June 1989 Vol 2. NO.3

Coco Link

The Magazine
of the Coco Users Network

Competition Announcements

Better BASIC

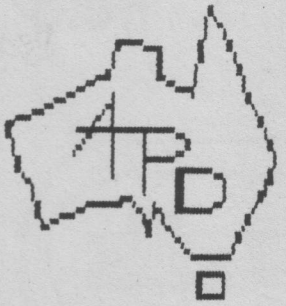
Utility

PD Software

Guitar Applications

The All Australian Magazine

For your TANDY Color Computer 1,2&3



AUSTRALIAN PERIPHERAL DEVELOPMENTS

EXCLUSIVE Australian Distributer of the

"SIMPLY BETTER"

Word processor

The most fully featured Word Processor
for the COCO 3
(See review US Rainbow April 1989)

ONLY $60.00

Send for our FREE CATALOGUE and see
our large range of
BOOKS : HARDWARE : SOFTWARE
At Australia's LOWEST prices

Call or write: APD
118 Parfrey Rd.
Rochedale
Qld. 4123
Ph. 07 341 9061

Who has the biggest selection of Software for Coco 1, 2 & 3 ?

BLAXLAND COMPUTER SERVICES

HERE IS A SELECTION FROM OUR LARGE RANGE

PRICES ARE SUBJECT TO CHANGE

MICRO ILLUSTRATOR	CC2	$39.95
HOME PUBLISHER	CC3	$59.95
COLOR COMPUTER ARTIST	CC3	$69.95
COCO NEWSROOM - Desktop Publishing Package	CC3	$99.95
COLOR MAX 3 - Includes Hi-Res Joystick Interface	CC3	$135.00
COCO-MAX 3 - Only for CoCo 3, Animation plus more	CC3	$160.00
COCO-MAX II - Tape or Disk	CC2	$100.00
APPROACH CONTROL SIMULATION	CC2	$49.95
3D-GRAPHIMATOR - 3 Dimensional Drawing Design	CC2	$79.95
PROGRAMMERS UTILITY - Commands & Utilities by Keystroke	CC2	$39.95
SECTOR INSPECTOR - RSDOS Hackers Tools	CC2	$39.95
DEPUTY INSPECTOR - RSDOS Hackers Tools	CC2	$39.95
LYRA - The Musical Coco Max (pull down menus)	CC2/3	$110.00
LYRA CONVERT - Convert Musica 2 files to Lyra files	CC2/3	$29.95
LYRA PRINT - Print your Music	CC2/3	$59.95
LYRA LIBRARY - (Supplement 1 or 2, $50.00 each)	CC2/3	$69.95
SYMPHONY 12 - 12 Voice Hardware Synthesizer	CC2/3	$140.00
LYRA SYMPHONY 12 ENHANCER	CC2/3	$39.95
MUSICA II Disk or Tape	CC2	$59.00
MUSICA LIBRARY 100/800 EACH SET	CC2	$59.95
SUPER VOICE - Speech Synthesizer	CC2/3	$160.00
EARS - Voice Recognition System	CC2/3	$190.00
GEOGRAPHY - (Africa, South America, Asia, Europe, U.S.A.)	CC2	$99.95
COCOTEX VIATEL SOFTWARE	CC2/3	$79.95
BUSINESS ACCOUNTING SYSTEM	CC2	$112.95
FAMILY TREE GENEOLOGY	CC2	$33.45
SUPER BACKUP UTILITY	CC2	$59.95
TELEWRITER 64 Disk & Tape	CC2	$84.45
TELEWRITER 128 Disk & Tape - First Release	CC3	$140.00
VIP-WRITER Disk & Tape	CC2	$98.95
VIP-DATABASE DISK ONLY	CC2	$84.45
VIP-CALC Disk & Tape	CC2	$84.45
VIP-SPELLER DISK ONLY	CC2	$77.45
VIP TERMINAL Disk & Tape	CC2	$84.45
MAILIST PRO - Ultimate Mailist Program	CC2	$39.95

PRICES ARE SUBJECT TO CHANGE

How do you contact them ?

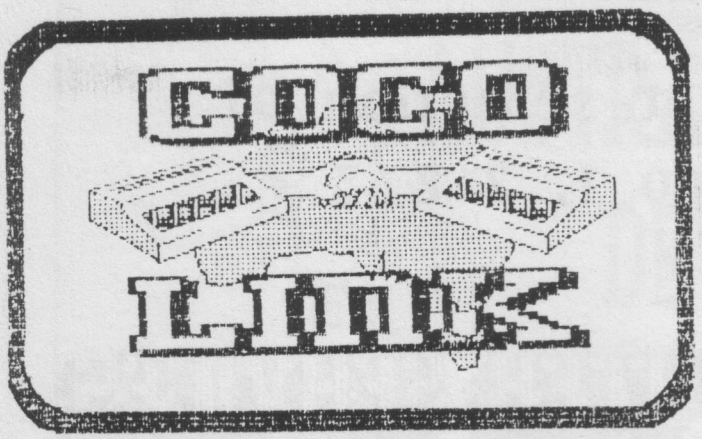
EASY !!!

Phone: (047) 39 3903

or write: Blaxland Computer Services Pty

134 Great Western Highway

Blaxland 2774 N.S.W.



June 1989 Vol 2. NO.3

Coco Link

The Magazine
of the Coco Users Network

How to submit material to Coco-Link

PROGRAMES: On tape or Disk. At least two copies one of which should be saved in ASCII format.

ML programmes require source code saved on word processor or ASCII format

ARTICLES: At least one copy in ASCII format plus one copy saved on a commercial word processor (VIP Writer etc.)

HINTS and TIPS: Hand written or typed is acceptable.

Editor: Robbie Dalzell
Asst. Editor: Garry Holder
Sub-editors:
DSG: Ken Wagnitz
Hardware: Darren Ramsey

ADVERTISING RATES

$9.00 per full page
$5.00 per half page
$3.00 per quart. page
MAX. 3 months

Classified
$2.00 per 20 words

COPYRIGHT NOTICE

All articles and programmes in this publication are the sole copyright of the authors. Reproduction of any part of this magazine by any means except for the sole use of the subscriber is an offence unless authorised in writing.

© 1988

Coco-Link
31 Redland Cres.
Pt. Noarlunga Sth.
S.A. 5167

Contents

Departments:

4 Robbie's Column _____ Viewpoint

7 Club Noticeboard _____ Club Information

5 Link-up _____ Your Letters

24 Chain Reaction _____ Reviews

13 Computer Hut Corner _____ Ads & Listing

Columns:

7 Towards Better BASIC Pt.4 ____ Tutorial

21 OS9 Section _____ Tutorial

Features:

17 Competition Announcements _____ Info

18 Format Without Erase _____ Utility

8 Guitar Chord Generator _____ Application

18 Key Transposer _____ Application

22 Open Letter and Reply _____ Info

Robbies Column

COCO MAGAZINE DISCONTINUED

It is with regret that I report the end of an era of Color Computer history. Graham Morphett has announced that due to many factors he has had to discontinue COCO magazine.

Coco magazine was born from the Australian Rainbow which was published and run by Greg Wilson. Greg had just started Coco magazine, which was the first all Australian magazine for the Color Computer, when he met his untimely death. The Coco community lost a great friend with his death but Graham Morphett carried on his dream of an Australian magazine and took Coco magazine to greater heights.
Since the beginning of this year Coco Magazine has tried the innovation of producing the magazine on tape or disk. Regretfully, this did not produce the success hoped for. Now it has come to an end.

We can only thank Graham for the time and work he put into the magazine for our benefit over these last years. Here at COCO-LINK we wish him every success in any future venture.

****

WHAT'S IN A NAME

Due to problems with our banking system caused by the mix up of the names COCO-LINK and Coco Users Network it has been decided to drop the name Coco Users Network and revert everything to the name COCO-LINK. This may take some of the confusion out of the system.

Don't worry though, nothing will really change. Everything will carry on as usual. There will be a few minor changes made round the magazine but that will be all. Please address all future correspondence to COCO-LINK.

Sorry for any inconvenience. We all learn from our mistakes.

****

COMPETITIONS

I have had a few calls and honourable mentions regarding the short story which appeared in edition No.2. They confirmed my opinion that although, as a computer magazine, our content must veer towards the technical, there is room to put a bit of more light hearted material for the not-so-technical people.

The story used was one of several submitted to a competition run by the Noarlunga Color Computer Club. (The winning entry appeared in the last edition of the NCCC BULETIN which has now become COCO-LINK). The interest and comments have made me decide to run a similar competition for COCO-LINK.

We have also decided to run a competition for programmers. This competition provides you with a short section of programme and your job is to make a complete programme of it.
Full details of the rules and submissions for both competitions can be found elsewhere in this magazine.

I look forward with pleasure to reading the forthcoming submissions to this competition.

****

VIATEL

Quite a few of our subscribers are the proud owners of Modems. We hope to be able to co-ordinate some sort of plan where we can communicate, possibly through the Fidonet network.
In the meantime, for Viatel subscribers, it is possible to contact me by leaving a message on the system. My number is 838616470.
I check the board at least twice per week.

****
*

OS9 NEWSLETTER

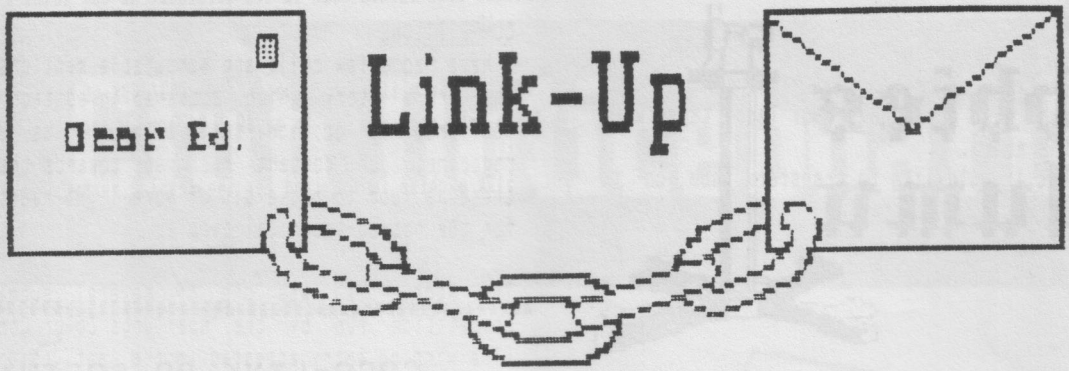
I have just recieved a copy of the monthly Australian OS9 Newsletter. This is turned out in Queensland by a bunch of very knowledgeable fellows. This Group and Newsletter are a must for anyone interested in or contemplating getting OS9. An annual subscription to the National OS9 User Group only costs $18.00

You can contact them by writing to:

Bob Devries
21 Virgo St.
Inala
QLD. 4077

Bob and his friends are part of a national movement to keep the Color Computer alive and active. They deserve your support. Don't delay, join them now!

****



Dear Ed,

I have had my computer for about 7 years, and there would hardly be a day when I do not use it. I write poetry and have used the computer to store them to disk.

I also am keen on short wawe listening, and use my CoCo to decode RTTY fax SSTV and morse code. I am looking for a better SSTV program, as when I receive SSTV on the amatuer bands, the picture only shows two halves over lapping each other; possibly the baud rate is wrong.

If you know of any packet radio programs on public domain, could you please let me know where I could obtain them. I run C.B. radio here, the call sign is Hunter Valley 155 (George).

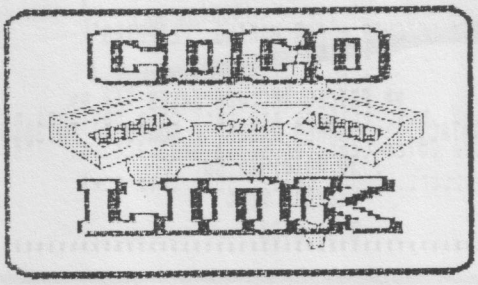
I also use the computer for State emergency services; I am the communications officer for Cooranbong local headquarters., and use OS9 to store the callout list.

Best of luck with your venture.

George Savige. Cooranbong. N.S.W.

Dear George,
I can see from the above that you lead a very busy and full life. I hope some of our readers who are interested in SSTV and communications in general will get in touch with you. If any one out there has a PD programme such as George is looking for please get in touch.
Garry Holder, our Assistant editor, is also a station listener for the SA emergency services. So there at least is someone with something in common.
As a writer of poetry you may be interested in our Short Story Competition which is announced elsewhere in this magazine.

****



Dear Ed,

I am a member of Bob Devries User Group and heartily support your efforts to maintain a CoCo network.

It is a pity that Tandy does not support the CoCo more. I made local overtones to them about supporting a 008 B.B.S. so that we might all communicate by modem, but no reply.
I like many others will support efforts like yours and others to promote the CoCo.

Good luck with your venture, and if you get time please drop a line.

Peter Hughes. KENMORE. QLD.

****

Dear Mr. Dalzell,

In reference to your letter of 30th March 1989, thank you for the copy of your second edition of CoCo Link magazine.

I read your editorial "Loyalty" with great interest, and agree with your statement ".... continue to shop where I receive courtesy and service". We at Tandy have built our business on that philosophy.

As to support, our history speaks for itself. Not only for computers, but also for regular consumer electronic products. We have provided service and support for items discontinued many years ago. We stock repair parts and offer repair service in all major cities in Australia.

We at Tandy Electronics pride ourselves in our customer support and will continue to offer service to our clientele long after our competitors have disappeared.

Yours faithfully,
Wilfred A. Egert. Merchandising Manager.
INTERTAN AUSTRALIA LIMITED.

Dear Ed,
I have purchased a copy of the TANDY book which I think is a very underestimated learning tool for children. I have also got a number of Tandy tapes with programmes for the above.
My problem is that I would like to transfer them on to disk. The programmes are protected and so far I have been unable to find out how to manage the transfer. Is there anyone out there who can help me?

Anyone with the neccessary information can contact Darren through us here at COCO-LINK.

****

Dear Ed,
Could you please send me a list of the programs that are on the tape or disk library?

Would it be possible to get the first 3 copies of the Bulletin? Has anyone found a program to dump graphics on the CoCo3? and thank you for the tip in the latest Bulletin.

Is it true that the CoCo3 is being run out in America?

I have got a program called Screen Star, it requires 512k unless you run it under OS9 level 1. As I have only got OS9 level 2, how can I get it to run under OS9 level 2? Your help would be very much appreciated.

Stephen Quinn. Orange. N.S.W.

Dear Stephen,
The old Disk/tape library ex the Noarlunga Color Computer Club is now defunct. What we are doing through COCO-LINK is starting our own Public Domain Library. Initial details were outlined in the last issue of COCO-LINK and further details and the first disk are found elsewhere in this magazine.
A programme on Coco 3 Hi-res dumps appeared in the American Rainbow magazine of October 1987.

I have no information on Coco being run out in the US but INTERTAN (the international division of TANDY CORP.) have already dropped the Coco 3 in Canada and Europe. There are rumours that they intend to do likewise here in Australia but at this stage it is still only rumour. (See letter in this column from INTERTAN Australia).
Maybe we should get together and show the powers that be in MT. Druitt that we would view the dropping of the Coco with great displeasure. Write them there and let them know your feelings on the matter.

SCREEN STAR is a text editor. In order to obtain a printed hardcopy you must have a second programme called OS9 TEXT FORMATTER.

SCREEN STAR should come in two versions. An OS9 level 1 and an OS9 level2.
The level 2 does not come with a boot and commands. Starting this version you will have to copy it to /d0/CMDS of your system disk. Also make sure you are in an 80 X 24 screen before starting SCREEN STAR.
A 512K machine is required for the level 2 version.

END

****

COCO-LINK PD SOFTWARE
****

DISK 001
========

1)	Australian Geography	(GEOG)
	General	
	South Australia	
	New South Wales	
	Queensland	
2)	Australian Explorers	(AUSEXPL)
3)	Fractutor	(FRACTUT)
4)	Decimal	(DECIMAL)
5)	Spellit	(SPELLIT)
6)	Times Table	(TABLES)

COMPUTER DISKS

DISKS -

5.25" 2S/2HD EIDETIC 1.2M FOR AT	
Plastic box of 10	$ 36.00
Bulk in plastic bags of 10 with labels	$ 8.00
High quality bulk with labels ect/10	$ 10.00
Eidetic in cardboard boxes of 10	$ 10.00
High quality colour bulk with labels ect/10	$ 14.00
Eidetic 5 colour in plastic box of 10	$ 16.00
- 3.5" High quality bulk with labels ect/10	$ 26.00
3.5" Eidetic 1m/720k in Plastic box of 10	$ 28.50
- Verbatim head clean kit with 2 disks	$ 14.00
10 replacement cleaning disks	$ 23.00

Other DISKS Makes available EIDETIC, VERBATIM, 3M, BASF.

DISK NOTCHER - FOR MAKING "FLIPPIES" $ 7.00

** PRICES INCLUDE SALES TAX **

CONTACT : DARREN RAMSEY (GONZO) PH.3846728
39 Helsinki Rd.
Hackham West
S.A. 5163

Club Noticeboard

GENERAL NOTICE

This page is provided free for the use of clubs to let people know who, what, and where you are and to let them know what you are doing.

Please send your notices for the following two months no later than the 14th of the month previous to publication.

NOARLUNGA COCO CLUB

MEETINGS
****

Next meeting will be held at Garry's home on Wednesday 7th June at 7.15 pm.
Address: 229 Esplanade.
Seaford.
S.A. 5167

The July meeting will be held at Robbie's place on Wednesday 5th July at 7.00pm.
Address: 31 Nedland Cres.
Pt. Noarlunga Sth.
S.A. 5167

PLEASE NOTE that future meetings will be held on the first Tuesday OR Wednesday of each month. Notification will appear on this page every second month.

CLUB CONTACTS

Noarlunga.....Robbie Dalzell
08 386 1647
Garry Holder
08 386 1139

BASIC & OS9.....Alex. Hartmann

OS9 User Group....Bob Devries
07 372 7816

Moe User Group....Joseph Hester
051 277 817

Clubs or persons wishing to be added to this list please inform the editor.

NATIONAL OS9 USER GROUP

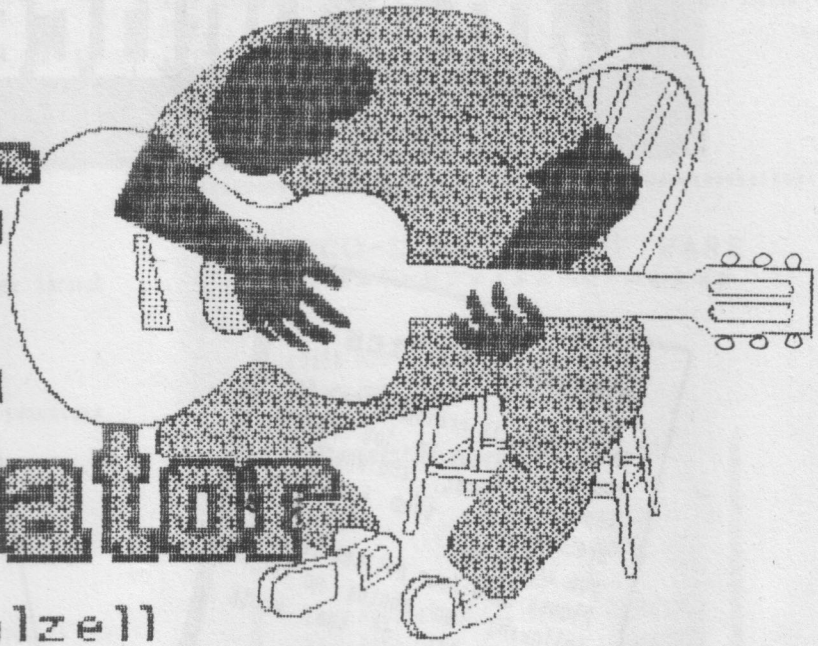
The fullest OS9 information service in Australia.

Monthly magazine included in annual subscription of $18.00

Write now to:

Bob Devries
21 Virgo St.
Inala
Qld. 4077

Guitar Chord Generator



By Robbie Dalzell

One of my hobbies and source of great enjoyment is playing the guitar. I have played for many years but even so, when trying to learn a new number from piano music, I come across a chord I don't know or can't remember. I usually have to hunt for the chord chart to see what the chord looks like. Quite often I can't find the chord chart and that makes things difficult.
As my music room is also my computer room and the room used for just about everything else, (well not everything), I decided it would be just as handy to have a programme on disk which could be easily loaded and which would display the shapes of the chords I was looking for. This programme is the result.

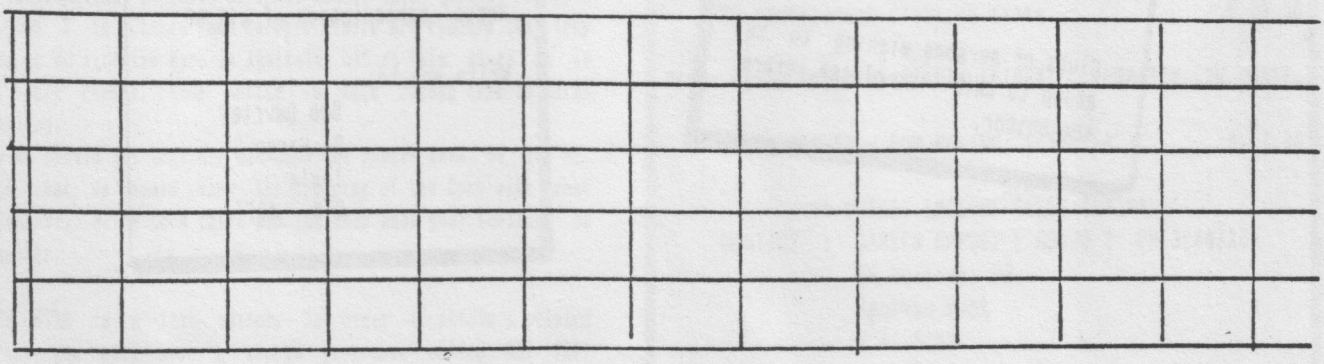
The system used is pretty straightforward. The data required to draw the chords is saved in the DATA statements in the form of HPRINT positions. I used the diagram in fig 1. to work out the fingering positions in each chord.

The strings are numbered with the vertical HPRINT position and the frets are numbered with the horizontal positions. The DATA statement for the example in fig 1 can be found on line ..... Each line must have .... pieces of data and must end in a zero.

When I started this project I just didn't realise the amount of data required to cover 14 chords in each key and also to show three positions. The programme only looks at the more commonly used chords. The large amount of data would be far too much to print in this magazine so I have, of neccessity, cut the programme down to the chords in the keys of "A" and "B" only. This is enough to give a good idea of how the system works.

Again, because of the amount of data, I had to find a way to speed up the search. I created the keys data in the 5000 lines for use in calculating the position of the data of the chord required. Lines 2000 to ..... let

FIGURE 1



GUITAR CHORD GENERATOR

```
0 '  ******************
1 '  *  GUITAR CHORD  *
2 '  *    GENERATOR   *
3 '  ******************
4 '  *       BY       *
5 '  * ROBBIE DALZELL *
6 '  ******************
7 '  * FEBRUARY 1989  *
8 '  ******************
499 'DRAW SCREEN
500 HSCREEN2:HCLS5
505 HCOLOR8,0:HPRINT(9,1),"GUITA
R CHORD GENERATOR":HLINE(72,16)-
(248,16),PSET
510 HPRINT(6,3),"WHICH CHORD? "
999 'DRAW GUITAR
1020 HCOLOR8,5
1050 A=0:FORK=10TO15:A=A+1:HPRIN
T(0,K),A:NEXT:'NUMBER STRINGS
1070 A=0:FORK=3TO36STEP3:A=A+1:H
PRINT(K,17),A:NEXT:'NUMBER FRETS

1080 HCOLOR1,5:HLINE(18,79)-(310
,127),PSET,BF
1100 HCOLOR8,1:FORK=23TO311STEP2
4:HLINE(K,79)-(K,127),PSET:NEXT
1105 HLINE(18,79)-(18,127),PSET
1110 FORK=83TO123STEP8:HLINE(19,
K)-(310,K),PSET:NEXT
1120 SOUND100,2
1500 X=22:Y=3:GOSUB20500
1999 'FIND DATA POSITION FOR KEY
 CHOSEN
2000 K$="ABCDEFG":A$=LEFT$(KC$,1
):A=INSTR(1,K$,A$):B=14*A-14:IFB
=0THEN2020
2010 FORK=1TOB:READX$:NEXT:'DUMM
Y READ STATEMENT
2020 C=0:FORK=1TO14:READK1$:C=C+
1
2030 IFK1$=KC$THEN3000ELSENEXT
2040 HPRINT(2,21),"NOT ON FILE":
SOUND200,2:GOTO4000
2999 'READ AND PRINT CHORDS
3000 RESTORE:FORK=1TO14*2:READX$
:NEXT:'DUMMY READ STATEMENT
3010 B=(504*(A-1))+(36*C-35):IFB
=0THEN3030
3020 FORK=1TOB:READX:NEXT:'DUMMY
 READ STATEMENT
3030 A=0:C=2:N$="0":FORK=1TO36:A
=A+1:READK(A):IFK(A)=0THEN4000
3035 IFK(A)=88THENN$="*":A=0:C=1
:GOTO3050
3037 IFK(A)=99THENN$="#":A=0:C=2
:GOTO3050
3040 IFA=2THENGOSUB3500:A=0
3050 NEXT:GOTO4000
3500 HPRINT(K(1)+C,K(2)),N$:RETU
RN
3999 'TRY AGAIN CHOICE
4000 RESTORE:KC$="":HPRINT(10,23
),"ANOTHER CHORD Y/N ?"
4010 I$=INKEY$:IFI$="Y" OR I$="y
"THENHCOLOR1,5:HLINE(60,180)-(24
0,191),PRESET,BF:HLINE(10,165)-(
105,175),PRESET,BF:HLINE(160,20)
-(240,32),PRESET,BF:GOTO1080
4020 IFI$="N" OR I$="n"THENENDEL
SE4010
5999 'NAME OF KEYS
6000 DATA A,Am,A7,A6,Adim,A+,Ama
j7,Am7,Am6,A+7,A9,A13,A7b9,A13b9

6010 DATA B,Bm,B7,B6,Bdim,B+,Bma
j7,Bm7,Bm6,B+7,B9,B13,B7b9,B13b9

6999 'CHORD POSITION DATA
7000 DATA 6,11,6,12,6,13,88,15,1
0,15,11,15,15,18,12,21,13,21,14,
99,27,10,27,12,30,11,31,13,36,14
,0,0,0,0,0,0
7010 DATA 3,11,6,12,6,13,88,15,1
0,15,11,15,12,15,15,21,13,21,14,
99,24,10,27,12,30,11,30,13,0,0,0
,0,0,0,0,0
7020 DATA 6,11,6,12,6,13,9,10,88
,15,10,15,11,15,13,15,15,18,12,2
1,14,99,30,11,33,13,36,12,36,14,
0,0,0,0,0,0
7030 DATA 6,10,6,11,6,12,6,13,88
,15,10,15,15,18,12,21,11,21,14,9
9,27,10,27,12,27,14,30,11,33,13,
0,0,0,0,0,0
7040 DATA 3,11,3,13,6,10,6,12,88
,12,11,12,13,15,10,15,12,99,21,1
1,21,13,24,10,24,12,0,0,0,0,0,0,
0,0,0,0
7050 DATA 3,10,6,11,6,12,9,13,88
,15,10,18,11,18,12,21,13,99,27,1
0,30,11,30,12,33,13,0,0,0,0,0,0,
0,0,0,0
7060 DATA 6,11,6,12,6,13,12,10,8
8,12,10,15,11,18,12,21,13,99,27,
10,27,11,27,12,33,13,36,14,0,0,0
,0,0,0,0,0
7070 DATA 3,11,6,12,6,13,9,10,88
,15,10,15,11,15,12,15,13,15,15,2
1,14,99,24,10,27,12,30,11,30,14,
0,0,0,0,0,0
7080 DATA 3,11,6,10,6,12,6,13,88
,12,13,15,10,15,11,15,12,15,15,9
9,27,12,27,14,30,11,30,13,0,0,0,
0,0,0,0,0
7090 DATA 6,11,6,12,9,10,9,13,88
,15,10,15,13,18,11,18,12,99,30,1
1,30,12,30,14,33,13,0,0,0,0,0,0,
0,0,0,0
7100 DATA 6,11,6,13,9,10,12,12,8
8,18,12,21,10,21,13,21,14,24,11,
99,33,13,36,10,36,11,36,12,36,14
,36,15,0,0,0,0,0
7110 DATA 6,10,6,11,12,12,15,13,
88,15,13,15,15,18,12,21,11,99,30
,11,30,14,33,12,33,13,0,0,0,0,0,
0,0,0,0,0
7120 DATA 6,11,6,13,9,10,9,12,88
,18,10,18,12,21,13,21,14,24,11,9
9,33,11,33,13,36,12,36,14,36,15,
0,0,0,0,0,0
7130 DATA 6,10,6,11,9,12,15,13,8
8,15,13,18,12,18,15,21,11,0,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
7200 DATA 6,10,6,14,6,15,12,11,1
2,12,12,13,88,12,11,12,12,12,13,
21,10,99,21,10,21,11,21,15,24,12
,27,13,27,14,0,0
7210 DATA 6,10,6,14,6,15,9,11,12
,12,12,13,88,21,10,21,11,21,12,2
1,15,27,13,27,14,99,30,10,33,12,
36,11,36,13,0,0
7220 DATA 6,10,6,12,6,14,6,15,12
,11,12,13,88,21,10,21,11,21,13,2
1,15,24,12,27,14,99,27,13,27,14,
30,11,33,10,33,12
7230 DATA 6,14,12,10,12,11,12,12
,12,13,88,21,10,21,15,24,12,27,1
1,27,14,99,27,11,27,13,33,10,33,
12,0,0,0,0,0,0
7240 DATA 3,10,3,12,88,9,11,9,13
,12,10,12,12,99,18,11,18,13,21,1
0,21,12,0,0,0,0,0,0,0,0,0,0,0,0,
0,0
7250 DATA 9,10,12,11,12,12,15,13
,88,21,10,24,11,24,12,27,13,0,0,
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0
7260 DATA 6,14,9,12,12,11,12,13,
88,18,10,21,11,24,12,27,13,99,27
,13,33,10,33,11,33,12,0,0,0,0,0,
0,0,0,0,0
7270 DATA 6,10,6,12,6,14,6,15,9,
11,12,13,88,21,10,21,11,21,12,21
,13,21,15,27,14,99,30,10,33,12,3
6,11,36,14,0,0
7280 DATA 9,11,12,10,12,12,12,13
,88,18,13,21,10,21,11,21,12,21,1
5,99,33,12,33,14,36,11,36,13,0,0
,0,0,0,0,0,0
7290 DATA 3,13,6,12,6,14,9,10,88
,12,11,12,12,15,10,15,13,99,21,1
0,21,13,24,11,24,12,0,0,0,0,0,0,
0,0,0,0
7300 DATA 3,13,6,10,6,11,6,12,6,
```

```
14,6,15,88,12,11,12,13,15,10,18,
12,99,24,12,27,10,27,13,27,14,30
,11,0,0,0,0
7310 DATA 3,13,6,11,6,12,6,14,12
,10,88,12,10,12,11,18,12,21,13,9
9,21,13,21,15,24,12,27,11,0,0,0,
0,0,0,0,0
7320 DATA 3,11,3,13,6,12,6,14,6,
15,88,12,11,12,13,15,10,15,12,99
,24,10,24,12,27,13,27,14,30,11,0
,0,0,0,0,0
7330 DATA 3,11,3,13,6,12,6,14,12
,10,88,12,10,12,11,15,12,21,13,9
9,21,13,24,12,24,15,27,11,0,0,0,
0,0,0,0,0
20499 '   PRINT ON HI-RE SCREEN
20500 I$=INKEY$:IFI$=""THEN20500

20505 IFI$=CHR$(13)THENRETURN
20510 IFI$=CHR$(8)THENL=LEN(KC$)
ELSE20535:'  BACK SPACE
20520 X=X-1:HCOLOR5,5:HPRINT(X,Y
),RIGHT$(KC$,1)
20530 KC$=LEFT$(KC$,L-1):HCOLOR8
,5:GOTO20500
20535 HPRINT(X,Y),I$
20540 KC$=KC$+I$
20550 X=X+1:GOTO20500
```

us calculate the variable B to be used in the dummy READ statement in line 2010. This puts us in data in the correct key.
The variable A is again used to calculate B for use in another dummy READ statement. This puts the pointer on the correct DATA line. This line is read and the chords are printed on the screen.

The formulas for calculating the dummy READ statements speed things up considerably and the speed up poke helped things along.

I used a much battered copy of "500 CHORDS FOR GUITAR" published by Arnold and sons. I think it is still available from music stores but if not, there are many chord charts on the market which can be used just as well.

When using the programme the key should be entered in uppercase. Flats and other extensions should be entered in lowercase. eg. Ab13, Cdim.

NOTE: The numbers used in figure 1 to plot the chords are as follows. Across the top (frets) they should read left to right 3,6,9,12,15,18,21,24,27,30,33,36
Down the left-hand side (strings) they should read 10,11,12,13,14,15.
88 is used as a marker for the end of the 1st chord position and 99 marks the end of the 2nd chord position.

Nomination Form

Give the Nomination form opposite to your COCO User friends and do them the best turn you have ever done. They will thank you for it.

DO IT NOW!!!

[ ] RENEWAL SUB NO. [ ]

COCO-LINK

NAME: _____

ADDRESS: _____

_____

_____ TELEPHONE: _____

EQUIPMENT:

COCO 1	[ ]	MULTIPAK	[ ]	OTHER	[ ]
COCO 2	[ ]	CASSETTE	[ ]		
COCO 3	[ ]	DISK	[ ]		

PRINTER MODEL [ ]

MODEM MODEL [ ]

DO YOU PROGRAMME?

BASIC	[ ]	ASSEMBLY	[ ]	OS9 LEVEL 1	[ ]
C	[ ]	BASIC 09	[ ]	OS9 LEVEL 2	[ ]
PASCA	[ ]	FORTRAN	[ ]		

OTHER [ ]

INTERESTS:

PROGRAMMING	[ ]	BUSINESS	[ ]	COMMUNICATIONS	[ ]
W/PROCESSING	[ ]	GAMES	[ ]	DESKTOP PUBLISH	[ ]
H/HOLD	[ ]	GRAPHICS	[ ]	EXTERNAL CONTROL	[ ]

OTHER [ ]

DO YOU SUBSCRIBE TO:

BBS NAME [ ]

VIATEL NUMBER [ ]

RAINBOW MAGAZINE [ ]

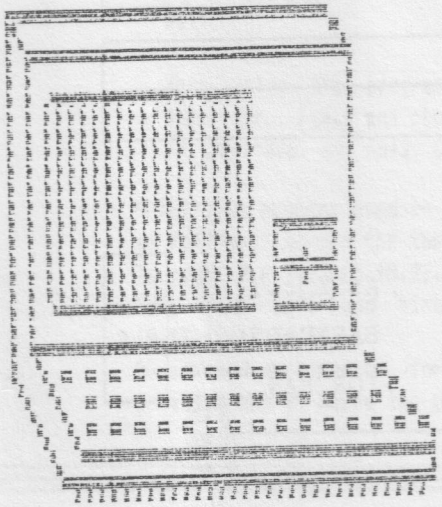
PLEASE SEND CHEQUE/MONEY ORDER TO:

COCO-LINK,
31, NEDLAND CRESCENT,
PORT NOARLUNGA SOUTH,
STH. AUST. 5167.

JOINING FEE $ 8.00 [ ]

ANNUAL SUB. $12.00 [ ]

For Sale
Computers
CoCo 2 & CoCo3



CoCo 2 : 64K memory, MJL keyboard, long white case model, double-sided 40 trk disk drive (controller has gold edge connectors), Triple-Y expansion cable, Tandy Electronic Book, Books of programs & programming plus lots of software (hundreds of programs from games to utilities to business applications).

PRICE $600

PHONE **(043) 284203**

CoCo 3 : 128K memory, Mulit-Pak Interface (modified for 512K), 2 double-sided disk drives, cassette player, hi-res joystick interface, 2 deluxe joysticks, touch pad, magazines including complete sets of Hot CoCo and The Color Computer and about 50 American Rainbow magazines. Books including Color Computer Interfacing & Experiments, Color Computer Assembly Language Programming, etc. 60-70 disks full of software, plus assorted hardware for hacking (EPROMS, 6821's, etc).

PRICE $1600 or Both together **$2000**

******COMPUTER HUT CORNER******

We at the Computer Hut would like to congratulate Robbie, Garry and the Norlunga Colour Computer Club on the formation of the Coco Users Network and this magazine COCO-LINK.

With both industry and user support we are sure it will be a big success and fill a large cap in the COCO community. GOOD LUCK and keep up the good work.

From all at Computer Hut Software.

NEW FOR THE COCO III

XENION

A new AUSTRALIAN written ACTION game that takes FULL advantage of your Coco 3.
In this magnificent action packed game you pilot your Spacecraft across the four worlds of the TAAMOS system :- Tellar, Escor, Twarsk and Fibos - IF YOU CAN SURVIVE THAT LONG!!!!
The aliens will hurl everything they have at you and you must use your missilies for both attack and defence.
Will you be caught in the Force Fields??? Can you destroy the alien Mother Ship ??? THERE IS NO WAY BACK!!!

Requires 128k Coco 3 - Disk or Tape ..... $39-95 plus $2-50 p&p.

THE BOOKS

(Mini General Ledger)

A new AUSTRALIAN written HOME ACCOUNT program that will take care of all your money transactions.
This is a tape based Ledger program for the Coco 3 and is so easy to use you will probably wonder why we went to the trouble of producing the 20 page manual.

Requires 128k Coco 3 - Tape only ..... $39-95 plus $2-50 p&p.

VIP INTERGRATED LIBRARY

We have a limited number of this famous program. It includes Vip Writer, Vip Speller, Vip Database, Vip Calc, Vip Terminal and Vip Zap all on one easy to use disk. It comes with full documentation.

Requires 128k Coco 3 with at least 1 Disk drive.

Limited offer ..... ONLY $119-95 plus $6-00 p&p.

We accept :- *Mastercard, Bankcard, Visacard, Personal and Business Cheques, Money Orders or C.O.D.*
To order any of our products call or write to :-

Computer Hut Software

21,Williams Street. Bowen. Qld.4805

Phone (077)862220

Send $1-00 p&p for our Catalogue of over 250 programes for the Coco 1 2 & 3

******COMPUTER HUT CORNER******

*** DISK FILE UTILITY ***

This super disk utility can provide you with three different types of printed reports regarding your disk files. A menu is used to quickly and easily select reports. It has ON-LINE instructions and the first report function "Super Dir" will be of great use to all of you who use our disks with the clear anti-static covers (See special offer elsewhere in this section). as it produces a printout that will fit inside the cover so you may see at a glance what is on the disk including the start,end and exec locations of all ML files.

```
1 REM COPYRIGHT (C) COMPUTER HUT
 SOFTWARE 1988 * DISK UTIL *
10 CLEAR3000:DIMFA(67):FT$(0)="B
AS":FT$(1)="DAT":FT$(2)="ML ":FT
$(3)="EDT":AF$(0)="BIN":AF$(1)="
ASC"
20 CLS:PRINT@3,"*** DISK FILE UT
ILITY ***"
60 PRINT@480,"INSTRUCTIONS (Y/N)
?";
70 A$=INKEY$:IFA$=""THEN70
80 IFA$="N"THEN250ELSEIFA$<>"Y"T
HEN20
90 CLS:PRINT"THIS PROGRAM WILL A
LLOW YOU TO  PRODUCE A PRINTED C
OPY OF MOST  OF THE USEFUL DISK
FILE DATA FOREITHER A SINGLE-SID
ED DRIVE OR  ONE OR TWO DOUBLE-S
IDED DRIVES."
100 PRINT:PRINT"FROM THE MENU YO
U CAN CHOOSE ANYOF FIVE OPTIONS:
":PRINT:PRINT"1. SUPER DIRECTORY
                2. DIRECTORY EXAMI
NE              3. FILE ALLOCATION
 TABLE EXAMINE4. REPEAT THESE IN
STRUCTIONS      5. QUIT THE PROGRA
M"
110 PRINT@480,"PRESS <ENTER> TO
CONTINUE...";:INPUTA$
120 CLS:PRINT@4,"*** SUPER DIREC
TORY ***"
130 PRINT@64,"THIS WILL GIVE YOU
 A PRINTOUT OFTHE DISK DIRECTORY
 TO PLACE     INSIDE THE DISK JA
```

Continued next page .....

DISKS DISKS DISKS DISKS DISKS DISKS DISKS DISKS

TOP QUALITY

Double Sided/Double Density Disks in CLEAR ANTI-STATIC plastic sleves
in our new

DISK BANK SYSTEM 5 DISK BOXES

These boxes lock together to form the best disk storage system we have seen.

10 disks in a box including 1 full of free software

THATS RIGHT 10 OR MORE FREE PROGRAMS

ONLY $29-95 plus $3-00 p&p.

We have used over 8,000 of these disks without a single crash and feel that they are the most reliable disk on the market today.

Also avialible 31/2 in disks Box of 10 only $29-95 plus $3-00 p&p.
(Sorry no free software with these.)

DISKS DISKS DISKS DISKS DISKS DISKS DISKS DISKS

We accept :- *Mastercard, Bankcard, Visacard, Personal and Business Cheques, Money Orders or C.O.D.*
To order any of our products call or write to :-

Computer Hut Software

21,Williams Street. Bowen. Qld.4805

Phone (077)862220

Send $1-00 p&p for our Catalogue of over 250 programes for the Coco 1 2 & 3

```
CKET, AND WILLCONTAIN ALL THE FO
LLOWING USEFULINFORMATION:"
140 PRINT"FILE NAME AND EXTENSIO
N, FILE   TYPE, FILE FORMAT, THE
 NUMBER OFGRANULES USED FOR FILE
, START,  END AND EXECUTE ADDRES
SES FOR   EACH MACHINE LANGUAGE
FILE, FREEGRANULES LEFT ON DISK,
 NUMBER OFPROGRAMS ON DISK, AND
A BLANK"
150 PRINT"COLUMN FOR YOUR COMMEN
TS."
160 INPUT"PRESS <ENTER> TO CONTI
NUE...";A$
170 CLS:PRINT@5,"*** DIRECTORY E
XAMINE ***"
180 PRINT"THIS WILL GIVE YOU, IN
 TABULAR  FORM, A PRINTOUT OF AL
L THE DATASTORED ON THE DIRECTOR
Y TRACK,  INCLUDING FILE NAME, E
XTENSION, FILE TYPE, ASCII FLAG,
 NUMBER OFTHE FIRST DISK GRANULE
 USED TO  STORE THE PROGRAM AND
THE NUMBER";
190 PRINT"OF BYTES USED IN THE L
AST SECTOROF THE LAST GRANULE US
ED TO     STORE THE PROGRAM. A P
REVIOUSLY KILLED DIRECTORY ENTRY
 WILL BE  SHOWN WITH ALL APPROPR
IATE DATA,BUT UNUSED DIRECTORY L
OCATIONS  WILL NOT BE SHOWN."
200 INPUT"PRESS <ENTER> TO CONTI
NUE...";A$
210 CLS:PRINT@6,"*** FAT EXAMINE
 ***"
220 PRINT@64,"THIS WILL GIVE YOU
 A PRINTOUT OFTHE FILE ALLOCATIO
N TABLE (FAT) FOR THE DISK, FROM
 WHICH YOU CANTRACE THE LOCATION
S OF ALL THE  GRANULES USED TO S
TORE ANY FILE ON THE DISK.  THE
FIRST COLUMN  WILL INDICATE THE
GRANULE NUMBER";
230 PRINT"AND THE SECOND COLUMN
WILL SHOW WHICH GRANULE CONTAINS
 THE NEXT PART OF THE PROGRAM.
THE THIRD COLUMN SHOWS ON WHICH
TRACK THE GRANULE WILL BE LOCATE
D."
240 PRINT@480,"PRESS <ENTER> TO
CONTINUE...";:INPUTA$
250 CLS:PRINT"          turn print
er on":PRINT:PRINT"       insert
desired disk":A$=INKEY$
260 PRINT:PRINT"DRIVE NUMBER (0-
3) ?";
270 A$=INKEY$:IFA$=""THEN270
280 DR=ASC(A$):IFDR<48ORDR>51THE
N270
290 DR=DR-48
300 CLS:DSKI$DR,17,11,X$,Y$:TI$=
RIGHT$(Y$,8):PRINT"TITLE OF CURR
ENT DISK :"TI$:PRINT"DO YOU WISH
 TO RENAME (Y/N)":A$=INKEY$
310 A$=INKEY$:IFA$="N"THEN340
320 IFA$<>"Y"THEN310
330 INPUT"NEW DISK TITLE (1-8 CH
ARACTERS):";TI$:FORN=LEN(TI$)+1T
08:TI$=TI$+" ":NEXTN:Y$=LEFT$(Y$
,120)+TI$:DSKO$DR,17,11,X$,Y$:GO
TO300
340 CLS:PRINT@3,"*** DISK FILE U
TILITY ***"
350 PRINT@110,"MENU"
360 PRINT@160,"1  SUPER DIRECTOR
Y"
370 PRINT"2  DIRECTORY EXAMINE"
380 PRINT"3  FILE ALLOCATION TAB
LE EXAMINE4  INSTRUCTIONS"
390 PRINT"5  QUIT"
400 A$=INKEY$:SOUND1,1:LC=0
410 PRINT@490,"YOUR CHOICE ?";
420 A$=INKEY$:IFA$<>""THEN470
430 FORX=1TO100:NEXTX
440 PRINT@490,"your choice";
450 FORX=1TO100:NEXTX
460 GOTO410
470 PRINT@490,"working       ";:O
NVAL(A$)GOTO560,910,1250,90,550
480 GOTO400
490 IFDR<2THENPRINT£-2,TAB(30)"S
IDE 1"ELSEPRINT£-2,TAB(30)"SIDE
2"
500 PRINT£-2:PRINT£-2,TAB(26);
510 PRINT£-2,CHR$(14);:REM PUT Y
OUR PRINTER'S CODE HERE TO TURN
ON DOUBLE WIDTH PRINTING
520 PRINT£-2,TI$;
530 REM PUT YOUR PRINTER'S CODE
HERE TO TURN OFF DOUBLE WIDTH PR
INTING
540 PRINT£-2:PRINT£-2:PRINT£-2:R
ETURN
550 CLS:END
560 PRINT£-2,TAB(26)"DISK DIRECT
ORY":PRINT£-2:GOSUB490
570 PRINT£-2,"FILENAME/EXT TYPE
FMT GR  START, END , EXEC  WRITE
 IN ANY OF YOUR COMMENTS HERE"
580 PRINT£-2,"============ ====
=== ==  ================  =====
==============================":P
RINT£-2
590 DSKI$DR,17,2,X$,Y$
600 FORI=0TO67:FA(I)=ASC(MID$(X$
,I+1,1)):NEXTI
610 FORX=3TO11
620 DSKI$DR,17,X,X$,Y$
630 X$=X$+LEFT$(Y$,120)
640 FORN=0TO7
650 NA$=MID$(X$,N*32+1,8):EX$=MI
D$(X$,N*32+9,3):GR=ASC(MID$(X$,N
*32+14,1))
660 G1=GR:A=ASC(LEFT$(NA$,1))
670 FT$=MID$(X$,N*32+12,1):AF$=M
ID$(X$,N*32+13,1)
```

Continued next page .....

```
680 IFA=255THENN=7:X=11:GOTO860
690 IFA=0THEN860
700 AF=ASC(AF$)AND1:I=1
710 IFFA(GR)<128THENSL=GR:I=I+1:
GR=FA(GR):GOTO710
720 PRINT#-2,NA$+"/"+EX$;"  "FT$
(ASC(FT$));" "AF$(AF);:IFI>9THEN
PRINT#-2,I;:ELSEPRINT#-2," "I;
730 IFASC(FT$)<>2THEN840
740 LG=FA(GR):LS=LG AND31:LL=GR:
LB=ASC(MID$(X$,N*32+16,1)):IFG1<
34THENTN=INT(G1/2)ELSETN=INT(G1/
2)+1
750 SN=1+(G1 AND1)*9:DSKI$DR,TN,
SN,A$,B$:SA=ASC(MID$(A$,4,1))*25
6+ASC(MID$(A$,5,1)):SA$=STRING$(
4-LEN(HEX$(SA)),"0")+HEX$(SA)
760 EA=SA+ASC(MID$(A$,2,1))*256+
ASC(MID$(A$,3,1))-1:EA$=STRING$(
4-LEN(HEX$(EA)),"0")+HEX$(EA):IF
LL<34THENTN=INT(LL/2)ELSETN=INT(
LL/2)+1
770 SN=(LL AND1)*9+LS:DSKI$DR,TN
,SN,A$,B$:A$=A$+LEFT$(B$,127):IF
LB=1THEN790ELSEXA=ASC(MID$(A$,LB
-1,1))*256+ASC(MID$(A$,LB,1))
780 XA$=STRING$(4-LEN(HEX$(XA)),
"0")+HEX$(XA):GOTO830
790 XA=ASC(MID$(A$,1,1)):IFLS=1T
HEN810
800 DSKI$DR,TN,SN-1,A$,B$:XA=ASC
(RIGHT$(B$,1))*256+XA:GOTO780
810 IFSL<34THENTN=INT(SL/2)ELSET
N=INT(SL/2)+1
820 SN=(SL AND1)*9+10:GOTO800
830 PRINT#-2," $";SA$;",$";EA$;"
,$";XA$;
840 PRINT#-2
850 LC=LC+1
860 NEXTN,X
870 PRINT#-2:PRINT#-2,"FREE GRAN
ULES =";FREE(DR)
880 PRINT#-2:PRINT#-2,"NUMBER OF
 PROGRAMS ="LC
890 NL=52:IFLC>52THENNL=118
900 FORZ=1TONL-LC:PRINT#-2:NEXTZ
:GOTO400
910 PRINT#-2,TAB(17)"DIRECTORY -
 TRACK 17, SECTORS 3-11":PRINT#-
2:GOSUB490
920 PRINT#-2,"ENTRY   00  01  02
  03  04  05  06  07  08  09  10
  11  12  13  14  15"
930 PRINT#-2,"=====  ";
940 FORX=0TO15
950 PRINT#-2," == ";
960 NEXTX
970 PRINT#-2:PRINT#-2
980 FORX=3TO11
990 DSKI$DR,17,X,A$,B$
1000 FORZ=1TO8
1010 ZZ=Z
1020 IFZ>4THENA$=B$:ZZ=Z-4
1030 W=0:A=ASC(MID$(A$,(ZZ-1)*32
+1,1)):IFA=255THENZ=8:X=11:GOTO1
120
1040 PRINT#-2,Z+(X-3)*8;
1050 IFA=0THENW=1:PRINT#-2,TAB(8
)"00";
1060 FORY=W TO10
1070 PRINT#-2,TAB(Y*4+8);MID$(A$
,Y+(ZZ-1)*32+1,1);
1080 NEXTY
1090 FORY=11TO15
1100 PRINT#-2,TAB(Y*4+8);HEX$(AS
C(MID$(A$,Y+(ZZ-1)*32+1,1)));
1110 NEXTY
1120 PRINT#-2:LC=LC+1
1130 NEXTZ
1140 NEXTX
1150 PRINT#-2:PRINT#-2:PRINT#-2:
PRINT#-2,"00-07 = FILENAME (IF 0
0 IS FIRST CHARACTER, FILE HAS B
EEN DELETED.)"
1160 PRINT#-2,"08-10 = EXTENSION
"
1170 PRINT#-2,"    11 = FILE TYPE
"
1180 PRINT#-2,"         (0=BASIC,
 1=BASIC DATA, 2=MACHINE LANGUAG
E, 3=TEXT EDITOR SOURCE)"
1190 PRINT#-2,"    12 = ASCII FLA
G (0=BINARY, FF=ASCII)"
1200 PRINT#-2,"    13 = FIRST GRA
NULE NUMBER OF FILE"
1210 PRINT#-2,"14-15 = BYTES USE
D IN LAST SECTOR"
1220 PRINT#-2,"16-31 = UNUSED (F
OR FUTURE USE)"
1230 NL=45:IFLC>45THENNL=111
1240 FORX=1TONL-LC:PRINT#-2:NEXT
X:GOTO400
1250 PRINT#-2,TAB(19)"FILE ALLOC
ATION TABLE - TRACK 17, SECTOR 2
":PRINT#-2:GOSUB490
1260 PRINT#-2,"FROM GRANULE   TO
 GRANULE    TRACK              FROM
 GRANULE    TO GRANULE    TRACK"
1270 PRINT#-2,"============   ==
========    =====              ====
========    ==========    ====="
1280 PRINT#-2
1290 DSKI$DR,17,2,A$,B$
1300 FORX=0TO33
1310 PRINT#-2,TAB(5)HEX$(X);TAB(
19);HEX$(ASC(MID$(A$,X+1,1)));TA
B(29)INT(X/2);TAB(50)HEX$(X+34);
TAB(64);HEX$(ASC(MID$(A$,X+35,1)
));TAB(74)INT(X/2)+18
1320 NEXTX
1330 FORX=1TO22:PRINT#-2:NEXTX:G
OTO400
```

We accept :- Mastercard, Bankcard, Visacard, Personal and Business Cheques, Money Orders or C.O.D.
To order any of our products call or write to :-

Computer Hut Software

21,Williams Street. Bowen. Qld.4805

Phone (077)862220

Send $1-00 p&p for our Catalogue of over 250 programes for the Coco 1 2 & 3 :

Competitions

Short Story Competition

RULES:
1) Story to have a theme which in some way involves computers or advanced electronics.
2) To be of length..... 1500 to 3000 words.
3) Submission must be submitted by 1st November 1989.
4) The judges decision will be final. No correspondence will be entered into.
5) Competition is open to financial subscribers only.
6) Staff or family of COCO-LINK are ineligible to take part in competition.

METHOD OF SUBMISSION
Submissins will be accepted on tape or disk accompanied by a hard copy. Disk/tapes should be recorded in ASCII format.

JUDGING
The Competition will be judged by Marrianne Glenton, novelist and teacher of advanced writing at TAFE colleges.

Elevators Competition

RULES
1) All code other than that supplied must be the work of the person(s) submitting the programme
2) Submissions must be recieved by 1st November 1989.
3) The judges decision will be final and no correspondence will be entered into.
4) Only financial subscribers to COCO-LINK are eligible to enter the competition.
5) Staff and family of COCO-LINK are ineligible to enter the competition.

METHOD OF SUBMISSION
Submissions will be accepted on tape or disk for either Coco 1,2 or 3. Please submit at least one ASCII copy and one binary copy. Any accompanying text should be saved in ASCII format and be accompanied by a hard copy.

JUDGING
Judging will be carried out by the staff of COCO-LINK magazine. Submissions will be judged on a number of criteria including imagination.

Elevator platforms

This competition is for programmers. The scene is set....All you have to do is complete the programme to your own personal design and ideas.

The following listing sets up three elevators on the screen. The elevators move up and down the screen at different speeds. Your problem is to add the code which gives it a purpose. The only restriction to what can be done with the elevators is your imagination.

ELEVATORS

```
50 DIMA(13,4),B(13,4),C(13,4),D(
13,4)
999 'DRAW ELEVATORS
1000 PMODE3:PCLS:SCREEN1,0
1010 PCLS:COLOR6,0
1020 X=40:Y=20
1030 LINE(X,Y)-(X+16,Y+111),PSET
,B
1040 X=120:LINE(X,Y)-(X+16,Y+111
),PSET,B
1050 X=200:LINE(X,Y)-(X+16,Y+111
),PSET,B
1099 'DRAW AND GET PLATFORMS
1100 GET(42,139)-(55,135),D
1110 COLOR0,0:LINE(42,129)-(55,1
25),PSET,BF:GET(42,129)-(55,125)
,A
1120 COLOR3,0:LINE(122,129)-(135
,125),PSET,BF:GET(122,129)-(135,
125),B
1130 COLOR2,0:LINE(202,129)-(215
,125),PSET,BF:GET(202,129)-(215,
125),C
1998 'PLATFORM MOVEMENT
1999 'PLATFORM A
2000 X=42:X1=122:X2=202:Y=125:Y1
=125:Y2=125:A=0:A1=0:A2=0:B=0
2020 PUT(X,Y)-(X+13,Y+4),D,PSET
2030 Y3=Y:GOSUB5000:Y=Y3
2055 PUT(X,Y)-(X+13,Y+4),A,PSET
2999 'PLATFORM B
```

Continued on page 21

Key Transposer

BY Robbie Dalzell

I find that some songs are written in keys which I find difficult to sing. (Many people would say that this applies to all keys but I do not pay any attention to them). This means transposing all the chords for my guitar accompaniment to a key I can handle vocally.

This short programme just shows the equivalent key notes for the new key requested as opposed to the original key. It saves a little bit of think time. It is very simplistic and could be improved a great deal but it suits me this way. All the sevenths etc. can be changed using the principal note shown.

The programme can be quite handy used in conjunction with the CHORD GENERATOR shown elsewhere in this magazine.

```
90 DIMK$(21)
100 FORK=1TO21:READK$(K):NEXT
500 CLS:PRINT@41,"KEY TRANSPOSER
":PRINT@73,STRING$(14,"*")
1000 PRINT@128," ";:INPUT"WHAT K
EY IS TUNE IN       ";K1$
1010 IFK1$>"G"THEN1000
1020 FORK=1TO21
1030 IFK$(K)=K1$THENN=K:GOTO1100

1040 NEXT
1100 PRINT@160," ";:INPUT"WHAT K
EY TO TRANSPOSE TO ";K2$
1110 IFK2$>"G"THEN1100
1120 FORK=1TO21
1130 IFK$(K)=K2$THENN1=K:GOTO150
0
1140 NEXT
1500 PRINT@230,STRING$(20,"*"):P
RINT@289,"KEY":
1510 X=303:FORK=N TON+7:PRINT@X,
K$(K):X=X+2:NEXT
1520 PRINT@353,"TRANSPOSITION"
1540 X=367:FORK=N1 TON1+7:PRINT@
X,K$(K):X=X+2:NEXT
1550 PRINT@422,STRING$(20,"*")
1600 PRINT@488,"TRY ANOTHER Y/N?
";
1610 I$=INKEY$:IFI$=""THEN1610
1620 IFI$="Y"THEN500ELSECLS:END
1800 END
2000 DATA A,B,C,D,E,F,G,A,B,C,D,
E,F,G,A,B,C,D,E,F,G
```

Format Without Erase

By Richard Schmidt

WARNING - This program has the capacity to damage your disks!

This program acts like a "super - kill" type program: it removes everything on the disk that is not currently flagged as "in use" by the granule table. This includes all remains of killed filenames in sectors 3 to 11 of Track 17.
If the program finds information in the Granule Table that is outside legal limits (see lines 40 & 100), or a "file pointer" granule, (which contains a part that is not the end of a file), points to a "free" (not used) granule (line 310), the program ends. In both cases, it would NOT be wise to continue with the program, as there is obviously a fault in the directory somewhere.

In order for RS-DOS to be able to access the entire directory, the program "sorts" it, ie. all current filenames are moved to the "top" of the directory, while the remainder of the directory is re-formatted.
After this has been done, the program looks in the granule table (Track 17, sector 2) for a "free" granule (a granule is "free" both if the granule has not been used, and if the file occupying that granule has been killed), and then proceeds to format the corresponding sectors elsewhere on the disk.
Next, it looks for the "End Of File" granules (granules with a value of between Hexadecimal "C1" and Hexadecimal "C9", where the four least significant bits tell the computer how many sectors are used in the last granule) and repeats the above procedure for the unused sectors in the last granule of the file.
Then, it searches in the directory array (in memory) for the end of each file, finds out how many bytes are used in the last sector of the file (bytes 14 & 15 (counting from 1) of each filename block), and formats the rest of that sector.

Once all this has been done, the only information left on the disk are current files, and the directory information referring to them. This is not quite as efficient a procedure as copying all the files across to another disk, reformatting the entire disk, and then copying them back, because the files are still in their original position on the disk, instead of one complete block. However, I'm sure you'll agree this is a lot less tedious!

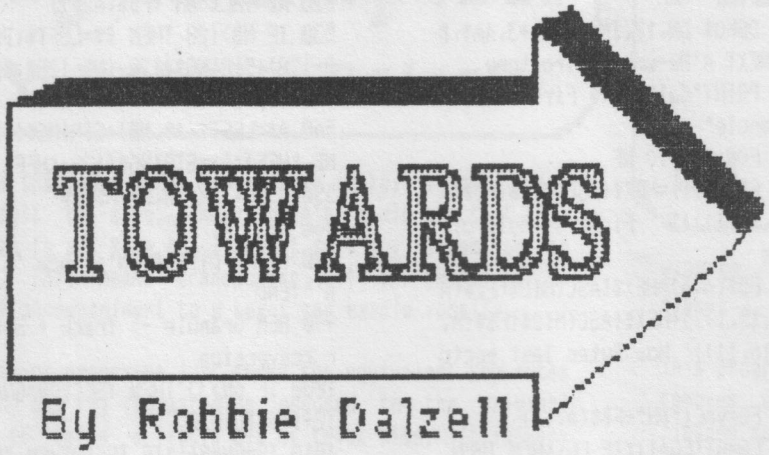
FORMAT WITHOUT ERASE

```
10 CLS:PRINT@6,"FORMAT WITHOUT E
RASE":PRINT@38,"By Richard Schmi
dt."
20 PRINT"WARNING - Remember Murp
hy's Law: Make Backups of Import
ant Files BEFORE running this pr
ogram."
25 REM FB$(#,0)= FILENAME BLOCK.
 FB$(#,1)= FIRST GRANULE OF FILE
 FB$(#,2)= LAST GRANULE OF FILE.
 FB$(#,3)= SECTOR OFFSET IN LAST
 GRANULE.
 FE$(#,4)= NO. OF BYTES IN LAST
 SECTOR.
30 VERIFY ON:CLEAR5000
40 LT=68' Limit of granule table
 (68 Granules = 35 Tracks)
50 DIM GT(LT),FE$(LT,4),NM$(LT)
60 INPUT"WHICH DRIVE(0-3)";DN:IF
 DN>3THEN 60
70 PRINT"This program will remov
e all    extraneous material(KIL
Led files, etc.)  from   Disk  #
";DN
80 DSKI$ DN,17,2,A$,B$
90 FORA=1TOLT:GT(A)=ASC(MID$(A$,
A,1))
100 IF (GT(A)>LT AND GT(A)<&HC1)
 OR (GT(A)>&HC9 AND GT(A)<&HFF)T
HENPRINT"YOU HAVE A BAD GRANULE
TABLE":PRINT"FORMAT ABORTED":END

110 NEXT A
115 REM Load directory into arra
y
120 NFILES=1:FOR A=3 TO 11
130 DSKI$ DN,17,A,A$,B$
140 FOR X=1 TO 97 STEP 32
150 IF MID$(A$,X,1)=CHR$(0) THEN
 200
160 IF MID$(A$,X,1)=CHR$(&HFF) T
HEN 225
170 FB$(NF,0)=MID$(A$,X,32)
180 NM$(NF)=LEFT$(FB$(NF,0),8)+"
/"+MID$(FB$(NF,0),9,3)' Filename

190 PRINT@292,"Loading ";NM$(NF)
:NF=NF+1
200 NEXT X
210 IF B$=A$ THEN NEXT A:GOTO225

220 A$=B$:GOTO140
225 IF NF=1 THENPRINT"THIS DISK
IS EMPTY":ENDELSEPRINT NF"Files
Loaded"
230 FOR A=NF TO LT:FB$(A,0)=STRI
NG$(32,&HFF):NEXT A' Blank rest
of array
240 NF=NF-1:FOR A=1 TO NF STEP 8
:AA$="":BB$="":FOR X=A TO A+3:AA
$=AA$+FB$(X,0):BB$=BB$+FB$(X+4,0
):NEXT X
250 DSKO$ DN,17,INT(A/8)+3,AA$,B
B$:NEXT A'Re-write directory
255 PRINT"Calculate First & last
 Granule"
260 FOR A=1 TO NF
270 FB$(A,1)=HEX$(ASC(MID$(FB$(A
,0),14,1)))'   First granule of
file
280 FB$(A,4)=HEX$(ASC(MID$(FE$(A
,0),15,1)))+HEX$(ASC(MID$(FB$(A,
0),16,1)))' No. Bytes last secto
r
290 FG=VAL("&H"+FB$(A,1))
300 LG=GT(FG+1):IF LG<&HC0 THEN
FG=LG:GOTO300
310 IF LG=&HFF THEN PRINT"YOU HA
VE A BAD GRANULE TABLE":PRINT"FO
RMAT ABORTED":END
320 FB$(A,2)=HEX$(FG)'   Last
Granule of file
330 FB$(A,3)=HEX$(LG)'   Number
sectors offset
340 NEXT A
350 A$="":FOR Z=1TOLT:A$=A$+CHR$
(GT(Z)):NEXT Z
360 A$=A$+STRING$(128-LT,0):B$=S
TRING$(128,0):DSKO$ DN,17,2,A$,B
$' Zero rest of sector 2
365 PRINT@352,"Re-Format unwante
d sectors
370 FOR A=1 TO LT
380 IF GT(A)<&HC1 THEN 450 ELSE
GN=A-1:GOSUB1000
390 NOFFSET=GT(A):IF NO<&HC9 THE
N 410
400 IF NO=&HC9 THEN450ELSE NO=&H
C0
410 IF TR>LT/2 THEN 460 ELSE FOR
 X=SE+(NO-&HC0) TO SE+8
420 PRINT@384,"Formatting Track"
TR"Sector"X;
430 DSKO$ DN,TR,X,STRING$(128,25
5),STRING$(128,255)
440 NEXTX
450 NEXTA
455 REM Format unwanted bytes of
 Last Sector of files
460 FOR A=1 TO NF
470 PRINT@416,"Working on ";NM$(
A)
480 GN=VAL("&H"+FB$(A,2)):GOSUB1
000
490 SE=SE+(VAL("&H"+FB$(A,3))-&H
C0)-1
500 IF VAL(LEFT$(FB$(A,4),1))=1
THEN 560' Sector is full
510 DSKI$ DN,TR,SE,A$,B$
520 NB=VAL("&H"+FB$(A,4))
530 IF NB>128 THEN B$=LEFT$(B$,N
B-128)+STRING$(128-(NB-128),&HFF
):GOTO550
540 A$=LEFT$(A$,NB)+STRING$(128-
NB,&HFF):B$=STRING$(128,&HFF)
550 DSKO$ DN,TR,SE,A$,B$
560 NEXT A
570 PRINT"Disk #"DN"is now 'Clea
n'":END
990 REM Granule -> Track + Secto
r conversion
1000 IF GN>33 THEN TSECTOR=GN*9+
18+1:GOTO1020
1010 TS=GN*9+1:IF TS<18THEN TR=0
:SE=TS:RETURN
1020 TR=INT(TS/18):SE=TS-TR*18
1030 RETURN
```



Better BASIC Part 4

By Robbie Dalzell

Lets discuss some of the very useful commands which seem to be bypassed in many programmes.

On many occassions I have seen similar to the following in programmes:-

```
IF A$ ="A" THEN 100
IF A$ ="B" THEN 200
IF A$ -"C" THEN 300
   &ETC.
```

Like the IF - THEN formulae of the last column in this series, this sort of programming is a waste of time, memory and finger power as well as being a slowing factor in the programme.
All letters have a an ASCII code so therefore can be reduced to a number. This leaves the door open to using one of the more useful commands such as ON - GOTO or ON - GOSUB. The difference between the two being only that ON - GOTO will continue through the programme from the line stated, whereas ON - GOSUB will return to the next line from the GOSUB after having completed the subroutine it was sent to.

The code for our initial axample would read as follows:-

```
10 A = ASC(A$)-64
20 ON A GOTO 100,200,300
```

Line 10 changes the string into a number. The 64 is subrtacted from that number so as to start the alphabet from the number 1. (The ASSCI code for the letter A is 65).
Should the INPUT be in numbers as for instance:

```
IF A = 1 THEN 100
   ETC.
```

Then the following would apply:-

```
10 ON A GOTO 100,200 300
```

This system is handy used in a menu. The following short routine illustrates this:-

```
10 PRINT"A......FIRST"
20 PRINT"B.....SECOND"
30 PRINT"C.....THIRD"
40 PRINT:INPUT"YOUR CHOICE";A$
50 A=ASC(A$)-64
60 ON A GOTO 100,200,300
```

There will be occasions when you would prefer to use the first letter of each menu item as a means of choice. This is easily attained using another of the often overlooked commands.....INSTR.
If your menu consists of FIRST,SECOND and THIRD, and the first letter of each item is to be used for the method of choice, they are firstly formed into a string. eg A$="FST". The INSTR command is then used to to pick what item you require by counting along the string B$ till it finds the letter chosen.

Using this method your listig would look like listing 2.

```
10 PRINT"fIRST"
20 PRINT"sECOND"
30 PRINT"tHIRD"
40 PRINT:PRINT"YOUR CHOICE ";:INPUTA$
50 B$="FST": A= INSTR(1,B$,A$)
60 ON A GOTO 100,200,300
```

A prime example of the above follows. This short sample programme was found in a well known magazine. It uses all the factors which should be avoided. It's a good job it isn't any longer or it would take up a full page.

Example overleaf

The obvious solution to this programme is the following few lines:-

```
150 B$= "LCNUDSAPQ"
160 A= INSTR(1,B$,R$)
170 ON A GOTO 120,340,340,340,340,340,340,
   340,340
```

These few lines can be used in place of lines 150 through 320.

```
5 CLS: INPUT"DO YOU WANT MENU <Y
/N>";BYPASS$
10 CLS: IF BYPASS$="N" THEN GOTO
 120
20 PRINT @ 40,"--TAPE DB MENU--"
30 PRINT @ 105,"<L> CLOAD FILE"
40 PRINT @ 137,"<C> CSAVE FILE"
50 PRINT @ 169,"<N> NEW RECORDS"
60 PRINT @ 201,"<U> UPDATE RECOR
DS"
70 PRINT @ 233,"<D> DELETE RECOR
DS"
80 PRINT @ 265,"<S> SELECT"
90 PRINT @ 297,"<A> ARRANGE"
100 PRINT @ 329,"<P> PRINT"
110 PRINT @ 361,"<Q> QUIT"
120 PRINT @ 419,"PRESS LETTER FO
R FUNCTION";: FOR T=1 TO 300: NE
XT T
130 PRINT @ 419,STRING$(25,32);:
 FOR T=1 TO 300: NEXT T
140 R$=INKEY$: IF R$="" THEN GOT
O 120
150 IF R$="L" THEN GOTO 250
160 IF R$="C" THEN GOTO 260
170 IF R$="N" THEN GOTO 270
180 IF R$="U" THEN GOTO 280
190 IF R$="D" THEN GOTO 290
200 IF R$="S" THEN GOTO 300
210 IF R$="A" THEN GOTO 310
220 IF R$="P" THEN GOTO 320
230 IF R$="Q" THEN GOTO 330
240 GOTO 120
250 GOTO 340
260 GOTO 340
270 GOTO 340
280 GOTO 340
290 GOTO 340
300 GOTO 340
310 GOTO 340
320 GOTO 340
330 END
340 CLS: PRINT @ 65,"THIS SUBROU
TINE IS INCOMPLETE"
350 FOR J=1 TO 1000: NEXT J
360 GOTO 10
```

Program Listing 2. Sample Menu Using Letter Designation

OOPS!!!

****

I must apologise for my slight boo-boo in this column in our last issue. I showed the following section of programme and asked the reader to try and work out how it could best be shortened. I then said that the solution was on page . As it did not appear anywhere in the magazine it surely made things just a little bit difficult. Here then is the offending section of programme followed by my solution to the problem.

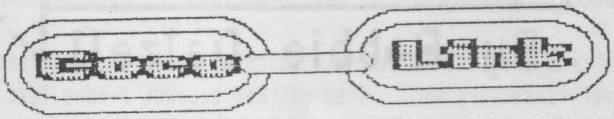
```
210 PRINT@169," SPACE BAR ";
220 PRINT@233,"INSTRUCTIONS";
250 N=1058:K=113:RK=49:GOSUB1100
260 N=1060:K=114:RK=50:GOSUB1100
270 N=1062:K=115:RK=51:GOSUB1100
280 N=1064:K=116:RK=52:GOSUB1100
290 N=1066:K=117:RK=53:GOSUB1100
300 N=1068:K=118:RK=54:GOSUB1100
310 N=1070:K=119:RK=55:GOSUB1100
320 N=1072:K=120:RK=56:GOSUB1100
330 N=1074:K=121:RK=57:GOSUB1100
340 N=1076:K=112:RK=48:GOSUB1100
350 N=1078:K=122:RK=58:GOSUB1100
360 N=1080:K=109:RK=45:GOSUB1100
370 N=58:K$="BRK":RK$="brk"
    :GOSUB 1000
380 N=1089:K=94:RK=30:GOSUB 1100
390 N=67:K$="Q":RK$="q"
    :GOSUB 1000
```

Solution.

```
250 K=113:RK=49:FOR N=1058 TO 1074 STEP2
260 K=K+1:RK=RK+1:NEXT
```

These two lines would replace lines 250 to 330. Lines 340 to 380 break the pattern so would remain the same.

END



The Magazine
of the Coco Users Network

ELEVATORS

Continued from page 17

```
3000 PUT(X1,Y1)-(X1+13,Y1+4),D,P
SET
3010 Y3=Y1:GOSUB5010:Y1=Y3
3020 PUT(X1,Y1)-(X1+13,Y1+4),B,P
SET
3999 'PLATFORM C
4000 PUT(X2,Y2)-(X2+13,Y2+4),D,P
SET
4010 Y3=Y2:GOSUB5020:Y2=Y3
4020 PUT(X2,Y2)-(X2+13,Y2+4),C,P
SET
4800 GOTO2020
4999 'PLATFORM SUBROUTINES
5000 IFA=0THENY3=Y3-4 ELSE IFA=1
THENY3=Y3+4
5001 B=A:GOSUB5050:A=B:RETURN
5010 IFA1=0THENY3=Y3-2 ELSE Y3=Y
3+2
5011 B=A1:GOSUB5050:A1=B:RETURN
5020 IFA2=0THENY3=Y3-3 ELSE IFA2
=1THENY3=Y3+3
5021 B=A2:GOSUB5050:A2=B:PETURN
5050 IFY3<24THENB=1 ELSE IFY3>12
1THENB=0
5051 RETURN
```

END

An Open Letter from Johanna Vagg .....

Dear Robbie,

The people who have written to me have expressed a desire for a printed magazine. I think that these people will buy CoCo-Link, and I hope that you will be able to provide what these subscribers want. I don't have a lot of time to key programs into CoCo, but apparently quite a few CoCo owners do have the time. I feel that a magazine on tape/disk could have been successful.

Some of the readers of Goldsoft's magazines were disappointed by the change in format; others were upset about the sudden change from a printed magazine to a tape/disk. Goldsoft was forced to make the change.
Goldsoft could not afford to pay to have a magazine printed after Tandy cut its order. Goldsoft could not afford to pay its staff. Graham and Alex had to produce the tapes/ disks on their own. Now Goldsoft has had to cease trading.

It is true that the tapes/disks which Goldsoft produced after CONF88 did not make me feel I could recommend them. However, I am very sad. I am not sad because I have lost access to CoCoOz. I can do without CoCo/ Softgold/ CoCoOz.. I have over 100 Aussie Rainbow/ CoCo/ Softgold magazines. These contain a lot of information and a lot of programs. I am sad because after a lot of people gained from Graham's work, Graham will lose.

Readers of Goldsoft's magazines will know that Graham exaggerates.. I have five children, not eleven.. I know that Graham also made a point of being positive. You have heard the saying, "If you can't think of something good to say about someone, don't say anything at all." Graham took this further - he FOUND something positive to say... even when it meant using poetic licence.

While Graham was being positive, his readers did not know that he "dropped" Rainbow for financial reasons, and that he made the other changes for financial reasons. I think he should have told the readers the truth, instead of battling on his own. He lost the fight. He has lost everything.That's why I am sad. I am also sad because Goldsoft has played a large part in my life since September 1984, and now it is gone.

I don't NEED CoCo-Link. As I said, I have over 100 magazines for CoCo, AND now I have a Tandy 1000 HX, thanks to Graham! I also seem to be 'addicted' to writing, thanks to Graham! So... I will try to help the readers of CoCo-Link if you/they think I have anything more to offer.

There are a few points I would like to make about the CoCo-Link magazines:

You invited criticism. I will oblige. The condensed type in the first two issues seems to be too dark and blurry. My eyes are okay, and I can read it, but it might be too small for some? There was plenty of room in those first two issues... why not make it more readable? The larger print in the answers to the letters (April issue) is a better size, but, the descenders are faint or missing. The print on the Nomination form is better. We can probably all 'get by' when we are reading WORDS, but program lisings / numbers / OS9 commands need to be clear. The pages supplied by (?) Computer Hut have the print which is the easiest on the eyes... apart from Ken's Laserjet printing!

You asked to be forgiven for ERRERs(!) in the first issue. I forgive. The second isuue has several spelling mistakes. The two which 'get to me' the most are recieve on page 4, and definately on pages 4 and 17. Please could we have receive and definitely in future? The following sentence also has a grammatical ERROR: "I found that for the magazine that I needed to cut down on the space used for listings"... Maybe you will have lots of listings in the future, but there did not appear to be any reason to cut down on the space used for listings yet.

This brings me to something else related to the 2/3 Column Llister program: Please tell us how to change it for tape.

Johanna Vagg
9 Belah Street
FORBES NSW 2871
ph: 068 52 2943

In Reply .....

Dear Johanna,

Thank you for writing to us at such length with your views and comments.

Garry and I here at COCO-LINK entirely endorse your comments regarding Goldsoft and Graham Morphett. I have already made comments on similar lines, although not at such length, in my editorial column.

I feel that the other points you raise deserve answering and I will set out to do this but, firstly, I think a little bit of background is required.
When Garry and I decided to fill the gap left by the demise of Coco magazine we did it without too much thought of the work it would involve.
We both have other full time employment and therefore we use our own free time to write, set up pages, copy them, sort them, staple them, then wrap and post them.
We check all submitted programmes to see that they work properly and quite often have to write the words which accompany the programme in the magazine. We also find time to write to potential subscribers and advertisers. We reply to letters asking for assistance or advice on computing matters. We also try to solve problems over the phone or direct people to those who are in a better position to help them.
We do this on our own and, up to now, have derived much enjoyment and satisfaction from it. Just ask my wife where I can be found when I am not at work.

The equipment used to do all this is our own personal gear. COCO-LINK started with absolutely no money except that of our first two initial subscribers ..ie Garry and myself.
We originally started by printing the pages on my old LPVIII (yes they really do still exist). By the second magazine we had moved on to Garry's Super 5 CP80. Garry has now bought himself an EPSOM LQ 800 and we will now benefit from his purchase. About 80% of this magazine has been printed using this machine.
We copy the made up pages on Garry's father's small SHARP photocopier. We are beginning to vastly overload this machine and will soon have to do something about getting another one strictly for COCO-LINK.

As you can see we are continually doing things to improve the print, copying and presentation of the magazine. We will continue to do this as and when we can afford it financially and timewise.

I hope this is an answer to your comments on the printing side. Hopefully our next issue will be totally printed on Garry's new machine.

The comments regarding going to a larger print, although this should not be neccessary with the new EPSOM, needs to be answered. The reason for using condensed print is simple. It does not use as much paper. The postal rate for magazines is dependant on weight. If the magazine exeeds a certain weight it costs more. It should be remembered that the first two magazines, before we registered the publication, cost us over $1.00 just for postage and packaging. The magazine will continue to be printed small but with improvements in clarity.

The first two editions of COCO-LINK were written almost entirely by myself. I do not apologise for the spelling ERRORS or typos (or even grammatical errors). I think that the few mistakes made out of the many thousands of words written is a surprisingly good result. I am sure there will be more in future editions of COCO-LINK. We all make them. The second last line of your third from last paragraph and the first line of the next one is surely proof of this. The main thing is that the sense of what is being said is not lost.

The remarks regarding "cutting down the space used for listings...." was probably a bit of exaggeration but again the reason had more to do with weight and postal cost for those first magazines. I hope you will be able to treat my many exaggerations (to which I am prone) in the same light manner as you have Graham's in the past.

I will write a fix for the 2/3 Column Llister for cassette and put it in the next Issue of COCO-LINK.

To conclude. Goldsoft was run as a business with the purpose of making a profit to pay wages etc. We are sorry to see that after many years it has gone bad in a financial way. COCO-LINK will not go the same way. Garry and I have not set out in this venture as a means of financial gain. We do it on a hobby basis for our own enjoyment and to help other Coco owners wherever they are. Whilst we did not set out to make a profit from COCO-LINK we did make one significant specification. That is, that the magazine must be financially viable in itself. In other words it must make enough money to pay for all the things it needs to run efficiently. Neither Garry nor I will allow this venture to become a financial millstone around our necks. We will continue, to the best of our ability, to give subscribers a magazine at the lowest cost possible at which it can sustain itself.

I must again thank you, Johanna, for writing us. We are always receptive to constructive criticism or suggestions and will DEFINITELY try our best at all times to accomodate them where possible. It is only by RECEIVING letters such as yours that we can know what our readers think and feel.

Thank you again.

Robbie Dalzell

Chain Reaction

The Review Column

DYNACALC

The DYNACALC program is as the name suggests, an electronic spreadsheet program for the TRS-80 Color Computer ECB, requiring it to have 64K of RAM. There is also an OS9 version of DYNACALC.

The DYNACALC disk is a master disk from which you CREATE your own spreadsheet version. The master disk allows you to format the copy to suit your printer requirements, such as baud rate, auto line feed, handshaking, pagination, number of line spaces, whether you want to print the borders or not and other choices which are preset into your working copy as default settings; but can be manually changed if necessary.

The cursor can be moved around the screen by pressing the arrow keys, and can also be moved around with a joystick or mouse if you prefer. I found the DYNACALC to be quicker than the VIP CALC when changing from one column to another, especially when there is a fair amount of data in the buffer.

DYNACALC includes full high resolution graphics capability, allowing you to create several different types of graph displays based on information displayed on your worksheet. With line graphs and bar graphs you can also add extra information to them before saving them to disk or dot-matrix printer.
You can use DYNACALC with either a single or double disk drives.

The slash '/' is the command key. I have found the commands easy to understand in most cases, especially for the commands that are most used in an office spreadsheet situation. Comparing again with VIP CALC, I found commands such as replicate and sort required less work to get them to do the job required.

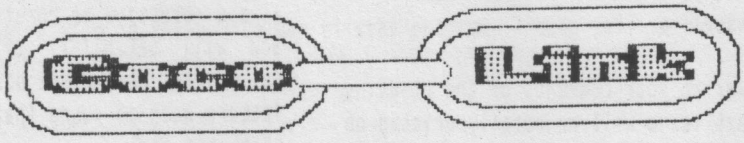
There are 255 rows and columns; you can have a column width up to 255 wide if you desired. The Calc gives the mathematical formula options available in most Calc programs, such as adding up columns of figures, integer, square root, logs, trigonometry, if...then etc etc; the functions may not all be used by the operator, but are there for those who do need to use them.

You can have a window display of two sections of your worksheet; either a horizontal or vertical display which will scroll synchronously if you wish. You can freeze titles, save or load either the whole file or just a part of the data that you want saved or load, you can also save a file or section of it so that it can be loaded into a word processor, you can protect your worksheet against anyone else using and adding to it without changing data that you have already entered into it. DYNACALC can also read and write BASIC data files.

I use Dynacalc a great deal for keeping files that require sorting and for keeping a record of deposits and payments made, with the balance being automatically displayed in the column where the balance formula has been replicated down to a nominated cell. DYNACALC is probably the handiest type of programme you could use for the amount of jobs that it can perform. It can also be used as a word processor although it does have its limitations there.

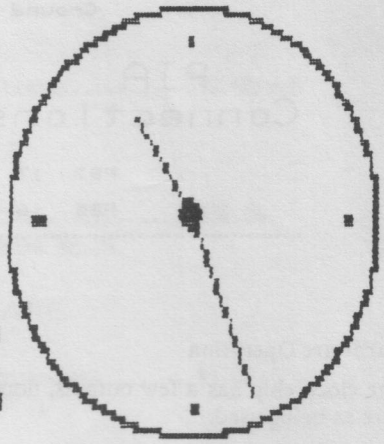
DYNACALC is definitely a programme I recommend. The price of the CoCo 1 & 2 version is around $120.00 and the OS9 version around $180.00. Prices could vary at different outlets.

Garry Holder.



Coco Real Time Clock

By Ken Wagnitz



History:

Originally I dreamed up a circuit which plugged into the cassette interface of the Coco, for people who were nervous about getting inside their Coco. It used two chips, and fitted into a 'Strepsils' tin.

Then Tandy released the hi-res joystick/mouse interface which uses the cassette port.

Browsing through the circuit diagram for the Coco3, I discovered that the PIA outputs which control the display modes of the Video Display chip (6847) of the Coco2, are not connected to anything in the Coco3! Being of a suspicious nature, I even checked the board in my Coco3 to confirm this terrific fact.

It is true. There are unused outputs there for us hackers. So I wired up my clock circuit directly to that PIA, using the 'unused' PIA port pins. It worked fine.

Someone else made up that circuit (Richard), and after help from me to get it going, asked for software to tell BDOS the date on booting. I eventually wrote the needed programs in Basic for him. He reported that my Basic clock-read program mucked up the screen on his Coco3. On further questioning, I find out that the same happens when he boots OS9.

Now I normally boot up OS9 on my Coco3 in an 80 column mode. Trying a 32 column screen, sure enough, the display is corrupted by the clock program. It turns out that although the PIA outputs are not connected to the GIME chip on the Coco3 (which handles the display), the GIME responds to writes to the PIA as if it was connected!

The answer to this problem was simply to save the state of the PIA outputs before writing to the clock chip, and restoring them after. The PIA port pins don't even have to be configured as outputs, just written to as if they were.

Thus the circuit shown here will work on any Coco.

The I²C Bus Family

Philips make a family of chips with a common interface they call the I²C Bus. The clock chip shown here is one of that family. As a clock chip it is not ideal, but the Bus as a means of adding peripheral devices, is terrific.

At work, I have designed and built a hardware control system using chips from this family, interfaced to an IBM PC look-alike, via its parallel printer port. It contained Input/Output chips and an Analog/Digital chip.

It was my interest in this Bus system, and the ease of using it, which prompted me to use this particular clock chip.

The Circuit

As you can see by the circuit-diagram, the circuit is very simple, a Philips PCF8573 IC and a few other components.

The clock has an on-board oscillator which keeps the time. The 32 kHz crystal is readily available, and if you have a cheap (throw-away) digital watch which has a flat battery, grab the crystal from inside it.

The 18pF capacitor trims the oscillator frequency. I found 18pF to be about right. The correct item here is a variable 25pF capacitor if you want to be able to adjust for maximum accuracy.

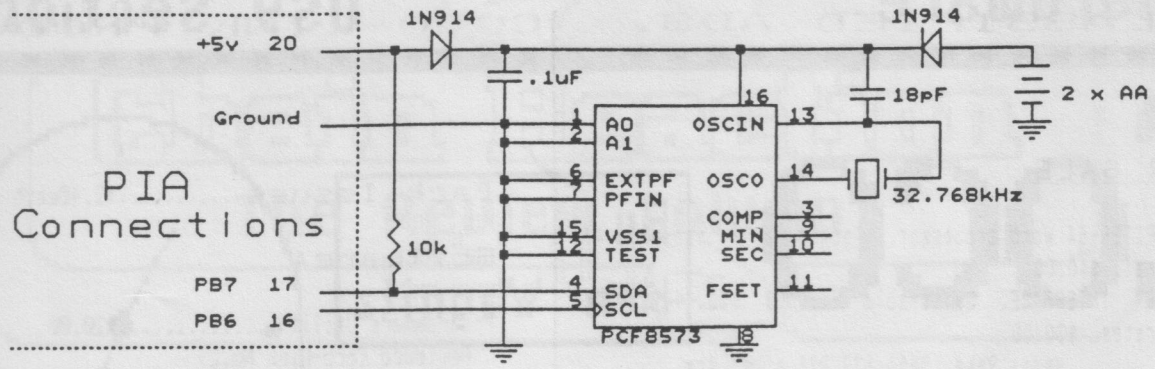
The clock is powered by the Coco 5v supply when the Coco is on, and the batteries when it is off. Any silicon diodes will do in place of the 1N914s, and the cheapest small batteries I know of are AAs. They will last their shelf-life in this application. If you are cheap (like me) you can solder the batteries into the circuit, otherwise use a reliable battery holder.

I mounted my clock board (wired on 'Veroboard') under the keyboard. The Ground wire is soldered to the Coco board ground, the other wires are soldered directly to the PIA pins. The pin numbers are shown. It is the PIA which does not connect to the keyboard. On the Coco3, that is the left hand one, looking from the front. An alternative would be to solder short wire-wrap pins to the ground and PIA pins, and small sockets on the clock-board leads to plug onto them. This would allow disconnection and reconnection in case of problems.

A deluxe extra is an LED connected anode to 5v, and cathode via a resistor (I use 10kohms) to the clock chip 'SEC' pin (pin 10). This would flash at a one second rate, making you feel good about the health of the clock chip.

The clock chip is available from "Burtons" on Unley Rd in Adelaide, or "Soanar PTY LTD" in all states. It was around $15 last time I got one.

While the circuit is simple, I haven't given step-by-step details of construction here. If you can't figure out what to do from the information here, then you probably shouldn't be delving into the guts of your Coco. Static prevention precautions are a MUST. Particularly since the PIAs are not socketed on the Coco3 (penny-pinching Tandy).



Hardware Operation

The clock chip has a few outputs, none of which I have shown here as being used.

FSET is a buffered 128 Hz oscillator output, to allow accurate setting of the oscillator by trimming the small capacitor. An easier method for most people is to check the time-keeping accuracy over a few days, and adjust if necessary.

MIN & SEC are square-wave outputs at a minute and second rate respectively.

COMP is an output of the alarm time comparator, if it is enabled. It could be used to control an external device (turn on the Coco at a pre-determined time) or interrupt the MPU.

The address inputs (low address-nibble) A0 & A1 allow up to four clock chips on the same Bus. Why you would want more than one, beats me. (Note that each type of device in the family has a different high-nibble address.)

Communication on the Bus to the clock chip is synchronous (controlled by a clock lead), so the SCL (Serial CLock) line is an input from the PIA.

The data line (Serial DAta) is bi-directional, to allow reading and writing of data on the same line. To achieve this with the PIA port used, the PIA port pin PB7 has to be configured as an output for writing, and an input for reading. The pullup resistor is necessary because the clock chip has an 'open drain' output, and the PIA doesn't pull up the SDA line in input mode.

Software

The minimum software needed to use the clock circuit, is a program to set the date/time, and a program to read the date/time. As at the time of writing, I have such programs for OS9 (level 1 or 2) in 'C', and for RSDOS in Basic. The read and write times in Basic are a couple of seconds, but much less under OS9 (compiled C).

Any clock software written by me, (and hopefully others) is available from the Coco-Link software library. I will probably be writing machine language routines for Tandy Basic.

Operation of the clock chip is quite complex. If anyone wants to make up the circuit and write software for it, it is essential that they get a copy of the data sheet for the chip. I can help with this.

Capabilities

The clock can store and return, month, day, hour and minute figures only. It keeps a seconds counter internally, but this cannot be written to or read, though it can be cleared.

The alarm can be set to generate a hardware output (COMP), and the alarm setting and status can be read.

There is a readable internal flag which will indicate if the power has failed completely (ie battery is flat).

Because the year is not stored, it has to be set in software, with the program patched to a new year annually.

OS9

Under OS9, I call the clock-read program in 'startup' and pipe its output to 'setime'. This saves me typing in the date/time. The clock is not used after that, until a re-boot. Since the software clock loses time with disk accesses anyway, I am not concerned with accuracy in seconds. If the chip handled time in much smaller increments, it could be used to interrupt the MPU in place of the software timer tick (vertical sync), and the time could be continuously read from it. This would give accurate time always. I think it is probably not warranted. If desired, it would be fairly easy to run a background task which piped a new real-time to 'setime' say every 10 or 20 minutes, to update the time. I don't bother.

Future

There is a later version of this clock chip (at least it is in the data book). It is settable and readable down to hundredths of a second, and can store years, and has a few bytes of battery backed RAM in it. I haven't seen one, but it may be attractive to try it. Of course it would need new software...

I have interfaced a home-made 'Turtle' to my Coco via this chip family, using the I/O chip PCF8574. The chip is connected to the Coco via opto-isolators for safety. The turtle consists of two stepper motors, and a solenoid to lower its pen. While it is not fast, it can draw fairly accurately on paper. Like most of my projects, once I got it to the stage of being able to do something, I lost interest. If anyone wants info along these lines then contact me.

If any interest is shown (contact Robbie), then I will write more articles about these chips. They provide a simple and versatile way of connecting I/O to the Coco, even via long cables. The A/D chip for example, has four inputs (0-5v) and one D/A output. Anyone want to measure the overnight temperature with their Coco?

I am undecided about putting source code for articles like this into the magazine. The code is reasonably long, and although it can be educational, would probably only appeal to a few people. And in this case, there are two versions: a C form, and a Basic form. I know that I don,t like typing code in from magazines, but it is sometimes easier and cheaper than getting a disk or tape sent out. Perhaps if this becomes an on-going thing, I will include the programs, and some discussion on how they work. Feedback please.

END

CLASSIFIED ADS.

FOR SALE

TELEWRITER-64 Word processor. Tape/disk + manual. All original. $40.00
PRINTER INTERFACE. Switchable for 300, 600, 1200, 2400 Baud rates. $30.00
Harry Rake (065) 522 826 after 4pm.

PRINTER TP10 $50.00
Stuart Cameron (08) 261 8167

PRINTER DMP100 + spare ribbon $80.00
Wilf Dixon (08) 254 7892

WANTED

OVERHEAD PROJECTOR. Working or not.
Darren Ramsey (08) 354 8725

COCO-LINK PRODUCTS

Back Issues.....$2.40each

Software:

Programmers Utility.....$20.00
(Reviewed Coco-Link No.2)

PD SOFTWARE

#001 Education Programmes.....$5.00
(See page)

When answering our Adverts

PLEASE mention

COCO-LINK

COCO-LINK MAGAZINE

31 NEDLAND CRES.,
PT. NOARLUNGA STH.,
S.A. 5167
(08) 386 1647

Registered by Australia Post –
Publication No. SBH 1944

JACK RAE
PO BOX 2076
MT. ISA
QLD 4825

POSTAGE
PAID
CHRISTIES
BEACH