CURSOR

NEWSLETTER OF THE
COMMODORE COMPUTER USERS GROUP (QLD) INC.

MARCH 1985   VOL.1 No.8

<u>CLUB ROOMS *MILTON STATE SCHOOL, BAYSWATER ROAD, MILTON*</u>

CONTENTS

DIARY FOR APRIL

Group meeting on Tuesday, 2nd April 1985, at 7.30 pm in our club rooms. Visitors are welcome!

A LOOK AT NEW EDUCATIONAL SOFTWARE
Presented by Bill Weeks

During the business part of our meeting one of our members will run a separate Beginners Corner session for new members.

Workshop meeting on Sunday, 14th April 1985, from 1 pm till 5 pm in our club rooms. To get the maximum benefit from the workshop it is recommended that you bring your own computer equipment.

Please note that workshop meetings are for members only!

SMOKERS: Smoking is NOT ALLOWED in the class rooms! If you must smoke, go to the kitchen or the play ground.

REGIONAL MEETINGS

Cannon Hill Sub-Group meets every 2nd and 4th Saturday of the month at 7.30 pm, in the Cannon Hill State School. For further information ring Barry Wilson (VIC-20) at 399 6204 or Augy Norman (C-64) at 399 2060, after hours.

Springwood Sub-Group meets on the 3rd Wednesday of the month at 7.30 pm, in the Springwood Central Primary School, Dennis Rd., Springwood. Contact Terry Steer at 200 5926 (after hours) for further details.

Pine Rivers Sub-Group meets on the 2nd and 4th Sunday of the month (1 pm - 5 pm) at the Strathpine High School (rear entrance). Ring Clayton Lancaster at 285 4157 (after hours) for further information.

Redcliffe Peninsula Sub-Group meets on the 1st Friday of the month (7 pm - 11 pm) at the Redcliffe High School. Contact Geoff Baillie at 203 5088 (after hours) for further details.

<u>Wavell Heights Sub-Group</u> meets (temporarily) at 17 Kywong St., Wavell Heights.   Ring Robert Adamson at 266 6353 (after hours) for details on times etc.

<u>Sherwood Sub-Group</u> meets on the 2nd Friday of the month at the Graceville State School.   Leigh Winsor is co-ordinator and can be reached at 379 2405 (after hours) for more details.

<u>The Gap Sub-Group</u> meets on the 3rd Wednesday of the month at 7.30 pm at the Gap State School. Co-ordinator is John Johnston, who can be contacted at 30 5240 for details.

We are still looking for one or more of our members to start a Sub-Group in the <u>Sunnybank or Mt.Gravatt area</u> !!!

<u>Killarney Sub-Group</u>: Roger Fraser of Fine St. Killarney has formed a group in the Killarney district. Ring Roger at (076) 641370 for further details.

<u>Roma Sub-Group</u>: Charles Mac Pherson would like to start a sub-group in the Roma district.   For more information phone Charles at (074) 222161

<u>Maryborough Sub-Group</u>: Some interest has been shown to form a group in Maryborough. Contact our secretary for more details.

<u>Armidale Sub-Group</u>: W. Peter Gadsby of 64 Galloway St. Armidale NSW 2350 would like to form a group in the Armidale Area. Contact Peter for further details.

<u>**IMPORTANT NOTICE:**</u> Copying of Commercial Software is *not allowed* at our meetings or workshops. Failure to comply with this regulation will result in loss of membership!

SPECIAL INTEREST GROUPS

<u>Business Sub-Group</u> meets at the West End State School on the 3rd Tuesday of the month at 7.30 pm. Contact Ken Charters at 808 1346 (a.hrs.) for further information.

<u>Primary Education Sub-Group</u> meets at the Milton State School on the third Tuesday of the month at 7.30 pm. Bring your own equipment. Contact Bill Weeks at 208 6620 (working hours) or at 341 2823 (after working hours).

<u>Adventure Games Sub-Group</u> meets during the main meeting at Milton. Contact Trevor Mancktelow at 262 4602 (after hours) for further details.
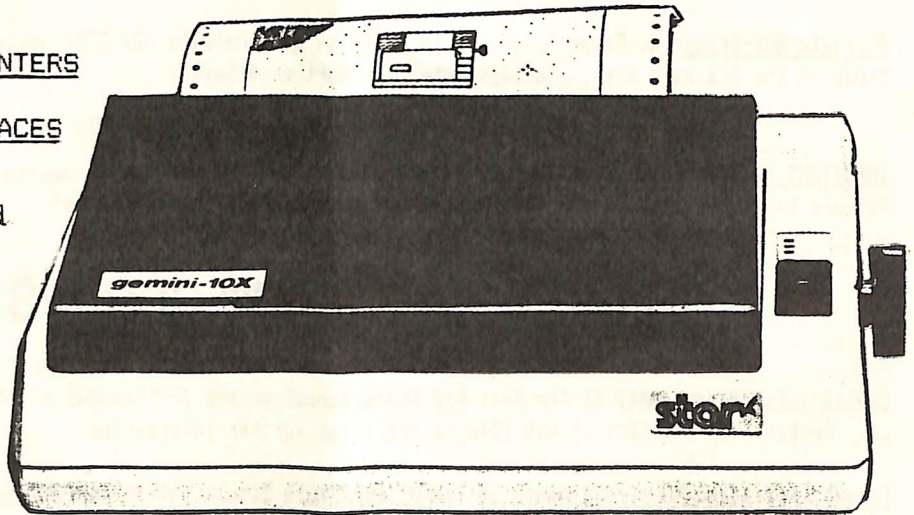
EDITORIAL

Have you noticed the small, but significant difference in the name of our group? Our official name is now

Commodore Computer Users Group (Qld) Inc.

The difference lies in the word Inc., and our secretary has written elsewhere in this newsletter what this means to you as members of this group.

A grand total of one letter has been received with suggestions for this newsletter's contents. Does this mean that you, dear reader, are quite happy with the contents, or don't you really care?

The one good suggestion which was made is a HELP COLUMN. You will find this column in this issue for the first time. My thanks to Michael Hayes, who made the suggestion.

A special word of thanks is due to Roger Haigh for his many months of hard work on the group's modem. Some fifty odd units have now been manufactured by Roger and his helpers, and the unit looks first rate. Well done Roger!

Elsewhere in this issue is a list of our members, complete with their home phone numbers, who own a modem. For the next couple of months they will be kept busy communicating with each other!
The first of several articles on modems and telecommunications by Greg Ferry also appears in this issue.

Our Sub-Groups are really starting to kick over now. By the time you read this the new sub-group in The Gap should be up and away, so that by now the Northern Suburbs are reasonably well catered for. We are still looking for one of our members to start a group in the Mt.Gravatt - Sunnybank area, thus completing the Southern Suburbs network.

Have you noticed the 'New Look' of *CURSOR*? That is largely due to a rather magnificent piece of software called The Print Shop, which is now available from your local computer dealer. (Appr. $60.00). I am absolutely wrapped in this program, and hope to do a full review in the next issue of this newsletter.

Please note new editorial postal address: P.O. Box 384, Ashgrove, 4060.

Ralph De Vries

COMMODORE COMPUTER USERS GROUP (QLD) INC.

As from 12th March 1985 our Group has been granted incorporation under the Associations Incorporation Act by the Queensland Department of Justice.

What does this mean to you and me?

The Associations Incorporation Act applies to any association (or group) that is formed or carried on for any lawful object or purpose but not for pecuniary gain to its members.

With incorporation we acquire formal status, protection and obligations.

Formal status comes from our Rules being sanctioned by the Department of Justice and members become members of a body corporate.

Protection is afforded through the ability of an incorporated association to sue and be sued in its own name; the ability of an incorporated association to hold property in its corporate name without the necessity of appointing trustees; the ability of an incorporation to enter into contracts in its own name; and the liabilities of an incorporation are enforceable against the association and NOT against members personally.

And obligations vest on the Management Committee not only to further the objects of the association but also to ensure full accountability to members and to the Department of Justice.

So what's different from our past arrangements?

Well, little really on the surface because we had a constitution the objects of which were no different in substance from those now written in the rules of the incorporated association and we had a management committee charged with the general control and management of the affairs and funds of the Group.

In short, with incorporation we have formalised our existence.

Copies of the rules of the COMMODORE COMPUTER USERS GROUP (QLD) Inc. are available at meetings of our Group.

Norm Chambers - Secretary

NOTES & GOSSIP

News is slowly filtering through about the new computers which Commodore (and Atari!) exhibited during the Consumer Electronics Show, which was held in Las Vegas last January.

It has been conceded that the new Atari computers made the biggest impact, both price- and featurewise, but most models on show were only clever mock ups. (That means they look like computers on the outside, but they are empty inside!)

Commodore's new C-128 and LCD Personal Computer were however fully functional and showing off their features.

The new C-128 is quite a fascinating machine. It has 3 (yes three!) microprocessors: a 6510, an 8502, and a Z80A chip!

The 6510 runs all C-64 software, and is supposedly in all respects compatible with the C-64. Switch over to the C-128 mode (the 8502 chip), and you have the choice of 40 or 80 column operation, access to the SID chip and the sprites in the 40-column mode, with the best version of Basic (version 7.0) yet. As good as the Plus/4, but including commands to control Sprites and Sound (no more Poking!).

The Z80A processor runs CP/M (version 3.0) software. This should allow you to run CP/M software which currently runs on the Kaypro and Osborne computers.

It is expected that the C-128 will sell for less than $300.00 in the USA!

Also shown were new Monochrome and Colour Monitors (suitable for 80-column operation) and a new double-sided disk drive (model 1571).

This new slimline drive apparently works in all three modes with the C-128, but the speed varies somewhat! In the C-64 mode it is just as slow as the 1541, but in C-128 mode it is 5 times faster, and 12 times faster in the CP/M mode. Total storage capacity in the C-128 mode is 350 K.

Please note: this new computer does not spell the end of the C-64! Commodore certainly is not going to kill the goose that laid the golden egg!

The really important aspect of this release is that Commodore has for the first time released a new computer which is compatible with an earlier model. That fact alone is a significant breakthrough.

The new portable LCD computer is also quite interesting. It comes with 32K RAM, 96K ROM, Basic Version 3.6 and a large LCD display of 16 lines of 80 characters. It comes complete with a host of built-in software (wordprocessor, spreadsheet, database etc.), and a built-in 300-baud modem.

It has a 72-key keyboard with 8 programmable function keys, and will run on 4 AA alkaline batteries for 15 hours. To be released in the USA in the first half of 1985 it is expected to cost appr. US $500.00

At this stage no Australian release of either machine has as yet been scheduled.

Are you a VIC-20 owner and feel a bit neglected amongst all those C-64 users?

How about getting all together in a special corner at our next meeting, and just talk Vics and nothing else but Vics?

We'll get John Johnston, the new VIC librarian to organize this little VIC get-together to discuss problems and queries relating to the VIC-20.

We again are requesting of our members to bring some equipment to our main meeting. We know that it is a pest to bring all your equipment to a meeting, but if shared with a few friends it is not much of a burden. How about it members?

MEMBER'S ADVERTS

REVIEWS

Owners of the older 1541 drives are aware of overheating problems with this drive, particularly when used over extended periods with lots of disk-accessing. This can cause alignment problems, which in turn will mean that your drive needs to be serviced.

For quite some time I have had a small room fan/heater positioned behind my drive (with heating element disconnected!), to keep it cool. It worked reasonably well, but the noise of the fan drove me crazy!

Those clever boys from Cockroach Software (I wish they would change that name!) of Southport have now designed a small extraction fan, which slots in the top of the grille of the drive, and sucks out the hot air.

After using it for a month or so, I can vouch for its effectiveness. The drive gets hardly warm at all, even when it is on for extended periods, and the fan is fortunately not very noisy at all!

The price is rather high, but as this fan is obviously not produced in tens of thousands, I should not think that it could be produced for much less. Besides, one service call will probably cost you more than the price of this fan!

For my money this fan is a real winner, and if you have overheating problems order one right now from Clayton, because this unit is a certain cure.

Ralph De Vries

The book discusses a range of applications and activities for the C-64. They feature entertainment, home/office and educational possibilities. The author has written to assist the beginner programmer in coping with the intricacies involved in producing good quality graphics and sound on the 64.

The book is written in a very readable style with clear, accurate program listings, and

illustrations appearing regularly throughout. Programming style, Basic commands, using sprites, graphing, machine language, and graphics are all topics discussed in depth.
The book also includes an appendix of the C-64 Character Set, and one of Musical Note Values which can be used in Poke statements. The glossary is an example of the thoroughness of the author, in attempting to display information in the book, so as to be understandable by all.

Although the claims made on the cover of the book are perhaps too far-reaching, this is an excellent book, and would be a good value purchase as a link to the 64 Programmers Reference Guide.

Trevor Mancktelow

HELP!

This column will contain (short) requests for help by our members. If you have the answer to his/her problem give them a ring and make a fellow member happy!

Mike Hayes wants to convert an Osborne program, to work on a C-64.
Phone (07) 262 6039

John Wallis is looking for a Hi-Res Printing Program (not a commercial one), which works with his Gemini 10-X printer and Card?+G interface.
Phone (07) 341 2572

Mike Hayes wants to know if anybody has got "Turbo 64" (Compute! Jan.85) to work.
Phone (07) 262 6039

Charles Mac Pherson has a Brother EP44 printer with RS232C interface. Has anybody got this working with SpeedScript or EasyScript?
Phone (074) 22 2161

Mike Hayes can't get boldface type from his Silver Reed EXP 500 serial printer (Daisy Wheel), using SpeedScript.
Phone (07) 262 6039

Problems with Relative Files on the 1541 Disk Drive.

I have found that the 1541 disk drive instruction book gives inconsistent and insufficient information regarding the use of relative files on the 1541.
There are many books on the 64 which also lack what seems to be essential information on this matter. I suppose this is because they are written by people who take the manual to be correct, repeat its mistakes, and fail to test their own programs as a follow-up.

The use of the position command in particular is poorly explained and I wish to point out the following:

i) The syntax as described by the manual is as follows:

    PRINT#fl,"P"CHR$(ch+96)CHR$(rl)CHR$(rh)CHR$(pn)   ** see note.

In this command, fl is the file number used to OPEN the command channel,
ch is the channel number used to OPEN the relative file,
rl & rh are the low and high bytes of the record number, and
pn is the character position within the record.

The character position parameter is said to be optional, defaulting to the start of the record if not supplied. ** see note.

ii) The question of whether the first record is numbered as 0 or 1 is not clarified. The same uncertainty arises regarding the numbering of the character positions. ** see note.

An examination of the examples given in the disk manual shows that the first record seems likely to be numbered 1. The first character position could therefore be assumed to be 1 also, and some of the examples in the manual support this assumption but at least one example, near the end of page 38, gives 0 as the character position parameter.
I feel that a statistical analysis of the given examples as a method of establishing the most likely correct procedure is a poor substitute for simple and complete explanation.
Much trial and error on my part has established that the record and character numbers both start at 1.

iii) Regarding the character position parameter, (i.e: CHR$(pn) in my example above), the information that this is optional seems to be incorrect. The fact is that I can only get reliable results by including this every time. ** see note.

iv) The manual makes no mention of the necessity of reading the error channel after EVERY record positioning command, and before writing or reading that record. After many hours of

testing many alternative procedures, this has proven necessary for completely reliable performance, even if one merely performs INPUT#f1,a,b$,c,d and does nothing with the resulting variables. ** see note.

v) The manual also mentions nothing of the absolute necessity of sending the record to the disk in one PRINT# statement only. This is perhaps one of the most insidious omissions in their information. ** see note.
Assuming that one wished to separate the fields in a record with RETURNS, one might think that the following would be a valid way of doing so. Assume that the record pointer has been correctly positioned to the start of a record and that there are six fields to write, which are the first six elements of the array A$(N). I.e: elements 0 to 5:

```
FOR A = 0 TO 5
PRINT#f1,A$(A)
NEXT
```

This works quite well with any file type EXCEPT relative files. The following example is the only reliable way of sending the fields to the disk, regardless of its apparent equivalence to the preceding example.

```
Q$ = ""
FOR A = 0 TO 5
Q$ = Q$ + A$(A) + CHR$(13)
NEXT
PRINT#f1,Q$;
```

This uses up valuable time and string space.
(An aside: I have noticed that if BASIC runs out of string space during this concatenation process and is forced to call its garbage collection routine, the resulting record is sometimes corrupted. The reason for this is still a frustrating mystery to me, but forcing the garbage collection with X = FRE(0) prior to the above procedure seems to prevent this...so far.)

As an aid to further confusion, the reading of fields from a record where the fields are separated by RETURNs can be done in a manner analogous to the INCORRECT procedure for writing them. The following will correctly read six successive fields into the array A$(5):

```
FOR A = 0 TO 5
INPUT#f1,A$(A)
NEXT
```

vi) The need to add 96 to the channel number in the record position statement appears to be an unnecessary complication.

vii) To sum up:

a) The first record and the first character position within a record are both numbered 1.

b) The character position parameter is NOT optional.

c) The error channel must be read after EVERY record positioning command, and before writing or reading that record.

d) The fields of the record must be concatenated into one string and sent to the disk with one PRINT# command.

e) It is unnecessary to add 96 to the channel number.

Douglas Maclurkin

It is wonderful to see that someone out there actually does some program experimentation. It is very encouraging to see someone who is not just playing games!
A few comments.

1. Record Positioning

The command PRINT#15,"P"CHR$(CN+96)CHR$(RL)CHR$(RH)CHR$(F) needs some further explanation.

A. The CN+96 is not needed. The channel number is all that is required. Do not confuse the channel number for the DOS with the C64 logical file number. If the OPEN statement is OPEN 2,8,3,"rel file,l,"+chr$(254) then DOS buffer channel number corresponds to the 3 (what we refer to as the secondary address.) It's the DOS Secondary Address 3 NOT the C64 logical file number 2. To eliminate this confusion, I prefer to ensure that the Secondary Address and Logical File Number are the same. Always use statement of the type OPEN 2,8,2..... This avoids confusion.

B. The first position in a relative file is indeed position 1 not 0. In practice it doesn't matter. A position of 0 will default to 1 in the DOS. Use 1 in preference. PRINT#15,"P".........CHR$(1). This MUST BE INCLUDED and is not optional as is sometimes stated. If left out the carriage return which is sent at the end of the PRINT# statement results in the Record Position defaulting to 13 from the CHR$(13)!!

C. Because of problems in the timing of relative file access DO NOT use any record position other than 1. Also it is a good idea to always send the record command TWICE And check the error channel between. For example, use

```
100 PRINT#15,"P"CHR$(CN)CHR$(RL)CHR$(RH)CHR$(1):INPUT#15,EN:IFEN<>0THENSTOP
101 PRINT#15,"P"CHR$(CN)CHR$(RL)CHR$(RH)CHR$(1):INPUT#15,EN:IFEN<>0THENSTOP
```

2. Lengths of relative records.

When opening a relative file with OPEN 2,8,2,"REL FILE,L,"+CHR$(Length) you may NOT USE record lengths of 42, 63 or 58. These will cause SYNTAX ERRORS in the DOS. They correspond to the ASCII characters of '*','?', and ':'.

3. Error Channel

The checking of the error channel with INPUT#15,en... after every relative file record positioning is RECOMMENDED since it slows the DOS down and helps eliminate the problem where it gets itself confused and overwrites the first command with the second. You do not always need to do it but for consistent results it is a must.

4. Writing to Relative File

A. If you plan to use a Rel file, when it is first opened, always 'pre-extend' the file to the maximum records you wish to use. If you do not, problems or at best long delays will result later. 'Pre-extend' the file to the maximum no of records by positioning to the last record and writing some dummy information.

B. When sending information to a record of a relative file the best method is as described above. Combine all the information (the various fields within the record) into one string with CHR$(13) separating each item, then print the whole lot to the disk at once. Problem is caused by the fact that if you use PRINT#2,X$ to a relative file the record pointer zooms off the end of the record and will destroy all information between the end of the new string information and the end of the record. ALL information sent to a relative file SHOULD be done as STRINGS in preference. Do not use Floating point or Integer variables, convert to strings first. (Convert back again when reading the file.)

Greg Perry

NUMBER FORMATTING

Sooner or later all of us who program on Commodore computers are faced with the problem of printing a column of floating point numbers (i.e. ones with decimal points), on either the screen or printer, so that the decimal points are aligned. (Plus 4/16 users are lucky - BASIC 3.5 has a PRINT USING command to perform the formatting for you). Everyone seems to have their own favourite routine to align the decimal points. We have published several in recent issues. Some involve several lines of BASIC and some are even in machine code. I too have a favourite routine or at least I did until the other day when I discovered my routine did not survive the following acid test of rounding the number -812.676144 to 3 decimal places.

Many of the standard routines use the INT function to round numbers to the desired number of places. By definition, the INTeger function returns the smallest integer (whole number) which is less than or equal to the number. The INT function does not round the number nor does it simply chop off the decimals. For example,

```
        PRINT INT(12.5) gives 12
but     PRINT INT(-12.5) gives -13
```

Rounding is accomplished by a statement such as

```
        PRINT INT(X*1000+.5)/1000
```

which is used to round a number to three decimal places. This works well in the vast majority of cases. However, try the situations where X=821.676144 and see what happens! A further problem can be demonstrated by the line

```
        PRINT 111.5555*1000+.5, INT(111.5555*1000+.5)
```

Obviously the correct answer is 111556. But notice how the INT function gives an incorrect answer. These problems are caused by slight inaccuracies of the CBM BASIC, primarily due to the limitations of 8-bit arithmetic and the mathematical method used to calculate the INT function.

A solution to the latter problem is to use an adjustment factor of 0.0000307 before taking the INT function as shown below.

(Other CBM functions also integerise but with different results. For example INT(145/3*3) =145 but a PEEK(145/3*3) actually returns PEEK(144)! And, on a slighlty different track 9*9*9 is 729 but 9 gives 729.000001)

A good number formatting routine should provide the following:

Correct rounding of all positive and negative numbers to a given number of decimal places.

Insertion of leading zeros for numbers with absolute values less than 1. (Numbers between +1 and -1 should appear as 0.X etc.)

Numbers less that 0.01 should be represented correctly in the 0.00XX format and not in the E format. For example, PRINT 0.00454 gives 4.54E-03.

Trailing zeros should be added to provide consistency. For example, 25 to three decimal places should be printed as 25.000.

The following routine was recently published by Mike Hart in the November edition of the English ICPUG newsletter. It is one of the most accurate and efficient I have seen to date.

(NOTE This program is formatted for use with our new HELPOUT keyboard entry checker program which checks your typing (and our typesetting!). If you are NOT using this program to check your typing, DO NOT ENTER the 'xxxx at the end of each line otherwise syntax errors will be occur when the program is run.)

```
10 REM FORMAT DEMONSTRATION'BTMD
100 Z2=9:Z3=3:Z4=1000:Z5=0.5:Z6=0.0000307:Z1$="[SPACE9]":
    GOTO140'HPDJ
110 Z$=STR$(INT(Z*Z4+Z5+Z6*SGN(Z))):IF Z3=0 THEN Z$=RIGHT$(Z1$
    +Z$,Z2): RETURN 'PIQN
120 IF ABS(Z)<1 THEN Z$=LEFT$(Z$,1)+RIGHT$("000"+MID$(Z$,2),Z3
    +1)'LYNK
130 Z$=RIGHT$(Z1$+LEFT$(Z$,LEN(Z$)-Z3)+"."+RIGHT$(Z$,Z3),Z2
    ): RETURN 'KEGL
140 FOR I=1 TO 25'DEIB
150 Z=RND(1)*10RND(1)*4)*(1+2*(RND(1)>.5)): GOSUB 110'MCJN
160 PRINT Z;TAB(20)Z$: NEXT 'DIYE
170 REM NUMBER FORMATTING ROUTINE VARIABLES'BHSM
180 REM Z  = INPUT NUMBER'BNBH
190 REM Z$ = OUTPUT STRING'BFSJ
200 REM Z1$= PADDING STRING OF 9 BLANKS'BBJD
210 REM Z2 = LENGTH OF OUTPUT STRING'BXSE
215 REM Z3 = NUMBER OF DECIMALS'BTXH
220 REM Z4 = ROUNDING FACTOR'BRBD
230 REM Z5 = ROUNDING ADJUSTMENT 0.5'BYHG
240 REM Z6 = BALANCING FACTOR FOR CBM INACCURACY'BJCK
```

Line 100 sets up the variables for the main routine as defined in the REM statements. Mike Hart suggests that the balancing factor $Z6$ of 0.0000307 is the smallest number found by trial and error that works for both positive and negative numbers. If you wish to use a different number of decimal places, use

No Decimals	$Z3$	$Z4$
0	0	1
1	1	10
2	2	100
3	3	1000
4	4	10000

These values must be set before calling the subroutine at lines 110-130.

The subroutine routine could be placed anywhere within your program although it is usual to put the commonly used subroutines near the top of the program for maximum speed of execution.

The routine is equally useful for output to the screen or to the printer since the length of the string $Z\$$ containing the formatted number is always of a set length. This makes it easy to calculate the positions across the page.

Greg Perry

MODEM CORNER

As many members now have a modem for the first time it is proposed to run a series of articles for the next couple of months with hints and tips on the modem and use of software for the modem. Also any questions that have risen from time to time will be answered in the " Modem Corner", so that all users may benefit. When everybody is familiar with the modem we will organise a meeting where the practical use with a data base is demonstrated. This will entail organising a convenient place where we have access to a phone. I have no doubt the club will have its own data base in the near future and familiarity with data base protocol will be essential for modem users.

Greg Perry has compiled a disc of modem programs and information. To use the disc the "Easyscript" word processor is required to access the documentation and instructions in some programs. In my opinion the easiest programs to start with are FRONT25, MODEM64, and TERM64. TERM64 is accessed by loading the TERM64 BOOT,8,1. Instructions for this program are on TERM64 DOC accessed with Easyscript.

It is hoped by trying them all we will find the most suitable programmes for use between club members.

Also included this month is a MODEM DIRECTORY to which most members have agreed to supply their names and telephone numbers for the convenience of modem users.
Please use discretion and consideration when using this directory. It is hoped that members who are not on the list will contribute to it. There is no charge to be on this directory!

There should be lots of queries after using the new modem for a month, so I will have a question and answer session after the main meeting in April. Would users also advise me of any problems at all with the modem, and any criticism, both good or bad would be most welcome, as it will contribute to any future developments.

HINTS AND TIPS

When using the modem do not "hang up" the phone, this will avoid losing the telephone line if you forget to pick up the phone before changing the phone modem switch.

Keep an eye on the 'CD' LED, because if one party is having a problem during a pgm transmission, by switching to phone the 'CD' LED goes out, indicating "talk to me on the phone please!"

The pgm FRONT25 has been giving some problem in continual error messages during pgm transfers. It was found that switching the C-64 off before loading FRONT25 liminated this problem.

MODEM DIRECTORY

Benetto	Eric	(T'ville)
Bennett	Lester	200 1243
Bohlen	Bill	208 3729
Brown	David	(C'berra)
Chambers	Norm	341 5651
Egan	John	(Lismore)
Haigh	Roger	399 8037
Hamlin	Nev	359 8094
Hartley	Col	378 9106
Hawkyard	Mauric	343 5717
Hawson	Geof	353 1067
Hoole	Nigal	374 1758
Jensen	Mike	44 4797
King	Ray	208 1409
Knox	A.	352 5024
Koeman	Wes	(T'ville)

Levine	Mike	370 9598
Moore	Tony	(T'ville)
Morrison	D.	201 0454
Norman	Aug	399 2080
Perry	Greg	38 3295
Ramsay	Col	075-46 3494
Ratcliffe (VIC)	Ian	343 5903
Ratcliffe (VIC)	Peter	349 5343
Robinson	Graham	356 1811
Robinson	J.	?? ????
Robinson	Eric	(T'ville)
Shelley	Nev	30 1061
Southerwood	Richard	200 1172
Theunissen	Lionel	353 2450
Todd	Darryl	355 3073
Wilson	Barry	399 6204
Windsor	W.	(Mt. Isa)
Winsor	Leigh	379 2405
Wollstein	Cec	396 6577

Roger Haigh

Commodore Telecomputing.

Getting somewhat bored with games but haven't managed to increase your activation energy to a level sufficient for useful programming? Or just want something new? Telecomputing is for you, a whole new field to explore. All you need is a computer, a modem, a terminal program, and a telephone (and a large wallet to pay for the telephone bills!) and the world's information is at your fingertips - well, almost.

Although it's nothing like that depicted in the movie 'War Games', a growing number of Commodore users are taking up a hobby which holds the real promise of the bringing the information revolution into the home. In Australia, telecomputing for users of home micros is still in its infancy, with most of the services being designed for the commercial user where cost is related to the availibility of fast access to information resources. Don't believe all the hype. At present there is only a limited range of activities which fall into the cost range of most of us but the promise is there.

In this article I will attempt to explain some of the jargon and provide a general guide through the maze which confronts the newcomer.

The World of Telecomputing.

Before looking in depth at the hardware and software of telecomputing, what exactly is out there waiting for you. The range of possibilities is almost endless and include immediate access to

Information - news, weather, encyclopedias, dictionaries, bibliographies

Personal and Business - travel reservations, shopping, banking

Electronic Mail (EMAIL)- fast personal and business mail, immediate communications

Personal Computing - talking to other users, free programs, commercial training courses.

Publishing - fast manuscripts delivery, editing and typesetting (supposedly!)

Bulletin Boards Systems (BBS)- access to the latest computer news, local information about user groups, access to programs, classified adds, help with computer programs.

Working from home via your own terminal. University and technical studies. Work(!)

Unfortunately for the majority of home uses, much of this is still in the theoretical stage or prohibitively expensive.

Don't worry if all this appears somewhat daunting. Most users begin by simply communicating with friends or local bulletin boards. To get started, find another user with a communications package and dial them up one rainy night. Then, you can try out various terminal programs, talk to each other, and swap programs. Once you've established a network of friends, you can call each other every so often and swap your latest programs without leaving the comfort of your home.

Bulletin Boards (BBS) and Public Access Message Systems (PAMS).

A Bulletin Board System (a BBS) is a system which some individual, group, or organization has set up as a service to other users. Most BBS allow free access and are often run by one person (known as the SYSOP). These are generally financed by donations or with the help of a user group or local computer shop. Sometimes the financial burden is too great and a small membership fee in the order of $10 is charged. Even so, these systems usually allow reasonable free access for visitors. Some BBS issue a simple password to regular users in an effort to limit the nuisence callers. Be responsible when using one of these systems. Users who try to disrupt the systems will rapidly find themselves banned from most boards in their area.

What does a BBS offer? The prime functions of most BBS are twofold - to provide a bulletin board for users to swap information and to act as a store for public domain programs. Got a problem with a program? Want to tell other users or some special event or find out the latest gossip on a new piece of equipment? Simply leave a message on the bulletin board and check back every few days to see if anyone has answered your call. BBSs provide an excellent way of keeping up to date on some of the latest information.

The second main function of the bulletin board system is to allow users access to public domain software. Users may generally either upload (send) their programs onto the system or download (receive) a range of programs from the system to their own computer and disk.

Most of the BBSs appear to have quite a number of C64/VIC users. Just search the message bulletins or leave a message on the system and they will appear out of the woodwork like magic.

A list of all the systems currently available BBSs is provided at the end of this article. At present there are few BBS in Australia which are specific for Commodore users. I have accessed one in Sydney for a short time (until load shedding of the electricity supply suddenly left both myself and the computer in the dark.) and have heard rumours of a system operating (?) in Adelaide. I am reliably informed that there are plans for others in Brisbane and Canberra. If anyone has any information about Commodore specific systems please drop us a line. Hopefully more will appear in the near future.

Setting Up Your Own BBS

If you wish to set up your own Commodore BBS, an easy way to start out is by trying the programs supplied in COMPUTE! magazine, Nov-Dec '84 and Jan '85. (If they work correctly!) The "C/G BBS" program combined with the "C/G TERM" terminal program allow you to set up a small BBS with 1000 messages, EMAIL, and software download. You will need and auto answer modem, a C64, and either one or two 1541s or dual disk drive.

We have two other packages to run local bulletin boards including upload down load facilities. We may be able to supply these to interested user groups in the near future. If anyone has been thinking of setting up a board let us (or me) know and we will set up a contact register.

Commercial Data Bases.

As well as the free BBSs, a number of commercial message and information systems are accessible at fair prices.

The Australian Beginning

The main Australian-wide commercial data base for home micro users is The Australian Beginning. As well as several large bulletin boards for different computer users and special interest groups, this system offers a wide range of information on travel, stock exchange, entertainment, restaurants, etc, and other services such as electronic mail, a large bank of free software (although to my knowledge, despite continued assurances from the management over a period of 12 months, they still have not got their act together for Commodore users), access to the worldwide telex network, electronic shopping and more. The nice feature for interstate users was that it is possible to dial it up using Telecom's Austpac service which dramatically reduced the phone cost for STD rates to roughly $5.00 per hr. On-line costs to TAB, after initial joining fee, vary according to time of day in the range $12.00 - $4.00 per hr. (Phone 03 813 1133 for information.) Computer access via 300 baud of 03 813 3522 or via Austpac - dial 01921, press H then ?238220000. Visitor access is available using 'visitor' for user name and password.

STARS

Scholastic Text and Retrieval Service is a Sydney based information system which provides access to a Macquarie Dictionary and encyclopeadic data bases. An excellent reference system for schools and home use. On-line costs are roughly $90 for 52 on-line sessions of up to one hr each. Austpac access available. Further information can be obtained from your local dealer or from Computing 2000 in Sydney.

Minerva and Midas from OTC.

Minerva is an international electronic mail service designed primarily for business users but is slowly gaining a wider acceptance with micro users. Minerva offers the following facilities : instantaneous electronic mail to anywhere in the world (providing they are connected of course), on line wordprocessing including spelling checker (although micro users would prepare their documents with their local versions), world news service, international airline guide, information bulletin board, and a chat facility which allows you to talk via the terminal to other users on the system. Costs appear reasonable at $15.00 per hr. plus a sliding scale for information storage which begins at 40c. per month for each unit of 2048 characters. As a very rough guide, the 'mailing' of a letter consisting of 500 words would cost approximately 70cents.

Not really a system for the struggling micro user is Midas, an international packet switched data service which allows you to connect to almost any data base anywhere in the world. The

range available in the US alone is phenomenal. It is difficult to accurately predict the costs of any one session which are based on the access method, volume of data transferred, and duration of the call. An example would be connect fee of $10.80 per hr (via austpac) plus $11.00 for every 64000 characters plus access costs to the particular data base concerned.

For further information contact the OTC branch in your city.

Telecom Austpac

A national packet switched data network which allows cheaper inter-city data lines ranging from $12 to $5 per hr which can be used instead of STD. Unfortunately, one of the communicating systems must be fitted with a special Austpac interface at a cost of $360 plus rental costs and other charges. Rumours are that the system may expand to allow one to one connection between micro users over normal telephone lines before the year 2000. However, the system is still useful and can be used by anyone with a telephone to access a commercial user who is formally connected, e.g. TAB.

Telecom Viatel

A national videotext system based on the English Prestel which displays colour, graphics and text. (A 1980's version of Seventel). The system is still in its infancy but it's parent Prestel system has hundreds of thousands of pages (that's right 300,000!) of information from theatre guides to commodity prices and allows electronic mail, shopping, banking, travel bookings, free software, electronic magazines and other services. In the U.K., Commodore have established a special network within Prestel especially for Commodore users. I believe Commodore in Australia has plans for a dealer network and suggestions have been made for a national user group network (pretty please Nigel?).

The cost of Viatel is almost unbelievably low at roughly $2.50/month membership and $0.08c (8am-6pm) or $0.05c (a.h.) per minute connection time. Costs for commercial users who wish to supply information pages are also extremely low. As the system develops, we should expect a vast range of services from 'telesoftware' to electronic magazines to appear rapidly. Enthusiasm and expectations for Viatel are very high at the moment but we will have to wait to see exactly how the system develops. It would seem to be an ideal system for Australia where vast distances and therefore expensive telephone costs are the limitations for many users. Only problem is that a special modem and software must be used to access the system. Although available in the UK, Commodore here appears to be having some problems in getting them is a fit state for the Australian market.

The English computer manufacturer ICL also have a similar system which is to be offered in Australia. Rumoured to be better than Viatel but I do not have any specific information.

The Telephone Connection.

The Modem

When a communication link must be established between computers located a some considerable distance from each other, the existing world-wide telephone network provides a ready made solution. The telephone, however, is almost the antithesis of the computer, having been specifically designed for the transmission of the human voice. It carries analog signals within the range of 300 to 3400 Hertz. (In fact, certain internal signal requirements prohibit the transmission of continuous tones above 2400 Hz, therefore the usable bandwidth is 300-2400Hz.)

Voice communication is an analog process which conveys information in audio tones using oscillating signals which vary in amplitude and frequency. The computer, on the other hand, produces a series of digital signals (square waves) which carry information using a on/off sequence of binary digits. Successful transmission of fast moving serial bit pulses would require the telephone to respond to all tones between 0 and 300000 Hz.

This problem is overcome by the MODEM, a relatively simple device which converts the digital pulses from the computer into audible tones and transmits them down the phone line just like any other sound. It also receives the incoming analog tones, extracts the digital information and passes it to the computer.

In the simplest mode, the modem accomplishes this task by using two tones, one to represent a binary 1 (called a MARK), and another to represent a binary 0 (a SPACE). If both modems use the same pair of tones, the transmission is known as HALF-DUPLEX, where a modem may either transmit or receive but not both at once. In a similar manner to person to person communication or as with CB radio, one modem transmits data while the other listens. At the end of the message, the transmitting modem signals that transmission is complete (like 'over' in CB) and switches to receive while the receiving modem switches to talk. Such 'handshaking' sequences allow alternate transmission in both directions.

For many applications, simultaneous bi-directional data transfer is required. This is known as FULL-DUPLEX. Here, two pairs of tones (called ORIGINATE and ANSWER) are used, one pair for sending data and another for receiving data. The usual low speed modem used by micro users operates in FULL-DUPLEX and has a switch which allows the user to select which pair of tones to use for the outgoing signal. Usually the modem on the system which initiates the call is switched to ORIGINATE while the receiving modem is set to ANSWER. The actual settings are irrelevant providing that both modems are switched to complementary settings. If both are set to ANSWER, for example, communication is not possible.

The cheaper modems transmit data at a single speed. This is normally expressed as the BAUD rate, or number of bits per second. The most common speed is 300 baud roughly 30 characters per second

which equates to approximately 200 words per minute. Most BBSs operate at this speed.

Higher speed modems using 600 or 1200 baud are slowly coming down in price and therefore increasing in popularity for user to user links. (Since the transmission time for a file reduced to a half or a quarter, the cost of STD is reduced accordingly.) Commercially, 2400-9600 baud rates are used but these generally require a special data lines. Because of its limited bandwidth, the normal telephone lines can only be used for speeds up to 600 baud full-duplex or 1200 baud half-duplex. (Advances in technology do allow higher speeds on phone lines but the costs are out of the reach of all but commercial users.)

The limitation on telephone bandwidth combined with the desire for higher speed communication has led to the development of a slightly different protocol where the main signal is transferred in one direction at 1200 baud and a return signal is transmitted a the slower speed of 75 baud. (However, even 75 baud translates to roughly 50 words a minute which is faster than most people can type!) This is known as 1200 baud half-duplex with a 75 baud 'back channel' or simply 1200/75. It finds its greatest use with information services such as VIATEL where the user is predominantly receiving large amounts of data (including screens full of graphics) and sending back only limited control messages.

Types of Modems.

Modems may be connected to the telephone is one of two ways - acoustic coupled or direct-connect.

ACOUSTIC modems have two rubber cups which fit over the telephone handset. Since this type of connection provides electrical isolation from the line, no special permit is required. Acoustic modems are particularly useful when the computer is being continuously moved but are designed for the standard telephone handset and many of the newer handsets will not fit correctly.

A DIRECT-CONNECT modem plugs directly into the wall socket in place of the telephone. Such modems are generally fitted with their own handset allowing the user to dial the number then switch to modem operation. Direct connection is a more reliable method but requires a semi-permanent connection and, legally, both the connection and the modem itself should be approved by Telecom before the connection to the line. (When buying a modem check that it has Telecom approval. It assures that it conforms to Australian conditions.)

The more expensive modems offer extra facilities such as switchable baud rates, auto answer and auto dial and others. Auto answer modems will automatically answer the phone and connect to the computer (provided it is turned on of course!) allowing unattended operation for things such as receiving electronic mail or running a local BBS. Auto dial is the facility where by the modem, combined with the appropriate terminal software, can automatically dial the phone number for you. This can be extremely useful when trying to access a popular BBS or data base. Simply set

the program/modem to continuously dial the number until it answers while you put the kettle on or watch TV!

The average price for a no-frills 300 baud modem is of the order of $200-$300, still quite expensive compared to similar U.S. models. Members of C.C.U.G.(Qld) have just designed and built a direct-connect modem - the Modcom 1 - which meets all Telecom standards at a considerably lower price. Unfortunately, only limited quantities are available for our own members but we will happily supply printed circuit boards and full construction details to other user groups or persons interested in building their own. (Write to CCUGQ for further details.)

Modem Standards and Protocols.

As with most facets of computing, there are a number of different standards used worldwide for data communications over telephone networks. These standards define the electrical characteristics, baud rate(s), and other parameters such as Answer/Originate tonal frequencies. Since the Bell laboratories in the US developed the original systems for data transfer, the most common US standard for low speed modems is known as a Bell 103 or Bell 202 standard. In Australia and Europe, the connections between a terminal and modem are specified in standards from the International Telephone and Telegraph Consultative Committee (CCITT). For example, the commonly used CCITT V.21 standard specifies 300 baud full duplex using two tone pairs of 980/1180 Hz (Originate) and 1650/1850 Hz (Answer). Bell and CCITT modems are not compatible so therefore, unfortunately, the Commodore 1600 and 1650 modems, available cheaply in the U.S., are not suitable for Australian conditions. Other parameters for the terminal program will be delt with later.

The Commodore Connection.

Modems are usually designed to be connected to the computer by a 'standard' RS 232 C connection. (In practice, there is no such entity.) Herein lies a problem. Although the C64/VIC advertise an RS 232 as available on the user port, in fact it does not conform to the voltage levels required for the normal RS 232. This specifies +/- 12 Volts whereas the C64/VIC produces only TTL levels of 0-5 Volts on the user port. This problem can be overcome with the purchase of a VIC 1011 RS 232 C interface, but this adds around $50 to the price of the modem. Some modems, for example the Cicada 300 CT and our Modcom 1, elimate this problem and can be plugged directly into the user port of the C64 or VIC without the extra interface. (It is actually cheaper to do it this way!. Some even have the temerity to suggest that such modems should therefore be lower priced in comparison to their non-Commodore compatible models!)

Greg Perry

(To be continued in the next issue.)

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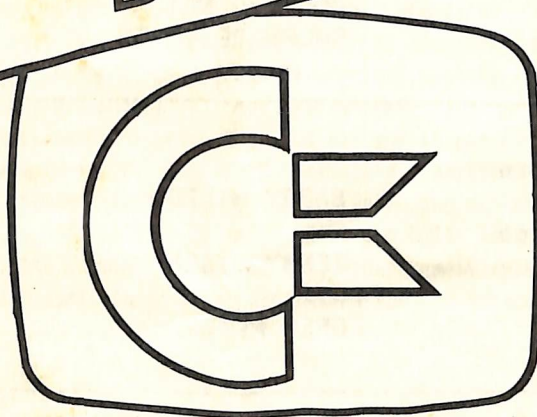Deadline for any particular month is the second Tuesday of that month.

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