and the 6502 chip
- Flight Simulator 2
- Easy Spell
- Type Right
- MultiPlan Spreadsheet
- Many blank disks
- Green screen monitor
- All software is original and comes with the original manuals.
- The package - \$400.00

CONTACT:

Geoff or Malcolm on (03) 9802-3758

FOR SALE

- Commodore 128D (Metal Case)
- Turbo-ROM installed
- Power and Reset switches installed in front panel
- Device changing switch installed in front panel (allows you to change the inbuilt 1571 to device 8, 9, or 10)
- Commodore 1084S monitor
- Second 1571 Disk Drive
- 1581 Disk Drive
- Commodore 1750 REU (512k)
- "Aprospand" Cartridge port expander (4 slots)
- Xetec Super Graphix Printer Interface
- Commodore 1351 Mouse
- Modem ("My First Modem" - Commodore compatible)
- Joysticks X 2
- Hundreds of disks (5.25" and

3.5") - includes 140 plus disks of graphics and graphic applications - former "Graphics Company" Library. Also includes printout of all GEOS graphics.

• A mountain of manuals, magazines, and other assorted items.

• The lot for \$800 or nearest offer

• Commodore 128D - with Cockroach Turbo-ROM installed

• Commodore 1084 monitor

• Joystick

• Heaps of software

• The lot for \$250 or \$150 if purchased with the above package.

CONTACT:

Robert Lord
Phone: (060) 591 469

Commodore Network Merchandising

44 Balfour Street, Nailsworth, SA 5083

THE ULTIMATE CPM COLLECTION

Encouraged by the acceptance of our "CP/M Corner" column, and realising that one of the major problems faced by 128 users who choose to delve into the depths of CPM is knowing where and how to acquire software, we have put together this massive collection of material covering some 30 X 1541 disk sides, or 8 X 1581 disks. and we've made it available for only \$40.00

ALIVE! CLIPART COLLECTION #1

A collection of Print Shop style images compiled from various sources, and presented on 111 Fun Graphics Machine clip art screens. Each screen holds nine images. You will need FUN GRAPHICS MACHINE to utilise these. Comes with a printout of each graphic presented in a binder and at a total cost of only \$22.50

THE GEOZ COLLECTION

A huge collection of GEOS shareware and PD items put together over the years by Artie Stevens at GeoZ BBS, and added to by myself and others. Includes more than twenty disk sides of GEOS applications, three disk sides of desk accessories, one of Auto execs and input drivers, three of fonts, and thirteen of art. FORTY disk sides for only \$60.00

THE PROGRAMMER'S CROSS REFERENCE GUIDE

The definitive reference work for the programmer who wishes to translate programs between the following platforms - C64, C128, and Plus 4. Available as a print out and presented in a three ring binder, or as a sequential file on disk for you to print out at your leisure. Binder: \$15.00 Disk: \$7.50

THE 1581 MASTERS COLLECTION

A collection of 1581 utilities and files, supplied on a 1581 disk. Ideal for owners of this drive or the new CMD FD series drives looking for utilities to help them get the most out of their equipment. \$5 to subscribers \$7.50 non-subscribers

THE 1571 MASTERS COLLECTION

As above, but for use with the 1571 drives. Includes programs to help you utilise your drive's ability to handle MS-DOS disks. \$5 to subscribers \$7.50 non-subscribers

SAMMANTHA'S GRAPHICS GOES GEOS

Yes, the popular Sammantha's Graphics in GEOS format, a must for those wishing to add a touch of Australiana to their GEOS documents. \$5

GEOS BORDERS

A selection of borders for use with GEOS. Two double sided disks for an unbelievable price of just \$7.50 the set.

CN GEOPAK #1

A selection of GEOS items fresh from Q-Link in the States. This double sided disk

contains FULL documentation for most files. Disk contents include: Poster Print, Change BSW, various Fonts, Printer Drivers, and graphics, Unpublish etc.. A must for any GEOS collection. \$5

CN GEOPAK #2

The long awaited second disk in our GeoPak selection. Full documentation is included. Two disk sides containing, amongst others: Mah Jong, DB Getfile, Fontloader, etc.. \$5

CN GEOPAK 128

A double sided collection of GEOS PD exclusively for the 128 \$5

ADVENTURE DISK #1 & #2

Our adventure collections. \$5 each

INTERCHANGE 64 and INTERCHANGE 128

Two disks devoted to specialised programs to help the translation of documents or graphics from other computer systems to the C64 and the C128 respectively. Sold separately at \$5 per disk for subscribers, \$7.50 non-subscribers.

DEMO GRAPHICS TOOL DISK

A collection of tools for the budding (and experienced) demo artist. \$5

DESOTO UTILITIES

An excellent multi-drive operating system for the C64. Handles 1541, 1571, 1581, CMD HD, and RAMLINK in any combination - EXCELLENT! \$5

GRAFIX GALORE

(Tom Stoehre) Subscribers to LoadStar will be familiar with Tom's Work. This collection is priced at \$10.95 and comes recommended.

SAMMANTHA'S GRAPHICS

Looking to add a touch of Australiana to your printed output? Here is a collection of true blue graphics for PrintShop users. \$5

SAMMANTHA'S GRAPHICS II

52 new true blue Oz graphics and 67 brand new borders!

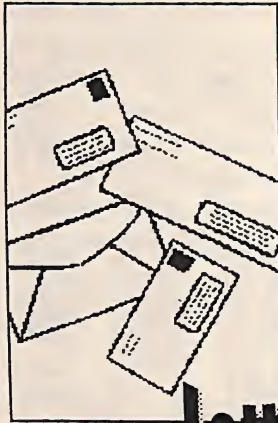
VIDEO SHOP

A multi featured graphics manipulation program capable of working with Print Shop, PrintMaster, Doodle, Koala and standard bit-map graphics. Comes complete with a disk of graphics and a disk of fonts and a detailed manual. \$12.50

MOUSE MATS - \$4.95 each

All software orders within Australia should include \$2 to cover postage costs. New Zealand orders add \$3 Aus. to cover postage and for orders from elsewhere, a postage fee of \$5Aus. is necessary. Diskette Orders should include postage of \$2 plus 50 cents per disk box within Australia. New Zealand diskette orders should include \$3 plus 50 cents per disk box per order. Sorry we cannot accept orders for diskettes from elsewhere.

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Letters Link

THRESHOLD PRODUCTIONS

Firstly, from the U.S. and via E-mail comes this letter from Jonathan Mines, manager of Threshold productions:

Recently we have been getting a steady flow of people sending letters with credit card numbers and wanting to order software. At the moment TP can't handle these orders, it isn't within our budget to pay monthly for a credit card service. We are sorry for the inconvenience this will cause, but with time we will carry the service. For now we accept orders in these fashions:

- 1) Money Orders - Next day shipping. Made out for US funds only.
- 2) Checks - A waiting period of 7 days before order shipped. Must be a check from a US bank.
- 3) Cash - Only if you can't do either of the above, please! US funds only.

Thanks for the info, Jonathan. I'm sure anyone wishing to order some of your excellent products will appreciate it!

MISSING DISK-COVERERS

From New South Wales, and Charles Sommers writes:

Hi Warren.

I never cease to marvel at the work and effort you put in to C.N., but you seem to have fallen a little short of the mark with the combined December '95 - January '96 sending, at least in my case! It seems that no Disk-Coverer was sent to me despite the envelope being clearly marked "Magnetic Media" and "Do Not Bend"!

For all those who wrote (yes, including you, Charles!) in asking pretty much the same question, the story goes something like this:

We held posting the December issue up waiting for the Disk-Coverer disks to arrive from South Australia. When it came time to actually print the JANUARY issue, I finally decided that we could not wait any longer for the disks, and since all the envelopes were already prepared, we inserted both issues, minus the expected disks, and sent them off. At that point, i was more than a little pressed for time, and hence no explanatory note was inserted. My apologies for

any concern caused!

MORE ARTICLES CONCERNING ENTERTAINMENT SOFTWARE

Down in beautiful Tasmania, and Paul Florey writes:

I have enjoyed my subscription to CN (despite the delays, hiccups, etc., that seem to plague it!), and have found it a most informative publication. I do, however, think that you concentrate too much on programming and the more technical articles, and I would like to see much more games coverage. I was disappointed when you dropped "Venturing Inn", and I really do hope that "Power Drift" will not also disappear!

One thing I have tried to do with CN is to cater for most peoples needs and desires. That, through the very diversity of interests held by CN readers, means that it is a very rare reader that finds all things in all issues of great interest. I must admit that I do put a lot of stead in our programming columns, and I do try to ensure that at least one or two articles concern programming in each issue. I know that from my own experience my interests changed over time, from playing games, to dabbling in programming, designing graphics, and Desk-Top publishing. Hopefully CN encourages its readers to delve into the unknown magic that their computer can weave for them.

That being said, I have nothing against games, they are an integral part of modern-day computer use.

Before we pass on to the next letter, I must say that "Venturing Inn" was never dropped. Heath Kirby Miller, its author, was having difficulty

finding the time to write the column due to study commitments. I was giving him a little time to get back on track (I certainly know what tight schedules are like!). Heath has now retired from writing *Venturing Inn* and *On The Scene* unfortunately, and I am searching for replacement writers if anyone is interested.

There is no danger of *Power Drift* being dropped in the foreseeable future, and, indeed, we are looking at bringing in a "Classics Corner", when some of the older games may be written about and thus extending our entertainment software coverage.

CHANGING A DISK ID

Back to Victoria, and Henry Rodway writes:

I am organising and cataloguing a rather large personal disk collection, and would dearly love to be able to change a disks ID. This would then enable me to match said ID's against a two character disk number within my catalogue. Everyone I talk to says it can't be done, but surely there is a way. How about an article or something on the subject.

I'm afraid there is no easy way of doing this, Henry. When Commodore first put together their DOS, they made the ID a very unique part of it. You see, the ID is used as a checksum to ensure that the disk is in good working order. The ID is backed up by another method of error detection in case things go wrong as well, and this involves an amount of further, equally important, information being stored along side. All this is further complicated by the ID itself being written to EVERY sector on the disk.

Now, that's all good and well, but

Commodore, in its wisdom, could see no reason why you and I should want to access and alter this information, and thus made the particular portion of the sector of the disk on which the ID info resides almost impossible to access.

To supply any sort of in-depth response here is a little beyond Letters Link, so I will try to put together an article for you and others who may be interested for an upcoming issue.

TROUBLES WITH A 1541 CLONE

And now, from Nick Scarborough of South Australia comes this:

I recently acquired an Indus-GT disk drive second-hand. Unfortunately it came with no manual or similar to help me to use the system properly, so I am hoping you can help. Most of my software seems to work pretty flawlessly on the drive but, when it comes to utilising my couple of Microprose games, I get nowhere fast! I've tried everything that I can think of, can you help.

OK, Nick! The first thing that you must understand is that the Indus GT is a CLONE of the 1541 disk drive. It is an ALMOST exact copy internally! I say almost because if, for instance, the ROM routines in the GT and a 1541 were exactly the same, Commodore would have had a very good case of plagiarism to present to the courts. The manufacturers of the GT, the Excellerator disk drive, and others had a very thin line on which to work. One step over, and they faced legal action from Commodore, yet too far back, and their drives would be unusable on the 64, simply because software wouldn't work with them.

The problem isn't so much the

computer, but the fact that software manufacturers work to the lowest common denominator. The 1541 is THE drive for the 64, therefore software was written to utilise the DOS supplied in that drive. Clone drive manufacturers, although they may have built better machines technically, and with superior features, could not completely emulate the 1541 without attracting legal action.

Unprotected software should not be a problem, it's when we come across some of the copy-protection schemes that trouble can be found..

Copy-protection schemes often relied on techniques to bypass the DOS interface processor to work directly with the Floppy Disk Controller. It is at this level of operation where almost anything can happen. I suspect that your Microprose software is either trying to use the DOS ROM routines directly, or perhaps trying to use one of the quirks of the 1541 drive.

You may find that making an archival copy (for your own use only, of course!) of the offending Microprose software stripped of all protection may give you access to it via the GT.

GETTING IN TO CPM

And from Mark Chester of Melbourne comes this:

I recently bought a 128, complete with manual, disk drive, and all leads. I am interested in the CPM mode mentioned in the manual. I get the impression that there was supposed to be a "CPM Boot Disk" with the system, although I did not get one. Also, is CPM software still available.

On another line, is it possible to get an 80 column display on a colour TV. I've tried everything I can think

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of without much luck.

First off, Mark, you should receive a CPM Boot disk shortly by return mail with my compliments. I've acquired quite a few over the years, so I am only too glad to help out. CPM PD is available through CNPD (see insert in this issue) and possibly from other P.D. suppliers, and there is also the "Ultimate CPM collection" advertised in the Commodore Network Merchandising ad. This is an excellent starting point for budding CPM users.

As far as an 80 column display on a TV is concerned, to the best of my knowledge it is impossible. You will need a computer monitor capable of an 80 column display. Look for a 1084 if you are shopping for one.

SERIOUS SOFTWARE

And still in Victoria, where Mary Taylor writes:

I have had a 64 for many years although, for the last five or six it has lain unused in a closet. I originally purchased it for my children and, as they grew older and left home, became interested (mainly in games) myself. With the break-up of my first marriage, my interest in computers went by the wayside (hence the five or six year break) as the need to support oneself took precedence. This all changed recently when illness saw me have to give up work. I now find that I am enjoying the Commodore once more!

I now find that, although the vast majority of the time I spend on the computer is still spent enjoying games, I have a yearning to use my equipment for much more! I recently purchase a second-hand printer (MPS-802), and would love to get hold of a good wordprocessor.

I am also interested in Desk-top Publishing and graphics, the latter because I enjoy sketching and drawing, and doing this on my computer seems a logical step.

Welcome back to the fold, Mary.

Firstly, may I recommend a wordprocessor called "The Write Stuff". Commodore Network now carries this in its Merchandising (see ad this issue!) section, and the 128 version is my wordprocessor of choice. If you include either or both the "Illustrator" programs will turn TWS into a pretty good Desk-top Publishing package, although my favourite is still GeoPublish, for which you will need GEOS.

If you haven't got GEOS, I would recommend that as a good starting point. The package comes with a wordprocessor (although if you can type with any sort of speed, it will struggle to keep up), and an excellent drawing package. GeoPublish can then be purchased separately at a later date.

GEOS and GeoPublish should be available from:

**Geoff Carey
G.P.O. Box 146
Adelaide
S.A. 5001**

Sorry, I don't have any prices handy!

The Write Stuff, Illustrator, and Illustrator II are available from:

**Commodore Network
Merchandising
44 Balfour St.
Nailsworth
S.A. 5083
Phone: (08) 342 1197
E-mail:
Bev@Tolstoi.SAIL.Net.au**

Price:

TWS 64 - \$39.00

TWS 128 - \$52.00

Illustrator - \$6.95

Illustrator II - \$6.95

C64 TO AMIGA

Up in Biggenden, Queensland, and John Luxton writes:

Some time back I wrote asking if you had any knowledge of hardware and or software to enable C64 programs to be transferred across to an Amiga 500. The gadget I mentioned that I had in hand was what was called the "RS--True-32er". It came in kit form from one of suppliers, Jaycar I think, and was from the now defunct Australian Electronics Monthly. It was designed to convert the rather peculiar Commodore version of RS232 to the standard or true protocol. I bought it with the intention of trying to get a printer to work from the C64, but then discovered the Xetec Graphics Printer Interface and managed to get a second hand one, which I have used ever since.

However it has given me the thought that this gadget would probably be the key to converting across from the C64 to the Amiga, but i haven't the technical expertise to try it out. I have heard that this can be done, and that a software program is involved, hence my request to you for any information you or one of your readers might have on the subject. The reprint of the A.E.M. article that came with the kit wasn't very forthcoming as to how to use the thing when it was built.

It should indeed be possible to utilise this as a way to transport C64 files from that machine to the Amiga once the two were connected via it. This would then form a "Null

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Modem" (available at Dick Smiths or Tandy for around \$10). By utilising a terminal program at both ends (I recommend Novaterm for the 64), files could then be transferred between the two. Of course, you would need a C64 emulator program on the Amiga in order to actually use them on that machine.

MODEMS AVAILABLE

Down in Ballarat, Victoria, and Dave Evans writes:

I am not over active with my Commodore computer anymore as I have an IBM compatible that I tend to use more, but amongst my bits

and pieces I have still got two modems for the Commodore. If anyone is interested in them, I will hunt them up and get all the details of them and we could work out what they are worth, including freight to wherever they live. I will also look up anything else I don't need and send you a list for Micro-Mart for a later edition of Commodore Network.

I still enjoy reading your magazine each issue as I spent a lot of time on the old Commodore over the years and a lot less money than the new unit with Windows 95. Every time you work it seems to be saying "I need more memory or hard disk space" - more RAM, more

memory!, which, of course, costs more money. Maybe I should have just stayed with the C64 and not tried to be up-to-date!

Anyone out there looking for a modem. If so, contact Dave at:

439 Main Rd., Ballarat, Vic. 3350

As for "upgrading" to an IBM clone machine, well, I suppose we are all a little tempted by the power of them, or more specifically, the software and peripherals (I'd love a CD ROM drive hanging off my 128). But I am more than happy with my Commodores, although I will admit to having a couple of PC's seeing service here!

Online Support

Sydney

Way Out West 02 9628 8888
Space Station 047 742 252

Melbourne

GeoZ Online Services 03 9803 6498
Talisman 03 97611037

Adelaide

Fishbowl 08 277 1361

Brisbane

Pinnacle 07 3341 9560

All BBS systems are 24 hour access

Geos on your OTHER computer

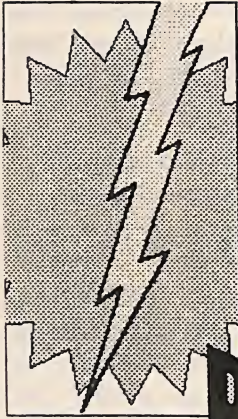


and you thought GEOS was just a C64 thing!

Geos for the PC (Ensemble) \$169.00
"Try before you buy" version \$16.00

GeoZ Online Services
7 Falconer Street,
Glen Waverley
Vic 3150

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Network**



PD POWER

LET THE GAMES BEGIN!

Over the years many a good game has been released into the Public Domain. Games from almost every conceivable category can be found scattered throughout the P.D. libraries, and many will provide the Commodore owner with many hours of entertainment. In this installment of "P.D.Power", we'll take a look at the lighter side of Commodore computing, and delve into the wonderful world of P.D. entertainment software.

XEROPUS

Let's start out with a look at a good old main-stream shoot-em-up, made in the traditional mold! Xeropus is such a game. This is unashamedly a Galaxia clone (itself a clone of the Atari games machines game "Galaxian"), so anyone familiar with either the aforementioned will immediately know what they are up against.

For those uninitiated amongst you, you control your little vessel against a phalanx of enemies who swoop, dodge, and weave across the screen, firing missiles at random. Your sworn duty is the destruction of this alien armada.

Control of your unit can be achieved in one of two ways. Your first option is to use a joystick plugged into port #1. Alternatively, you can opt for keyboard control, using the <left><right> cursor key to move left, the F-7 key to move right, the <RETURN> key to fire, and the F-5 key to pause your game (can be handy when a breather is needed!).

Sound effects and animation are quite well done, with gameplay difficulty increasing over each level.

Altogether, I found this to be quite a good game, despite the feeling of *deja vu!*

PUTT-PUTT

When I first saw this games title, I must admit that I thought I would be looking at a car game of some sort. Instead, what I discovered was an interesting simulation of miniature golf. Endowed with ample sand and water traps, and multiple barriers off which to bounce your simulated golf ball, this game becomes a real test of skill for those who enjoy this sort of challenge.

Control is via keyboard exclusively, with numerical values being entered for both direction (a value

from 1 to 8) and firmness of the stroke being played.

During play, strokes are forfeited when a player hits into a sand or water trap, and encountering the rough will send your ball "bouncing" off on a random angle. The firmness of your stroke is also important, both in placing your shot correctly, and in "sinking" a putt. A little too firm, and you could see your ball bounce too far, or, if putting in, skirt around the cup or skip over the hole completely.

PEGASIS

OK, time for something a little different! This game took me a little while to figure out, but, in the end, it was worth it.

Blessed with elegance to spare throughout its presentation, from the background through to the sprites used, and even the "End of Game" text, Pegasus begs attention.

The object of the game is to fly your winged steed around the screen whilst destroying the assorted nasties by hitting them from above, thus making them drop. This, admittedly, sounds all too easy, but each level sees our evil friends become just that little bit faster, and thus the gameplay becomes more difficult as levels progress.

The usual joystick controls are implemented, with the need to keep pressing the firebutton in order to flap our flying horses wings (and thus fly) adding the feel of gravity to the simulation. Sound is subtle, and I found the scrolling screen of text outlining the mythology upon which the game was based a very nice touch.

MULTIRAID

This is a game produced using the "Shoot-Em-Up Construction Kit" by one Tom Dively. Unlike the

other games reviewed in this article, this is educational in nature. good old fashioned fun for those of us who are well past needing to learn our multiplication tables.

Boasting superb gameplay, excellent graphics, and a very professional look, Multiraid sees you control a smoothly animated helicopter flying over a 3-D surface. Every so often, your aircraft will pass over a multiplication problem imbedded within the background. Shortly thereafter, a number of gates will appear displaying several possible solutions to the previously displayed problem. Choose the right one by flying through the correct gate or be vaporised. Of course, this would all be too simple if it wasn't for a few (very) minor distractions in the form of gunnery persistently firing at you from all directions. I tend to find the little tanks particularly irksome.

Of course, you can shoot back (most gratifying at times!), and the destruction of a particularly troublesome opponent can be quite enjoyable.

Puzzles only go up to 9 X 9, which is a little disappointing, but this would still be an invaluable (and fun) learning resource for younger students. And, let's face it, it is still

GHOUL DOGS

I found this game both more than a little weird and extremely challenging. You are a cat fleeing from a pack of bloodthirsty canines, with the best part of this game being that you are endowed with plenty of lives (you'll need 'em!).

Each level you encounter will see our delightful opponents become just a little taller and a little wider, making them harder to avoid, and every so often a few variations are thrown in on a level, just to keep things fresh.

Now, I guess that if all we had to do with this game was to avoid our canine compatriots it would fast lose its challenge, so the programmer in his wisdom has thrown in a little extra. You will find little targets rolling around the outside of the playing area. You will score points by shooting these.

That's about it really!

We've moved!



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Commodore Network

Clublinks

Hi there. Welcome to another Clublinks Column.

Each time I check out the information received by me from the clubs for the writing of this column, I keep coming up with a feeling of impending doom. Have many of the clubs out there decided that there is no longer a place for 8-bit machines in this modern world and written them off?

Because there are only a small percentage of the population who own a 64 or a 128, do clubs think there's not enough to support club memberships for this minority group?

Is 64/128 ownership only now for a group of diehards? These sort of questions are being asked by clubs everywhere.

Many 64 owners also have and regularly use an IBM or compatible but many have vowed never to get rid of their lowly 8-bit machines. In many cases the reason for 64/128 users dropping out of clubs and user groups is because the club has lost touch with these users and are finding it very hard to get these former members back into their ranks.

I always believed that the concept of a club or user group was to support

members in every way possible, with software, hardware, and news and information as well as advice and help. Maybe we've lost our way in these clubs and no longer cater in the right way for our members.

Members only drop out of a club when they are unhappy with what they are getting out of it. We all know that in most clubs it is just a few members who work on club committees to keep them going, but we have to always be looking out for the best ways in which we can satisfy our members and I personally do not believe that relegating 64/124 owners to the scrap heap is the way to go.

Many of these long-time members usually have heaps of expertise and a vast knowledge of information that can be passed on to new users. How can clubs afford to lose such members? But they are!

So what's the answer? Each club and group around the country will have a different solution to the problem, from not having any 64/128 memberships, to allowing any computer user to use the club facilities.

I don't have the magic solution, but I do get a little sad each time I hear that a club has decided that it will no longer support the 8-bit format

knowing that there are still thousands of users out there right now clamouring for information about their 64's and 128's, and not knowing where to go to get it. I am certainly saddened when a club folds, as seems to be happening now quite regularly.

It's now up to us as 64/128 users and owners to support the clubs and groups that are still there supporting us. Join as many clubs as you can to show your support. Most clubs now support "out-of-area" or remote memberships. In many cases you'll receive a club newsletter and other information to keep you in touch with other members.

I find heaps of interesting and helpful information in the newsletters that this column gets. The few dollars it costs to join each club is a small amount, but it can guarantee the survival of some clubs who are now just on the brink. My club in Sydney has dropped the joining fee for members of other clubs who wish to join our club in order to encourage multiple club memberships. Other clubs have special rates for these sorts of memberships. How many readers of this column actually belong to more than one club?

CLUB NEWS

The Commodore 64/128 Club of NSW has decided to look into the possibility of allowing membership to users of other formats. Many present and past members have more than one machine at home and the general consensus of opinion is that to survive we have to allow these users to become members or to somehow attract more 64/128 owners. The club has a strong core of 8-bit users, so it wouldn't mean the death of the club for 64/128 users.

**Commodore
Network**

The Wollongong User Group is also having membership problems. With the membership level at its lowest point ever, the club is seeking to get more users into its ranks. It has been suggested that the club conduct a series of IBM workshops, concentrating only on information for the very beginner, to increase club numbers. Those attending the workshops, and who are not already members, would be asked to become associate members.

You were all informed in my last column that Ivan Blitz, of the Melbourne club, is asking for all clubs right around the country to drop him a line telling a little about their clubs. This information can then be published in the MCCC newsletter's "Around Australia" column. The club wants to promote other clubs amongst its members so that everyone everywhere can draw on each others specialities and resources. Ivan's address is 16 Ferngully Road, Cockatoo, Vic 3781. Quite a few clubs have been profiled already.

The following groups or organisations have expressed their desire to exchange newsletters and to regularly correspond with clubs and users in Australia and New Zealand.

Commodore Association of Lake Forest, 22776 Madrid Drive, Lake Forest, CA 92630-4625 USA - Scott D Merrill, President.

Emergency Call BBS, PO Box 509, Gleichen, AB T0J 1N0, Canada - Tom Gislason, EMT-A, Sysop. - BBS Number 403 734 2382 Voice Number 403 734 3511. To phone Canada dial 0011 1 then Canadian number.

Commodore Users Group of Kansas City - Frank Scott, President/Sysop. Write to this group c/- Scott Roseboom, PO Box 213, Woombye,

Qld 4559 who will pass it on to the club.

ACES (Active Commodore Enthusiast Society), PO Box 165, Albany IN 47320-0165 - Don Gilstrap, Editor.

The Editor of Loadstar likes to receive club newsletters on a regular basis from clubs all over the world. Each six months all clubs that have sent in newsletters get listed in Loadstar. Each edition of Loadstar has a regular feature regarding club newsletters. A newsletter competition is conducted each year as well. The address is Loadstar Editor, PO Box 30008, SHREVEPORT, LA 71130-0008 USA. To save postage, clubs can mail their newsletters to Loadstar's Australian agent for forwarding. The Australian address is Loadstar Editor, c/- JDB Software, PO Box 244, WARILLA NSW 2528.

Keep the information about the clubs coming. I look forward to reading your newsletters each month. The address for this column is Clublinks, PO Box 244, WARILLA NSW 2528 or you can telephone me on (042) 97 3159 or fax (042) 97 6118.

Until next time,

BUCKY.

CLUB LIST

This is a list of some of the user groups in Australia and New Zealand that cater for members with 64's or 128's. If you want any information or details about the club contact the person listed or write to the address shown. There is also a list of mail/postal groups as well. If you write to a club please enclose either a stamped self-addressed envelope, a stamp or reply coupon for your reply. Remember that school and public holidays as well as local events can

affect meeting dates. ALWAYS check with the club contact first.

AUSTRALIA

- *ACT8CC (Canberra 8-bit club), 1 Kitson Place, FLOREY ACT 2615 - contact Gordon Wormald (06) 258 2259 or Ted Woodwell (06) 281 6347 for all information regarding this club, including meeting times and venues.
- *Albury/Wodonga Commodore User Group Inc, PO Box 1014, ALBURY NSW 2640 - 1st Tuesday and 3rd Monday 7.30pm Gas & Fuel Corp Building, Hume & Townsend Sts, Albury - Rod Graeber (060) 21 3703 or Helen Egan (Secretary) (060) 24 5114
- *C64 Developments Inc (Wollongong C64/128 Club) PO Box 150, UNANDERRA NSW 2526 - 2nd Friday 6.30pm Unanderra Community Centre, Princes Highway, Unanderra - Sue Smith (Secretary) (042) 71 7243 Fax (042) 97 6118
- *Commodore 64/128 Club of NSW PO Box 244 WARILLA NSW 2528 - 3rd Wednesday except January 7.30pm Minchinbury Neighbourhood Centre, Minchin Rd, Minchinbury - Laurel Nicol (Secretary) (02) 628 3516 or John Buckingham (President) (042) 97 3159. Fax (042) 97 6118
- *Commodore Hornsby User Group Inc, PO Box 1578, HORNSBY NORTHGATE NSW 2077 - 2nd & 4th Wednesdays 7.30pm St Leos College, Wahroonga - Frank Bunton (02) 487 1062

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- *Commodore User Group (ACT) Inc. PO Box 409, CURTIN ACT 2605 - This group has now folded but the meetings on the south coast at Batemans Bay are still held on 3rd Saturday at Pearly Beach Baptist Church Hall - phone Matt Blydenstein (06) 281 2714 for ALL information regarding this group.
- *Tuggerah Lakes Commodore Users Group, PO Box 659, TOUKLEY NSW 2259 - phone Bill on (043) 92 2567 or Ted on (043) 96 5927 for any information.
- Melbourne Commodore Computer Club Inc. PO Box 177, BOX HILL Vic 3128 - 2nd Wednesday 7.30pm Courtyard Room, Nunawading Civic Centre, Whitehorse Rd - Bernie O'Shea (President)(03) 438 1625 or Bob Morrow (Secretary) (03) 846 4217
- Yarra Valley Computer User's Group (formerly Yarra Valley Commodore Users Group) - Contact Jason Huxley (03) 728 4163 for all information.
- South Australian Commodore Computer User Group Inc. PO Box 427, NORTH ADELAIDE SA 5006 - 1st & 3rd Mondays 7.30pm North Adelaide Primary School - Phil (08) 381 8444
- Southern Districts Computer Users Club Inc (Adelaide), PO Box 991, MORPHETT VALE SA 5162 - 3rd Wednesday 7.30pm Home Economics Room, Christies Beach High School (West), Beach Rd, Christies Beach - Robert Cloosterman (08) 382 0781
- Computer Club of WA Inc (Perth) - phone Tom Lee on (06) 332 6374 for all enquiries. This club does not cater for 64/128

members but Tom will put users in WA in touch with other users.

- Cairns Commodore Users Group. PO Box 7, EARLVILLE Qld 4878 - 1st Tuesday 7.30pm Cairns Education Centre, Greenslopes Road, Edge Hill - Bruce Bimrose (070) 54 1949
- Commodore Computer Users Group (Qld) Inc - This group is now Amiga only but will assist any 64/128 users as necessary - Contact Barry Benyon 14 Ash Ave Woodridge Qld 4114 (07) 290 1521
- Woombug 8-bit, PO Box 213, WOOMBYE Qld 4559 - 4th Saturday each second month 1pm - 4pm Tea Room, Masons Hall, Hill St, Woombye - Scott Roseboom (074) 48 5845
- Tasmanian Commodore Users Group. GPO Box 673, HOBART Tas 7000 - 3rd Wednesday 7.30pm Derwent Regional Library, Glenorchy - Stephen Cook (002) 47 9985

NEW ZEALAND

As well as from the clubs themselves up-to-date information regarding any clubs can also be obtained from Jim Mullen, 110 Main South Road, OAMARU Phone (03) 434 6026.

- Kapiti Commodore Users Group, 24 Makarini St, PARAPARAUMI - 1st Friday 7.30pm Kapiti College, Margaret Rd, Raumati Beach - John Hughes (04) 298 4349
- Manawatu Commodore Users Group, 83 Havelock Ave, PALMERSTON NORTH - 1st Monday 7pm St Marks Church Hall - Sydney Mounsey (06) 357 9858
- Whangarei Combined Computer

Club - contact John Pitt (09) 438 6651 for all information regarding this club.

POSTAL GROUPS

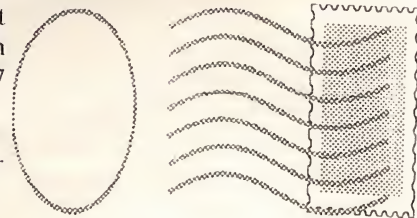
All these groups are mail based groups that cater for those users who are not able to attend a normal club or want to join a second club. Most provide a regular newsletter and give you access to PD programs and program information as well as give you the opportunity to meet other members through correspondence or phone contact.

- GeoCLUB (GEOS users) c/- Peter Hunt 70 Betula Street, DOVETON Vic 3177 - Frank Cassidy (03) 791 4991
- Hills 64 Group PO Box 537, COCKATOO Vic 3781 - Ivan Blitz - (059) 68 9323
- Plus4/C16 Users Group 36 Western Highway, BLAXLAND NSW 2774 - Tony Ellis (047) 39 1528
- The Old Codgers (over 40's) 18 Windsor Street, EDGEWORTH NSW 2285 - Gordon Screen (049) 50 8161 (night time only)

- Woombug 8-bit, PO Box 213, WOOMBYE Qld 4559 - Scott Roseboom (074) 48 5845

- Meeting 64/128 Users Through The Mail C/- Francis Redmond, Route 7, Box 7614, PALESTINE, TX 75801, USA - Francis Redmond

Many regular clubs can also cater for postal or associate members as well. In most cases out of area members would be most welcome. Check with your local club.



**Commodore
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USING MAVERICK WITH GEOS

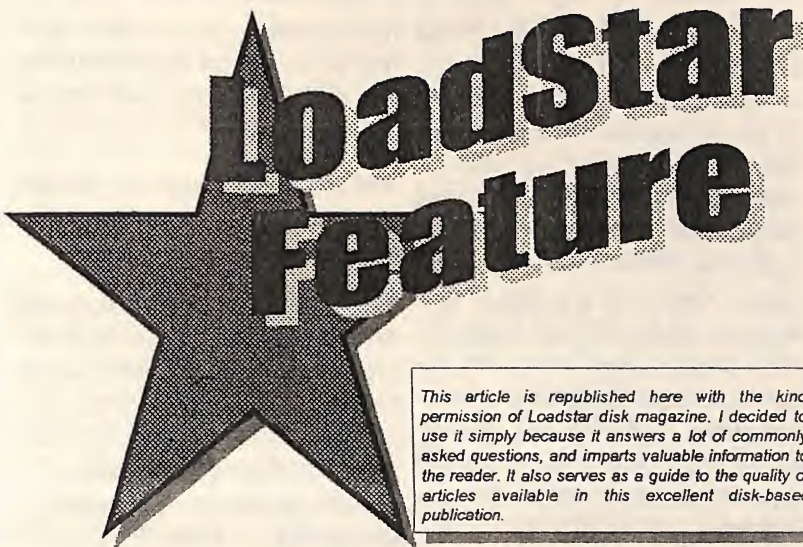
The Maverick archiving system is more than just a copier. It sports several GEOS utilities, in addition to the parameters for backing up your GEOS disks. One of these is a file copier, illustrated below, which is capable of copying your files to a work disk 35% faster than the Desktop. This utility is very easy to use.

This file copier has a larger storage buffer and you have the advantage of selecting as many files as you want. The exceptions are the system boot files: GEOS, BOOT GEOS and KERNAL. When the system boots, it is not looking for file names, but, rather, it looks for a certain track and sector. If you copy these files over to another disk, they will no longer be in the same place and your program won't load.

After you have installed your GEOS, insert side 2 of Maverick disk 1, and look for the file copier icon. There should be two GEOS icons on this side, one is for the file copier and the other is a sector editor, discussed later. Launch the file copier and you will be greeted with the screen shown at right..

The best way to proceed is to copy this file to a work disk, so it is always handy. The presentation of the files makes it easy to select the ones you want to copy to another disk. Select as few or as many as you wish. Be careful, though, when you copy files from a 1581 disk to a 1541 disk. You have to watch the number of blocks or else you may exceed the capacity of the disk.

The top left of your screen shows the name of the current disk, which is the source drive. It also shows the total number of files selected, or highlighted, as well as the total



This article is republished here with the kind permission of Loadstar disk magazine. I decided to use it simply because it answers a lot of commonly asked questions, and imparts valuable information to the reader. It also serves as a guide to the quality of articles available in this excellent disk-based publication.

number of blocks of the selected files. As you highlight a file, these two numbers will increase. At the top right side of the screen are the Source and Target drives. They indicate A or B and the drive type as well.

Below this you have the usual menus. If you click on GEOS, a submenu opens up and you have the choice to exit back to the desktop, or select any of the desk accessories you have on your work disk. The FILE menu has two choices: Load Source Directory will load the directory of the disk in the source drive. The Copy Files choice is activated after you have made your setup to start copy process. When you click on DISK, a dialog box

opens up where you will be able to swap the source and target drives. This file copy system will use any combination of drives that GEOS allows. The PAGE option allows you to view the next page of files, should your disk contain more files than can be displayed in the three columns.

Files may be selected by simply pointing to the filename and clicking, thereby highlighting it. If several files to be copied are in sequence, click on the first name, hold the button and drag the cursor down to the last file. The total number of files is limited to 128 but the number of blocks is not. After you have selected all your files, choose Copy Files from the FILE

CURRENT DISK: B: Ram1581		SOURCE: B - 1581
TOTAL FILES : 00005		TARGET: A - 1541
TOTAL BLOCKS: 00304		
	geos file disk page	
GEOPRINT	Photo Scrap	BUTGERS24 PD
GEOWRITE	Word P Comp	SANTA MARIA
photo manager	MARICOPA	University LQ
Mini Desk	Californi a	Ep8pi n3pass
Handy Import	Lewis	Epson 50% Vert
ScrapCan	Chelsea	Epson 66% HV
Icon Editor	HILLS NLQ	PHOTOGRAB
Dweezi Lab25	Roma LQ	DESK TOP
Cantonese Menu	Smithers-F	CONFIGURE
Labels	Mykonos	Pad Color Pref
Orig. Patts DA	JAVELINA	Preferences
PattDA	JOKER24 PD	Geo Solitaire
face album	BONANZA	geotile
Tapelabels 1	FAREAST	LockScreen
Letterhead	frosty	ScreenGrab
MAVERICK F. C.	Dwinella	BlackOut
20/26/32/38	NewFont	HQ9 High Eps 55
size 38	Dar Vaterland	SWITCHER
FileCopyScreen	R S V P	PATTERN EDITOR
END SDs	Barnum	Patt 99

menu and you will be asked if you are sure. Answer OK or CANCEL. If you select to cancel, you will return to the main screen. Select OK to copy, and you will be prompted to insert Source and Target disks, if you have two drives. Again you will have to confirm your choice. Cancel returns you to the desktop, while OK will begin the copy process. Just follow the on-screen prompts. Once the process is completed, a dialog box appears asking you to either reboot the file copier or to cancel and return to the desktop.

Another utility, GEO BOOT, gives you the choice of creating a 1581 bootable GEOS system. Normally, you would be able to use this type of drive only for applications and their data files. This utility allows you to file copy and run GEOS from a 1581, 1541 or 1571 drive, in 1571 format. Select the GEOS TOOL KIT and press Return.

Follow the prompts and from the following menu select either GEO BOOT 64 or GEO BOOT 128 and press Return. For the 128 version be sure to be in 40 column mode.

Source Device and Target device may be set to any number from 8 to 11. F1 and F3 display the directories of drive A or drive B, while F8 will reboot the Maverick system disk.

Before selecting to make a bootable copy, you must install your GEOS 2.0 disks and make sure that everything works correctly. You must use your ORIGINAL, with its protection intact, side A of your GEOS 2.0 system. Do not modify your original, i.e. deprotect it, or move files around. If you don't have an unmodified original, it will not convert your system to a bootable system. When you start the conversion process, the target disk will first be formatted. After about

three minutes you will find three files on your target disk, one file for 128 users. These files will boot on the target drive.

Add your input and printer drivers, the desktop and the configure files and you are in business.

The GEOS parameter menu is used to make a bootable, unprotected copy of your original disks. Again, use an unmodified original. Copy your disk with the Fast Data Copier and when the copy is complete, run the GEOS Toolkit and select the appropriate parameter. The parameter disk may be in any drive, to be selected with F1, while F3 selects the drive for the backup copy. F7 will load the parameter menu.

Select the parameter needed and follow the on-screen prompts to make a deprotected copy. You will get a message informing you of a successful operation or of a failure.

Please note, that contrary to popular belief, the parameter copy does not un-install your GEOS disks. It will only deprotect them. The serial number generated during the installation process is still in the Kernal, Maverick does not remove the installation. This may be verified with an appropriate

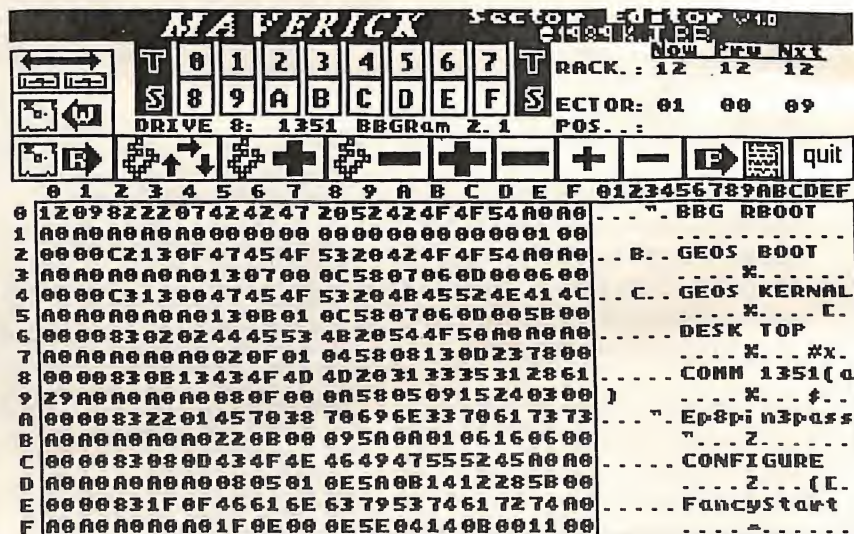
program. If you get a copy of an application from a friend, you will still be informed to use the kernal that was used in the first place to boot the application.

On side two of the Maverick system disk you will also find a GEOS file called Sector Editor (S.E.). Copy it over onto your work disk and double click on its icon. The screen that follows is similar to the illustration below, showing you track 18 sector 0.

This is about the best sector editor on the market. Not only does it indicate the data in hexadecimal format, but on the right side, you'll find the names of the files as they appear on the desktop.

You have to have a knowledge of GEOS in order to understand the various data. You change data by different means. The first is to place your cursor on the first byte of a name you want to change and enter hexadecimal numbers. For this, it is a good idea to have a conversion chart of hex and ASCII characters. The easier way is to put your cursor into the right portion of the screen, on the first character, and type away. No hex here.

The display screen shows at the top left, two drives with arrows



pointing left and right. Here you change drives. The two icons below this are for reading and writing a sector, indicated by the R and W. On the right side, at the top, you find three items: Now, Previous and Next. Now indicates the present track and sector, while Next indicates the next sector in the chain. Previous simply indicates the sector viewed previously. Position indicates the position of the cursor on the sector map. This is in hex and decimal. Note that the position is indicated starting at byte 0, which is the first byte.

Track and sectors are changed by clicking on 0 to F, then on T for track, and again choosing a sector and clicking on S to lock in your choice. Click on R to read the sector thus chosen. Across the top of the sector map you find various icons that help you move in the various sectors. The first, a chain loop, permits you to move forward, following the links of the program. You also have the choice to put the cursor on a byte in the sector map, and clicking on the Chain Loop to jump to the sector indicated. Do this only on a sector address. Chain + and Chain - permit easy link following, forward and back. The large + and - read the next or previous track, respectively. The small + and - will read the next or previous sector, respectively, without following the file links. If you have your printer driver on the disk, you have the option of printing out the sector information.

What do these numbers mean? Looking at the illustration above, a representation of a track 18 sector, it is easy to follow the previously mentioned items. Now we move into the sector map, and again, it is easy to compare the right ASCII side with the left side. On the first line we have 12 and 09 as the first two bytes.

The first indicates the next track in hexadecimal and the second indicates the next sector. These are the sector links. The third byte indicates the file type: 82 means PRG, while C2 means a locked PRG file.

The next two bytes, in hex, contain the address of the start of the file; 22 means track 34 and the sector is indicated by 07. Next follows the name of the file, easily compared with the right side of the screen. If the name is less than 16 characters, it is padded with shifted spaces, indicated by the A0 bytes. The rest contains only zeroes, while the last two bytes contain the number of blocks of the file. This first file is a regular DOS file.

Now let's take a look at the third entry, the Kernal. This is a GEOS file, and it contains much more information. For what follows, the bytes are indicated in hexadecimal, easily followed by the numbers across the top and on the left side of the graphic. Bytes 60 and 61 are unused, as the sector links are only indicated at the first entry.

Therefore, they are at zero. Byte 62 indicates the file type: 83 is a USR file, while C3 would indicate a locked USR file. This byte is changed when you click on the lock button in the info sector. Bytes 63 and 64 show the first sector of the program in track and sector format. In case of a VLIR file, they will point to the index sector of the file, which, in turn, contains the file links. Bytes 65 to 74 represent the file name. If the name is less than 16 characters long, it will be padded with shifted spaces, indicated by the A0's following a shorter filename. Bytes 75 and 76 indicate the track and sector of the info block, the one you see when you select Info in the File menu. Byte 77 tells us the structure of the GEOS file: 01 for a VLIR file, and 00 for a SEQ

structure. Byte 78 indicates the filetype: here 0C indicates a GEOS system boot file. The date is recorded in bytes 79, 7A and 7B, in a year, month and day format. Bytes 7C and 7D are the time in 24 hour format. The last two bytes, 7E and 7F, are the number of blocks in the file in low-byte, high-byte format.

The following is a list of the different filetypes that GEOS uses:

00	NOT A GEOS FILE
01	C64 BASIC FILE
02	C64 ASSEMBLY FILE
03	C64 DATA FILE
04	GEOS SYSTEM FILE
05	DESK ACCESSORY APPLICATION
06	APPLICATION
07	APPLICATION DATA FILE
08	FONT FILE
09	PRINTER DRIVER
10	INPUT DRIVER
11	DISK DRIVER
12	SYSTEM BOOT FILE
13	TEMPORARY (SWAP FILE)
14	AUTOEXEC FILE
15	INPUT DRIVER FOR C128

As can be seen from the above, a lot can be learned about how GEOS records its information on the disk. When you use the regular DOS Validate command, a lot of information is lost on sector 0 of track 18, most notably the Off-Page Directory Sector, bytes AB and AC. It holds the files which you have placed on the border. When you use the regular DOS Validate, this sector will be overwritten the next time you save to disk, thereby causing a Error 2, illegal track and sector. That's why you have to use the GEOS Validate command only.

As this is a program that can make or break a disk file, make a backup of the disk you wish to examine and use that one instead of your priceless originals. It is also a good idea to beef up on the GEOS file structure. A good choice is the GEOS Programmer's Handbook. And remember, the authors cannot be held responsible for the use or mis-use of this program.

**Commodore
Network**

MAGAZINE REVIEW

Showcase

A LOOK AT COMMODORE FORMAT

THE LAST ISSUE!

The May '95 issue of Commodore Format was the last to reach Australia although the magazine continued to be published 'till the October issue. For those readers who used to buy it and wonder what the final issue was like, I'll give a brief description.

Issue # 61 of Commodore Format was the final issue of this British C64 magazine. The cover cartoon being Roger frames, his dog and The Mighty Brain walking off into the sunset.

The contents consisted for the most part self-indulgent retrospective backslapping, teary-eyed goodbyes from former staff, some rantings against consoles and the IBM PC, a Top Ten Games Ever article, a somewhat inaccurate hardware roundup and five (5) advertisements (two more than the previous issue). The only information of any use in the magazine was DTBS' change of address. Highlight of the magazine was the full page advertisement from EBES for Commodore World

Magazine; hopefully CW should pick up some disgruntled British ex-CF readers. For those interested in such things, CF's first issue (October 1990) had a print run of 60,000 copies, for this final issue there were just 5,000 copies printed.

To sum up, Future Publishing, Britains' largest computer magazine publisher, had for the past several years neglected Commodore Format, starving it of resources as it became less profitable. The result being that instead of evolving alongside the increasingly sophisticated C64 world it declined to the point where its content severely lacked the knowledge, news, polish, enthusiasm and depth that we take for granted in the "amateur" publications like Commodore Network, Commodore Cee, and Commodore World. Commodore Format died like a dog.

NEW PUBLICATIONS FOR THE C64

On a more positive note, my latest visit to Korella Trading was turned into an even more enjoyable event when the proprietor displayed no less than three new Polish computer magazines which featured the C64 in a big way. Two of the magazines were for Commodore machines

(Amiga/64/CD32), and the other mainly for the IBM PC. The C64 seems to be very popular over there, and the technical expertise seems to be quite high. There were a number of full colour ads for games from various companies, and a company called Tom-Soft distributes the entire range of games from the well known British software company, Zeppelin Games. What's even more encouraging is that C64 articles stand alongside those for the Amiga, instead of stuffed into a small "C64 Ghetto" like in one Australian newsstand magazine I could (but cannot be bothered to) mention. Of especial interest was a DIY hardware article for making the C64 display up to 256 colours. Yes, 256 REAL colours, not "colour mixing" or "interlacing", this hardware hack uses the cassette port output lines to affect the colour and brightness lines from the C64's composite output before it reaches the monitor.

Apparently the 64 is going great guns in eastern Europe, which is probably already the most active region for commercial software development.

The September issue of CF reviewed two new british fanzines:

"Commodore Magazine"
10 pages, CF rated 2/5, 60p
Contact: Dean Sadler
46 Aldesworth Road,
Cantley Estate 2,
Doncaster,
DN4 6JT,
England

"Zine 64"
20 pages, CF rated 4/5, SAE +
£1.20
Contact: Chris Holgate
45 Wheatlands Rd,
Paignton,
Devon,
TQ4 5HX,
England

Commodore Network

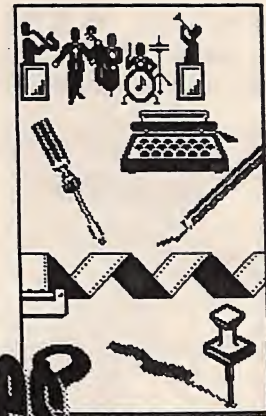
When the column gets to Disk-Coverer, you will find it linked together and packed. I do this so that Warren has more room on the Disks for more goodies for us. In doing this, I may have neglected some of you who do not use Super-Aide to separate the programs by deleting blocks of line numbers, so here is a small, very capable routine to do the job for you. A simple FROM line number TO line number, and the STEP when prompted. If you use step 1 you will make sure you get all the lines. Use the M.L. Merge we had earlier to append it to a program, and type RUN 60000 (return):-

```
60000 REM BLOCK DELETE
60010 INPUT "FROM, TO, STEP";
F, T, S: PRINT CHR$(147);
CHR$(5);
60020 PRINT CHR$(19) F: F= F
+ S: PRINT "60040 F=" F ": T="
T ": S="S: PRINT "GOTO 60040"
60030 POKE 631, 19: POKE 632,
13: POKE 633, 13: POKE 634,
13: POKE 198, 4: END
60040 F= 45 : T= 44 : S= 1
60050 IF F > T THEN PRINT CHR$(
147): GOTO 60000
60060 GOTO 60020
*
```

Now here's a routine that will make your screen sparkle. A bit of typing, but well worth it:-

COLOURFUL TEXT

```
210 PRINT CHR$(147)
220 FOR D = 49152 TO 49243:
READ A: POKE D, A: NEXT
230 POKE 49209, 2: SYS 49152:
REM IF YOU CHANGE THE SPEED -
THE POKE MUST MATCH
240 LIST: END
250 DATA 120, 169, 49, 141,
20, 3, 169, 192, 141, 21, 3,
173, 17, 208
260 DATA 41, 127, 141, 17,
208, 169, 255, 141, 18, 208,
169, 1, 141
270 DATA 26, 208, 169, 127,
141, 13, 220, 88, 169, 255,
141, 14
280 DATA 212, 141, 15, 212,
169, 128, 141, 18, 212, 96
290 DATA 206, 53, 192, 169, 3,
208, 27, 169
300 DATA 2: REM SPEED
310 DATA 141, 53, 192, 162, 0,
173, 27, 212, 157, 0, 216,
157, 250
320 DATA 216, 157, 244, 217,
157, 238, 218, 232, 224, 250
```



Bits & Pieces

```
330 DATA 208, 236, 169, 1,
141, 25, 208, 76, 49, 234, 0
*
```

```
POKE 781, Y: SYS 59903
```

Where Y = Line number 0 to 24.

If you would like certain lines in your program to show out, here is a way to indent them.

AFTER THE LINE NUMBER TYPE SHIFT J THEN TWO SPACES.

List your program and see the difference.

*

How about another sound routine to use in your programs. Turn up your Volume before you run it:-

```
10 REM SPACE PIGS
15 S = 54272: RS = 15: AT = 0:
DK = 0: SU = 15: RE = 0
20 FOR I = 0 TO 24: POKE S +
I, 0: NEXT
25 POKE S + 24, 15 + 64
30 POKE S + 23, 1 + 16 * RS
35 POKE S + 5, AT * 16 + DK
40 POKE S + 6, SU * 16 + RE
45 POKE S + 4, 21
50 FOR I = 1 TO 255
55 POKE S + 4, 21
60 POKE S + 1, I
65 POKE S + 15, INT (RND (1) *
100 + 5)
70 POKE S + 4, 20
75 NEXT
80 POKE S + 1, 0
85 POKE S + 15, 0: END
*
```

At some time in the future, you may wish to clear a line off the screen and replace it with another. Here's a simple way of doing it in your program:-

Here is another small Commodore Text Trick that shows the uses of the basic commands:-

```
1000 REM RIGHT SCROLL
1010 PRINT CHR$(147): AS =
"COMMODORE NETWORK(10 SPACES)"
1020 L = LEN (AS)
1030 FOR I = 1 TO L
1040 PRINT TAB (40 - I) RIGHTS
(AS, I); "(2 UP)"
1050 NEXT: END
*
```

We seem to be into the wonderful colour displays the 64 is capable of, so here is another routine to show it off. Lines 50-60 show you how to print in more than one direction at a time. The 'WAIT 198, 1' is only to stop the Ready from spoiling your display:-

DAZZLER

```
10 PRINT CHR$(147);: COL =
54272
20 FOR X = 1024 TO 2040: POKE
X, 160: POKE X + COL, 15: NEXT
30 FOR R = 0 TO 12: C = R
40 FOR L = 0 TO 19: C = (C +
1) AND 15
50 POKE 55296 + 40 * R + L, C:
POKE 55335 + 40 * R - L, C
60 POKE 56256 - 40 * R + L, C:
POKE 56295 - 40 * R - L, C:
NEXT: NEXT: WAIT 198, 1
*
```

Ever get confused about the various ways to generate RANDOM statements? Here's a small routine

that will show six of them and let you see the different results every time you press return:-

GENERATE RANDOM NUMBERS

```
110 PRINT CHR$(147)
120 X = RND (0)
130 PRINT "RND (0) =" ; X
140 PRINT "RND (0) * 4 =" ; X
    * 4
150 PRINT "INT (RND (0) * 5)
    =" ; INT (X * 5)
160 PRINT "2 * RND (0) + 2 ="
    ; 2 * X + 2
170 PRINT "INT (3 * RND (0) +
    2) =" ; INT (3 * X + 2)
175 PRINT
180 INPUT "PRESS RETURN TO
    REPEAT"
190 GOTO 120
    *
```

BITMAP 5

Now we have dealt with drawing straight lines, its time to tackle CIRCLES. It's a shame we don't have a circle command for the 64, but of course we have the functions COSine and SINE to let us do the job.

Now before we start on our circles you will noticed this in the COS info - [pi]. PI is represented on the Commodore keyboard by a Greek letter, and you can print it by pressing SHIFT/UP ARROW (next to Restore). Unfortunately I cannot reproduce it with GEOS in this column, so when you come across [pi] just enter the SHIFT/UP ARROW (no brackets).

COS(number) :- Mathematical function calculates the COSine of the number, where the number is an angle in RADIANS. ie:-

```
10 PRINT COS (0)
20 X = COS (Y * [PI]/180) :REM
    CONVERT DEGREES TO RADIANS
```

SIN(number) :- Floating point function gives you the SINE of a number in RADIANS. ie:-

```
200 AA= SIN(1.5) : PRINT AA
```

Answer .997494987

If you sketch a circle, you can relate

each point on the circle to an angle at the circle's centre. Every angle has its own value of SIN and COS, and you can write the co-ordinates of any point on the circle like this:-

```
R * COS (A) : R * SIN (A)
```

This next program produces a circle with a radius of 80 pixels, study the COS and SIN statements :-

CIRCLE PLOTTING

```
10 GOSUB 1000
1000 COL = 160: POKE 53280, 8:
    GOSUB 100: GOSUB 200
1010 FOR A = 0 TO 2 * [PI]
    STEP [PI] /120
1020 LX = 80 * COS (A) + 160
1030 LY = 80 * SIN (A) + 100
1040 GOSUB 400
1050 NEXTA
1060 GOTO 1060
```

In this program, the angle has to vary from 0 to full circle, which is 360 degrees. But of course there is no mention of degrees in the program. Instead, we have the loop which runs from 0 to 2 * [pi], with an odd-looking STEP value of [pi] / 120. The reason for this is that the Commodore doesn't use degrees at all. Instead it measures angles in RADIANS, a different, but more logical way of doing the same thing. A full-circle angle of 360 degrees is exactly equivalent to 2 * [pi] radians.

PI is an important mathematical constant, which has a value of 3.14159265. See this by typing - PRINT SHIFT/UP ARROW (return). This figure is the ratio of the length of a circle's circumference, to its diameter. All you need to remember is that there are 2 * [pi] RADIANS in a circle, which means, [pi]/2 RADIANS are a quarter of a circle, [pi]/4 an eighth, and so on.

Lets add SUBROUTINE 7 to the other six, and save them.

Number 7 requires three values. For the co-ordinates of the centre of the circle, XC and YC, and the length,

in pixels, of the circle's radius, (RAD):-

SUBROUTINE SEVEN

```
700 A1 = 0: A2 = 2 * [PI]
710 IF A1 >= A2 THEN A2 = A2 +
    2 * [PI]: GOTO710
720 DA = 1 + INT ((A2 -
    A1)/0.2)
730 A3 = (A2 - A1)/DA
740 LX = INT (RAD * COS (A1) +
    XC + 0.5)
750 LY = INT (RAD * SIN (A1) +
    YC + 0.5)
760 FOR A0 = (A1 + A3) TO A2
    STEP A3
770 NX = INT (RAD * COS (A0) +
    XC + 0.5)
780 NY = INT (RAD * SIN (A0) +
    YC + 0.5)
790 GOSUB 600: NEXT A0: RETURN
```

Lets see how it works:-

CONCENTRIC CIRCLE PROGRAM

```
10 GOTO 1000
1000 COL = 160: POKE 53280, 6:
    GOSUB 100: GOSUB 200
1010 FOR C = 1 TO 8
1020 XC = 50 + INT (RND (0) *
    220)
1030 YC = 50 + INT (RND (0) *
    100)
1040 FOR RAD = 10 TO 40 STEP
    15
1050 GOSUB 700: REM NEW
    ROUTINE.
1060 NEXT RAD: NEXT C
1070 GOTO 1070
```

Lines 1020 and 1030 produce a pair of X and Y co-ordinates at random so that neither is within 50 pixels of the screen edges, allowing the program to draw circles up to a radius of 40. The loop at lines 1040 to 1060 repeatedly draws circles with the same centre, but with increasing radii. Then line 1060 starts it all over again at random. Try altering the maximum radius by changing the step in line 1040. ie:-

```
1040 FOR RAD = 10 TO 40 STEP
    6.
```

Try some more variations.

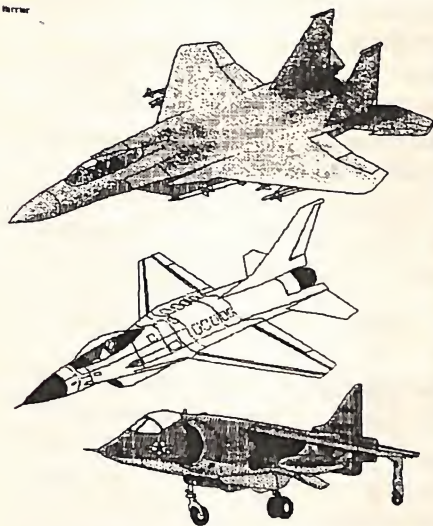
Next column, ARC & NATURAL GRAPHICS.

Happy Programming,

Kev.

One of the purest forms of computer gaming is the "Wargame", or more accurately, the computer-based "Combat Simulation". The computer wargame has changed little since the late 1970's, the latest games on 32-bit machines still tend to use hex or grid based maps and a "turn" system of play. Even though newer wargames boast such features as CD-ROM video clips, online information database, 16-bit digitised sound and realistic incidental graphics, the older 8-bit

Wargames on a C64



software can still hold its own in terms of gameplay, historical accuracy and accuracy of internal algorithms.

WHAT IS A WARGAME?

A wargame involves two or more players (often the computer takes the place of the second player) and involves a simulated battle or war. Units such as divisions or platoons are represented by small tokens or icons that are moved about a map according to a specific set of rules. The map may represent a battlefield a few kilometres across or a whole continent in the case of something like a World War 2 simulation. By commanding these units to move, attack, retreat, or whatever, the aim

is to "win" according to a set of objectives (capture a town, defeat all enemy armies, etc). Each type of unit has its own attributes - cavalry move faster than infantry, a tank brigade has a higher "striking force" than say, a company of infantry, and so on. Movement occurs in "turns", representing a period of time such as 10 minutes or a year depending on the scale of the game. Each player takes his "turn" to issue orders. According to

Ney had been given use of Napoleon's elite Imperial Guard when he originally requested them for the attack on La Haye Saint?". Would the British line have broken, resulting in a French victory? A good wargame can be a valuable tool for those wanting to understand more about the great turning points in history.

My first encounter with a computer wargame was on the Apple II's at school. A copy of SSI's "Baltic'85" was doing the rounds, and through a process of trial and error I managed to play it during lunchtimes, enough to whet my appetite for more. A few years later when browsing in a local computer shop (Korella Trading) I located the classic "Kampfgruppe" wargame, recognising it from the ads in Australian PCG magazine. It was a WW2 Eastern Front tactical level game (platoon-sized units) which recreated some of the most important engagements in that theatre. Since then, wargames have



various complex probability tables the chances of the orders being carried out, including combat are calculated and changes are made to the units' positions and strengths. Wargames that recreate historical battles are useful for studying the mechanics and "flow" of the actual event. For example, if a student is given an assignment on the Battle of Waterloo and a hypothetical question is given, such as, "What might have happened if Marshal



been my favourite style of game, their depth and the fact that a wargame can be played differently every time assures that these still

get used while the linear, "only one way to win" arcade style games gather dust on the shelf.

WARGAMING IN AUSTRALIA.

Queensland based E.C.P., now Electronic Arts Australia, was the Australian distributor of Electronic Arts and SSI products in the 1980's. Most programs were manufactured in Australia under licence, and to cut costs programs were supplied in plastic cases rather than the original cardboard boxes used in the U.S. This resulted in SSI wargames costing \$30 rather than the \$80 when imported from the U.S.

Strategic Studies Group (SSG) was an Australian company which produced many fine wargames including SSI's "When

SAAB 35 DRAKEN



Superpowers Collide" series, "Battlefront" and its variations, "Carriers At War", "Reach For The Stars", "Russia", "Europe Ablaze", "Decisive Battles of the American Civil War", and many others. Most



of their wargames featured a standardised menu command interface - once it is learned, virtually ANY SSG wargame can be played without having to refer to a manual.

GREAT BRITAIN

In Great Britain several companies specialised in wargames, Cases Computer Simulations (CCS), P.S.S., and MC Lothlorien. Two of the best authors, R.T. Smith and Ken Wright produced excellent games for the Sinclair Spectrum,

MC BRADLEY



many of which sadly never saw light of day on the C64. Alan Steel was P.S.S.'s star C64 author, with such games as "Theatre Europe" and "Battle for Midway" to his credit. Fortunately quite a few excellent wargames were produced for the C64, the most notable including PSS' "Sorcerer Lord", "Theatre Europe" and "Battle Of Britain"; Lothlorien's "Johnny Reb 2" and "The Bulge"; Beyond's "Lords Of Midnight" and it's sequel "Doomdark's Revenge"; and Goliath Game's "Lords of Chaos" and "Laser Squad".

UNITED STATES OF AMERICA

In the early 1980's software giant Strategic Simulations Inc (SSI) dominated the computer wargame field. Produced mainly for the Apple II and C64, their products won numerous awards. Perhaps their most prolific author of the time was Gary Grigsby who authored such games as

"Kampfgruppe", "War In Russia" and "Mech Brigade".

Microprose, more used to producing flight simulations did, to their credit, release some "proper" wargames in their excellent "Command Series" games, which utilised a scrolling, joystick driven interface. Simulations in this series included "Decision in the Desert" (Africa WW2), "Crusade In Europe" (Normandy WW2) and "NATO Commander" (Europe WW3).

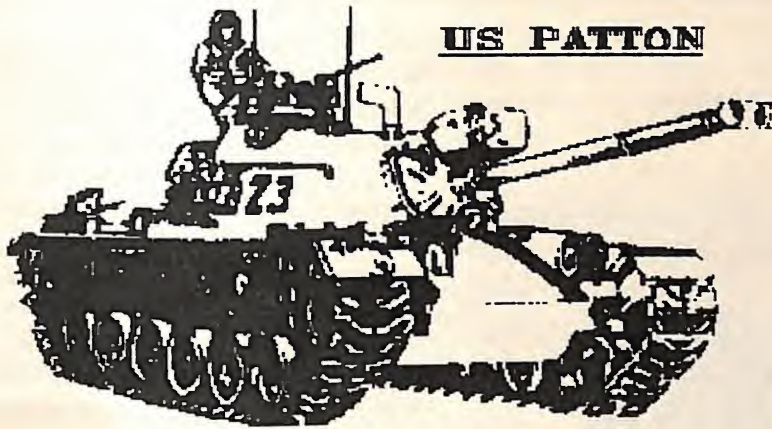
Avalon Hill, the world's largest producer of strategy boardgames, also released some excellent computer wargames, many being conversions of their original tabletop board wargames such as "Guderian", the computer version of James F. Dunnigan's tabletop game "Panzergruppe Guderian".

WHY PLAY THEM?

The appeals of computer wargames are many; the game is stored on a small disk instead of a big box. Having a computer do all the calculations is great, and being able to try "what if" scenarios is a favourite of history buffs. Playing a historical wargame along with a book on the same battle can be enlightening, a good example being to play SSG's "Battles In Normandy" alongside Chester Wilmot's military textbook "The



**Commodore
Network**



US PATTON

"Struggle For Europe". It's a very, very educational experience.

updated IBM PC version was released only recently.

LANDMARKS IN 8-BIT WARGAMING

1978: The first commercially available computer wargame was Chris Crawford's "Tanktiks" for the Commodore PET. It was rereleased for other platforms by Avalon Hill in 1981.

1981: First use of a scrolling map, where only a "window" on the landscape is in view at any one time. This was "Eastern Front 1941", written by Chris Crawford for the Atari 800.

1984: Mike Singleton's unique first person perspective wargame, "Lords Of Midnight" was released on the 48K Sinclair Spectrum (Timex Sinclair 2000), followed a year later by the C64 version. The

1985: SSI's award winning "When SuperPowers Collide" series of games, programmed by SSG's Australian programmers Roger Keating and Ian Trout.

1985: SSI's "Kampfgruppe", programmed by Gary Grigsby, was awarded '1985 Game Of The Year'.

1987: SSG's classic "Russia", strategic Eastern front WW2.

1989: Electronic Arts' joystick driven "Storm Across Europe". This game recreates the entire European theatre of World War 2.

MARKET SHARE TRIVIA

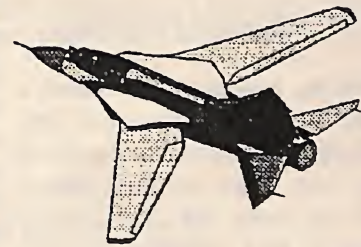
In 1984 19% of wargame sales were for the Apple II and 51% were for the C64, while the IBM PC and

Apple Macintosh each accounted for only 8% of the market.

In 1988, just 4 years later, 47% of wargame sales were for the IBM PC.

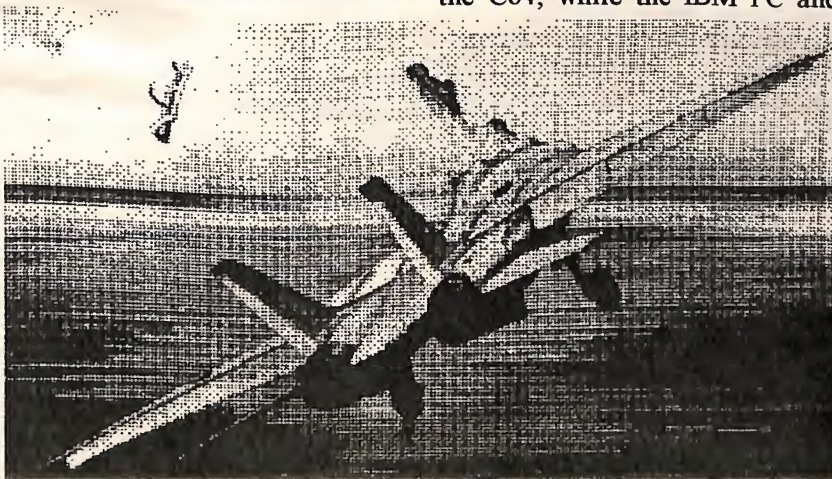
WHERE CAN I FIND THEM?

No new wargames are being produced for the C64, although SSI still lists some older C64 games in its catalogue, as does Directsoft, distributors of SSG and SirTech games.

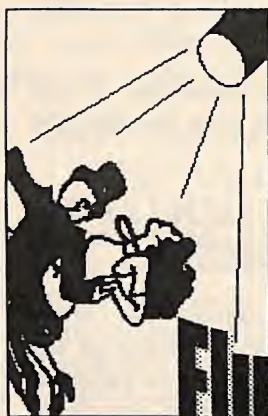


Korella Trading has a number of good titles, both new and secondhand "classics", and may still be able to obtain new SSG titles. Korella can be contacted on (049) 548455. Apart from that you'll have to scan the classified ads. Wargames were never produced or bought in the numbers that, say, arcade and adventure/Role Playing Games were, so it may be very hard to locate specific titles. Don't worry about purchasing poorly designed or programmed games since virtually all computer wargames were carefully researched and produced by professional wargame designers for a small and discerning market - a very different situation from the arcade game mass market where all too many of the games were, quite simply, rubbish.

If you're looking for an interesting hobby which is educational as well as fun, then computer wargaming may be what you are looking for.



**Commodore
Network**



Flummi's World

BACKGROUNDING:

Chaos has broken out in Flummi's world. The magic bowling ball (yes, bowling ball!) which protects all the land from harm has been stolen. With its theft, the land became afflicted with catastrophe after catastrophe until finally the Flummi Elder Council met! the council's decision was to send one Flummi in search of the missing charm and to bring it back home.

Unfortunately, no volunteer was found, so, naturally enough, you were chosen! Now, Flum (singular for Flummi) don't have hands (hence your inability to actually signal the elder council as to your feelings on the matter of your selection!), so the bowling ball must actually be rolled back to its place of abode. Flummi sorcerers have been busy placing magic portals hither and yon throughout the land through which the talisman can be transported over longer distances. Your one great ability in this quest is the ability to create or destroy a stone block via a magic spell.

GAME PLAY:

A platform game, our Flummi is joystick controlled, with movement in all four cardinal directions and combinations thereof. Stones are

created or destroyed by pressing the firebutton whilst facing the direction in which the block is to appear or disappear. Since each level (some 30 in all!) consists of a single screen, with the object being the movement by one means or another of the bowling ball from its original on-screen location to that of the magic portal, proper placing of blocks is essential to allow you to channel the rolling ball into the direction you desire it to move, and to help our little Flum friend move around within that level. Game designers being what they are, are renowned for their sadistic streaks however, and these particular programmers have seen fit to place time limits on each screen. This, in effect means that you have to plan ahead and build your course, move your Flum, and manipulate your ball (on several screens there are talismans which affect ball movement, or, indeed, impart special powers to our little friend for a limited period - proper use of these may be essential in the completion of that particular level), as quickly as possible.

As mentioned above, there are a number of amulets which can be acquired on different screens, including one which gives our Flum a deadly satellite, another which imparts greater jumping power, and

still another conveying invulnerability. Collecting other on screen icons will see our creature gain such things as extra time or an extra life, and indeed on some screens there is even an icon which reverses gravity for the magic ball, causing it to float up instead of falling to the ground. You will find proper use of this imperative to the solving of at least one of the levels within your quest.

From time to time you will also encounter doors on screen. These will need to be "opened" with a key which can be located elsewhere within that level. And of course, there are the inevitable nasties! Most will only destroy a portion of your life force on contact, although bees seem to be particularly deadly. All in all it is best to avoid any contact with them at all, either placing a block to restrict their movement and to keep them well out of your way, or by jumping over them. Of course, if you have managed to acquire the little satellite, it can be very satisfying going around and turning a few of the particularly obnoxious ones into dust!

Flummi's World allows access to passwords as each level is entered. By noting these, it is possible to return to the beginning of a particular level at a later date. I am a great fan of this sort of system as it allows the user to complete a game session and to return to where he or she left off the next day, week, or whatever, without fighting their way through interminable levels previously played.

BONUS GAME

Just as a bonus, the designers of this game have included a shoot-em-up as part of the package. you must enter a pass-word to access it, and you must complete Flummi's World to get the password. Not often you

get two games in one!

GRAPHICS:

The graphics in this game are good to excellent, although I would have liked to have seen a bit more artistic flair displayed. The backgrounds could have come from any of dozens of similar games created over the years. That being said, the backgrounds do allow everything to be seen easily, and in that respect are excellent.

SOUND:

I must admit that we found the sound track a little repetitively and boring after a while. This is possibly the one major area in which the game could have been improved. Personally, I would have liked a new soundtrack for each screen.

AVAILABILITY:

At the moment this is only available through Threshold Productions in

the States. We are hoping to announce an Australian distributor shortly. In the meantime, Threshold can be contacted at:

Threshold Productions
17730 15th Ave. NE, Suite #229
Seattle, WA 98155
U.S.A.

OUR OPINION:

If you like platform games that offer a real challenge, then this is definitely for you! Personally, we found this an extremely entertaining game, and wasted more than a few hours playing it. If you enjoy games where the ability to forward plan under pressure is imperative to the game lay, then this is for you! Get it! You won't regret it!

- ◆ **GRAPHICS:** 77%
- ◆ **SOUND:** 55%
- ◆ **GAMEPLAY:** 98%
- ◆ **OVERALL:** 77%

LoadStar is 'yar pardners!

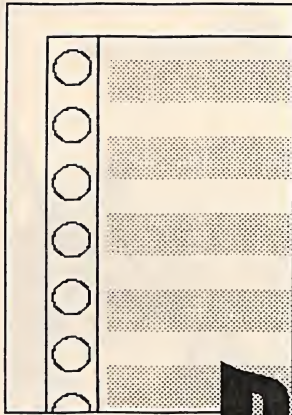
**SERIOUS 64 SOFTWARE,
FOLKS!**

ya can git it frum that thar Buckingham varmint. Back issues from Number 50 are now ready fur brandin'! Ya hear me now?

JDB Software

PO BOX 621, COBRAM, VIC 3644

**Commodore
Network**



PMCC

BASIC's USR(X) function is one of the least used and understood commands. USR allows BASIC to access user-defined flpt math operations.

To use it, the vector at 785-786 has to be pointed to a machine code routine. The parameter within brackets is a numeric expression which is put into FAC before control is handed to the user's machine code routine. The routine can then operate on the value in FAC (eg conversion to radians) before returning to BASIC via an RTS. The resulting flpt value left in FAC is then passed back to BASIC (C = USR(X), PRINT USR(X) and POKE USR(X) are all valid).

Example:

BASIC CODE:

```
10 SYS 49152
20 C = USR(50)
30 PRINT C
```

MACHINE CODE

```
ASSEMBLE TO $C000 (49152)
START LDA #<MAIN
STA 785
LDA #>MAIN
STA 786
RTS
MAIN JSR $BAFE ;(DIV10) FAC =
FAC/10
RTS
```

In this example SYS 49152 will set the USR vector, then the value 50 will be passed into FAC by the USR

command and the code at MAIN will run - \$BAFE is the ROM routine which divides the value in FAC by 10. The BASIC variable C will be assigned the value 5, which will then be printed to the screen.

The value used in the USR function can be any expression, eg A = USR (B), PRINT USR (AR(3) / SIN(C) + .5).

RESERVED NUMBERS

The BASIC and KERNAL ROMS contain some numeric constants in 5-byte flpt variable format. These numbers are those often used by the BASIC interpreter routines but can also be used in our own routines.

For example, to load FAC with 0.5 just set (A/Y) to point to \$BF11 and call \$BBA2 (MOVFM).

Here are some useful flpt constants:

```
$AEA8: PI
$B1A5: 32768
$B9BC: 1
$B9D6: 0.707106781 (SQR(0.5))
$B9DB: 1.41421356 (SQR(2))
$B9E0: -0.5
$BDB3: 99999999.9
$BDB8: 999999999
$BDBD: 1000000000
$BF11: 0.5
$E2E0: 1.570796327 (PI/2)
$E2E5: 6.28318531 (PI*2)
$E2EA: 0.25
```

CIRCLES

To complete our look at the BASIC

ROM floating point math routines, I've provided a program that uses a number of flpt routines including the SINE and COSINE functions to draw a circle on the bitmap screen. It works the same way as most BASIC programs.

Outline:

A circle is drawn by plotting pixels around its circumference at regular intervals, usually every degree. A circle drawing routine requires that a Radius and Angle are provided, so the following formulae can be applied:

$$X = \text{COS}(\text{Angle}) * \text{Radius}$$

$$Y = \text{SIN}(\text{Angle}) * \text{Radius}$$

Angle would be a value (in degrees) between 0 and 359. By plotting a pixel for all 360 degrees, a 360 point outline of a circle will be drawn. If the circle's diameter is greater than about 100 then more than 360 pixels are needed or else gaps will appear between them.

Example Psuedo-code program:

```
ANGLE = 1
LOOP: X = COS(ANGLE) * RADIUS
Y = SIN (ANGLE) * RADIUS
PLOT PIXEL AT X,Y
ANGLE = ANGLE + 1
IF ANGLE < 361 THEN GOTO LOOP
```

It is slightly more complex in practice, for example, the SIN and COS functions need Angle to be first converted to Radians. BASIC code would look like this:

```
X = COS (ANGLE * PI / 180) *
RADIUS
```

In the program 256 points are plotted round the circle's circumference instead of 360. The conversion to radians is calculated in a similar way:

```
X = COS(ANGLE * PI / 128) *
RADIUS
```

The only difference here is that the circle is considered to "consist" of 256 degrees rather than 360 so 128 instead of 180 is used in the formula.

PROGRAM SYNOPSIS: Typing it in:

1) Bitmap mode is enabled, the screen is cleared, the main circle routine is entered.

2) In SETUP (2330 - 2470) the value #1 is stored as a flpt variable to be used as the "Angle" variable, and the value #128 is stored as a flpt variable for use as a divisor in the radian conversion subroutine.

3) Angle is converted to a value in radians: Radconv (2060 - 2130) multiplies Angle by PI then divides by 128.

4) The COSine operation is called, then the result, a flpt number between -1 and 1, is scaled.

5) In SCALE (1940 - 2040) the value is multiplied by the Radius, then XYoffset is added and the result placed in XDOT.

6) Steps 1 to 5 are carried out but the SINE function is used instead of COSine and the final result placed in YDOT.

7) The PLOT subroutine is called. Using XDOT and YDOT the byte and bit positions on the bitmap screen are calculated and a pixel is plotted.

8) A one byte counter, ANGPNTC, is decremented, the flpt Angle has #1 added to it and the routine loops back to step 2 until all 256 pixels have been plotted.

9) Upon exit, the border will change colour and the program will wait for <SPACE> to be pressed before returning to normal text mode.

The Plot routine:

PLOT (2760 - 3200) does not use flpt routines or data tables to calculate the bitmap byte position, the plot subroutine uses an 8-element table for the pixel's bit position. The byte is calculated using a BASIC-like method. The screen is restricted to 256*200 pixel coordinates.

Fire up your assembler. The sourcecode is for 6510+ Assembler but it's easy to convert to other assemblers such as PAL, MAE, etc.

Due to the complexity of the code there will be comments tagged to the end of some instructions, which can be typed in, eg.

```
1960 JSR $BCOC ; ARG = FAC
```

After each major section of code there will be a further explanation in lowercase text beginning with "." but no line number. Don't type these in.

In the text you'll see some references to "CARDS". I'm using the U.S. convention of referring to the 8*8 bitmap pixel blocks corresponding to the character colour boundaries they reside in. A bitmap screen is 40 cards wide and 25 deep. Each card consists of 8 contiguous bytes arranged vertically "onscreen".

Assemble to \$C000. SYS 49152 <RETURN> to run, <SPACE> to exit when circle has been drawn.

Things to try:

The number of pixels to be plotted is held in ANGPNT. Change the value to 128 (ie ANGPNT BYT 128) to draw a semicircle.

To draw a FULL circle with the same 128 pixels DIVTXT must be a value half that of ANGPNT, eg. if only 32 pixels are to be plotted then DIVTXT must be 16.

Note that since the bitmap screen is located at \$2000 (8192) any major additions to the sourcecode may push it into the bitmap area, so be careful, or else change the video bank.

```
1000 *=$C000 ; START AT 49152
1010 ;
1020 BITMPOS=$2000 ; START OF
BITMAP
1030 TLBITM=$2000+(4*8) ; TOP
```

```
LEFT OF 256*200 PIXEL AREA
1040 BORDER=$D020 ; BORDER
COLOR REGISTER
1050 XDOT=$A7 ; STORAGE PIXEL
X-COORDINATE
1060 YDOT=$A8 ; STORAGE PIXEL
Y-COORDINATE
1070 ;
1080 SEI
1090 JSR SETBITM
1100 JSR CLRBITM
1110 JMP CIRCLE
ENABLE BITMAP, CLEAR BITMAP,
JUMP TO MAIN CIRCLE ROUTINE.
1120 ;
1130 SETBITM LDA $D011
1140 STA HOLD
1150 ORA #32
1160 STA $D011
1170 LDA $D018
1180 STA HOLD+1
1190 ORA #8
1200 STA $D018
1210 RTS
THE NORMAL VIC REGISTER VALUES
ARE STORED FOR THE EXIT
ROUTINE TO USE.
1220 ;
1230 CLRBITM LDA #0+16
1240 LDX #250
1250 SCLRLOOP STA 1023,X
1260 STA 1023+250,X
1270 STA 1023+500,X
1280 STA 1023+750,X
1290 DEX
1300 BNE SCLRLOOP
SET BITMAP COLOUR NYBBLES.
1310 ;
1320 LDA #<BITMPOS
1330 STA $FB
1340 LDA #>BITMPOS
1350 STA $FC
1360 LDA #0
1370 TAY
1380 LDX #32
1390 BCLRLOOP STA ($FB),Y
1400 INY
1410 BNE BCLRLOOP
1420 INC $FC
1430 DEX
1440 BNE BCLRLOOP
1450 RTS
THE 2-BYTE BITMAP BASE VALUE
($2000) IS PUT IN ($FB/$FC),
(A) LOADED WITH #0, (X) LOADED
WITH THE NUMBER OF BLOCKS
(256-BYTE CHUNKS) TO CLEAR.
NOTE HOW (Y) IS USED INSTEAD
OF $FB AS A LO-BYTE OF THE
BITMAP AREA BEING CLEARED.
1460 ;
1470 EXIT INC BORDER
1480 EXITL JSR $FF9F ; READ
KEYBOARD
1490 JSR $FFE4 ; PUT VALUE IN
KEY BUFFER
1500 CMP #32 ; IS IT "SPACE"?
1510 BNE EXITL ; NOPE, THEN
LOOP
1520 DEC BORDER
1530 LDA #0
1540 STA 198
1550 LDA HOLD
1560 STA $D011
1570 LDA HOLD+1
```

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```

1580 STA $D018
1590 LDA #147
1600 JMP $FFD2
SPACEBAR IS TESTED FOR, THE
KEYBOARD BUFFER IS CLEARED AND
VIC REGISTERS ARE RESTORED.
1610 ;
1620 HOLD BYT 0,0 ; VIC
REGISTER STORAGE
1630 RADIUS BYT 40 ; RADIUS OF
CIRCLE
1640 XYOFFSET BYT 100 ; X AND Y
OFFSET OF CIRCLE'S CENTRE
1650 ;
1660 ANGPNT BYT 0 ; # POINTS
TO PLOT (0 MEANS 256 WILL BE
PLOTTED)
1670 ANGPNTC BYT 0 ; COUNTER
1680 DIVTXT TXT "128" ;
DIVISOR FOR RADCONV
1690 BYT 0 ; STRING DELIMITER
1700 ;
1710 STRV1 BYT 0,0,0,0,0 ;
CURRENT ANGLE
1720 STRV2 BYT 0,0,0,0,0 ;
DIVISOR
1730 STRV3 BYT 0,0,0,0,0 ;
ANGLE * PI / DIVISOR
THESE THREE AREAS OF RAM ARE
USED TO STORE FLPT VARIABLES
UNTIL NEEDED.
1740 ;
1750 PUTSTR1 LDY #<STRV1
1760 LDY #>STRV1
1770 JMP $BBD4
1780 PUTSTR2 LDY #<STRV2
1790 LDY #>STRV2
1800 JMP $BBD4
1810 PUTSTR3 LDY #<STRV3
1820 LDY #>STRV3
1830 JMP $BBD4
1840 GETSTR1 LDA #<STRV1
1850 LDY #>STRV1
1860 JMP $BBA2
1870 GETSTR2 LDA #<STRV2
1880 LDY #>STRV2
1890 JMP $BBA2
1900 GETSTR3 LDA #<STRV3
1910 LDY #>STRV3
1920 JMP $BBA2
THESE ROUTINES STORE AND
RESTORE THE THREE FLPT
VARIABLES.
1930 ;
1940 SCALE JSR $BC0C ; ARG =
FAC
1950 LDA RADIUS
1960 JSR $BC3C ; FAC = (A)
1970 LDA $61 ; FETCH EXPONENT
1980 JSR FLEPMUL ; FAC =
ARG*FAC
1990 JSR $BC0C ; ARG = FAC
2000 LDA XYOFFSET ; MOVE X/Y
COORDS
2010 JSR $BC3C ; FAC = (A)
2020 LDA $61
2030 JSR $B86A ; FAC = ARG+FAC
2040 JMP $B1AA ; (Y) = LOW
BYTE OF FAC
FAC IS COPIED INTO ARG, THE
INTEGER RADIUS (#40) IS
CONVERTED TO A FLPT NUMBER IN
FAC THEN ARG IS MULTIPLIED BY
FAC. THE RESULT IN FAC IS
AGAIN COPIED TO ARG, THE
INTEGGER XYOFFSET (#100) IS PUT
INTO FAC AND FAC IS THEN ADDED
TO ARG, THE RESULT RETURNED IN
FAC. FAC IS THEN CONVERTED TO
A 1-BYTE INTEGGER IN (Y).
2050 ;
2060 RADCONV JSR GETSTR1 ; PUT
FLPT VARIABLE ANGLE INTO FAC
2070 LDA #<$AEAB
2080 LDY #>$AEAB
2090 JSR $BA28 ; FAC =
ARG(A/Y) * FAC
2100 JSR $BC0C ; ARG = FAC
2110 JSR GETSTR2 ; FETCH
DIVISOR
2120 LDA $61
2130 JMP FLPDIV ; FAC =
ARG/FAC
FAC IS LOADED WITH THE FLPT
VARIABLE ANGLE, THEN FMULT
($BA28) IS CALLED, A RESERVED
FLPT VARIABLE (PI) IN ROM
POINTED TO BY (A/Y) IS
AUTOMATICALLY LOADED INTO ARG
THEN ARG IS MULTIPLIED BY FAC.
FAC IS COPIED INTO ARG THEN
LOADED WITH THE FLPT #128 AND
THE DIVIDE ROM ROUTINE IS
CALLED. IN BASIC THIS ROUTINE
WOULD BE:
A = A*PI/180.
2140 ;
2150 FLPDIV LDA $66
2160 ORA $6E
2170 STA $6F
2180 LDA $61
2190 JMP $BB12
DIVIDE (FAC = ARG/FAC).
2200 ;
2210 FLEPMUL LDA $66
2220 ORA $6E
2230 STA $6F
2240 LDA $61
2250 JMP $BA2B
MULTIPLY (FAC = ARG*FAC).
2260 ;
2270 FLEADD LDA $66
2280 ORA $6E
2290 STA $6F
2300 LDA $61
2310 JMP $B86A
ADD (FAC = ARG+FAC).
2320 ;
2330 SETUP LDA #1
2340 JSR $BC3C
2350 JSR PUTSTR1
ANGLE IS INITIALISED AT #1 AND
STORED AS A FLPT VARIABLE.
2360 ;
2370 LDA #<DIVTXT ; RESET
TXTPOS
2380 STA $7A
2390 LDA #>DIVTXT
2400 STA $7B
2410 JSR $0079 ; CALL CHRGT
2420 JSR $BCF3 ; FAC = NUMERIC
TEXTS
2430 JSR PUTSTR2 ; STORE
DIVISOR
THE ASCII STRING "128" IS
CONVERTED TO A FLPT NUMBER IN
FAC AND STORED FOR FUTURE USE.
2440 ;
2450 LDA ANGPNT
2460 STA ANGPNTC
2470 RTS
THE SINGLE BYTE COUNTER ANGPNT
IS INITIALISED FOR PLOTTING A
MAXIMUM 256 PIXELS.
2480 ;
2490 CIRCLE JSR SETUP
2500 CIRCLOOP JSR GETSTR1 ;
FETCH ANGLE
2510 JSR RADCONV ; ANG * PI /
DIVISOR
2520 JSR PUTSTR3 ; STORE FOR
COS USE
2530 LDA $61
2540 JSR $E264 ; CALL COSINE
ROM ROUTINE
2550 JSR SCALE ; * RADIUS, +
XYOFFSET
2560 STY XDOT ; FINAL X-
COORDINATE
2570 JSR GETSTR3 ; FETCH
STORED ANGLE (IN RADIANS)
2580 LDA $61
2590 JSR $E26B ; CALL SINE ROM
ROUTINE
2600 JSR SCALE ; * RADIUS, +
XYOFFSET
2610 STY YDOT ; FINAL Y-
COORDINATE
2620 JSR PLOT ; PLOT X/Y
COORDINATES
THE CURRENT ANGLE IS FETCHED
AND CONVERTED TO RADIANS AND
STORED AS A FLPT VARIABLE. THE
COSINE IS CALCULATED THEN THE
RESULT IS SCALED AND PUT INTO
XDOT. THE PREVIOUSLY STORED
RADIAN VALUE IS LOADED BACK
INTO FAC AND MUCH THE SAME
HAPPENS AGAIN EXCEPT THE SINE
FUNCTION IS USED TO FIND THE
Y-PIXEL POSITION. FINALLY, THE
PLOT ROUTINE IS CALLED TO PLOT
A PIXEL AT THE COORDINATES
INDICATED BY (XDOT,YDOT).
2630 ;
2640 DEC ANGPNTC
2650 BNE CIRCINT
2660 JMP EXIT
WHEN 256 POINTS HAVE BEEN
PLOTTED THE PROGRAM ENDS.
2670 ;
2680 CIRCINT JSR GETSTR1
2690 JSR $BC0C
2700 LDA #1
2710 JSR $BC3C
2720 JSR FLEADD
2730 JSR PUTSTR1
2740 JMP CIRCLOOP
ANGLE IS LOADED INTO FAC THEN
TRANSFERED INTO ARG. #1 IS
LOADED INTO FAC AND THEN FAC
IS ADDED TO ARG, THE RESULT
PLACED IN FAC. THE NEW ANGLE
IS STORED IN FLPT VARIABLE
FORMAT.
2750 ;
2760 PLOT LDA XDOT ; FETCH X-
COORD
2770 AND #7 ; BITS 0-2 USED TO
CALCULATE BIT POSITION WITHIN
THE BYTE
2780 STA $FD
2790 LDA XDOT ; FETCH X-COORD
2800 AND #248 ; BITS 3-7 USED
TO CALCULATE THE BYTE POSITION

```


ALONG CARD ROW

2810 STA \$FE
THE 3 LOW BITS ARE ISOLATED TO BE USED LATER TO FIND THE APPROPRIATE BIT PATTERN IN THE XONMASK LOOKUP TABLE. THE 5 HIGH BITS ARE USED TO CALCULATE THE HORIZONTAL BYTE POSITION WITHIN THE CARD ROW. FOR EXAMPLE, AN X-COORDINATE OF #18, ANDED WITH #248 WOULD RETURN A VALUE OF #16 - THE 1ST BYTE IN THE 3RD CARD COLUMN (IN ANY ROW).

2820 LDA YDOT
2830 AND #7 ; CALCULATE VERTICAL BYTE (0-7) IN CARD ROW
2840 CLC
2850 ADC \$FE ; CALCULATE EXACT BYTE WITHIN CARD ROW
2860 STA \$FE ; STORE ROW BYTE (0-255)

THE VERTICAL BYTE POSITION WITHIN THE CARD ROW (0-7) IS ADDED TO THE HORIZONTAL BYTE VALUE TO OBTAIN THE ACTUAL BYTE POSITION WITHIN THE CARD ROW (0-255). FOR EXAMPLE, A Y-COORDINATE OF #25, ANDED WITH #7 WOULD RETURN A VALUE OF #1. THIS ADDED TO THE PREVIOUS X-COORDINATE EXAMPLE VALUE OF #16 GIVES #17.

2870 ;
2880 LDA #0
2890 STA \$FC ; CLEAR HIGH BYTE
2900 LDA YDOT ; FETCH Y-COORDINATE
2910 LSR A
2920 LSR A
2930 LSR A ; DIVIDE BY 8 TO CALCULATE CARD ROW (0-24) TO FIND THE ACTUAL CARD ROW (0-24) THE Y-COORDINATE IS DIVIDED BY 8. A Y COORDINATE OF #25 WOULD RETURN A VALUE OF #2. THIS VALUE MUST THEN BE MULTIPLIED BY 320, TAKING INTO ACCOUNT THAT THERE ARE STILL 320 BYTES IN EACH BITMAP CARD ROW EVEN THOUGH THIS PROGRAM CAN ONLY ACCESS 256 OF THOSE BYTES.

2940 ;
2950 PHA ; STORE ROW
2960 LDX #5 ; BEGIN MULTIPLICATION
2970 MULLOOP ASL A ; ROW * 64
2980 ROL \$FC ; (A) = LO BYTE, \$FC = HI BYTE. ((A)/\$FC) IS SHIFTED LEFT 6 TIMES
2990 DEX
3000 BPL MULLOOP
3010 STA \$FB
3020 PLA ; FETCH ROW
3030 CLC ; ROW * 256, SO JUST ADD TO HI BYTE OF RESULT WORD (\$FB/\$FC)

3040 ADC \$FC
3050 STA \$FC
THIS IS AN EXAMPLE OF A "HARDWIRED" MULTIPLICATION ROUTINE. (\$FB/\$FC) WILL BE USED TO STORE THE 2-BYTE

RESULT.

THE VALUE 320 CAN BE BROKEN UP INTO TWO SINGLE-BIT BINARY NUMBERS - 64 AND 256. THE ROW VALUE IS FIRST MULTIPLIED BY 64 - A LOOP USED TO ROTATE ((A)/\$FC) LEFT 6 TIMES. (A), HOLDING THE RESULTING LO-BYTE IS STORED IN \$FB. THEN THE ROW VALUE MUST BE MULTIPLIED BY 256, WHICH IS A SIMPLE MATTER OF TREATING IT AS A HI-BYTE, AND ADDING IT TO THE HI-BYTE OF THE PREVIOUS RESULT (A*320 = A*64 + A*256).

3060 ;
3070 CLC ; ADD BITMAP BASE
3080 LDA #<TLBITM
3090 ADC \$FB
3100 STA \$FB
3110 LDA #>TLBITM
3120 ADC \$FC
3130 STA \$FC
THE EXACT BYTE WITHIN THE 8000 BYTE BITMAP HAS BEEN WORKED OUT, BUT THE BITMAP BASE LOCATION HAS STILL TO BE ADDED. NOTE THAT SINCE TLBITM IS 8192 + (4*8), AND WE CAN ONLY ADDRESS 256 PIXELS HORIZONTALLY, THE 32 LEFT AND RIGHTMOST PIXEL COLUMNS (4 CARD COLUMNS) ARE INACCESSABLE. YOU MIGHT HAVE NOTICED THAT A NUMBER OF COMMERCIAL PROGRAMS USING BITMAP MODE DO THE SAME THING.
3140 ;
3150 LDY \$FE ; PUT ROW BYTE IN (Y)
3160 LDX \$FD ; (XAND7) INTO (X)
3170 LDA XONMASK,X ; FETCH MASK VALUE
3180 ORA (\$FB),Y ; ORA PIXEL WITH SCREEN BYTE
3190 STA (\$FB),Y ; STORE BYTE TO SCREEN
3200 RTS
3210 ;
3220 XONMASK BYT
128,64,32,16,8,4,2,1
(Y) IS LOADED WITH THE CARD ROW'S VERTICAL BYTE (0-7), AND

USED WITH INDIRECT INDEXED ADDRESSING, WHICH IS SIMPLER THAN ADDING THE VALUE TO (\$FB/\$FC). (X) IS LOADED WITH THE 3 LOW BITS OF XDOT AND IS USED AN AN INDEX TO LOAD (A) WITH THE CORRECT BIT PATTERN FROM THE TABLE XONMASK. (A) IS THEN ORAED WITH THE BITMAP THEN STAED.

To less experienced MCoders the program might seem a bit daunting, but remember it was written to show as many examples of the use of the C64's ROM maths routines rather than to serve as an example of good program structure.

The next article of PMCC will concentrate on the more basic aspects of machine code, as well as have a closer look at some of the less used instructions including BIT, CLV, BVC; plus an examination of various graphics formats. We'll also have a close look at some of the tricks used by famous programmers including Rob Hubbard and Tony Crowther.

Any questions regarding machine code or the aquisition of the excellent PD "6510+ Assembler" package can be sent directly to me at:

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