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Vol.2, No. 12

SEE YOU AT

CoCoConf '86

August 30 - 31

GOLDLINK
on
VIATEL

GAMES
TUTORIALS
- much more!!

Registered by Australian Post Publication No QBG 4007

CoCo & softgold

Who is this magazine for?

This magazine is for users of Tandy Colour Computers, MC-10 computers, Model 100 and 200 users, T1000 and T2000 users.
I.B.M. P.C. and I.B.M. clone users will also be able to use the T1000 programes and articles in the "softgold" section.

Who provides the material for this magazine?

90% of the material to be found in this magazine is provided by people who just want to share their knowledge with you.

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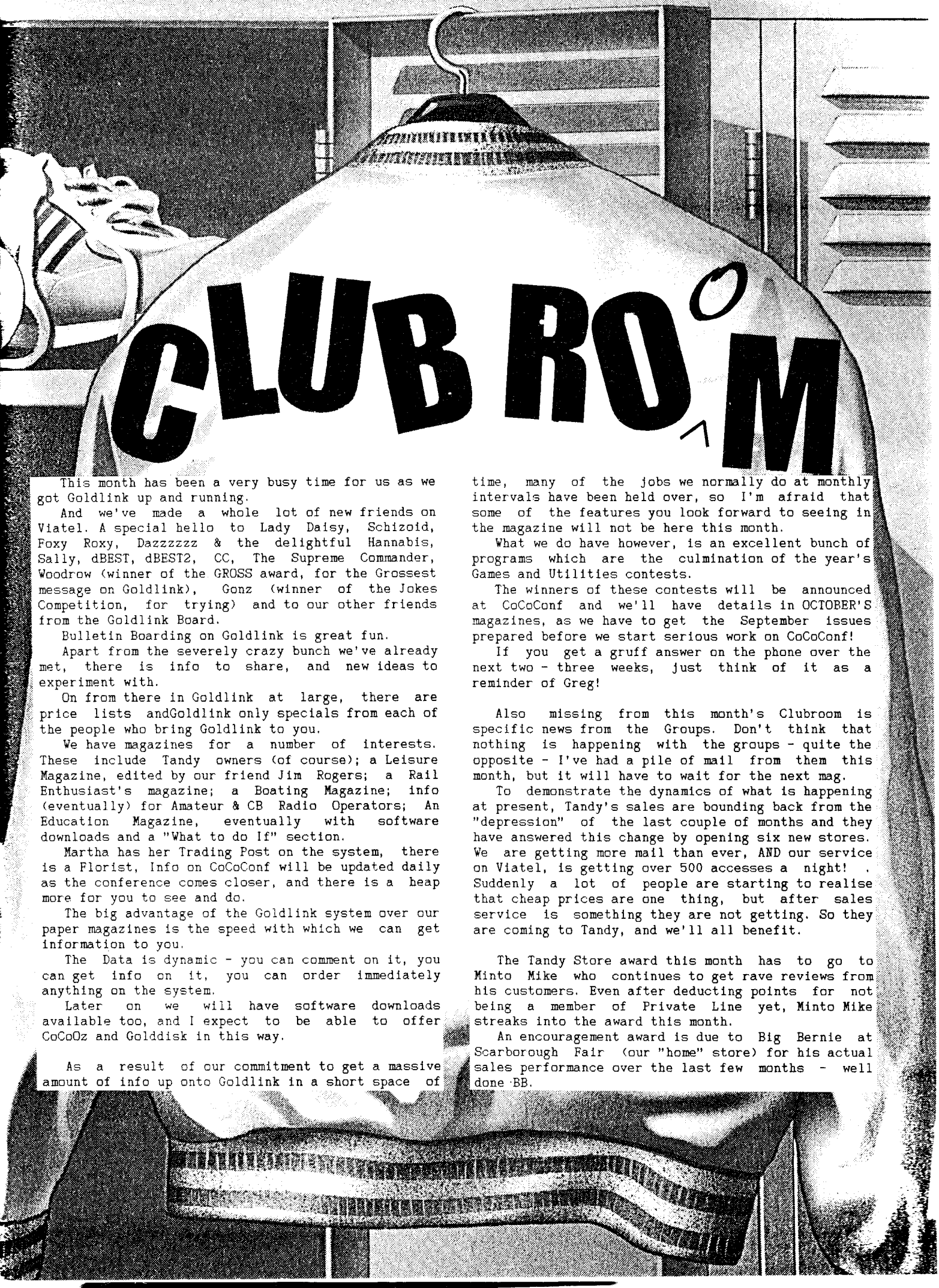
softgold



CLUB ROOM

This month has been a very busy time for us as we got Goldlink up and running.

And we've made a whole lot of new friends on Viatel. A special hello to Lady Daisy, Schizoid, Foxy Roxy, Dazzzzzz & the delightful Hannabis, Sally, dBEST, dBEST2, CC, The Supreme Commander, Woodrow (winner of the GROSS award, for the Grossest message on Goldlink), Gonz (winner of the Jokes Competition, for trying) and to our other friends from the Goldlink Board.

Bulletin Boarding on Goldlink is great fun.

Apart from the severely crazy bunch we've already met, there is info to share, and new ideas to experiment with.

On from there in Goldlink at large, there are price lists andGoldlink only specials from each of the people who bring Goldlink to you.

We have magazines for a number of interests. These include Tandy owners (of course); a Leisure Magazine, edited by our friend Jim Rogers; a Rail Enthusiast's magazine; a Boating Magazine; info (eventually) for Amateur & CB Radio Operators; An Education Magazine, eventually with software downloads and a "What to do If" section.

Martha has her Trading Post on the system, there is a Florist, Info on CoCoConf will be updated daily as the conference comes closer, and there is a heap more for you to see and do.

The big advantage of the Goldlink system over our paper magazines is the speed with which we can get information to you.

The Data is dynamic - you can comment on it, you can get info on it, you can order immediately anything on the system.

Later on we will have software downloads available too, and I expect to be able to offer CoCoOz and Golddisk in this way.

As a result of our commitment to get a massive amount of info up onto Goldlink in a short space of time, many of the jobs we normally do at monthly intervals have been held over, so I'm afraid that some of the features you look forward to seeing in the magazine will not be here this month.

What we do have however, is an excellent bunch of programs which are the culmination of the year's Games and Utilities contests.

The winners of these contests will be announced at CoCoConf and we'll have details in OCTOBER'S magazines, as we have to get the September issues prepared before we start serious work on CoCoConf!

If you get a gruff answer on the phone over the next two - three weeks, just think of it as a reminder of Greg!

Also missing from this month's Clubroom is specific news from the Groups. Don't think that nothing is happening with the groups - quite the opposite - I've had a pile of mail from them this month, but it will have to wait for the next mag.

To demonstrate the dynamics of what is happening at present, Tandy's sales are bounding back from the "depression" of the last couple of months and they have answered this change by opening six new stores. We are getting more mail than ever, AND our service on Viatel, is getting over 500 accesses a night! . Suddenly a lot of people are starting to realise that cheap prices are one thing, but after sales service is something they are not getting. So they are coming to Tandy, and we'll all benefit.

The Tandy Store award this month has to go to Minto Mike who continues to get rave reviews from his customers. Even after deducting points for not being a member of Private Line yet, Minto Mike streaks into the award this month.

An encouragement award is due to Big Bernie at Scarborough Fair (our "home" store) for his actual sales performance over the last few months - well done BB.

HELP:

TAKING THE FIRST SIMPLE STEPS TO LEARNING BASIC

STILL LEARNING??

by Judy Rutledge

IT WOULD be so easy to just give up. My CoCo is now over six months old and I don't seem to have gone very far in the operating of it.

There was a spell of 3 weeks when I didn't get to my computer for a number of reasons, and, feeling very guilty about letting my investment just sit there and gather dust, I finally got my act together and confronted the 'beast'. I call my CoCo a beast because on the night that I did actually get back to it, the horrible thing had forgotten everything that I had learned.

Out came the handbook again (my constant companion, but one which I have not yet cultivated into a friend) and off I went, skipping over the first few chapters because (I thought) I knew all that stuff pretty well. HA!HA! Back again to the beginning. I had to just prove to myself that my CoCo had not really turned into an alien from outer space with no knowledge of human needs and wants.

Learning never came easy to me as a youngster, but now that I am in the 'oldies' group, I am finding it progressively harder to learn the new methods, especially in the maths sections. I read Laurie O'Shea's article in the June CoCo/Softgold about courses for oldies being held at Victorian Universities. May I say that NSW could do well to provide this type of instruction for beginners, old and young.

Speaking of the young - my grandson Nathan is coming along very well. In fact, I expect him to overtake me very soon. He is very attached to "nana's computer" and pestering his mother and father to buy a computer for him. He constantly asks his mum, my daughter, to "go over to Nana's and play with her computer". His mother has had a hard time trying to convince him she can't because I am at work, but he knows she has a key to our home, and therefore is able to come and go when the need requires. He cannot see that his "need" to use my computer is not great enough to make the 30 minute drive from one home to the other.

He knows all his letters and just about knows the position of these letters on the computer keyboard. His favorite keys are ENTER and BREAK and SHIFT+@. I have acquired some terrific tapes from Rainbow, Johanna Vagg and Stephen Youngberry, which are teaching him to add and think fast. He really breaks up when he gets something correct and all the music and flashing lights appear on the screen, and when his dad is playing with the computer and (purposely) gets an answer wrong, Nathan takes delight in showing dad just how its really done.

Well, I finally did it. I 'wrote' a program - albeit only 16 lines long - which works. It randomly changes color, sounds a tone, breaks to a clear screen and displays a number between 1 and 50. I was very excited about it when it all came together. I must admit at this stage, I stole this program, picking up bits and pieces from the handbook. However I did actually put the lines into their final order and now the whole program looks nothing like the originals from which the pieces were taken. I don't think anyone could call it plagarism - as a matter of fact, I don't think anyone would recognise it, or even want to.

I have also had a go at trying to change a few things in programs that I type in from the magazine. No success as yet, except to make peculiar 'things' happen on the screen. However, each time I try it I note the changes I am making into a notebook, and hopefully, someday it will all make sense.

I would ask experienced programmers who do (and those who, for some reason, do not) send in games etc to be printed in the magazine, to please send in more for beginners. Easy programs from which we can learn the basics of writing programs for ourselves. The articles that do appear are teriffic, and I enjoy putting them on tape, but a few more simple ones would be very helpful too.

Something else that would be helpful is if experienced programmers could tell of their experiences 'back when' they had problems, and the way in which they had solved these problems. You know, we new users are having the same problems, but do not know how to get over the hump which is growing into a mountain.

At the beginning I said it would be so easy to give up. Well I mean it. I seem to have come to an impasse. I don't know enough information to get me progressiing forward, and cannot find the 'key' to learning the correct way through the maze. I can see a light in the tunnel, but it appears to be behind me, not in front. However, I am determined not to let this all get the better of me.

I read our monthly magazine and see those articles from others who have obviously gone through this same tunnel, and they have come through unscathed, and hopefully with their help and instructon I can do the same thing.

During my short sojourn into the computerized world I have been very lucky indeed to meet (over the phone and through many letters) many people who are more than willing to keep beginners on the straight and narrow. No one is 'too busy' or unavailable. It took me a while to make that first phone call for help, but then each phone call came easier and now I even have others phoning me to give me encouragement and advice. Don't struggle on your own. Use your contact appearing on the back cover of CoCo mag (now inside G.). Remember, they had to start out too, just like you.

ART PAD

by Maurice Phillips

THIS program was written for the HELP section in the magazine. The instructions are in the program, but the basic idea behind it is that you can use the high resolution screeen as an artpad using your joystick.

Have fun!

The Listing:

```
1 'art pad BY MAURICE PHILLIPS
2 CLS:PRINT@43,"art"+CHR$(128)+C
HR$(128)+"pad"
3 PRINT@96,"DO YOU WANT INSTRUCT
IONS?":INPUT ANSWER$
4 IF ANSWER$="Y" THEN GOSUB 20 E
LSE IF ANSWER$<>"Y" THEN 5:'fini
sh
5 CLS:PRINT@96,"DO YOU WANT TO S
TART AT THE ":PRINT@128,"CENTRE
OF THE SCREEN?":INPUT B$
6 IF B$="Y" THEN GOTO 10  ELSE I
FB$<>"Y" THEN GOTO 7
7 CLS:PRINT@96,"ENTER THE X AND
Y COORDINATES"
8 PRINT"X COORDINATE":INPUTX
9 PRINT"Y COORDINATE":INPUT Y:GO
TO 11
10 X=128:Y=96
11 PMODE 4,1:SCREEN 1,1:PCLS
12 A=JOYSTK(0):B=JOYSTK(1)
13 IF B>10 AND B<53 AND A<10 THE
N X=X-1 ELSE IF B>10 AND B<53 AN
D A>53 THEN X=X+1
14 IF A>10 AND A<53 AND B<10 THE
N Y=Y-1 ELSE IF A>10AND A<53 AND
 B>53 THEN Y=Y+1
15 CIRCLE(X,Y),0,1
16 P=PEEK(65280)
17 IF P=126 OR P=254 THEN PCLS
18 CIRCLE(X,Y),0
19 GOTO12
20 CLS:PRINT@64,"USE THE JOYSTIC
K TO MOVE THE DOT"
21 PRINT@128,"AROUND THE SCREEN"
22 PRINT@192,"PRESS THE FIRE BUT
TON "
23 PRINT@256,"TO CLEAR THE SCREE
N"
24 PRINT@320,"CAN YOU TAKE THE S
PEED UP?":INPUT R$
25 IF R$="Y" THEN POKE 65495,0 E
LSE IF R$<>"Y" THEN POKE 65494,0
26 PRINT@448,"READY???"
27 I$=INKEY$:IFI$="Y" THEN RETUR
N ELSE IF I$<>"Y" THEN 27
```

HELP: EASY LEARNING

by Johanna Vagg

THE Vagg Family have joined together to present the following set of programs for new users.

Each program is heavily REM'ed and should be reasonably easy to follow if you take your time and type each line carefully.

Having a friend around who can assist you when problems arise is also a big help!

Listing 1:

```
1 ' TOY XYLOPHONE OR
    MUSIC BY NUMBERS AND COLORS
2 ' BY JOHANNA VAGG, FORBES
3 ' FOR THE HELP SECTION OF COCO
5 ' N IS THE NUMBER OF NOTES
10 N=96
20 FORT=1 TO N
25 ' READ THE NOTES -S-  (1-8)
    FOR MIDDLE C TO HIGH C
26 ' ALSO READ THE LENGTH L
30 READS,L
35 'COLOR THE SCREEN (1-8)
40 CLSS
45 ' NOTE TABLE    N$= NOTE NAME
46 ' IF S IS ONE, THEN SOUND89
     WHICH IS THE NOTE C ETC
50 IF S=1 THEN S=89:N$=" C "
60 IF S=2 THEN S=108:N$=" D "
70 IF S=3 THEN S=125:N$=" E "
80 IF S=4 THEN S=133:N$=" F "
90 IF S=5 THEN S=147:N$=" G "
100 IF S=6 THEN S=159:N$=" A "
110 IF S=7 THEN S=170:N$=" B "
120 IF S=8 THEN S=176:N$="HI C"
130 IF S=255 THEN N$="REST"
135 'PRINT THE NOTE NAME
     THE SEMI COLON IS IMPORTANT
     TRY LEAVING IT OFF
140 PRINT@238,N$;
145 ' ADJUST THE TEMPO BY
      CHANGING THE NUMBER BY
      WHICH L IS MULTIPLIED
150 SOUNDS,L*3
155 ' WITHOUT A NEXT.. ONE
      SOUND ONLY!
160 NEXT
165 'NO.'S TO BE READ BY LINE 30
:FIRST NUMBER IS NOTE, SECOND IS
 LENGTH, THIRD IS NOTE ETC
170 DATA 5,3,3,3,5,2,3,1,1,2,1,1
,2,2,2,1,2,1,3,1,4,1,5,2,3,1,1,3
180 DATA 5,3,3,3,5,2,3,1,1,2,1,1
,2,1,2,1,2,1,3,2,2,1,1,3
190 DATA 255,2,3,1,4,2,3,1,2,2,5
,1,3,2,2,1,1,1,2,1,3,1,4,2,3,1,2
,2,5,1,3,2,2,1,1,3
200 DATA 5,3,3,3,5,2,3,1,1,2,1,1
,2,1,2,1,2,1,3,2,2,1,1,6
210 DATA 254,2,1,2,1,2,5,2,5,2,6
,1,7,1,8,1,6,1,5,4,4,2,4,2,3,2,3
,2,2,2,2,2,1,4
220 DATA 5,2,5,1,5,1,4,2,4,1,4,1
,3,2,3,1,3,1,2,2,255,1,2,1,5,2,5
,1,5,1,4,1,5,1,6,1,4,1,3,2,2,1,2
,1,1,4
225 'ADD YOUR OWN MUSIC HERE AND
     ADJUST THE VALUE OF N AT
     THE BEGINNING
```

Listing 2:

```
1 'TYPE IN ONLY THE LINES WHICH
END IN ZERO
2 'TABLES. WRITTEN BY RICHARD(9)
AFTER WATCHING bits and bytes ON
TV DURING THE HOLIDAYS
3 GOTO10
4 SAVE"TABLES:3":END
10 CLS:PRINT@44,"tables
          BY RICHARD VAGG"
20 INPUT"UP TO WHICH TABLE";Z
25 'LEAVE OUT LINE 30 IF YOU CAN
 HANDLE TABLES HIGHER THAN 15!
30 IF Z>15 THEN Z=15
40 X=RND(Z):Y=RND(12)
50 CLS:PRINT@230,"WHAT IS"X"*"Y
60 INPUT A
65 'MORE THAN TWO STATEMENTS PER
LINE BECAUSE ALL THESE THINGS
ARE TO BE DONE IF A<X*Y. GOTO 50
TO REPEAT THE QUESTION
70 IF A<X*Y THEN PRINT"TOO LOW":
SOUND10,2:FORT=1 TO 500:NEXT:GOT
O50
75 'ALL THE THINGS ON LINE 80 TO
 BE DONE IF A>X*Y
80 IF A>X*Y THEN PRINT"TOO HIGH"
:SOUND200,2:FORT=1TO500:NEXT:GOT
O50
85 'IF IT'S NOT TOO HIGH AND NOT
TOO LOW, IT MUST BE RIGHT. THIS
TIME GOTO 40 FOR A NEW QUESTION
90 PRINT"THAT'S IT":SOUND200,2:S
OUND150,2:SOUND200,2:FORT=1TO500
:NEXT:GOTO40
```

Listing 3:

```
1 'GRAHICS BY RICHARD VAGG(9)
   9 BELAH STREET  FORBES
2 ' MUM HELPED WITH THE RETURN
    TO MENU
3 'ONLY TYPE LINES ENDING WITH 0
4 GOTO10
5 SAVE"GRAPHICS:3":END
10 CLSRND(8):PRINT@14,"menu";
20 PRINT@75,"1 RND CIRCLES";:PRI
NT@139,"2 FACE";
30 PRINT@203,"3 PATTERN";:PRINT@
267,"4 BOXES";
40 PRINT@395,"press m for menu";
:PRINT@331,"5 CIRCLES";
50 PRINT@459,"WHICH ONE?";:INPUT
A
55 'AT FIRST THE GRAPHICS BEGAN
    AT 1000, 2000 ETC. LATER WE
    RENUMBERED
60 ON A GOTO80,130,210,280,390
```

```
65 'IF YOU ASK FOR 6 OR 7 ETC IT
    WON'T GO ON
70 IF A<1 OR A>5 THEN 50
75 'CHANGE THE PMODE FOR
     DIFFERENT CIRCLES
80 PMODE0:SCREEN1,1:PCLS1
90 X=RND(255):Y=RND(163)
95 'CHANGE THE 23 FOR ANOTHER
    RADIUS
100 CIRCLE(X,Y),23,0
105 'RETURN TO MENU
110 I$=INKEY$:IF I$="M" THEN GOT
O10
120 GOTO 90:'KEEP DRAWING
130 PMODE4:SCREEN1,1:PCLS
145 'DRAW FACE
150 DRAW"BM120,80D2R2U2L2":DRAW"
BM136,80D2R2U2L2"
160 DRAW"BM130,90D2R2U2L2":DRAW"
BM128,96L5R15"
170 FOR R=30 TO 130 STEP 20
175 'DRAW CIRCLE AROUND FACE
180 CIRCLE(128,90),R:NEXT
185 'RETURN TO MENU
190 I$=INKEY$:IF I$="M" THEN GOT
O10
200 GOTO190:'STAY HERE UNLESS M
210 PMODE4:SCREEN1,1:PCLS
220 R=RND(18)+2:FOR X=0 TO 255 S
TEP R
225 'DRAW LINES UP AND DOWN
230 LINE(X,0)-(X,191),PSET:NEXT
240 FOR Y=0 TO 191 STEP R
245 'DRAW LINES ACROSS
250 LINE(0,Y)-(255,Y),PSET:NEXT
255 'UNLESS YOU PRESS M, DO IT
     AGAIN. FIRST COUNT TO 500
260 I$=INKEY$:IF I$<>"M" THEN 27
0 ELSE GOTO10
270 FOR D=1 TO 500:NEXT:GOTO210
280 PMODE4:SCREEN1,1:PCLS
290 X=120:Y=90
300 X1=130:Y1=100
310 T=RND(10)
320 LINE(X,Y)-(X1,Y1),PSET,B
325 'TOP LEFT CORNER,X AND Y GET
     SMALLER
330 X=X-T:Y=Y-T
335 'BOTTOM RIGHT CORNER, X1 AND
     Y1 GET BIGGER
340 X1=X1+T:Y1=Y1+T
345 'IF THE CORNERS WILL RUN OFF
 THE SCREEN, START AGAIN
350 IF X<30THEN 380:IFY<0THEN380
355 'YOU KNOW THIS ONE NOW
360 I$=INKEY$:IF I$="M" THEN 10
365 'NEXT BOX
370 GOTO320
380 FORD=1 TO 500:NEXT:GOTO280
390 PMODE4:SCREEN1,1:PCLS
400 E=RND(20):FORR=1TO90STEPE
410 CIRCLE(128,96),R:NEXT
420 I$=INKEY$:IF I$="M" THEN 10
ELSE 430
430 FORT=1 TO 1000:NEXT:GOTO390
```

HELP:

Listing 4:

```
1 ' ONLY TYPE THE LINES WHICH
ARE MULTIPLES OF TEN
2 'ECB REQUIRED
3 'PLAYING***BY JOHANNA VAGG
  9 BELAH STREET FORBES 2871
4 GOTO20
5 SAVE"PLAYING:3":END
20 CLS:PRINT@70,"LET'S PLAY WITH
 PLAY"
30 PRINT@130,"YOU CAN PLAY THE N
OTES OF ONE    OCTAVE, AT A SET
TEMPO, BY       MERELY NAMING TH
E NOTES"
40 PLAY"CDEFGAB"
45 'LINE 50 TELLS THE COMPUTER
TO COUNT TO 1000 (TAKES ABOUT
TWO SECONDS)
50 FORX=1 TO 1000:NEXT
60 CLS
70 PRINT@130,"TO GET THE HI C, Y
OU NEED TO          SPECIFY THE O
CTAVE                   (FOR THE C
)"
80 PLAY"CDEFGABO4C"
90 CLS2
95 'TRY A TUNE
96 'WE WILL STILL BE IN OCTAVE 4
FROM THE PREVIOUS LINE, SO WE'LL
CHANGE IT BACK TO OCTAVE 3, MAKE
SURE YOU USE O AND NOT 0
100 PLAY"O3GEGGEGAGFEDEFEFGDCCCC
DEFGGDDFEDC"
105 'A BIT DULL?
106 'IN LINE100,TRY INSERTING A
TEMPO, EG,JUST INSIDE THE QUOTES
TYPE T5, AND THEN RUN 90. LATER
 TRY A    DIFFERENT NUMBER WITH
THE T (UP TO 255)"
108 'TO VARY THE LENGTH OF THE
INDIVIDUAL NOTES, WE USE L
109 'WHEN YOU SET THE VALUE IT
STAYS AT THAT UNTIL YOU PUT IN
ANOTHER
110 FORX=1 TO 500:NEXT:CLS4
120 PLAY"L4T4GEGGEGAGFEDEFL8EFL4
GDCCCL8CDEFL4GGDDFEDC"
125 'FOR RESTS WE USE P(PAUSE)
AND A NUMBER UP TO 255
127  'FOR SHARPS USE #: FOR
FLATS USE -:FOR DOTTED NOTES USE
DOTTED NUMBERS WITH L
130 FORX=1 TO 500:NEXT
140 CLS:PRINT@132,"LET'S PUT IT
ALL TOGETHER         INTO A REAL
AUSSIE TUNE"
150 PLAY"T5O3L2CL4FL2AL4GL2FDP2G
F2CL4EL2GL4B-O4L2DL1CO3L2AO4L4CL
2O3AL4GL2FDP2L2.GL4DL2CL4EL2GL4F
L2EFO4L4CCCCL2CO3CL4FL2AL4GL2FDP
2GP2CL4EL2GL4B-O4L2DL1CL2O3AO4L4
CO3L2AL4GL2FDP2GP2CL4EL2GL4FL2EL
1F"
160 PRINT@452,"THANK YOU FOR LIS
TENING"
```

Listing 5:

```
1 'TYPE IN ONLY THE LINES WHICH
   ARE MULTIPLES OF TEN
2 'JOHANNA VAGG
   9 BELAH STREET
   FORBES NSW 2871
3 GOTO10
4 SAVE"QUOTA:3":END
10 CLS:PRINT"    QUOTA SPELLING
PROGRAM"
20 PRINT:PRINT"       BY JOHANNA
 VAGG":PRINT
30 FOR T=1 TO 500:NEXT:CLS:INPUT
 "WHAT IS YOUR NAME";N$
40 PRINT@102,N$",":INPUT" HAVE Y
OU ENTERED YOUR WORDS(Y/N)";X$
50 IF X$<>"Y" THEN 290
60 INPUT"HOW MANY WORDS";W:INPUT
"HOW MANY SECONDS DO YOU WANT TO
 SEE EACH WORD";S:IF S>10 THEN S
=10
65 'A LIMIT OF TEN SECONDS WAS
    SET AFTER RICHARD TRIED THE
    PROGRAM AND TYPED IN A HUGE
    NUMBER!
70 CLSRND(7)+1
80 PRINT@68,"HERE IS YOUR WORD";
90 SOUND RND(100)+100,1
105 'W IS THE NUMBER OF WORDS
    N IS A NUMBER FROM ONE TO W
    READ TO THE NTH WORD AND
    CALL IT A$
110 N=RND(W)
120 FOR X=1 TO N
130 READ A$
140 NEXTX
145 'AS THE WORDS ARE READ, THEY
     ARE 'LOST'.  PUT THEM BACK
     WITH RESTORE SO WE CAN READ
     THEM AGAIN
160 RESTORE
170 PRINT@132,A$;
175 'SEE THE WORD FOR S SECONDS
180 FOR T=1 TO S*500:NEXT
190 CLSRND(7)+1
200 INPUT"CAN YOU SPELL IT";B$
210 IF B$=A$ THEN 230
220 IF B$<>A$ THEN 270
230 SOUND150,2:SOUND200,2:SOUND1
50,2:PRINT@132,"THAT'S IT";
240 FOR T=1 TO 500:NEXT
250 GOTO70
265 'IF IT IS NOT RIGHT, PRINT
     IT UP AGAIN
270 SOUND100,2:SOUND50,2:PRINT@2
32,"TRY AGAIN";:FORT=1 TO 1000:G
OTO170
290 CLSRND(7)+1
300 PRINT@140,N$",";
310 PRINT@163,"TYPE IN YOUR QUOT
A WORDS";
320 PRINT@202,"LIKE THIS:";
330 PRINT@288,"100 DATA WORD,WOR
D,WORD,WORD";
```

COCOCONF'86

CoCoConf is on this month, and we're all very excited about it!

There are more people this year than last, there are more tuts this year than last, and we'll have more computers for you to use at Conf than last year.

The big news for the MS DOS fraternity is that Paul Humphreys has consented to give a talk on the Networking of MS DOS computers - a subject close to the hearts of business and education users.

On the CoCo front, the conference presents some of the big names in computing - people like Ken Allen (Tandy Computer Buyer), Bob Delbourgo, John Redmond, Johanna Vagg, Ross Eldridge and many others who are experts in their fields, and the tutorials they present will be "leading edge" stuff.

Organise yourself to come up for the weekend. I know when one stays in one place for any length of time, it is easy to think of other places as being too hard to get to, but the reality is that the Gold Coast is not hard to get to, especially if you live on the eastern seaboard. The trouble you take to get here will be worth it.

If you are coming, we need to know by the 15th August - we need time to organise the caterers, the rooms, the seating and so on, so let us know NOW!

Many of you have asked about accommodation on the Gold Coast, and the following is a quick summary of some places which MAY have some space on the weekend of the 30th. Keep in mind that this is a school holiday weekend in NSW, so most places will be fairly full.

Motels:

Bahamas Motel	075-36-1824
Cnr Marine Pde & Hill St., Coolangatta	
Banora Point Motor Inn	075-54-2222
Cnr Pacific Hwy & Terranora Rd Banora Point	
Beachcomber Motor Lodge	075-36-3033
122 Griffith St., Coolangatta	
Cook's Endeavour Motel	075-36-5399
26 Francis St., Tweed Heads	
Coolangatta Motel	075-36-6244
95 Golden Four Dr., N Kiera	
Fairlight Motor Inn	075-36-2633
91 Pacific Hwy., Tweed Heads	

Caravan Parks:

The Homestead Caravan Park	066-74-1824
Pacific Hwy., Chinderah	
North Star Caravan Park	066-76-1234
Coast Rd., Hastings Point (This one is further away, but nice)	
River Retreat Caravan Park	075-36-1400
Drydock Rd., Tweed Heads	
Tweed Heads Caravan Park	075-36-5682
112 Drydock Rd., Tweed Heads	

Hotels:

Conrads (The Casino)	075-92-1133
Greenmount (Great!)	075-36-1222

CoCoConf'86.
Tutorials

Basic BASIC	Johanna Vagg.
Advanced BASIC	Mike Turk & Alex Hartmann.
FORTH	John Redmond & John Poxon.
OS-9	Graeme Nichols, Ron Wright, & Jack Fricker.
68000	Ron Wright, Jerome Siappy, & Jackie Cockinos.
MS DOS	Brian Dougan, Barry Cawley, Paul Fulloon.
Education	Ross Eldridge, Bob Horne, & Bob Delbourgo.
Games	Michael Horne, Andrew White, Nicholas Merantes, & Tony Evans.
Viatel	Ron Wright.
The Future	Mike Turk & Ken Allen (Tandy).
MC 10 Computing	Jim Rogers & friends.

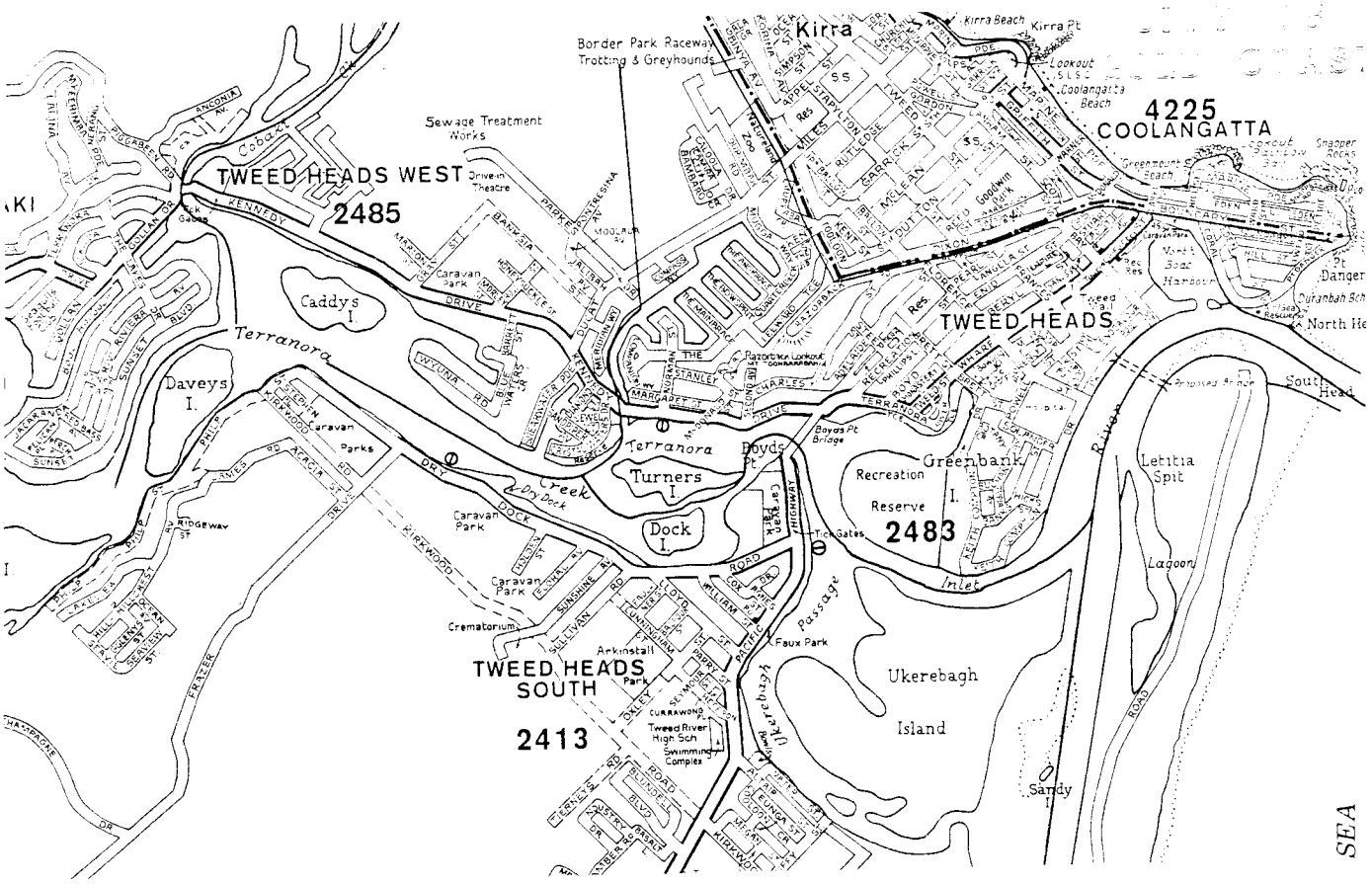
Proposed
Weekend TimeTable.

Sat AM	Sat PM	Sun AM	Sun PM
Basic BASIC (J Vagg)	Advanced BASIC (A Hartmann)	Hardware (G Fiala)	Games
Advanced BASIC (M Turk)	Viatel (R Wright)	FORTH (Redmond et al)	68000 Computers
OS-9 (J Fricker)	OS-9 (G Nichols)	OS-9 (R Wright)	
MS DOS (B Dougan)	MS DOS (B Cawley)	MS DOS (P Fulloon)	The Future (M Turk & K Allen)
Education (R Eldridge)	Education (B Horne)	Education (B Delbourgo)	
	MC 10 (J Rogers)	MC 10 (J Rogers)	

Remember that the southern end of the Gold Coast is quite a distance from the northern end, so lodgings in Surfers Paradise will mean a journey of about 30 minutes to get to CoCoConf.

For your information, I've included a map to show you where Seagulls is, and a timetable of events.
Further news and information can be obtained from Goldlink on Viatel *642# as the time grows nearer.

Graham.



COCOCONF '86

WHAT'S HAPPENING:- Tutorials on Advanced BASIC, Basic BASIC, Educational use of computers, OS9, MS DOS/GW BASIC, FORTH, The CoCoConnection HARDWARE mods include:- high K upgrades (128,256,512,1mb) AND THAT'S JUST SATURDAY!! Saturday night we have our dinner and prize session. (this is included in your registration fee) SUNDAY continues with MORE tutorials plus the opportunity to browse/buy the large range of software and hardware available for the CoCo and T1000. There will be lots of bargains!

SPEAK UP!:- Now is your chance to suggest your ideas for any tutorials we may not have mentioned. (participants only).

LOCATION:-
SEAGULLS RUGBY LEAGUE CLUB TWEED HEADS.

DATE:- Sat 30th & Sun 31st August 1986.

REGISTER NOW!!
We can only accept a limited number of people this year. DON'T MISS OUT! on a top weekend of FUN, FRIENDSHIP and LEARNING.

Name: .....

Address: .....

Phone: .....

No. People attending: .....

$39.95 per person/1st family member
$20.00 per additional family member
$9.95 dep. balance by 15/8/86
Cost includes:- tutorials, dinner Sat. night, morning and afternoon tea.

Tutorials likely to attend: .....

.....

Please find enclosed:
chq/money order/bankcard/visa/mastercard

Card No. .....

Signature: .....

GOLDLINK

*642#

I guess I'm a little biased - I'm certainly emotionally involved - heck Alex and I have been LIVING Viatel for the last month - so if you think I'm out of my tree, you could be pretty close.

But I think not.

We've dedicated the time because we very firmly believe that in a short time most computer owners will be using their computer to do much more that it is at present.

The on line data bases in general are becomming something for other media to reckon with.

It is little more that a year ago that we revealed the Stars system, and in the time since it began, we've seen that system grow into something very promising.

Viatel is in the same boat.

12 months ago, when it started, naturally, it was all index pages, and very little data.

As it grew, people started to use it - and for very good reason - it began to meet a need.

In fact in the first year it met the needs of 16000 paying customers!

Not bad is it, for a new venture to get 16000 customers or over 1000 new customers per month in their first year of training!

We joined Viatel, despite the fact that most of you don't own a modem suitable for the system, simply because we believe we can provide a cost effective service which will meet your computing needs well into the 1990's.

A question I often ask computer salesmen is who buys your computer, and why.

The reason I ask this question is that despite what you tell me on your survey forms each year, I don't believe that the home computer has found a niche in the home yet.

I give you that some use them to play games, I give you that many of you have made them a hobby - and a great one at that - and I can see them being used to assist children in their schooling - I can even see people genuinely using them to gainfully assist themselves in what they do at work.

But as a unit which has a job to do in the home like a car or a fridge - until now, that has been harder to see.

After the hardware has been purchased, Viatel is cheap and very easy to run.

It provides a very broad range of tasks - mainly in the area of information provision.

And it is getting bigger every day.

In our Goldlink magazine on 642, we have price lists from the major suppliers of Tandy hard and software, including Tandy themselves.

We also have a magazine for Tandy owners which has a lot of useful pieces of information - peeks and pokes - getting started - Users' Groups and a notice board for them - and a Bulletin Board where you can ask for advice and help, or just give cheek to Martha.

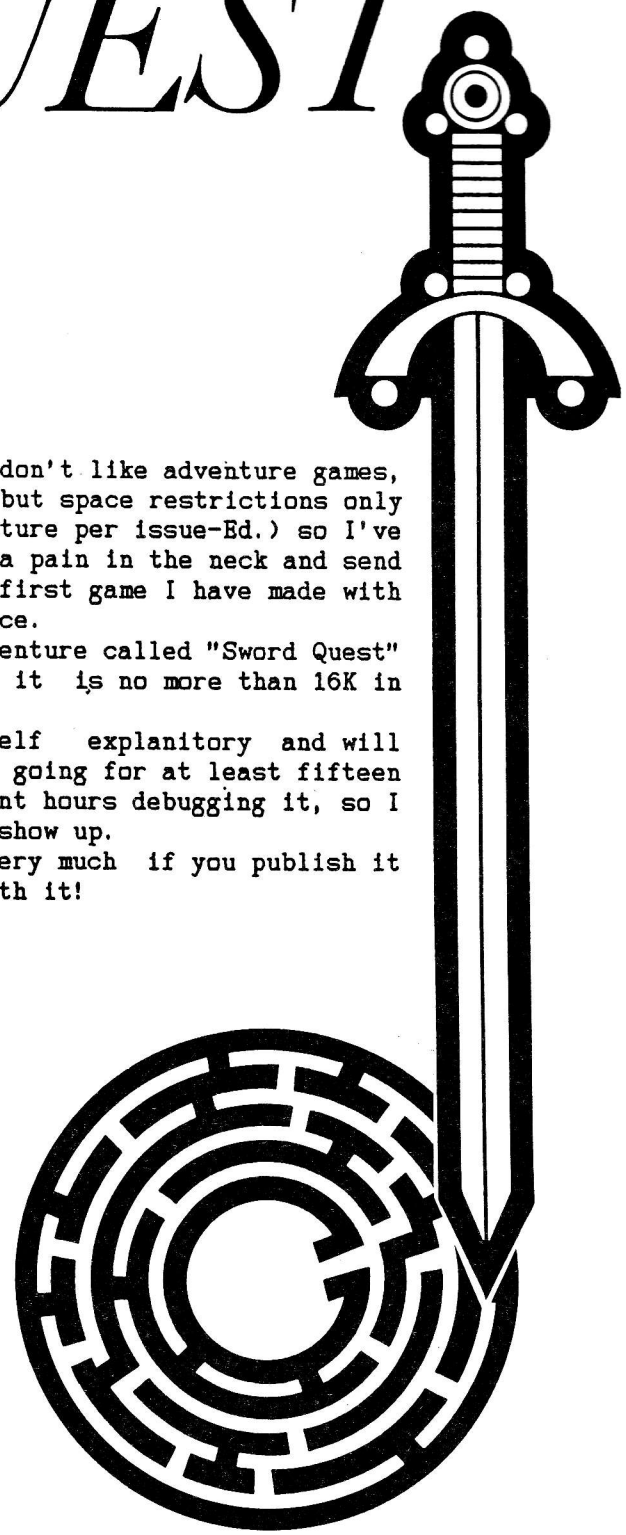
Then we have a Florist (!), a leisure magazine with fishing hints and tips - fishing club news, info for those of you interested in geneology, touring information, info for those interested in trains, or amateur radio, a special bulletin board on which you can voice your opinion on the TV you are seeing, and there is much more!

There are a zillion reasons to move to Viatel - see it at CoCoConf, or ask your local Tandy store to show you, then come on in to the Goldlink world on Viatel!

MUSIC COMPETITION

Two Categories in any Computer type:
Category 1:
Music created in Basic
Category 2:
Executable ML files
Remember... you can submit an entry for ANY home computer.
PRIZE: 50 Disks (5 Boxes)

SWORD QUEST



I HEARD that you don't like adventure games, (we love 'em, but space restrictions only allow one adventure per issue-Ed.) so I've decided to be a pain in the neck and send you a copy of the first game I have made with the help of SuperVoice.

It is a text adventure called "Sword Quest" and I think that it is no more than 16K in length.

The game is self explanitory and will probably keep you going for at least fifteen minutes. I have spent hours debugging it, so I hope that no errors show up.

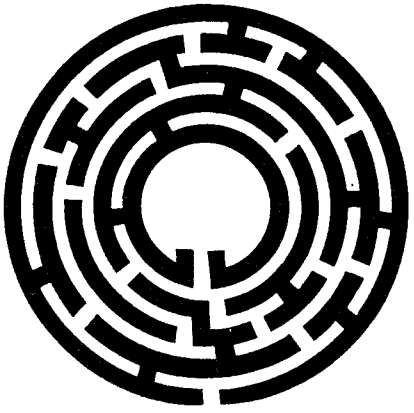
I would like it very much if you publish it in CoCo. Have fun with it!

by Andrew Hart 16K ECB Adventure

The Listing:

```
1 DATAARMOURY ROOM,0,0,4,0,STUDY
,0,0,5,0,KITCHEN,0,0,6,0,HALLWAY
,10,5,0,0,HALLWAY,10,6,0,4,BEDRO
OM,3,0,9,5,CELLAR,0,8,0,0,BARE R
OOM,0,9,0,10,HALLWAY,6,0,0,8
2 DATAA SWORD,SWORD,IT IS MADE O
F IRON AND IS VERY RUSTY.,=,1,A
STAND,STAND,IT IS NO TALLER THAN
 A SCABBARD,=,1
3 DATAA TABLE,TABLE,A CIRCLE 20
CM IN DIAMETER IS PAINTED ON THE
 TABLE.,=,2,A KEY,KEY,YOU SEE NO
THING SPECIAL.,*,-2
4 DATAA TABLE,TABLE,THERE IS A B
OWL ON THE TABLE.,=,3,A BOWL,BOW
L,THE BOWL IS 20 CM IN DIAMETER.
,*,-3
5 DATAA DOOR IN THE NORTH WALL,D
OOR,YOU SEE NOTHING SPECIAL.,=,4
,AN OLD MAN,MAN,HE IS CARRYING A
 SMALL BALL.,=,4,A SMALL BALL,BA
LL,IT IS 5 CM IN DIAMETER.,=,-4
6 DATAA DOOR IN THE NORTH WALL,D
OOR,THERE IS A KEY HOLE IN THE D
OOR.,=,5
7 DATAA BED,BED,YOU FIND SOME TH
INGS.,=,6,A GOLD COIN,COIN,YOU S
EE NOTHING SPECIAL.,*,-6,A KEY,K
EY,YOU SEE NOTHING SPECIAL.,*,-6
,AN OLD PARCHMENT,PARCHMENT,WRIT
TEN ON THE PARCHMENT IS 'TO GAIN
 THE SWORD AND ITS POWER YOU MUS
T REMOVE A CURSE.',*,-6
8 DATAA LARGE WOODEN BOX,BOX,THE
RE IS A KEY HOLE IN THE BOX.,=,7
,A SHEATH,SHEATH,WRITTEN ON THE
SHEATH IS THE WORD 'SAGGARDE',*,
-7
9 DATAA HOLE,HOLE,THE HOLE IS 5
CM IN DIAMETER.,=,8,A SHIELD,SHI
ELD,IT IS MADE OF THE BEST METAL
.,=,8
10 DATAA SKULL,SKULL,YOU SEE NOT
HING SPECIAL.,*,9
12 DATA NORTH,EAST,SOUTH,WEST,LO
OK,INVENTORY,HELP,QUIT,GET,DROP,
PUT,GIVE,SAY,SHOW
14 CLEAR500
15 DIML$(9),D(9,4),LO$(19),OB$(1
9),O$(19),G$(19),O(19),W$(14):GO
TO30
17 FORT=1TO9:READL$(T):FORI=1TO4
:READD(T,I):NEXTI,T
20 FORT=1TO19:READLO$(T),OB$(T),
O$(T),G$(T),O(T):NEXT
23 FORT=1TO14:READW$(T):NEXT
25 RETURN
30 CLS8:PRINT@106,"SWORD QUEST";
:PRINT@175,"BY";:PRINT@236,"KKG
INC.";:PRINT@297,"COPYRIGHT 1986
";:PRINT@353,"DO YOU WANT INSTRU
CTIONS, Y/N?";
33 FORT=0TO1:C=134+T*3
35 PRINT@0,STRING$(33,C);:PRINT@
480,STRING$(31,C);:FORI=63TO479S
TEP32:PRINT@I,STRING$(2,C);:NEXT
:POKE1535,C
37 A$=INKEY$:IFA$="Y"THEN55ELSEI
FA$="N"THEN40ELSENEXT:GOTO33
```

```
40 CLS3:PRINT@268,"STAND BY";
45 L=5:GOSUB17
50 GOTO80
55 CLS
57 PRINT@64,"YOU ARE A YOUNG ADV
ENTURER.":PRINT@96,"YOUR QUEST I
S TO FIND THE POWER"
60 PRINT@128,"SWORD. THE POWER S
WORD IS THE":PRINT@160,"MOST BEA
UTIFULLY CARVED SWORD"
63 PRINT@192,"IN THE WORLD. IT I
S ALSO THE":PRINT@224,"MOST POWE
RFUL SWORD IN THE"
65 PRINT@256,"WORLD. IT IS SAID
THAT ANYONE":PRINT@288,"WHO HOLD
S THE SWORD IS"
67 PRINT@320,"INVINCIBLE."
70 PRINT@384,"TYPE (HELP) OR (H)
 FOR A LIST":PRINT@416,"OF VERBS
 THAT YOU CAN USE."
73 PRINT@448,"GOOD LUCK, YOUNG A
DVENTURER!!!":PRINT@480,"PRESS A
NY KEY TO BEGIN."
75 IFINKEY$=""THEN75ELSE40
80 CLS
85 IFL=1THENPRINT"A LIGHTNING BO
LT STREAKS ACROSS":PRINT"THE ROO
M AT YOU!!"
87 IFL=1THENIFO(18)=-10THENWW$="
FORTINATELY, YOU ARE PROTECTED B
Y THE SHIELD!":GOSUB290ELSEIFO(1
8)>0THENWW$="YOU ARE FRIZZLED LI
KE A SAUSAGE!":GOSUB290:GOTO350
90 IFL=1ANDO(16)<2THEND(1,3)=10
95 PRINTSTRING$(32,140);
100 PRINT"LOCATION: ";L$(L):PRIN
T
105 PRINT"DIRECTIONS: ";
110 FORT=1TO4:IFD(L,T)>0ANDD(L,T
)<10THENPRINTLEFT$(W$(T),1);",";
115 NEXT:PRINT:PRINT
120 PRINT"YOU SEE:"
125 FORT=1TO19: IFO(T)=L THEN PR
INTLO$(T)
130 NEXT
135 PRINTSTRING$(32,131);
140 INPUT">";W$
143 IFW$=""ORLEN(W$)>12THEN140
145 FORT=1TOLEN(W$)
147 W1$="":W2$="":WF=0:W=0
150 FORT=1TOLEN(W$):IFW>0THEN160
155 IFMID$(W$,T,1)=" "THENW=T
160 NEXT
165 IFW=0THENW1$=W$
170 IFW>0THENW1$=LEFT$(W$,W-1):W
2$=MID$(W$,W+1)
175 FORT=1TO8:IFWF>0THEN185
180 IFW1$=W$(T)ORW1$=LEFT$(W$(T)
,1)THENWF=T
185 NEXT:IFWF>0THEN205
190 FORT=9TO14:IFWF>0THEN200
195 IFW1$=W$(T)THENWF=T
200 NEXT
205 IFWF=0THENPRINT"HUH?":PRINT:
GOTO140
210 ON WF GOSUB220,220,220,220,2
60,305,330,350,360,380,400,440,4
65,475
215 GOTO140
220 IFD(L,WF)=0THENPRINT"YOU CAN
'T GO THAT WAY.":PRINT:RETURN
225 IFD(L,WF)=10THEN235
230 L=D(L,WF):GOTO80
235 IFL=1ANDWF=3THENPRINT"AN INV
ISIBLE WALL BLOCKS THE":PRINT"WA
Y SOUTH."
240 IFL=4ANDWF=1THENPRINT"THE OL
D MAN STOPS YOU FROM":PRINT"GOIN
G THAT WAY."
245 IFL=5ANDWF=1THENPRINT"THE DO
OR IS LOCKED."
250 IFL=8ANDWF=4THENPRINT"ACHE!
YOU RAN INTO AN INVISIBLE":PRINT
"WALL."
255 PRINT:GOTO140
260 IFW2$="" THEN 80
261 GOSUB275:IFWO=0THEN270
262 IFO(WO)<1ANDO(WO)>-10 ORO(WO
)<>L THEN270
263 WW$=O$(WO):GOSUB290
265 IFL=3ANDWO=5THENO(6)=ABS(O(6
)):O$(5)="YOU SEE NOTHING SPECIA
L."
266 IFL=6ANDWO=11THENO(12)=ABS(O
(12)):O(13)=ABS(O(13)):O(14)=ABS
(O(14)):O$(11)="YOU SEE NOTHING
SPECIAL."
267 PRINT:RETURN
270 PRINT"LOOK AT WHAT?":PRINT:G
OTO140
275 WO=0:FORT=1TO19:IFWO>0THEN28
5
280 IF W2$=OB$(T) OR W2$=LEFT$(O
B$(T),3)THENWO=T
285 NEXT
286 IFL=3THENIFWO=3THENWO=5
287 IFD(5,1)=10THENIFWO=4THENWO=
13
288 IFL=5ANDWO=7THENWO=10
289 RETURN
290 I=31:IFLEN(WW$)<I+1THENPRINT
WW$:PRINT:RETURN
295 IFMID$(WW$,I,1)<>" "THENI=I-
1:GOTO295
300 PRINTLEFT$(WW$,I-1):WW$=MID$
(WW$,I+1):GOTO290
305 CLS:PRINT@0,"INVENTORY":PRIN
T"YOU ARE CARRYING THE FOLLOWING
"
310 PRINTSTRING$(32,131);
315 FORT=1TO19:IFO(T)=-10THENPRI
NTLO$(T)
320 NEXT:PRINTSTRING$(32,131);
325 RETURN
330 CLS:PRINT"YOU MAY USE THESE
VERBS.":PRINTSTRING$(32,131);
335 WW$="":FORT=1TO14:WW$=WW$+W$
(T)+", ":NEXT
337 WW$=LEFT$(WW$,LEN(WW$)-2):WW
$=WW$+"."
340 GOSUB290:PRINT:PRINT"YOU MAY
 ALSO USE THESE LETTERS."
335 WW$="":FORT=1TO14:WW$=WW$+W$
(T)+", ":NEXT
337 WW$=LEFT$(WW$,LEN(WW$)-2):WW
$=WW$+"."
340 GOSUB290:PRINT:PRINT"YOU MAY
 ALSO USE THESE LETTERS."
343 WW$="":FORT=1TO8:WW$=WW$+LEF
T$(W$(T),1)+",":NEXT
344 WW$=LEFT$(WW$,LEN(WW$)-1):WW
$=WW$+".":GOSUB290:PRINTSTRING$(
32,131);
345 RETURN
350 PRINT"DO YOU WANT TO PLAY AG
AIN?"
355 A$=INKEY$:IFA$="Y"THENRUNELS
EIFA$="N"THENCLS:ENDELSE355
360 GOSUB275:IFWO=0THEN375
361 IFO(WO)<1ORO(WO)<>L THEN375
362 IFL=1ANDWO=1ANDG$(WO)="="THE
NPRINT"THE SWORD IS STUCK TO THE
 WALL.":PRINT:RETURN
363 IFL=4ANDWO=9ANDG$(9)="="THEN
PRINT"THE OLD MAN WON'T GIVE IT
TO":PRINT"YOU.":PRINT:RETURN
364 IFL=8ANDWO=18ANDG$(18)="="TH
ENPRINT"AN INVISIBLE WALL STOPS
YOU ":PRINT"FROM GETTING THE SHI
ELD.":PRINT:RETURN
365 IFG$(WO)="="THENPRINT"YOU CA
N'T GET THAT.":PRINT:RETURN
367 IFL=1ANDWO=1THEN485
370 O(WO)=-10:PRINT"YOU HAVE IT.
":PRINT:RETURN
375 PRINT"GET WHAT?":PRINT:RETUR
N
380 GOSUB275:IFWO=0THEN395
385 IFO(WO)>-10THENPRINT"YOU HAV
EN'T GOT THAT.":PRINT:RETURN
390 O(WO)=L:PRINT"OKAY.":PRINT:R
ETURN
395 PRINT"DROP WHAT?":PRINT:RETU
RN
400 GOSUB275:IFWO=0THENPRINT"PUT
 WHAT?":PRINT:RETURN
405 IFO(WO)>-10THENPRINT"YOU HAV
EN'T GOT THAT.":PRINT:RETURN
410 PRINT"WHERE";:INPUTW3$:IFW3$
=""ORLEN(W3$)>5THEN410
415 IFL=1ANDWO=16ANDLEFT$(W3$,3)
="STA"THENO(16)=-1:PRINT"OKAY.":
PRINT:RETURN
420 IFL=2ANDWO=6ANDLEFT$(W3$,3)=
"TAB"THENO(6)=-2:O(4)=2:PRINT"TH
E BOWL DISAPPEARSAND A KEY":PRIN
T"APPEARS ON THE TABLE.":PRINT:R
ETURN
425 IFL=5ANDWO=13ANDLEFT$(W3$,3)
="HOL"THENO(13)=-5:LO$(10)="AN O
PEN DOOR.":D(L,1)=2:PRINT"THE DO
OR SWINGS OPEN.":PRINT:RETURN
430 IFL=7ANDWO=4ANDLEFT$(W3$,3)=
"HOL"THENO(4)=-7:O(16)=7:PRINT"T
HE BOX IS NOW OPEN. YOU FIND":PR
INT"A SHEATH.":PRINT:LO$(15)="AN
```



```
 OPEN BOX":RETURN
433 IFL=8ANDWO=9ANDLEFT$(W3$,3)=
"HOL"THEND(L,4)=7:G$(18)="*":O(9
)=-8:PRINT"YOU HEAR A CLICK.":PR
INT:RETURN
435 PRINT"YOU CAN'T DO THAT.":PR
INT:RETURN
440 GOSUB275:IFWO=0THENPRINT"GIV
E WHAT?":PRINT:RETURN
445 IFO(WO)<>-10THENPRINT"YOU HA
VEN'T GOT THAT.":PRINT:RETURN
450 IFL<>4 OR O(8)=-4 THEN PRINT
"THERE IS NOONE HERE TO GIVE IT
TO.":PRINT:RETURN
455 IFWO=12THENO(12)=-4:O(9)=-10
:O$(8)="YOU SEE NOTHING SPECIAL.
":G$(9)="*":WW$="HE TAKES THE CO
IN AND GIVES YOU THE BALL. HE SA
YS 'MY LUCKY CHARM AGAINST THE U
NDEAD.'":GOSUB290:RETURN
460 PRINT"THE MAN HAS NO USE FOR
 IT.":PRINT:RETURN
465 IFL<>1THENPRINT"OKAY.  ";W2$
:PRINT:RETURN
470 IFW2$="SAGGARDE"ANDO(16)=-1T
HENG$(1)="*":PRINT"THERE IS A FL
ASH OF LIGHT.":O$(1)="IT IS THE
POWER SWORD.":PRINT:RETURN
473 PRINT"OKAY.  ";W2$:PRINT:RET
URN
475 GOSUB275:IFWO=0THENPRINT"SHO
W WHAT?":PRINT:RETURN
476 IFO(WO)<>-10THEN483
477 IFL<>4ORO(8)=-4THENPRINT"THE
RE IS NOONE HERE TO SHOW IT TO."
:PRINT:RETURN
478 IFWO<>19THEN481
479 IFO(9)=-4THEN481
480 IFLEFT$(W2$,3)="SKU"ANDO(19)
=-10THENO(8)=-4:D(L,1)=1:PRINT"T
HE OLD MAN SCREAMS AND RUNS":PRI
NT"AWAY.":PRINT:RETURN
481 PRINT"NO EFFECT.":PRINT:RETU
RN
483 PRINT"YOU HAVEN'T GOT THAT."
:PRINT:RETURN
485 FORT=0TO8:CLST:FORI=1TO250:N
EXTI,T
490 CLS:PRINT"CONGRATULATIONS, Y
OUNG":PRINT"ADVENTURER!!!"
495 PRINT"YOU DID IT!!!"
500 PRINT"YOU HAVE THE POWER SWO
RD!!!!!":PRINT:GOTO350
505 '******* SWORD QUEST *******
     *** BY ANDREW HART ********
510 SAVE"SWORDQ:3":END
```

This is our first entry for our International Year of Peace Competition. Hope you enjoy it, and don't forget to keep sending them in.

The Listing:

```
2 GOTO8
3 SAVE"PEACE/IYP:3"
4 END
5 ' YEAR OF THE PEACE LOGO
6 ' BY D. VOUTSIS
7 ' (C) JUNE, 1986
8 CLEAR500
9 CLS:A=96:B=63
10 PCLS:PMODE4:SCREEN1,1
11 CIRCLE(128,96),80
12 CIRCLE(128,96),66,1,1.2,.25,.
75:CIRCLE(128,96),66,1,1.2,.75,.
25
13 CIRCLE(128,96),49,1,1.6,.75,.
25:CIRCLE(128,96),49,1,1.6,.25,.
75
14 CIRCLE(128,96),32,1,2.4,.75,.
25:CIRCLE(128,96),32,1,2.4,.25,.
75
15 CIRCLE(128,96),14,1,5.5,.25,.
75:CIRCLE(128,96),14,1,5.5,.75,.
25
16 LINE(48,96)-(208,96),PSET
17 CIRCLE(128,20),20,1,.4,0,.5:C
IRCLE(128,172),20,1,.4,.5,0
18 CIRCLE(128,50),64,1,.15,0,.5:
CIRCLE(128,142),64,1,.15,.5,0
19 DRAW"BM40,176;NU6BL22U4H8UHUH
U2HU2H2U8HU8EU2EU2EUEUR3FDFDGD2G
D4FD3FD3R4F2DF3DF3D
20 DRAW"BD8BR4RFRFRFRFR4UR2U2RU3
RU8HUHUHUHUHUHU6HU3HU3EUEUEUEUEU
EUEUEU2H2UL2GDGDGDGDGDGDGDGDGDGD
RFLHLHLHLHLHL2HL2DL2
21 DRAW"BL6U2EU2EU2EU2EU2EU2E2U2
E2U2URERER2FDFDG2D2G2D2G2D3G2D3G
2D3BR10BU24E4ER2FD2FDGDGDGDGDGDG
DGDGDGDGDGDGDG
22 DRAW"BR18BU16BLUEU2EL2UL2GLG
23 DRAW"BM224,176BL6BU4F3R2F2R2F
R4E2UE2UE2UE2UE2UE2U2E2U20H2UH2U
H2UL2G2LD2F2DF2D10L4G2LG2LG2LG2D
G2DG2
24 DRAW"BU26BR24U4HU4HU4H2U4H2U4
H4L2G2D3FD2FD2FD2FD2FD2FD2FBU20B
L8U2HUHULUL2HL2GD2FD2FD2FD2FD2FD
2FD2FD2FD2FD2REREGLGLGLGLGLGLGDL
GDLBU34BR2
25 DRAW"HL2GDGD4FDFD2FD2FDFDFD2F
D2FD3BU20BL7HL2GDGD4FD2FD2FD2FD2
FD2FD2FD6GDGDGD2GD2GD4GD10F2D6BR
20D2
26 LINE(A,B)-(A+70,B+66),PRESET,
BF
27 DRAW"BM"+STR$(A)+","+STR$(B+1
0)+"RE4R4F3DFDFDFD2FDF2RBR40BU2
28 CIRCLE(A+40,B+24),20,1,.9,.55
,.95
29 DRAW"FRFRG4LGLGLGLGL2GL2GL2GL
4HL2HL2HL2HLHL2DLDFDF2R2FR2FR2FR
8UR2UR2UR2UR2FDFDFDFDFDFD6GDGDGD
GDGDG
30 DRAW"HLHLHLHLHL2HL2HL2HLHLHLH
LHLHLHHLHLHLLULULULULULULULU2LU2
LU2LU8EUEUHU2H2UHUL
31 PSET(A+6,B+10)
32 A$="U9ER3FD3NL5D6BR3
33 C$="BR6BU9HL4GD8FR4EBDBR2
34 D$="RU10NLR4FD8GNL4BR4
35 E$="U10NR5D5NR3D5R5BR3
36 L$="NU10R6BR2
37 O$="BRHU8ER4FD8GNL4BR4
38 P$="U10R5FD2GL5D5BR9BD
39 R$="U10R5FD3GL5RF5BR3
40 W$="NU10E4UDF4NU10BR4
41 SS$="BR8
42 DRAW"BM10,30"+W$+O$+R$+L$+D$
43 DRAW"BM200,30"+P$+E$+A$+C$+E$
44 GOTO44
```

BIG MONEY

by Mal McLaughlan 16K ECB Game

HERE'S an appealing story-line combines colorful graphics, musical effects and a nifty maths routine using the amazing "double-up" routine.

I won't spoil your fun by telling you more - just RUN it and see!

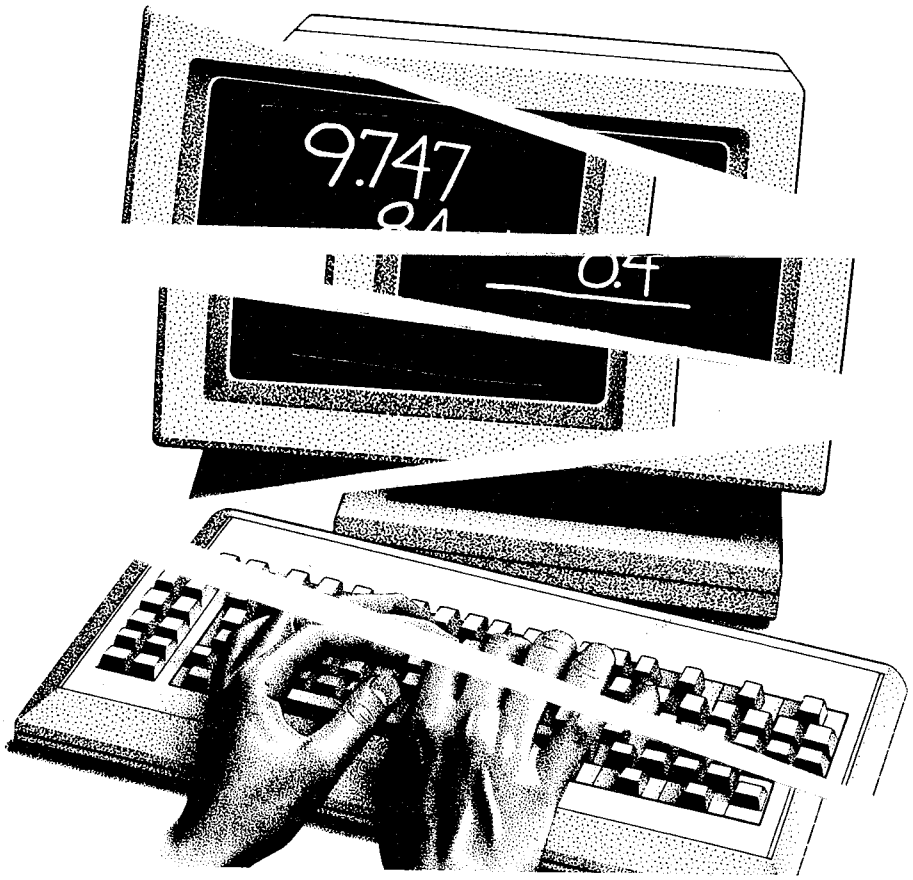
The Listing:

```
0 GOTO10
3 SAVE"BIGMONEY:3":END
10 'BIG MONEY--OR IS IT??? A FUN
PROGRAMME BY MAL MCLAUCHLAN, 11
HUNTER ST.,BOONAH. Q4310.$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
20 CLS:A=1024:B=1055
30 FORC=1TO16
40 FOR D=A TO B
50 READ E$
60 POKED,VAL(E$)
70 NEXT
80 B=B+32:A=A+32
90 NEXT
100 'DATA LINES TO READ E$ $$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
$$
110 DATA255,255,255,255,255,255,
255,255,255,255,255,255,255,255,
255,255,255,255,255,255,255,255,
255,255,255,255,255,255,255,255,
255,255
120 DATA191,159,159,159,159,159,
159,159,159,159,159,159,159,159,
159,159,159,159,159,159,159,159,
159,159,159,159,159,159,159,159,
159,175
130 DATA191,191,239,239,239,239,
239,239,239,239,239,239,239,239,
239,239,239,239,239,239,239,239,
239,239,239,239,239,239,239,239,
175,175
140 DATA191,191,191,159,159,159,
159,159,159,159,159,159,159,159,
159,159,159,159,159,159,159,159,
159,159,159,159,159,159,159,175,
175,175
150 DATA191,191,191,191,239,239,
239,239,239,239,239,239,239,239,
239,239,239,239,239,239,239,239,
239,239,239,239,239,239,175,175,
175,175
160 DATA191,191,191,191,191,160,
160,160,160,160,160,160,160,160,
160,160,160,160,160,160,160,160,
160,160,160,160,160,175,175,175,
175,175
170 DATA191,191,191,191,191,191,
160,160,160,160,160,160,160,160,
160,160,160,160,160,160,160,160,
160,160,160,160,175,175,175,175,
175,175
180 DATA191,191,191,191,191,191,
191,160,160,160,160,160,160,160,
160,160,160,160,160,160,160,160,
160,160,160,175,175,175,175,175,
```

```
175,175
190 DATA191,191,191,191,191,191,
191,160,160,160,160,160,160,160,
160,160,160,160,160,160,160,160,
160,160,160,175,175,175,175,175,
175,175
200 DATA191,191,191,191,191,191,
160,160,160,160,160,160,160,160,
160,160,160,160,160,160,160,160,
160,160,160,160,175,175,175,175,
175,175
210 DATA191,191,191,191,191,160,
160,160,160,160,160,160,160,160,
160,160,160,160,160,160,160,160,
160,160,160,160,160,175,175,175,
175,175
220 DATA191,191,191,191,239,239,
239,239,239,239,239,239,239,239,
239,239,239,239,239,239,239,239,
239,239,239,239,239,239,175,175,
175,175
230 DATA191,191,191,159,159,159,
159,159,159,159,159,159,159,159,
159,159,159,159,159,159,159,159,
159,159,159,159,159,159,159,175,
175,175
240 DATA191,191,239,239,239,239,
239,239,239,239,239,239,239,239,
239,239,239,239,239,239,239,239,
239,239,239,239,239,239,239,239,
175,175
250 DATA191,159,159,159,159,159,
159,159,159,159,159,159,159,159,
159,159,159,159,159,159,159,159,
159,159,159,159,159,159,159,159,
159,175
260 DATA255,255,255,255,255,255,
255,255,255,255,255,255,255,255,
255,255,255,255,255,255,255,255,
255,255,255,255,255,255,255,255,
255,255
270 FORTI=1TO1000:NEXT
280 'SCROLLING TITLE TO FOLLOW $
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
290 RB$="$$$$BIG MONEY$$$$$$$$$$
$$$BIG MONEY$$$$$$$$$$$$$$$$$"+S
TRING$(16,32)
300 FORAA=1 TO LEN(RB$)-15:AB=AB
+1:IFAB>4 THEN AB=1:E=1125:EE=11
40
310 PRINT@232,MID$(RB$,AA,15);
320 SOUND 240,1:NEXTAA
330 PLAY"T203L16CP1602L32GP32GP3
2L8AGP8L16BP1603C"
340 GOSUB 2010
350 PRINT@67,"THERE'S A JOB OFFE
R COMING";:PRINT@99,"YOUR WAY! B
UT DON'T SAY";:PRINT@131,"'NO' U
NTIL YOU ASK 'COCO'";:PRINT@163,
"TO CHECK IT OUT!";
360 PRINT@227,"THE WORK SOUND GO
OD BUT IT";:PRINT@259,"ONLY LAST
S FOR 6 MONTHS (26";:PRINT@291,"
WEEKS), AND THE PAY STARTS";:PRI
NT@323,"AT $1 A WEEK. HOWEVER, T
HE";:PRINT@355,"PAY DOUBLES EACH
 WEEK. SO";
370 PRINT@387,"THE SECOND WEEK Y
OU GET $2,";:PRINT@419,"AND SO O
N...";:PRINT@449,"    <any key t
o continue>";
380 IF INKEY$="" THEN 380 ELSE G
OSUB 2010
390 PRINT@67,"SO I RECKON YOU NE
ED SOME";:PRINT@99,"HELP TO DECI
DE. IF YOU press";:PRINT@131,"any
 key MR.COCO WILL PRINT";:PRINT@
163,"OUT YOUR PAY FOR EACH OF TH
E";:PRINT@195,"26 WEEKS, ALSO TH
E total PAY";:PRINT@227,"FOR THE
 WHOLE PERIOD.";
400 IF INKEY$="" THEN 400
410 P=1:TP=0:W=1
420 S=0
430 TP=TP+P
440 IF W>26 THEN GOTO 500
450 CLS:PRINT:PRINT:PRINT:PRINT:
PRINT"   WEEK NUMBER:";W
460 PRINT:PRINT"   PAY FOR THAT
WEEK:$";P
470 PRINT:PRINT"   TOTAL PAY SO
FAR :$";TP
480 GOSUB 3010
490 GOTO 430
500 CLS3:PRINT@192,"SO THERE'S A
 COOL $67 MILLION ORSO FOR YOU I
N THE 26TH WEEK!":PRINT:PRINT"WI
LL YOU TAKE THE JOB?":FORDL=1TO1
500:NEXTDL
510 GOSUB 4000
520 CLS3:PRINT@224,"  'BYE FOR N
OW - SEE YOU IN        SURFER'S
- OR MONTE CARLO
PERHAPS?"
530 FOR DL=1 TO 2000:NEXT DL
540 CLS(8)
550 FORH=0TO63:SET(H,0,3):NEXTH
560 FORV=0TO31:SET(63,V,3):NEXTV
570 FORH=63TO0STEP-1:SET(H,31,3)
:NEXTH
580 FORV=31TO0STEP-1:SET(0,V,3):
NEXTV
590 FORH=3TO60:SET(H,2,1):NEXTH
600 FORV=3TO29:SET(60,V,1):NEXTV
610 FORH=60TO3STEP-1:SET(H,29,1)
:NEXTH
620 FORV=29TO3STEP-1:SET(3,V,1):
NEXTV
630 FORH=7TO56STEP2:RESET(H,6):N
EXTH
640 FORV=8TO24STEP2:RESET(57,V):
NEXTV
650 FORH=56TO6STEP-2:RESET(H,26)
:NEXTH
660 FORV=24TO7STEP-2:RESET(6,V):
NEXTV
670 FORH=9TO13:RESET(H,12):NEXTH
680 FORV=13TO18:RESET(11,V):NEXT
V
690 FORH=17TO20:RESET(H,15):NEXT
H
700 FORV=12TO18:RESET(16,V):NEXT
V
710 FORV=12TO18:RESET(21,V):NEXT
V
720 FORH=25TO27:RESET(H,12):NEXT
H
730 FORH=25TO27:RESET(H,15):NEXT
H
740 FORH=25TO27:RESET(H,18):NEXT
H
750 FORV=12TO18:RESET(24,V):NEXT
V
760 FORH=34TO37:RESET(H,12):NEXT
H
770 FORH=34TO37:RESET(H,15):NEXT
H
780 FORH=34TO37:RESET(H,18):NEXT
H
790 FORV=12TO18:RESET(34,V):NEXT
V
800 FORV=12TO18:RESET(40,V):NEXT
V
810 FORV=12TO18:RESET(46,V):NEXT
V
820 H=41:RESET(H,12)
830 H=41:RESET(H,13)
840 H=42:RESET(H,14)
850 H=43:RESET(H,15)
860 H=44:RESET(H,16)
870 H=45:RESET(H,17)
880 H=45::RESET(H,18)
890 FORH=49TO54:RESET(H,12):NEXT
H
900 FORH=49TO54:RESET(H,18):NEXT
H
910 FORV=13TO17:RESET(50,V):NEXT
V
920 FORV=13TO17:RESET(54,V):NEXT
V
930 FORH=5TO56STEP2:SET(2+H,6,8)
:NEXTH
940 FORH=5TO56STEP2:RESET(2+H,6)
:NEXTH
950 FORV=6TO25STEP2:SET(57,2+V,8
):NEXTV
960 FORV=6TO23STEP2:RESET(57,2+V
):NEXTV
970 FORH=56TO6STEP-2:SET(2+H,26,
8):NEXTH
980 FORH=54TO5STEP-2:RESET(2+H,2
6):NEXTH
990 FORV=24TO6STEP-2:SET(6,2+V,8
):NEXTV
1000 FORV=24TO6STEP-2:RESET(6,2+
V):NEXTV
1010 GOTO930
1020 END
2000 'SUBROUTINE FOR FRAME FOR
TEXT $$$$$$$$$$$$$$$$$$$$$$$$$$$
2010 CLS:CLS:FORX=1024TO1055:POK
EX,159:NEXTX
2020 FORY=1056TO1504STEP32:POKEY
,159:NEXTY
2030 FORY=1087TO1535STEP32:POKEY
,159:NEXTY
2040 FORX=1505TO1534:POKEX,159:N
EXTX
2050 RETURN
3000 'SOUND TO ACCOMPANY PAY IN-
CREASES, PAUSES FOR YOU TO READ
ENTRIES  AND "PRINTS" FOR LINE
SPACES $$$$$$$$$$$$$$$$$$$$$$$$$
3010 S=S+7:SOUND S,1
3020 FOR DL=1 TO 500:NEXT DL
3030 PRINT:PRINT:PRINT
3040 W=W+1:P=P+P
3050 RETURN
4000 'MUSICAL EFFECTS$$$$$$$$$$$
$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$
4010 PLAY"L1603GF#GEFGL8AL16GF#G
L28CDEFGAB04CC"
4020 RETURN
```

CoCo

GETTING and PUTTING on the Text Screen



by C. Bartlett
32K ECB Utility

SOMETIMES when I run out of ideas, such as what game to write or what utility would be useful, I find a good source of inspiration to be to think of something this old bucket wouldn't normally do and set out and try to MAKE it do it.

That's how this idea came to be. All was at a standstill, so I thought, what would I like to have on this machine that I haven't got now ... EASY!!

Eight colors all at once on the high resolution screen, (before you get too excited, I haven't achieved that ... YET).

Well, I can't have eight colours in hi-res, but Ican have them on the text screen. Next question, doI always need high resolution? NO, a lot of programs can manage to use the chunky graphics of the text screen and as a bonus we have all of the available colors. Well what's wrong with the text screen then?

IT'S TOO SLOW! Any attempt at animation is hopeless. All we can do is PRINT CHR$(n) or SET or RESET or POKE, on the face of it. No chance of real time animation here. So if we could have one or more of the high resolution commands on the text screen, which one would be most useful? Why GET and PUT of course.

Could I do it? Questions to ask and investigate ...

Question 1. Do the GET and PUT commands check or care if the area of memory they usually operate in are Hi-res or text.

Answer: NO, so far so good.

Question 2. Will GET and PUT function on the text screen?

Answer: Yes, with a few restrictions.

The restrictions are simply that you should not use the "G" option of GET or any of the options of PUT such as AND, NOT, OR, PSET, PRESET. You can use them though you will not PUT what you GET.

HOW TO USE GET AND PUT ON THE TEXT SCREEN

The principle is amazingly simple. Just follow these simple steps:-

1. PCLEAR4:PMODE4,1

This configures GET and PUT operations.

2. PRINT or SET or POKE your graphics/text to the normal text screen. Then copy the text screen via PEEKS and POKES to the new text screen location, or if you like pain, map out your graphics and text and POKE them directly to the new text screen.

3. Switch to the new text screen. Refer to page 260 of GETTING STARTED WITH COLOR BASIC.

4. Now just use GET and PUT as normal.

When you GET or PUT to the text screen it is important to realise that GET and PUT still consider the screen to have the dimension of 256 x 191, so to GET one single character from the top left of the screen you will need:-

```
GET(0,0)-(0,8),A
```

Each character on the "X" axis requires 8 positions, the "Y" axis is easy, 1 line on position - to get the first character from the first five lines on the screen in one go, you would use:-

```
GET(0,0)-(4,8),A
```

You can get the whole text screen with the following:-

```
GET(0,0)-(280,15),A
```

Another wonderful advantage of using GET and PUT on the text screen is that we can get the WHOLE screen in 102 byte array and unlike the PMODE4 screen of 6144 bytes our text screen of 512 bytes can PUT on the screen instantly,or at least so instantly that I can't tell the difference between a text screen PUT and a machine language program. Also, with each full screen needing only a 102 byte array, we can store lots ans lots of screens. On top of this we also have room for additional 11 screens in our reserved PMODE 4 memory. We can address this extra memory quickly and easily using GET and PUT.

Remember we have the equilivant of 192 lines of text. So if we ...

GET(0,0)-(280,15),A and

PUT(0,16)-(280,31),A ... we have duplicated the screen. We could now redraw our first screen and then:-

GET(0,0)-(280,15),A and

PUT(32,0)-(280,47),A ... and we have saved another screen, both of which can be recalled in a flash, and I do mean flash. We could keep going like this until we have filled the PMODE4 memory or we could just store all our screen in arrays. Can you imagine the possibilities? I can.

Of course I have taken the extreme example of storing the whole screen. You can GET and PUT as much or as little as you like. Imagine block moves of text for the word processor you might write, or how about that eight color cartoon someone will write.

To clear the text screen, POKE 179 with the ASCII value of the character to be used to clear the screen, ie. for a black screen, POKE179,128:PCLS

Please note that PCLS will clear the whole PMODE 4 memory area, so if PCLS is not suitable for use if you have things stored OFF SCREEN. If you are going to need to cler the screen later in your program, then:-

PCLS:GET(0,0)-(280,15),CL

Then PUT this back when the screen needs to be clear.

Some interesting effects are also available using LINE, CIRCLE and DRAW.

Three programs are supplied as demonstrations of GET and PUT on the text screen. None of these programs are very earth shattering in their subject matter, but remember I am primarily demonstrating the possibilities of GET and PUT.

PROGRAMS

The first program, "Slide", is based on those litle plastic square with numbers or letters or smaller squares. You slide the squares around, trying to get them into order. Note how the blocks of the screen move instantly. Also note how when the game is replayed how the whole screen is restored instantly.

The second program, "Bandit", is a one-armed bandit or poker machine, whichever you prefer. B O R I N G ! ! ! Yes, I know, but have a look anyway. Even a high resolution program would find it impossible to display the three reels actually spinning in real time. Other games of this type normally just replace the symbol being shown with the next one. This program shows the symbols as they disappear and reappear as the wheels spin.

The third program, "Busted", is for those of you who can't be bothered typing in the first two programs. It is just a simple full screen animation of the display to simulate a busted TV. The screen rolls in both directions and then jitters before it explodes your set!!

TO PLAY

To play number slide, just use the arrow keys to select the direction a box is to be moved. If no box can be moved in that direction a tone will be heard. When the game starts, the boxes wll be shuffled right in front of your eyes. The computer will keep shuffeling until you press a key. The longer you allow it to shuffle, the harder it will be able to get ack them into order. The number of moves you have taken is dispayed at all times on the screen. When the computer detects that all the numbers are in order, it will ask you if you want to play again.

To play bandit, press any key to insert 5 cents. The reels will roll, stopping one at a time. The symbols for each reel are:-

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K, A and a bullseye.

- Two of a kind pays 10.
- Three of a kind pays 25.
- Three aces pays 50.
- Three bullseyes pays 100.

The bank and win amounts are displayed at all times during the game. When you are broke the game will ask you if you want to play again.

Please note that all three programs have been configured for a disk system. If you intend to use these programs on a non-disk system then the page select subroutine will have to be changed and also the routines that poke the new text screen.

The Listing:

```
0 GOTO10
3 SAVE"SLIDE:3":END
10 ' (C) C. BARTLETT  1/7/86
     NUMBER SLIDE

20 CLEAR200:PCLEAR4:PMODE4,1:POK
E65495,0:DIM N0(9),N1(9),N2(9),N
3(9),N4(9),N5(9),N6(9),N7(9),N8(
9),B(9,3),A(102)
30 GOSUB250:PLAY"O1T8L8":GOTO60
40 POKE65479,0:POKE65481,0:POKE6
5483,0:POKE65484,0:POKE65486,0:P
OKE65488,0:POKE65490,0
50 POKE65472,0:POKE65474,0:POKE6
5476,0:RETURN
60 POKE179,128:PCLS
70 K=1024:FOR Z=3584 TO 4095
80 POKEZ,PEEK(K):K=K+1
90 NEXT:GOSUB40
100 GET(0,0)-(280,15),A
110 GET(0,0)-(75,4),N1:GET(80,0)
-(155,4),N2:GET(160,0)-(235,4),N
3:GET(0,5)-(75,9),N4:GET(80,5)-(
155,9),N5:GET(160,5)-(235,9),N6:
GET(0,10)-(75,14),N7:GET(80,10)-
(155,14),N8:GET(160,10)-(235,14)
,N0
120 FORT=1TO9:B(T,2)=T:NEXTT:PLA
Y"V0"
130 I$=INKEY$:IFI$<>""THEN PLAY"
V31":S=0:GOTO190
140 R=RND(4):IF (LR=R) OR (R=1 A
ND LR=2) OR (R=2 AND LR=1) OR (R
=3 AND LR=4) OR (R=4 AND LR=3) T
HEN140
150 LR=R:ON R GOSUB520,550,580,6
10
160 S=0:GOSUB170:GOTO130
170 FOR T=1TO9:ON B(T,2) GOSUB44
0,450,460,470,480,490,500,510,43
0
180 NEXTT:RETURN
190 I$=INKEY$:IFI$=""THEN190ELSE
I=ASC(I$):IFI=9THENGOSUB520ELSEI
FI=8THENGOSUB550ELSEIFI=94THENGO
SUB580ELSEIFI=10THENGOSUB610ELSE
190
200 S=S+1:GOSUB170
210 FOR Q=1TO 9:IF B(Q,3)<>Q THE
N190
220 NEXTQ:SOUND150,1:SOUND160,2:
SOUND170,3:SOUND200,4:CLS:PRINT"
WELL DONE, YOU SOLVED THE PUZZLE
";:PRINTUSING"IN ### MOVES.";S:P
RINT"PLAY AGAIN (Y/N)";:S=0
230 I$=INKEY$:IFI$=""THEN230ELSE
IFI$="N"THEN POKE65494,0:END ELS
EIFI$="Y"THEN PLAY"V0":GOTO240EL
SE230
240 GOSUB40:PUT(0,0)-(280,15),A:
GOTO130
250 Z=0:CLS0:FOR L=1 TO 3:READP:
PRINT@P,"";:FOR X=0 TO 2:PRINTCH
R$(143+Z);STRING$(8,140+Z);CHR$(
143+Z);:Z=Z+16:IF Z<>128 THENNEX
TX,L260 Z=0:FORL=1TO3:READP:PRIN
T@P,"";:FORX=0TO2:PRINTCHR$(143+
Z);STRING$(8,131+Z);CHR$(143+Z);
:Z=Z+16:IFZ<>128 THENNEXTX,L
270 Z=0:FORL=1TO2:READP:FORY=0TO
2:PRINT@P+32*Y,CHR$(143+Z);STRIN
G$(8,128);CHR$(143+Z);CHR$(143+Z
+16);STRING$(8,128);CHR$(143+Z+1
```

```
6);CHR$(143+Z+32);STRING$(8,128)
;CHR$(143+Z+32);:NEXTY:Z=Z+48:NE
XTL
280 READP:FORY=0TO2:PRINT@P+32*Y
,CHR$(239);STRING$(8,128);CHR$(2
39);CHR$(255);STRING$(8,128);CHR
$(255);:NEXTY
290 PRINT@36,CHR$(132);CHR$(143)
;:PRINT@45,STRING$(4,156);CHR$(1
47);:PRINT@55,STRING$(4,172);CHR
$(163);
300 PRINT@69,CHR$(143);:PRINT@78
,STRING$(3,147);CHR$(156);:PRINT
@88,STRING$(3,172);CHR$(163);
310 PRINT@100,CHR$(131);CHR$(143
);CHR$(131);:PRINT@109,CHR$(159)
;STRING$(4,147);:PRINT@119,STRIN
G$(4,163);CHR$(175);
320 PRINT@194,CHR$(191);:PRINT@2
05,CHR$(207);STRING$(4,204);:PRI
NT@215,CHR$(223);
330 PRINT@226,CHR$(191);STRING$(
2,128);CHR$(191);:PRINT@237,STRI
NG$(4,204);CHR$(195);:PRINT@247,
CHR$(223);STRING$(2,220);CHR$(22
3);
340 PRINT@258,STRING$(3,188);CHR
$(191);STRING$(2,188);:PRINT@269
,STRING$(4,195);CHR$(204);:PRINT
@279,CHR$(223);STRING$(2,211);CH
R$(223);
350 PRINT@354,STRING$(5,236);CHR
$(239);:PRINT@365,CHR$(255);STRI
NG$(2,252);CHR$(255);
360 PRINT@389,CHR$(227);CHR$(236
);:PRINT@397,CHR$(243);STRING$(2
,252);CHR$(243);
370 PRINT@419,CHR$(227);CHR$(236
);:PRINT@429,CHR$(255);STRING$(2
,243);CHR$(255);:PRINT@374,"MOVE
S";:PRINT@439,"000";
380 FOR B=1TO9:READ B(B,0),B(B,1
):NEXTB:RETURN
390 FORR=1TO9:R(R)=0:NEXTR:FOR T
=1TO9
400 R=RND(9):IFR(R)<>0THEN400
410 B(T,2)=R:R(R)=R:NEXTT:RETURN
420 DATA0,160,320,128,288,448,32
,192,352,0,0,80,0,160,0,0,5,80,5
,160,5,0,10,80,10,160,10
430 PUT(B(T,0),B(T,1))-(B(T,0)+7
5,B(T,1)+4),N0:B(T,3)=9:GOSUB640
:RETURN
440 PUT(B(T,0),B(T,1))-(B(T,0)+7
5,B(T,1)+4),N1:B(T,3)=1:RETURN
450 PUT(B(T,0),B(T,1))-(B(T,0)+7
5,B(T,1)+4),N2:B(T,3)=2:RETURN
460 PUT(B(T,0),B(T,1))-(B(T,0)+7
5,B(T,1)+4),N3:B(T,3)=3:RETURN
470 PUT(B(T,0),B(T,1))-(B(T,0)+7
5,B(T,1)+4),N4:B(T,3)=4:RETURN
480 PUT(B(T,0),B(T,1))-(B(T,0)+7
5,B(T,1)+4),N5:B(T,3)=5:RETURN
490 PUT(B(T,0),B(T,1))-(B(T,0)+7
5,B(T,1)+4),N6:B(T,3)=6:RETURN
500 PUT(B(T,0),B(T,1))-(B(T,0)+7
5,B(T,1)+4),N7:B(T,3)=7:RETURN
510 PUT(B(T,0),B(T,1))-(B(T,0)+7
5,B(T,1)+4),N8:B(T,3)=8:RETURN
520 FORT=1TO9STEP3:IFB(T+1,3)=9T
HEN BS=B(T,2):B(T,2)=B(T+1,2):B(
T+1,2)=BS:RETURN
530 IFB(T+2,3)=9THEN BS=B(T+1,2)
:B(T+1,2)=B(T+2,2):B(T+2,2)=BS:R
ETURN
540 NEXTT:PLAY"N1":S=S-1:RETURN
550 FORT=1TO9STEP3:IFB(T,3)=9THE
N BS=B(T,2):B(T,2)=B(T+1,2):B(T+
1,2)=BS:RETURN
560 IFB(T+1,3)=9THEN  BS=B(T+1,2
):B(T+1,2)=B(T+2,2):B(T+2,2)=BS:
RETURN
570 NEXTT:PLAY"N1":S=S-1:RETURN
580 FORT=4TO6:IFB(T-3,3)=9THEN B
S=B(T-3,2):B(T-3,2)=B(T,2):B(T,2
)=BS:RETURN
590 IFB(T,3)=9THEN BS=B(T,2):B(T
,2)=B(T+3,2):B(T+3,2)=BS:RETURN
600 NEXTT:PLAY"N1":S=S-1:RETURN
610 FORT=1TO3:IFB(T+3,3)=9THEN B
S=B(T+3,2):B(T+3,2)=B(T,2):B(T,2
)=BS:RETURN
620 IFB(T+6,3)=9THEN BS=B(T+6,2)
:B(T+6,2)=B(T+3,2):B(T+3,2)=BS:R
ETURN
630 NEXTT:PLAY"N1":S=S-1:RETURN
640 SP=3584+((B(T,1)+3)*32)+INT(
B(T,0)/8)+3
650 S$=RIGHT$("000"+RIGHT$(STR$(
S),LEN(STR$(S))-1),3):S1=ASC(LEF
T$(S$,1)):S2=ASC(MID$(S$,2,1)):S
3=ASC(RIGHT$(S$,1))
660 POKESP,S1:POKESP+1,S2:POKESP
+2,S3:RETURN
```

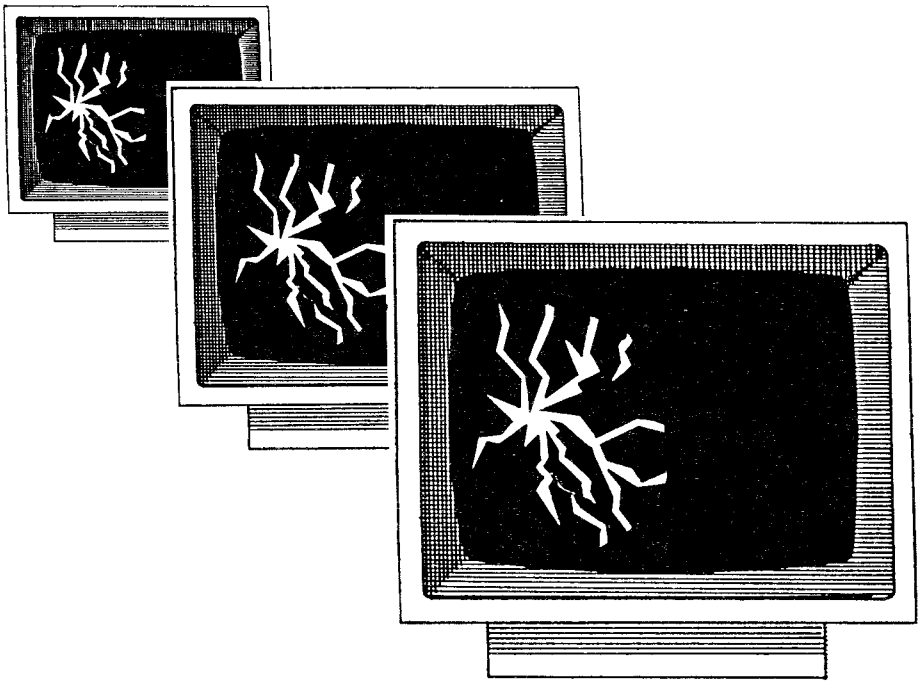
CoCo

GETTING and PUTTING on the Text Screen

The Listing:

```
1 '            BANDIT
        (C) C.BARTLETT  1/7/86

2 GOTO10
3 SAVE"BANDIT:3":END
10 CLEAR200:PCLEAR4:PMODE4,1:POK
E65495,0:DIM N1(8),N2(8),N3(8),N
4(8),R1(2),R2(2),R3(2),F1(40)
20 POKE179,128:PCLS:GOSUB40
30 BP=3917:B=100:GOSUB130:GOTO050
40 POKE65479,0:POKE65481,0:POKE6
5483,0:POKE65484,0:POKE65486,0:P
OKE65488,0:POKE65490,0:POKE65472
,0:POKE65474,0:POKE65476,0:RETUR
N
50 POKE179,128:PCLS:K=1024:FORZ=
3584TO4095:POKEZ,PEEK(K):K=K+1:N
EXT:GOSUB40:GET(0,0)-(20,14),N1:
GET(55,0)-(70,14),N2:GET(80,0)-(
100,14),N3:GET(0,0)-(20,2),N4
60 GOSUB490:PCLS:GOSUB500:PUT(0,
16)-(20,30),N1:PUT(0,31)-(20,45)
,N2
70 H=1:CR$="credit":FORX=3909 TO
3914:CR=ASC(MID$(CR$,H,1))-96:H=
H+1:POKEX,CR:NEXTX:H=1:CR$="win"
:FORX=3973 TO 3975:CR=ASC(MID$(C
R$,H,1))-96:H=H+1:POKEX,CR:NEXTX
80 PUT(0,46)-(20,60),N3:PUT(0,61
)-(20,63),N4:GOSUB470:S1=16+(RND
(14)*3):S2=16+(RND(14)*3):S3=16+
(RND(14)*3):GOSUB410:GOTO120
90 FOR R=1TO 3:LP=RND(30)+10:FOR
L=1TO LP:ON R GOSUB220,230,240:O
N R GOSUB280,290,300:ON R GOSUB2
50,260,270:NEXTL:ON R GOSUB320,3
50,380:NEXTR:GOSUB420:GOSUB470
100 IFW<>0 THEN GOSUB510
110 IF B=0 THEN GOTO520
120 I$=INKEY$:IFI$=""THEN120ELSE
B=B-5:GOSUB470:GOTO90
130 CLS0:FORY=1TO5:SET(3,Y,1):NE
XTY:SET(2,1,1):SET(2,5,1):SET(4,
5,1):FORX=1TO4:SET(X,7,2):SET(X,
11,2):NEXTX:SET(5,11,2):SET(2,9,
2):SET(3,9,2):SET(4,9,2):SET(5,8
,2):SET(5,7,2):SET(1,10,2)
140 FORX=1TO5:SET(X,13,3):SET(X,
17,3):IFX>1 AND X<5  THEN SET(X,
15,3):NEXTELSENEXT:SET(5,14,3):S
ET(5,16,3):FORY=19TO21:SET(1,Y,4
):SET(5,Y+1,4):NEXTY:FORX=2TO4:S
ET(X,21,4):NEXTX:SET(5,23,4)
150 FORX=1TO5:SET(X,25,5):IFX<5
THENSET(X,27,5):SET(X,29,5):NEXT
ELSENEXT:SET(1,26,5):SET(5,28,5)
:FORX=14TO16:SET(X,1,6):SET(X,3,
6):SET(X,5,6):NEXTX:FORY=2TO4:SE
T(13,Y,6):NEXTY:SET(17,4,6):FORX
=13TO17:SET(X,7,7):NEXTX:FORY=8T
O11:SET(17,Y,7):NEXTY
160 FORX=14TO16:SET(X,13,1):SET(
X,15,1):SET(X,17,1):NEXTX:SET(13
,14,1):SET(17,14,1):SET(17,16,1)
:SET(13,16,1):FORX=14TO16:SET(X,
19,2):SET(X,21,2):SET(X,23,2):NE
XTX:FORY=19TO22:SET(17,Y,2):NEXT
Y:SET(13,20,2)
170 FORY=26TO29:SET(13,Y,8):SET(
17,Y,8):NEXTY:FORX=14TO16:SET(X,
```

```
25,8):SET(X,27,8):NEXTX:FORY=2TO
4:SET(21,Y,3):IFY<4THENSET(25,Y,
3):NEXTELSENEXT:FORX=22TO24:SET(
X,1,3):IFX<24THENSET(X,5,3):NEXT
ELSENEXT:Y=3:FORX=23TO25:SET(X,Y
,3):Y=Y+1:NEXTX
180 FORY=7TO11:SET(21,Y,4):NEXTY
:SET(22,9,4):Y=9:FORX=23TO25:SET
(X,Y,4):Y=Y-1:NEXTX:SET(24,10,4)
:SET(25,11,4):FORX=21TO25:SET(X,
13,5):NEXTX:FORY=14TO17:SET(23,Y
,5):NEXTY:SET(21,16,5):SET(21,17
,5):SET(22,17,5)
190 FORY=19TO23:SET(21,Y,6):SET(
23,Y,6):SET(25,Y,6):NEXTY:SET(24
,19,6):SET(24,23,6):FORX=21TO25:
SET(X,25,8):SET(X,29,8):NEXTX:FO
RY=26TO28:SET(21,Y,8):SET(25,Y,8
):NEXTY:SET(23,27,7)
200 FORX=35TO63:SET(X,1,3):SET(X
,17,3):NEXT:FORY=1TO17:SET(35,Y,
3):SET(63,Y,3):NEXT:FORX=37TO61:
SET(X,3,4):SET(X,15,4):NEXT:FORY
=3TO15:SET(37,Y,4):SET(61,Y,4):N
EXT:FORX=39TO59:SET(X,5,5):SET(X
,13,5):NEXT
210 FORY=6TO12:SET(39,Y,5):SET(5
9,Y,5):NEXT:RETURN
220 GET(0,S3)-(20,S3+3),R3
230 GET(0,S2)-(20,S2+3),R2
240 GET(0,S1)-(20,S1+3),R1:RETUR
N
250 PUT(140,3)-(155,5),R3
260 PUT(115,3)-(135,5),R2
270 PUT(90,3)-(110,5),R1:RETURN
280 S3=S3-1:IFS3=17THEN S3=62
290 S2=S2-1:IFS2=17THEN S2=62
300 S1=S1-1:IFS1=17THEN S1=62
310 RETURN
320 T3=((S3-16)/3)-FIX((S3-16)/3
):IFT3<>0 THEN S3=S3-1:IFS3=17TH
EN S3=62
330 GOSUB220:GOSUB250
340 IFT3<>0THEN320ELSERETURN
350 T2=((S2-16)/3)-FIX((S2-16)/3
):IFT2<>0 THEN S2=S2-1:IFS2=17TH
EN S2=62
360 GOSUB220:GOSUB250
370 IFT2<>0THEN350ELSERETURN
380 T1=((S1-16)/3)-FIX((S1-16)/3
):IFT1<>0 THEN S1=S1-1:IFS1=17TH
EN S1=62
390 GOSUB220:GOSUB250
400 IFT1<>0THEN380ELSERETURN
410 GOSUB220:GOSUB230:GOSUB240:G
OSUB250:GOSUB260:GOSUB270:RETURN
420 IF (S1=56) AND (S2=56) AND (
S3=56) THEN W=50:B=B+W:RETURN
430 IF (S1=59) AND (S2=59) AND (
S3=59) THEN W=100:B=B+W:RETURN
440 IF (S1=S2)  AND (S2=S3) THEN
 W=25:B=B+W:RETURN
450 IF (S1=S2) OR (S1=S3) OR (S2
=S3) THEN W=10:B=B+W:RETURN
460 W=0:RETURN
470 BP$=RIGHT$("0000"+RIGHT$(STR
$(B),LEN(STR$(B))-1),4):B1=ASC(L
EFT$(BP$,1)):B2=ASC(MID$(BP$,2,1
)):B3=ASC(MID$(BP$,3,1)):B4=ASC(
RIGHT$(BP$,1)):POKEBP,B1:POKEBP+
1,B2:POKEBP+2,B3:POKEBP+3,B
```



```
480 WP$=RIGHT$("00"+RIGHT$(STR$(
W),LEN(STR$(W))-1),2):W1=ASC(LEF
T$(WP$,1)):W2=ASC(RIGHT$(WP$,1))
:POKEBP+64,W1:POKEBP+65,W2:RETUR
N
490 GET(140,0)-(250,10),F1:RETUR
N
500 PUT(71,0)-(181,10),F1:RETURN
510 FORU=1TO W:PRINT:CLS RND(8):
SOUND150,1:GOSUB40:SOUND200,1:NE
XTU:RETURN
520 FORU=1TO500:NEXTU:CLS:PRINT"
YOUR BROKE !!!":PRINT"PLAY AGAIN
 (Y/N) ";
530 I$=INKEY$:IFI$=""THEN530ELSE
IFI$="N"THEN POKE65494,0:END ELS
EIF I$="Y"THENGOSUB40:B=100:GOSU
B470:GOTO120ELSE530
```

CoCo

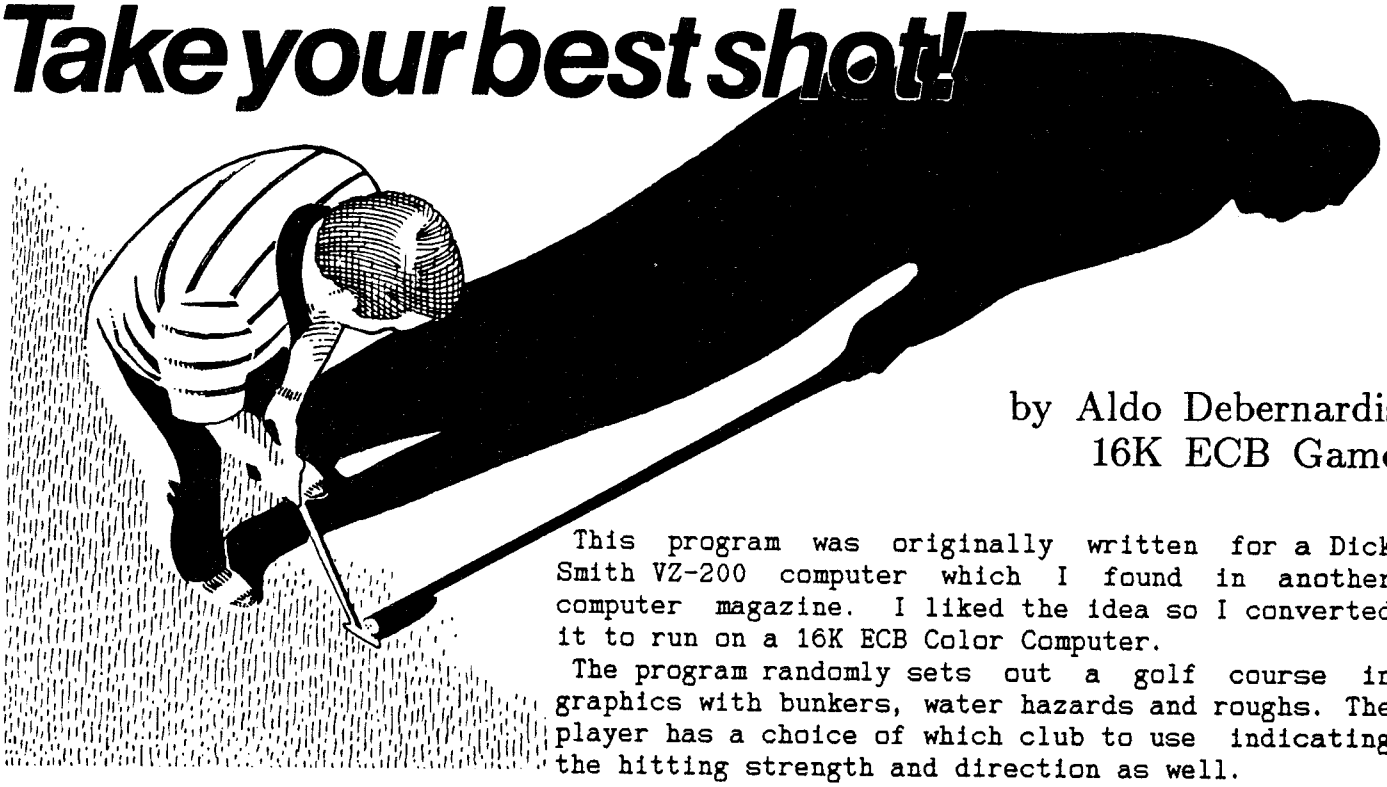
GETTING and PUTTING on the Text Screen

The Listing:

```
0 GOTO10
1 '            BUSTED
   (C) C.BARTLETT   1/7/86

3 SAVE"BUSTED:3":END
10 CLEAR200:PCLEAR4:PMODE4,1:POK
E65495,0:DIM A(102)
20 GOSUB90:GOTO40
30 POKE65479,0:POKE65481,0:POKE6
5483,0:POKE65484,0:POKE65486,0:P
OKE65488,0:POKE65490,0:POKE65472
,0:POKE65474,0:POKE65476,0:RETUR
N
40 POKE179,128:PCLS:K=1024:FORZ=
3584TO4095:POKEZ,PEEK(K):K=K+1:N
EXT:GOSUB30:GET(0,0)-(280,15),A:
PUT(0,16)-(280,31),A:PUT(0,32)-(
280,47),A
50 FOR L=1TO3:FOR Y=16 TO 32:GET
(0,Y)-(280,Y+14),A:PUT(0,0)-(280
,15),A:NEXTY,L:FORL=1TO3:FORY=32
 TO16STEP-1:GET(0,Y)-(280,Y+14),
A:PUT(0,0)-(280,15),A:NEXTY,L
60 FORY=1TO40:GET(0,17)-(280,32)
,A:PUT(0,0)-(280,15),A:GET(0,16)
-(280,31),A:PUT(0,0)-(280,15),A:
NEXTY
70 FORY=1TO40:PRINT:CLS RND(8):F
ORD=1TO50:NEXTD:GOSUB30:NEXTY
80 CLS0:PRINT@235,"sizzle";:FORD
=1TO2500:NEXTD:GOSUB30:GOTO50
90 CLS0:S=0:E=63:C=8:FOR Y=0 TO
15 STEP2:FOR X=S TO E:SET(X,Y,C)
:SET(X,29-Y,C):NEXTX:C=C-1:S=S+2
:E=E-2:NEXTY
100 S=0:E=29:C=8:FORX=0 TO 15 ST
EP2:FORY=S TO E:SET(X,Y,C):SET(6
3-X,Y,C):NEXTY:C=C-1:S=S+2:E=E-2
:NEXTX
110 PRINT@231,"YOUR TV IS BUSTED
.";:RETURN
```

CoCo

Now's the time to Take your best shot!



by Aldo Debernardis
16K ECB Game

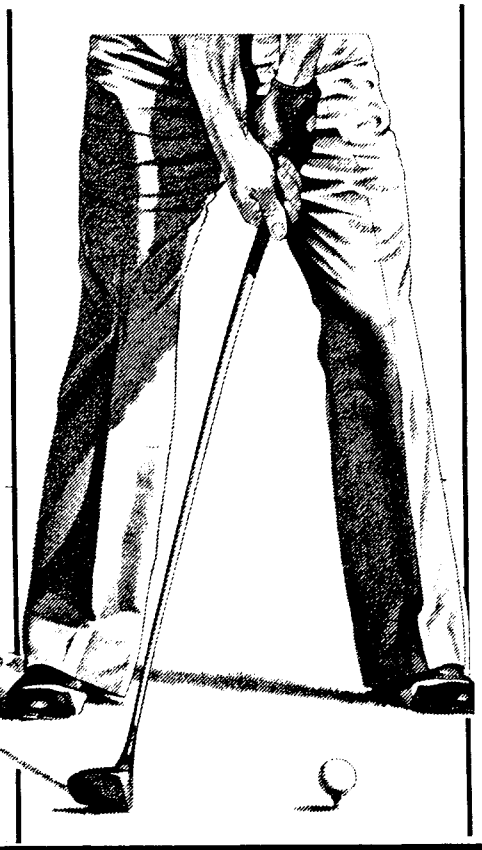
This program was originally written for a Dick Smith VZ-200 computer which I found in another computer magazine. I liked the idea so I converted it to run on a 16K ECB Color Computer.

The program randomly sets out a golf course in graphics with bunkers, water hazards and roughs. The player has a choice of which club to use indicating the hitting strength and direction as well.

The Listing:

```
10 ' **** GOLF SIMULATION ****
11 'ALDO DEBERNARDIS (20.5)
20 CLS
30 PRINT@33,"WELCOME TO CONCORD
GOLF COURSE ----------
----------"
40 PRINT
50 PRINT"IN GOLF THE OBJECT OF T
HE GAME"
60 PRINT"IS TO HIT THE BALL FROM
 THE"
70 PRINT"TEE (T) TO THE HOLE IN
THE"
80 PRINT"FEWEST NUMBER OF SHOTS.
"
90 PRINT
100 PRINT"WILL THERE BE ONE OR T
WO PLAYERS?"
110 K$=INKEY$
120 WW=RND(DD):DD=DD+1:IFDD>100T
HENDD=1
130 I$=INKEY$:IFI$=""THEN130
140 IFI$="1"THENPL=1:LP=0:GOTO17
0
150 IFI$="2"THENPL=2:LP=0:GOTO17
0
160 GOTO110
170 CLS
180 PRINT"YOUR GOLF BAG CONTAINS
 A :-"
190 PRINT
200 PRINT"1 WOOD MAX.RANGE 251 M
ETRES"
210 PRINT"2 IRON MAX.RANGE 221 M
ETRES"
220 PRINT"5 IRON MAX.RANGE 164 M
ETRES"
230 PRINT"7 IRON MAX.RANGE 127 M
ETRES"
240 PRINT"9 WEDGE MAX.RANGE 87 M
ETRES"
250 PRINT"PUTTER MAX.RANGE 41 ME
TRES"
260 PRINT"AND IS ONLY USED ON TH
E GREEN"
270 PRINT
280 PRINT"TO ACHIEVE GREATER HEI
GHT"
290 PRINT"USE A HIGHER NUMBERED
IRON."
300 PRINT
310 PRINT"PRESS SPACE BAR TO CON
TINUE"
320 GOSUB2870
330 HO=1:TT=0:T1=0:T2=0:GF=0
340 PA=RND(3)+2
350 PZ=RND(2)
360 IFPA=3THENP=3:SX=63:GOTO410
370 IFPA=4THENP=4.8
380 IFPA=5THENP=6.5
390 IFPZ=1THENSX=8
400 IFPZ=2THENSX=119
410 REM
420 ZB=RND(3):ZW=RND(3):ZJ=RND(3
)
430 J3=RND(9)+2
440 A=RND(107)+7:BB=RND(7)+16
450 G=RND(5)+2:B=RND(9)+2:W=RND(
10)+3
460 IFZJ=1THENJ3=0
470 IFZB=1THENB=0
480 IFZW=1THENW=0
490 C=RND(103)+9:D=13+RND(6)
500 MD=INT(SQR((A-SX)^2+(BB-63)^
2)*P)
510 HB=SQR((A-C)^2+(BB-D)^2)
520 IFHB<=G+B+3THEN490
530 E=13+RND(100):F=14+RND(35)
540 BW=SQR((C-E)^2+(D-F)^2)
550 WH=SQR((A-E)^2+(BB-F)^2)
560 IFBW<=B+W+3THEN530
570 IFWH<=W+G+3THEN530
580 J1=RND(103)+9:J2=RND(6)+13
590 HJ=SQR((A-J1)^2+(BB-J2)^2)
600 IFHJ<=G+J3+3THEN490
610 JW=SQR((J1-E)^2+(J2-F)^2)
620 IFJW<=J3+W+3THEN530
630 CLS
640 X=SX:Y=63:R1=0:B1=0:W1=0
650 SC=0
660 CLS
670 PRINT"THIS HOLE IS NUMBER" H
O
680 PRINT
690 PRINT"PLAYER" LP+1
700 PRINT
710 PRINT"PAR"PA;  MD "METRES"
720 SC=0:X=SX:Y=63:R1=0:B1=0:W1=
0
730 GOSUB2870
740 GOSUB2260
750 GOSUB2870
760 CLS
770 PRINT"WHICH CLUB DO YOU WISH
 TO USE?"
780 INPUTCL
790 IFCL=1THENAV=29+RND(11):GOTO
850
800 IFCL=2THENAV=19+RND(11):GOTO
850
810 IFCL=5THENAV=69+RND(6):GOTO8
50
820 IFCL=7THENAV=74+RND(6):GOTO8
50
830 IFCL=9THENAV=79+RND(6):GOTO8
50
840 CLS:PRINT"YOU DO NOT HAVE ON
E OF THOSE":GOTO770
```

```
850 CLS
860 PRINT"IN WHICH DIRECTION DO
YOU WISH"
870 PRINT"TO HIT? (0 TO 360 DEGR
EES)"
880 PRINT"MEASURED ANTI-CLOCKWIS
E FROM"
890 PRINT"THE RIGHT."
900 GOSUB3140
910 INPUTAZ
920 CLS
930 PRINT"HOW HARD DO YOU WISH T
O HIT"
940 INPUT"0 TO 50 :-";V
950 PS=3.141592654/180
960 IFV<0THENV=0
970 IFV>50THENV=50
980 SC=SC+1
990 RA=V*V*SIN(2*AV*PS)/9.81
1000 RS=RA/P
1010 HT=((SIN(AV*PS)*V)^2)/(19.6
2)
1020 IFR1=1THEN1880
1030 IFB1=1THEN1910
1040 X=X+RS*COS(AZ*PS)
1050 Y=Y-RS*SIN(AZ*PS)
1060 H=INT(X):K=INT(Y)
1070 H1=0
1080 IFH<0THENH=0:H1=1
1090 IFH>=127THENH=126:H1=1
1100 IFK<0THENK=0:H1=1
1110 IFK>63THENK=63:H1=0
1120 X=H:Y=K
1130 IFH1=1THEN1720
1140 D1=SQR((A-H)^2+(BB-K)^2)
1150 REM
1160 IFD1<=GANDGF=1THEN1240
1170 GOSUB2260
1180 COLOR2
1190 I$=INKEY$
1200 LINE(2*H,2*K)-(2*H+2,2*K+1)
,PSET,BF
1210 LINE(2*H,2*K)-(2*H+2,2*K+1)
,PRESET,BF
1220 IFI$=""THEN1190
1230 IFI$<>" "THEN1190
1240 DI=SQR((A-H)^2+(BB-K)^2)
1250 DB=SQR((C-H)^2+(D-K)^2)
1260 DW=SQR((E-H)^2+(F-K)^2)
1270 DJ=SQR((J1-H)^2+(J2-K)^2)
1280 DM=DI*P
1290 IFDI<=G THEN GF=1:GOTO1570
1300 IFDB<=B AND B<>0 THEN1520
1310 IFDJ<=J3 AND J3<>0 THEN1520
1320 IFDW<=W AND W<>0 THEN1730
1330 CLS
1340 PRINT"THAT SHOT WENT "INT(R
A)"METRES."
1350 PRINT
1360 PRINT"DISTANCE FROM THE HOL
E :-"
1370 PRINT"  "INT(DM)"METRES."
1380 PRINT:PRINT"NUMBER OF STROK
ES = "SC
1390 IFPA=4ORPA=5THEN1440
1400 IFH<40ANDK>31THEN1770
1410 IFH>86ANDK>31THEN1770
1420 IFK<=8THEN1770
1430 GOTO1510
1440 IFPZ=2THEN1480
1450 IFH>16ANDK>31THEN1770
1460 IFK<=8THEN1770
1470 GOTO1510
1480 IFH<111ANDK>31THEN1770
1490 IFK<=8THEN1770
1500 GOTO1510
1510 GOTO770
1520 B1=1
1530 BH=124.5
1540 CLS:PRINT"YOU ARE IN THE BU
NKER"
1550 PRINT"YOU ARE ADVISED TO US
E THE WEDGE"
1560 GOTO770
1570 GF=1:GOTO2970
1580 CLS
1590 PRINT"YOU ARE ON THE GREEN
AND WILL"
1600 PRINT"BE USING THE PUTTER"
1610 PRINT:PRINT"WHICH DIRECTION
 (0 TO 360)"
1620 GOSUB3140
1630 INPUTAZ
1640 CLS
1650 PRINT"HOW HARD DO YOU WISH
TO HIT"
1660 INPUT"(0 TO 25)";V
1670 IFV<0THENV=0
1680 IFV>25THENV=25
1690 AV=70
1700 CLS
1710 GOTO980
1720 SOUND4,2:SC=SC+1:GOTO1150
1730 W1=0
1740 SC=SC+1
1750 H=H+2*W:K=K+2*W
1760 GOTO2910
1770 R1=1
1780 RH=111+RND(15)
1790 PRINT
1800 PRINT"YOU ARE IN THE ROUGH"
1810 IFRH>123THENB$="TALL TREES"
:GOTO1840
1820 IFRH>118THENB$="MEDIUM TREE
S":GOTO1840
1830 IFRH>=112THENB$="LOW SCRUB"
:GOTO1840
1840 PRINT"YOUR NEXT SHOT MUST C
LEAR SOME"
1850 PRINTB$
1860 PRINT
1870 GOTO770
1880 IFHT<RH THEN RA=RND(6):GOTO
1900
1890 RA=RA/2
1900 R1=0:GOTO1000
1910 IFHT<BH THEN RA=0:GOTO1930
1920 RA=RA/2
1930 B1=0:GOTO1000
1940 SOUND20,1:SOUND15,1
1950 IFLP=0THENT1=T1+SC:TT=T1:P1
=P1+SC-PA:Q=P1
1960 IFLP=1THENT2=T2+SC:TT=T2:P2
=P2+SC-PA:Q=P2
1970 A$=" FOR THIS HOLE"
1980 CLS
1990 PRINT@39,"CONGRATULATIONS"
2000 PRINT@73,"PLAYER"LP+1
2010 PRINT
2020 PRINT"YOU ARE IN THE HOLE"
2030 PRINT"FOR "SC" SHOTS"
2040 IFSC=PA-2THENPRINT"EAGLE";A
$
2050 IFSC=PA-1THENPRINT"BIRDIE";
A$
2060 IFSC=PA THEN PRINT"PAR";A$
2070 IFSC=PA+1 THEN PRINT"BOGEY"
;A$
2080 IFSC=PA+2 THEN PRINT"DOUBLE
 BOGEY";A$
2090 IFSC=1 THEN PRINT"HOLE IN O
NE !!!":GOTO2110
2100 PRINT
2110 PRINT"YOUR TOTAL SO FAR IS"
TT
2120 IFQ=0THENPRINT"YOU ARE ON P
AR FOR THE COURSE"
2130 IFQ>0THENPRINT"YOU ARE "Q"
OVER PAR FOR THE    COURSE"
2140 IFQ<0THENQ=ABS(Q):PRINT"YOU
R TOTAL IS "Q" UNDER PAR"
2150 PRINT:PRINT
2160 PRINT"    <PRESS THE SPACE
BAR>"
2170 K$=INKEY$
2180 I$=INKEY$:KD=RND(DD)
2190 DD=DD+1:IFDD>100THENDD=1
2200 IFI$=""THEN2180
2210 IFI$<>" "THEN2180
2220 CLS
2230 IFPL=1THENHO=HO+1:GOTO340
2240 IFPL=2ANDLP=1THENLP=0:HO=HO
+1:GOTO340
2250 IFPL=2ANDLP=0THENLP=1:GOTO6
70
2260 PMODE3,1:PCLS:PCLS1:SCREEN1
,0
2270 COLOR4:GF=0
2280 IFPA=4ORPA=5THEN2440
2290 FORI=0TO255STEP2
2300 PSET(RND(255),RND(14))
2310 NEXTI
2320 LINE(0,16)-(255,16),PSET
2330 FORI=0TO80STEP2
2340 PSET(RND(80),62+RND(62))
```



```
2350 NEXTI
2360 LINE(0,62)-(80,62),PSET
2370 FORI=172TO255STEP2
2380 PSET(RND(80)+172,62+RND(62)
)
2390 NEXTI
2400 LINE(172,62)-(255,62),PSET
2410 LINE(80,62)-(80,126),PSET
2420 LINE(172,62)-(172,126),PSET
2430 GOTO2650
2440 IFPZ=2THEN2550
2450 FORI=0TO255STEP2
2460 PSET(RND(252),RND(14))
2470 NEXTI
2480 LINE(0,16)-(255,16),PSET
2490 FORI=32TO255STEP2
2500 PSET(RND(220)+32,62+RND(62)
)
2510 NEXTI
2520 LINE(32,62)-(255,62),PSET
2530 LINE(32,62)-(32,126),PSET
2540 GOTO2650
2550 FORI=0TO255STEP2
2560 PSET(RND(252),RND(14))
2570 NEXTI
2580 LINE(0,16)-(255,16),PSET
2590 FORI=0TO222STEP2
2600 PSET(RND(220),RND(62)+62)
2610 NEXTI
2620 LINE(0,62)-(222,62),PSET
2630 LINE(222,62)-(222,126),PSET
2640 GOTO2650
2650 LINE(2*(A-G),2*(BB-G))-(2*(
A+G),2*(BB+G)),PSET,BF
2660 LINE(0,16)-(255,16),PSET
2670 COLOR2
2680 LINE(2*A,2*BB-22)-(2*A,2*BB
),PSET
2690 LINE(2*A,2*BB-22)-(2*A+8,2*
BB-16),PSET,BF
2700 IFZB=1THEN2730
2710 COLOR2
2720 LINE(2*(C-B),2*(D-B))-(2*(C
+B),2*(D+B)),PSET,BF
2730 IFZJ=1THEN2760
2740 COLOR2
2750 LINE(2*(J1-J3),2*(J2-J3))-(
2*(J1+J3),2*(J2+J3)),PSET,BF
2760 IFZW=1THEN2790
2770 COLOR3
2780 LINE(2*(E-W),2*(F-W))-(2*(E
+W),2*(F+W)),PSET,BF
2790 COLOR4
2800 FORI=2*(SX-2) TO 2*(SX+2)
2810 PSET(I,120)
2820 NEXT
2830 FORI=120TO126
2840 PSET(2*SX,I)
2850 NEXT
2860 RETURN
2870 I$=INKEY$
2880 IFI$=""THEN2870
2890 IFI$<>" "THEN2870
2900 RETURN
2910 CLS
2920 PRINT"YOU WERE IN THE WATER
 AND HAVE"
2930 PRINT"BEEN REPOSITIONED FUR
THER BACK"
2940 PRINT"WITH A PENALTY OF 1"
2950 FORI=1TO4000:NEXT
2960 GOTO1070
2970 SCREEN1,0:PCLS:PCLS1:PMODE3
,1
2980 GS=INT(47/(2*G))
2990 HH=2*(H-A)*GS+63
3000 KK=(K-BB)*GS+31
3010 COLOR4
3020 LINE(24,16)-(212,110),PSET,
B
3030 COLOR2
3040 LINE(126,43)-(126,62),PSET
3050 LINE(126,36)-(134,42),PSET,
BF
3060 LINE(126-GS,62-GS/2)-(126+G
S,62+GS/2),PSET,BF
3070 COLOR4
3080 I$=INKEY$
3090 LINE(2*HH,2*KK)-(2*HH+1,2*K
K+1),PSET,B
3100 IFI$=""THEN3080
3110 IFI$<>" "THEN3080
3120 IFDI<=.5THEN1940
3130 GOTO1580
3140 PRINT@176,"90"
3150 PRINT@208,"."
3160 PRINT@240,"."
3170 PRINT@272,"."
3180 PRINT@297,"180...BALL...0"
3190 PRINT@336,"."
3200 PRINT@368,"."
3210 PRINT@400,"."
3220 PRINT@432,"270"
3230 RETURN
```

CoCo

LOTTO

by G. Lewis 16K CB + Printer Utility

THAT one liner I sent Graham a while back started me off on a couple more.

So for better or for worse here they are.

The first ("Lotto1") is the one liner I previously sent. As previously explained it draws as many numbers as you request, then counts and prints the number of times each number comes up. You can pick your numbers from the most consistant.

The second program ("Lotto2"). You insert your numbers where I have mine. The program then does a lotto draw simulation of eight numbers and prints a star beside any of your numbers for easy identification. The program will do 104 draws, (2) a week for a year. I ran it for five years and won $30,000.00.

The third program ("Lotto3"). A program to show the futility of spending large sums of money on lotto. This program does a Factorial Calculation and shows the Permutation of only 33 digits.

The largest number I can do. I could suggest that 45! would have a digit followed by appro. 60 zeros.

If you think them ok, be my guest.

Listing 1:

```
0 GOTO10
1 'LOTTO 1 -- G LEWIS
2 SAVE"LOTTO1:3":END
10 CLS:POKE280,PEEK(275):DIMX(45
):FORD=1TO100    :R=RND(45):X(R)
=X(R)+1:PRINTR;:PRINT#-2,R;:NEXT
D:FORN=1TO45:PRINT:PRINT:PRINT#-
2,"":PRINT#-2,"":PRINTN,X(N):PRI
NT#-2,N,X(N):NEXTN:END
```

Listing 2:

```
0 GOTO10
1 'LOTTO 2  -- G. LEWIS
2 SAVE"LOTTO1:3":END
10 CLS:POKE280,PEEK(275)
30 FOR Z=1 TO 106
40 PRINT #-2,"("Z") ";:IF Z=105
THEN STOP
50 FOR X=1 TO 8:R=RND(45)
60 PRINT R;:PRINT#-2,"  "R;
61 IF R=3 THEN PRINT#-2,"* ";
62 IF R=4 THEN PRINT#-2,"* ";
63 IF R=7 THEN PRINT#-2,"* ";
64 IF R=16 THEN PRINT#-2,"* ";
65 IF R=17 THEN PRINT#-2,"* ";
66 IF R=20 THEN PRINT#-2,"* ";
67 IF R=33 THEN PRINT#-2,"* ";
68 IF R=44 THEN PRINT#-2,"* ";
70 NEXT X
80 PRINT:PRINT#-2,"":NEXT Z
```

Listing 3:

```
0 GOTO10
1 'LOTTO 3 -- G LEWIS
2 SAVE"LOTTO 3:3":END
10 CLS:PRINT @ 197,"FACTORIAL CA
LCULATION"
30 INPUT"ENTER NUMBER";X
40 X=INT(X):F=1
70 FOR C=1 TO X: F=F*C: NEXT C
110 PRINTX;"!=";F
120 PRINT#-2,X"!=  ";F
130 GOTO 30
```

CoCo

OLD & FUTURE PRINT

by David Law

16K/32K Utility

THESE two programs are adaptations of "Bigprint" by M.J. Himowitz printed in Australian Rainbow January 1984. "Futurite" gives a printout in supposedly futuristic characters, and surprisingly, "Oldrite" uses old script. Both Andrew and Sarah find them useful for title pages of school projects.

Listing 1:

```
0 '**This program prints all  **
   **keyboard characters apart**
   **from the @ and $ which   **
   **will be the same as the  **
   **spacebar. In addition,   **
   **the numeral 0 will print **
   **a roman numeral ten.     **
3 GOTO20
4 SAVE"OLDRITE:3":STOP
5 CSAVE"*******":STOP
6 PRINT#-2,CHR$(27)"@"CHR$(27)"1
"CHR$(24)CHR$(27)"Q"CHR$(56):LLI
ST-49000
7 END
20 CLS:CLEAR3000
29 '***start of main program
30 DIM G$(174),L(59,12),J$(15),Z
$(15),M(15),TF$(15),RW(20)
31 AP$="ANCIENT-PRINT"
32 AU$="**************"
33 BE=88
35 GOSUB20000:GOSUB 5000
39 '***reads x codes data
40 CLS:POKE65495,0:PRINT@41,AP$:
PRINT@73,AU$:PRINT:PRINT" ONE MO
MENT PLEASE....":FOR X=1 TO 174:
READ G$(X)
45 IF BE<>88 THENGOSUB3000
50 NEXT X
89 '***reads character data
90 FOR X=1 TO 59
100 FOR Y=1 TO12
110 READ L(X,Y)
120 NEXT Y
125 NEXT X
126 RESTORE
127 POKE65494,0
128 GOSUB1000
199 '***screen instructions
200 CLS:PRINT:PRINT@41,AP$:PRINT
@73,AU$:PRINT
210 PRINT"  YOU MAY INPUT UP TO
14 LINES    WITH UP TO"NC "LETTE
RS EACH"
220 PRINT:LINEINPUT"  TO BEGIN P
RESS enter ";PE$
230 CLS:FOR J=1 TO 14
240 PRINT"LINE NO."J:INPUT"(s)TA
NDARD or  (o)LDPRINT";TF$(J):GOS
UB 4400:IF TF$(J)="O" THEN PRINT
" ("NC" CHRS MAX.)"
```

```
242 IF TF$(J)<>"O" AND TF$(J)<>"
S" THEN PRINT"'o' or 's', please
":SOUND200,5:GOTO240
243 LINEINPUT J$(J)
250 IF TF$(J)="O" AND LEN(J$(J))
>NC THEN SOUND100,3:PRINT"line"J
"too long - try again":GOTO240
255 IF J=14GOTO500ELSENEXTJ
400 J=J-1
500 CLS:PRINT@232,"YOUR MESSAGE:
":FORDL=1TO100:NEXTDL:FOR K=1 TO
 J:PRINT"LINE"K"("TF$(K)+") > "+
J$(K):NEXT:PRINT"POSITION PAPER
AND enter ";:LINEINPUTPE$
520 FOR K=1 TO J
523 IF TF$(K)="S" THEN GOSUB2000
:GOTO650
524 '***printer routine
525 FORY=1 TO12
527 LL=LEN(J$(K)):TL=LL*12
530 IF NC=10 THEN TL=INT((142-TL
)/2) ELSE IF NC=6 THEN TL=INT((7
4-TL)/2)
535 PRINT#-2,STRING$(TL,32);
550 FOR V=1 TO LEN(J$(K))
560 Z$(V)=MID$(J$(K),V,1)
561 IF V>LEN(J$(K)) THEN640
562 M(V)=ASC(Z$(V))-31
570 IF M(V)<-6 AND M(V)>-16 THEN
 M(V)=M(V)+43
600 PRINT#-2,G$(L(M(V),Y))+" ";
610 NEXTV
620 PRINT#-2
630 NEXT Y
640 PRINT#-2:PRINT#-2
650 NEXT K
660 GOTO 5000
1000 CLS:PRINT@41,AP$:PRINT@73,A
U$:PRINT
1010 PRINT" HOW MANY CHARACTERS
PER LINE?"
1020 PRINT:PRINT"  6 USES STANDA
RD PRINT":PRINT" 10 USES CONDENS
ED PRINT":PRINT:INPUT" YOUR CHOI
CE (6 OR 10)?";NC
1040 IF NC<>6 AND NC<>10 THEN 10
00
1080 RETURN
2000 IF TF$(K-1)="S" THEN PRINT#
-2
2010 IF TF$(K-1)="O" THENFOR U=1
 TO2:PRINT#-2:NEXTU
2020 LL=LEN(J$(K))
2030 IF NC=10 THEN TL=INT((142-L
L)/2) ELSE IF NC=6 THEN TL=INT((
74-LL)/2)
2045 PRINT#-2,STRING$(TL,32)+J$(
K)
2050 IF TF$(K+1)="S" THEN PRINT#
-2
2060 IF TF$(K+1)="O" THEN FOR D=
1 TO CM-1:PRINT#-2,CHR$(RW(D));:
NEXTD:FORU=1 TO3:PRINT#-2:NEXTU
2070 RETURN
2999 '***changes printed charact
er
3000 FOR U=1 TO LEN(G$(X))
3010 IF MID$(G$(X),U,1)="X" THEN
 MID$(G$(X),U,1)=CHR$(BE)
3020 NEXTU:RETURN
3998 '***instructions for printe
r codes
3999 CLS:PRINT@41,AP$:PRINT@74,A
U$
4000 PRINT:PRINT" YOU MAY ENTER
UP TO 20 DIRECT   PRINTER COMMAN
DS. THEY SHOULD   BE IN ASCII CO
NTROL OR ESCAPE   CODES. TO END
THE STRING OF     COMMANDS, HIT
enter WITH NO     OTHER INPUT."
4010 PRINT:PRINT" DO YOU WANT TO
 ENTER SOME":INPUT" PRINTER COMM
ANDS (Y/N)";PC$
4020 IF PC$<>"Y" THEN 5000
4030 CLS:CM=1
4040 PRINT" COMMAND NO."+MID$(ST
R$(CM),2)+":";:INPUT RW(CM):IF R
W(CM)=0 THEN 4100
4050 CM=CM+1
4060 IFCM=21GOTO4100ELSE4040
4100 CLS:PRINT:PRINT" HERE IS TH
E STRING OF COMMANDS  YOU HAVE J
UST ENTERED:-":PRINT
4110 D=1
4112 IFD=1ORD=4ORD=7ORD=10ORD=13
ORD=16ORD=19THENTB=1ELSEIFD=2ORD
=5ORD=8ORD=11ORD=14ORD=17ORD=20T
HENTB=11ELSETB=21
4114 IFD=3ORD=6ORD=9ORD=12ORD=15
ORD=18THENPRINTTAB(TB)"CHR$("+MI
D$(STR$(RW(D)),2)")"ELSEIFD=CM-1
THENPRINTTAB(TB)"CHR$("+MID$(STR
$(RW(D)),2)")"ELSEPRINTTAB(TB)"C
HR$("+MID$(STR$(RW(D)),2)")+";
4116 IF D<CM-1 THEND=D+1:GOTO411
2ELSE4120
4120 PRINT:PRINT:INPUT" IS THIS
CORRECT (Y/N)";CR$:IF CR$<>"Y" T
HENCLS:CM=1:PRINT" try again....
.":PRINT:GOTO4040
4130 FOR D=1 TO CM-1:PRINT#-2,CH
R$(RW(D));:NEXT D:PRINT#-2
4135 GOTO5000
4299 '***screen to change printe
d character
4300 CLS:PRINT@41,AP$:PRINT@73,A
U$:PRINT:PRINT" THE DEFAULT CHAR
ACTER FOR         LETTER BLOCKS IS
 'X', WHICH       IS ASCII (88). D
O YOU WISH        TO SUBSTITUTE A
DIFFERENT         CHARACTER (Y/N)"
;
```

```
4310 INPUT YD$:IF YD$<>"Y" THEN
BE=88:GOTO 4330
4320 PRINT:LINEINPUT" ENTER THE
ASCII CODE FOR THE    CHARACTER
YOU WANT ";BE$:BE=VAL(BE$)
4330 GOTO5000
4400 IF TF$(J)="" THEN 400 ELSE
RETURN
4999 '***menu page
5000 CLS:PRINT@41,AP$:PRINT@73,A
U$:PRINT
5010 PRINT"A. SET PRINTER COMMAN
DS":PRINT:PRINT"B. ENTER 'ANCIEN
T-PRINT' MESSAGE";:PRINT:PRINT"C
. SET PRINTER CHARACTER"
5015 PRINT:PRINT:PRINTTAB(3)"sel
ect A,B,or C...."
5020 CH$=INKEY$:IF CH$="" THEN50
20
5030 ON INSTR("ABC",CH$) GOTO 50
60, 40, 4300
5040 GOTO 5000
5059 '***go to instructions for
printer routines and back to men
u
5060 GOSUB3999:GOTO5000
10000 'data for x codes 10001(1-
15):10002(16-30):10003(31-45):10
004(46-60):10005(61-75):10006(76
-90):10007(91-105):10008(106-120
):10009(121-135):10010(136-150):
10011(151-166):10012(167-168)
10001 DATA "            ","
    X  ","        X   ","
X    ","       XX   ","       X
   ","      X  X  ","      X X
 ","      XX    ","      X     "
,"     X X    ","     XX     ","
    X       ","    X    X  ","
  X   X   "
10002 DATA "    X   XX  ","    X
  X    ","    X  XX   ","    X X
    ","    X XX    ","    XX
  ","    XXX     ","    XXXX
 ","    XXXXX   ","    X       "
,"    X    X   ","    X    X X ","
   X   X    ","    X   X  X ","
 X   X X  "
10003 DATA "   X   X X X","   X
  XX   ","   X X     ","   X X
  X  ","   X X X   ","   X X X
    ","   X XXXX   ","   XX
 ","   XX  X    ","   XX XX    "
,"    XXX      ","    XXX X    ","
   XXXX     ","    XXXX XX  ","
 XXXXX    "
10004 DATA "   XXXXXX   ","  X
       ","  X       X ","  X
  X  ","  X     X   ","  X    X
    ","  X    X X ","  X   X  X
 ","  X   XX    ","  X  X      "
,"  X  X X    ","  X  X X X  ","
  X  X X X X","  X  XX X   ","
X X      "
10005 DATA "  X X    X  ","  X X
   X   ","  X X   X X ","  X X
X    ","  X X  X X  ","  X X  X
X X","  X X X     ","  X X X  X
 ","  X X XX    ","  X XXX     "
,"  X XXXX X  ","  XX   X X  ","
  XX   XX   ","  XX  X X   ","
```

```
XX X      "
10006 DATA "  XX X   X  ","  XX
X  X   ","  XX X X    ","  XXX
 X   ","  XXX X     ","  XXXX
   ","  XXXX  X   ","  XXXX X
 ","  XXXXX     ","  XXXXXXX   "
,"  XXXXXXXX  ","  X          ","
 X     X X  ","  X    X     ","  X
    X X   "
10007 DATA " X   X      ","  X
X   X  ","  X   X  X   ","  X   X
 X X ","  X   X  XX  ","  X   X X
   ","  X   X X X X","  X   XX
 ","  X   XX X   ","  X   XXX    "
,"  X  X       ","  X  X   X   ","
 X  X   X X ","  X  X X     ","  X
  X X  X  "
10008 DATA " X  X X X   ","  X  X
X  X   ","  X  XXX     ","  X X
     ","  X X     X  ","  X X    X
   ","  X X  X     ","  X X  X X
 ","  X XX  XX   ","  XX     X   "
,"  XX   X     ","  XX   XX    ","
 XX  X X    ","  XX  XX     ","  X
X X       "
10009 DATA " XX X  X    ","  XX X
X      ","  XX XX X    ","  XX XXX
 X   ","  XX XXXX X  ","  XXX    X
   ","  XXX    XX X","  XXX   X
 ","  XXX  X     ","  XXX X      "
,"  XXXX    X  ","  XXXX   X   ","
 XXXX  X    ","  XXXX  XX   ","  X
XXXXXXXX  "
10010 DATA " XXXXXXXXXX ","X
 X X X ","X     XX X X","X    X
X    ","X    XXX    ","X    XXXX
   ","X   X   X   ","X   XX
 ","X   XXX     ","X  X    X  X"
,"X  X X  X   ","X  XX       ","
X  XX    XX ","X  XX   X   ","X
 XX  X    "
10011 DATA "X  XXX      ","X  XX
X  X   ","X X  X X    ","X X  XX
  X  ","X X X  X    ","X X X X
X  ","X X XXXX    ","X XXX X
 ","X XXX XX    ","XX  X X     "
,"XX  X X X   ","XX  X XX    ","
XX XXX      ","XXXXXXXXXXX ","XX
XXXXXXXXX","X XX   X    "
10012 DATA "   X   XXX  ","  XXX
      ","  X   X     ","  X   X
 X   ","  X     X    ","  X   X X
   ","   XXX   XX ","X X X   X
 "

11000 'data for characters in or
der of ascii codes 32 to 90 incl
usive
11001 DATA 1,1,1,1,1,1,1,1,1,1,1
,1
11002 DATA 33,13,13,13,13,13,13,
33,1,13,41,13
11003 DATA 65,26,65,1,1,1,1,1,1,
1,1,1
11004 DATA 65,26,145,136,145,26,
26,145,136,145,26,65
11005 DATA 1,1,1,1,1,1,1,1,1,1,1
,1
11006 DATA 2,26,79,28,6,6,10,10,
15,167,26,47
11007 DATA 10,19,28,169,33,13,34
,170,171,172,173,1
11008 DATA 25,13,25,47,1,1,1,1,1
,1,1,1
11009 DATA 5,7,6,6,9,6,6,9,6,6,7
,5
11010 DATA 38,55,10,10,21,10,10,
21,10,10,55,38
11011 DATA 73,105,19,105,85,105,
19,105,73,1,1,1
11012 DATA 19,10,10,92,85,92,10,
10,19,1,1,1
11013 DATA 1,1,1,1,1,1,1,1,25,13,2
5,47,1
11014 DATA 1,1,1,49,46,49,1,1,1,
1,1,1
11015 DATA 1,1,1,1,1,1,1,25,168,25
,1,1,1
11016 DATA 2,3,3,4,6,6,10,10,13,
25,25,47
11017 DATA 135,50,28,19,10,19,28
,50,135,1,1,1
11018 DATA 45,10,10,10,10,10,10,
10,45,1,1,1
11019 DATA 86,17,17,17,17,17,17,
17,86,1,1,1
11020 DATA 135,36,36,36,36,36,36
,36,135,1,1,1
11021 DATA 164,110,102,102,96,96
,96,89,164,1,1,1
11022 DATA 135,50,28,28,19,19,19
,10,135,1,1,1
11023 DATA 164,88,53,53,34,34,34
,14,136,1,1,1
11024 DATA 165,137,94,94,63,63,6
3,27,165,1,1,1
11025 DATA 165,138,97,97,66,66,6
6,31,165,1,1,1
11026 DATA 164,110,102,96,89,96,
102,110,164,1,1,1
11027 DATA 1,10,22,10,1,1,10,22,
10,1,1,1
11028 DATA 1,10,22,10,1,1,10,6,1
0,13,1,1
11029 DATA 4,8,10,19,25,19,10,8,
4,1,1,1
11030 DATA 1,49,46,49,1,1,49,46,
49,1,1,1
11031 DATA 13,33,6,11,3,11,6,33,
13,1,1,1
11032 DATA 22,28,115,4,6,10,10,1
9,1,10,22,10
11033 DATA 1,1,1,1,1,1,1,1,1,1,1
,1
11034 DATA 42,54,20,11,18,24,15,
127,148,1,1,1
11035 DATA 117,146,35,37,76,34,3
4,79,100,1,1,1
11036 DATA 22,32,60,60,120,60,61
,26,23,1,1,1
11037 DATA 22,128,15,35,77,35,35
,133,144,1,1,1
11038 DATA 41,54,109,109,163,112
,111,51,43,1,1,1
11039 DATA 72,106,19,19,40,19,19
,130,147,1,1,1
11040 DATA 35,69,101,101,162,107
,111,115,3,45,1,1
11041 DATA 119,147,60,67,123,62,
62,74,107,3,3,4
11042 DATA 117,146,33,33,75,33,3
3,146,117,1,1,1
11043 DATA 78,104,19,19,19,19,19
,129,151,1,1,1
11044 DATA 93,174,64,67,122,67,6
4,174,93,1,1,1
11045 DATA 119,150,60,60,120,60,
13,82,100,1,1,1
11046 DATA 114,154,57,57,125,57,
57,58,103,1,1,1
11047 DATA 124,166,64,64,64,64,6
4,64,93,1,1,1
11048 DATA 12,64,106,106,161,113
,90,51,43,1,1,1
11049 DATA 108,166,64,64,121,64,
64,128,157,47,51,47
11050 DATA 12,64,106,106,161,113
,90,51,44,1,1,1
11051 DATA 108,166,64,64,70,64,6
4,65,93,1,1,1
11052 DATA 80,91,87,81,89,83,4,1
29,143,1,1,1
11053 DATA 134,140,36,56,118,56,
52,26,23,1,1,1
11054 DATA 139,104,104,104,160,1
04,104,99,159,1,1,1
11055 DATA 90,155,64,64,121,64,6
4,54,41,1,1,1
11056 DATA 95,156,68,68,71,68,68
,59,39,1,1,1
11057 DATA 117,146,13,13,84,13,1
42,146,117,1,1,1
11058 DATA 90,153,56,118,56,98,1
58,4,4,116,151,1
11059 DATA 132,140,6,10,16,29,48
,131,141,1,1,1
19999 'opening credits
20000 CLS
20010 PRINT@74,AP$
20020 PRINT@106,AU$
20030 PRINT@175,"BY"
20040 PRINT@231,"DAVID & ANDREW
LAW"
20050 PRINT@323,"ADAPTED FROM A
PROGRAM OF"
20060 PRINT@391,"MICHAEL J HIMOW
ITZ"
20070 PRINT@448,"AUSTRALIAN RAIN
```

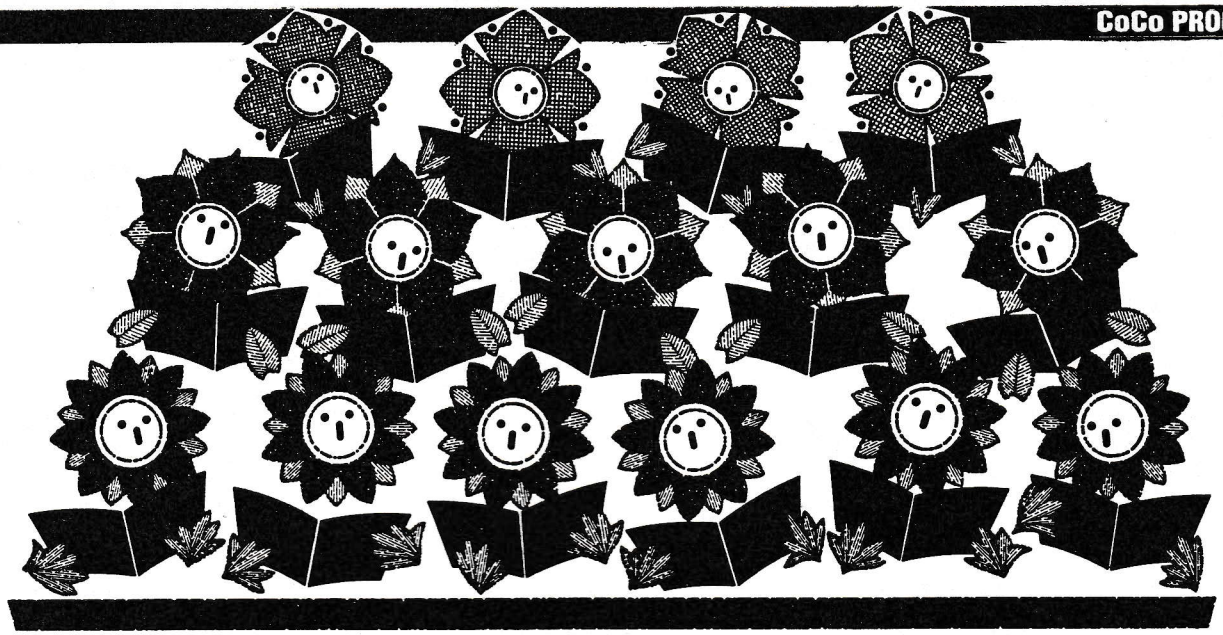
```
BOW JANUARY 1984"
20080 PRINT@492,"<ENTER>";:IFINK
EY$<>CHR$(13)GOTO20080
20090 QQ=6
20100 CLS(RND(8)):IF(PEEK(65314)
/2)<>INT(PEEK(65314)/2)THENPRINT
@QQ,"put printer on line";:PLAY"
L250CP99DP99E":QQ=QQ+32:IFQQ>487
THENQQ=6:GOTO20100ELSE20100
20110 RETURN
```

Listing 2:

```
0 ' ******* FUTURE-PRINT *******
    ************ BY ************
    ****** DAVID A L LAW *******
    ********* SUNBURY **********
    *********** VIC ************
1 '* A PROGRAM TO PRINT LARGE  *
   * UPPER-CASE, NUMBERS, AND  *
   * PUNCTUATION MARKS IN A    *
   * FUTURISTIC TYPE OF PRINT  *
2 '* ADAPTED FROM 'BIG PRINT'  *
   * IN THE AUSTRALIAN RAINBOW *
   * JANUARY 1984, BY MICHAEL  *
   * J. HIMOWITZ               *
3 GOTO20
4 SAVE"FUTURITE:3
5 END
6 CSAVE"FUTURITE",A
7 END
20 CLS:CLEAR1000
29 '***start of main program
30 DIM G$(48),L(59,7),J$(15),Z$(
15),M(15),TF$(15),RW(20)
31 FP$="FUTURE-PRINT"
32 FU$="************"
33 BE=88
35 GOSUB20000:GOSUB 5000
39 '***reads x codes
40 CLS:POKE65495,0:PRINT@42,FP$:
PRINT@74,FU$:PRINT:PRINT" ONE MO
MENT PLEASE....":FOR X=1 TO 48:R
EAD G$(X)
45 IF BE<>88 THENGOSUB3000
50 NEXT X
89 '***reads character data
90 FOR X=1 TO 59
100 FOR Y=1 TO7
110 READ L(X,Y)
120 NEXT Y
125 NEXT X
126 RESTORE
127 GOSUB 1000
128 POKE65494,0
199 '***screen instructions
200 CLS:PRINT:PRINT@42,FP$:PRINT
@74,FU$:PRINT
210 PRINT"  YOU MAY INPUT UP TO
14 LINES    WITH UP TO"NC "LETTE
RS EACH"
220 PRINT:LINEINPUT"  TO BEGIN P
RESS enter ";PE$
230 CLS:FOR J=1 TO 14
240 PRINT"LINE NO."J:INPUT" sTAN
DARD or  fUTUREPRINT";TF$(J):GOS
UB 4400:IF TF$(J)="F" THEN PRINT
" ("NC" CHRS MAX.)"
242 IF TF$(J)<>"F" AND TF$(J)<>"
S" THEN PRINT"'f' or 's', please
":SOUND200,5:GOTO240
243 LINEINPUT J$(J)
250 IF TF$(J)="F" AND LEN(J$(J))
>NC THEN SOUND100,3:PRINT"line"J
"too long - try again":GOTO240
255 IF J=14GOTO500ELSENEXTJ
400 J=J-1
500 CLS:PRINT@232,"YOUR MESSAGE:
";FORDL=1TO100:NEXTDL:FOR K=1 TO
 J:PRINT"LINE"K"("TF$(K)+") > "+
J$(K):NEXT:PRINT"POSITION PAPER
AND enter ";:LINEINPUTPE$
520 FOR K=1 TO J
523 IF TF$(K)="S" THEN GOSUB2000
:GOTO650
524 '***printer routine
525 FORY=1 TO7
527 LL=LEN(J$(K)):TL=LL*9
530 IF NC=15 THEN TL=INT((144-TL
)/2) ELSE IF NC=8 THEN TL=INT((8
2-TL)/2)
535 PRINT#-2,STRING$(TL,32);
550 FOR V=1 TO LEN(J$(K))
560 Z$(V)=MID$(J$(K),V,1)
561 IF V>LEN(J$(K)) THEN640
562 M(V)=ASC(Z$(V))-31
570 IF M(V)<-6 AND M(V)>-16 THEN
 M(V)=M(V)+43
600 PRINT#-2,G$(L(M(V),Y))+"  ";
610 NEXTV
620 PRINT#-2
630 NEXT Y
640 PRINT#-2:PRINT#-2
650 NEXT K
660 GOTO 5000
1000 CLS:PRINT@42,FP$:PRINT@74,F
U$:PRINT
1010 PRINT" HOW MANY CHARACTERS
PER LINE?"
1020 PRINT:PRINT"  8 USES STANDA
RD PRINT":PRINT" 15 USES CONDENS
ED PRINT":PRINT:INPUT" YOUR CHOI
CE (8 OR 15)?";NC
1040 IF NC<>8 AND NC<>15 THEN 10
00
1080 RETURN
2000 IF TF$(K-1)="S" THEN PRINT#
-2
2010 IF TF$(K-1)="F" THENFOR U=1
 TO2:PRINT#-2:NEXTU
2020 LL=LEN(J$(K))
2030 IF NC=15 THEN TL=INT((140-L
L)/2) ELSE IF NC=8 THEN TL=INT((
80-LL)/2)
2045 PRINT#-2,STRING$(TL,32)+J$(
K)
2050 IF TF$(K+1)="S" THEN PRINT#
-2
2060 IF TF$(K+1)="F" THEN FOR D=
1 TO CM-1:PRINT#-2,CHR$(RW(D));:
NEXTD:FORU=1 TO3:PRINT#-2:NEXTU
2070 RETURN
2999 '***changes printed charact
er
3000 FOR U=1 TO LEN(G$(X))
3010 IF MID$(G$(X),U,1)="X" THEN
 MID$(G$(X),U,1)=CHR$(BE)
3020 NEXTU:RETURN
3998 '***instructions for printe
r codes
3999 CLS:PRINT@42,FP$:PRINT@74,F
U$
4000 PRINT:PRINT" YOU MAY ENTER
UP TO 20 DIRECT   PRINTER COMMAN
DS. THEY SHOULD   BE IN ASCII CO
NTROL OR ESCAPE   CODES. TO END
THE STRING OF     COMMANDS, HIT
enter WITH NO     OTHER INPUT."
4010 PRINT:PRINT" DO YOU WANT TO
 ENTER SOME":INPUT" PRINTER COMM
ANDS (Y/N)";PC$
4020 IF PC$<>"Y" THEN 5000
4030 CLS:CM=1
4040 PRINT" COMMAND NO."+MID$(ST
R$(CM),2)+":";:INPUT RW(CM):IF R
W(CM)=0 THEN 4100
4050 CM=CM+1
4060 IFCM=21GOTO4100ELSE4040
4100 CLS:PRINT:PRINT" HERE IS TH
E STRING OF COMMANDS  YOU HAVE J
UST ENTERED:-":PRINT
4110 D=1
4112 IFD=1ORD=4ORD=7ORD=10ORD=13
ORD=16ORD=19THENTB=1ELSEIFD=2ORD
=5ORD=8ORD=11ORD=14ORD=17ORD=20T
HENTB=11ELSETB=21
4114 IFD=3ORD=6ORD=9ORD=12ORD=15
ORD=18THENPRINTTAB(TB)"CHR$("+MI
D$(STR$(RW(D)),2)")"ELSEIFD=CM-1
THENPRINTTAB(TB)"CHR$("+MID$(STR
$(RW(D)),2)")"ELSEPRINTTAB(TB)"C
HR$("+MID$(STR$(RW(D)),2)")+";
4116 IF D<CM-1 THEND=D+1:GOTO411
2ELSE4120
4120 PRINT:PRINT:INPUT" IS THIS
CORRECT (Y/N)";CR$:IF CR$<>"Y" T
HENCLS:CM=1:PRINT" try again....
.":PRINT:GOTO4040
4130 FOR D=1 TO CM-1:PRINT#-2,CH
R$(RW(D));:NEXT D:PRINT#-2
4135 GOTO5000
4299 '***screen to change printe
d character
4300 CLS:PRINT@42,FP$:PRINT@74,F
U$:PRINT:PRINT" THE DEFAULT CHAR
ACTER FOR       LETTER BLOCKS IS
```

```
 'X', WHICH      IS ASCII (88). D
O YOU WISH       TO SUBSTITUTE A
DIFFERENT        CHARACTER (Y/N)"
;

4310 INPUT YD$:IF YD$<>"Y" THEN
BE=88:GOTO 4330
4320 PRINT:LINEINPUT" ENTER THE
ASCII CODE FOR THE    CHARACTER
YOU WANT ";BE$:BE=VAL(BE$)
4330 GOTO5000
4400 IF TF$(J)="" THEN 400 ELSE
RETURN
4999 '***first menu page
5000 CLS:PRINT@42,FP$:PRINT@74,F
U$:PRINT
5010 PRINT"A. SET PRINTER COMMAN
DS":PRINT:PRINT"B. ENTER 'FUTURE
-PRINT' MESSAGE":PRINT:PRINT"C.
SET PRINTER CHARACTER"
5015 PRINT:PRINT:PRINTTAB(3)"sel
ect A,B,or C...."
5020 CH$=INKEY$:IF CH$="" THEN50
20
5030 ON INSTR("ABC",CH$) GOTO 50
60, 40, 4300
5040 GOTO 5000
5059 '***go to instructions for
printer routines and back to men
u
5060 GOSUB3999:GOTO5000
10000 'data for x codes
10001 DATA "X      ","X     X","
X    XX","X    X ","X   X  ","X
 XX  ","X X    ","X  X  X","X X
  X"
10006 DATA "XX     ","XX    X","
XX   XX","XX  XXX","XX  XX ","XX
  X  ","XX XX  ","XX X  X","XX
X X"
10011 DATA "       X","     X ","
    X  ","   X   ","  X    ","  X
     ","  X   X ","  XXXXX ","  XX
   "
10016 DATA "  X X  ","   XXXX","
XXXXX  ","XXXXXX ","XXXXXXX","XX
XXX X","       "
10021 DATA " XX  X ","     XX","
    XX ","   XX  ","  XXXXXX","X
XXX X","X X X X","X XXXXX"
10026 DATA " X X   ","   X X ","
  XXX  ","  X X X","  XXXX X","  X
 X X "
11000 'data for characters in or
der of ascii codes 32 to 90 incl
usive
11001 DATA 34,34,34,34,34,34,34
11002 DATA 22,22,22,22,34,22,22
11003 DATA 34,28,28,34,34,34,34
11004 DATA 34,28,26,28,26,28,34
11005 DATA 22,26,43,26,44,26,22
11006 DATA 19,25,21,22,23,25,1
11007 DATA 45,25,28,22,46,25,47
11008 DATA 34,22,22,34,34,34,34
11009 DATA 27,23,23,23,23,23,27
11010 DATA 38,21,21,21,21,21,38
11011 DATA 34,48,45,26,45,48,34
11012 DATA 34,22,22,26,22,22,34
11013 DATA 34,34,34,34,22,22,34
11014 DATA 34,34,34,26,34,34,34
11015 DATA 34,34,34,34,34,22,34
11016 DATA 19,20,21,22,23,24,1
11017 DATA 26,25,25,35,35,35,26
11018 DATA 22,22,22,27,27,27,27
11019 DATA 32,19,19,32,10,10,32
11020 DATA 32,19,19,32,36,36,32
11021 DATA 1,2,2,32,37,37,37
11022 DATA 32,1,1,32,36,36,32
11023 DATA 1,1,1,32,11,11,32
11024 DATA 32,19,20,21,22,23,24
11025 DATA 26,25,25,32,12,12,32
11026 DATA 32,2,2,32,36,36,36
11027 DATA 34,22,22,34,22,22,34
11028 DATA 34,22,22,34,22,23,34
11029 DATA 21,22,23,24,23,22,21
11030 DATA 34,34,26,34,26,34,34
11031 DATA 24,23,22,21,22,23,24
11032 DATA 26,25,20,38,22,34,22
11033 DATA 39,2,40,41,42,1,39
11034 DATA 26,25,25,32,12,12,12
11035 DATA 31,4,4,32,3,3,32
11036 DATA 32,3,1,1,1,2,32
11037 DATA 31,2,2,11,11,11,31
11038 DATA 32,1,1,32,10,10,32
11039 DATA 32,1,1,32,10,10,10
11040 DATA 32,2,1,13,11,11,32
11041 DATA 25,25,25,32,12,12,12
11042 DATA 23,23,23,27,27,27,27
11043 DATA 19,19,19,11,11,11,32
11044 DATA 3,6,7,32,11,11,11
11045 DATA 1,1,1,10,10,10,32
11046 DATA 32,8,8,17,17,17,17
11047 DATA 2,11,9,17,18,12,11
11048 DATA 32,2,2,3,3,3,32
11049 DATA 32,2,2,32,10,10,10
11050 DATA 30,5,5,15,16,14,33
11051 DATA 31,4,4,32,11,11,11
11052 DATA 32,1,1,32,19,19,32
11053 DATA 32,29,22,22,22,22,22
11054 DATA 2,2,2,11,11,11,32
11055 DATA 11,11,11,11,25,28,22
11056 DATA 8,8,8,17,17,17,32
11057 DATA 2,2,2,26,11,11,11
11058 DATA 2,2,2,32,22,22,22
11059 DATA 32,20,21,22,23,24,32
19999 'opening credits
20000 PRINT@228,"turn volume up
on monitor":PLAY"O2T50CP9DP9EP9F
P9GP9AP9B":PRINT@492,"<ENTER>";:
IFINKEY$<>CHR$(13)GOTO20000
20010 CLS:PA=74:PRINT@PA,;:FOROC
=1TOLEN(FP$):PRINT@PA,CHR$(128);
:PLAY"O5L200CCCC":PRINT@PA,MID$(
FP$,OC,1);:PA=PA+1:NEXT
20020 PA=106:PRINT@PA,;:FOROC=1T
OLEN(FU$):PRINT@PA,CHR$(128);:PL
AY"CCCC":PRINT@PA,MID$(FU$,OC,1)
;:PA=PA+1:NEXT
20030 OC$="BY":PA=175:PRINT@PA,;
:FOROC=1TOLEN(OC$):PRINT@PA,CHR$
(128);:PLAY"CCCC":PRINT@PA,MID$(
OC$,OC,1);:PA=PA+1:NEXT
20040 OC$="DAVID A L LAW":PA=234
:PRINT@PA,;:FOROC=1TOLEN(OC$):PR
INT@PA,CHR$(128);:PLAY"CCCC":PRI
NT@PA,MID$(OC$,OC,1);:PA=PA+1:NE
XT
20050 OC$="ADAPTED FROM A PROGRA
M OF":PA=323:PRINT@PA,;:FOROC=1T
OLEN(OC$):PRINT@PA,CHR$(128);:PL
AY"CCCC":PRINT@PA,MID$(OC$,OC,1)
;:PA=PA+1:NEXT
20060 OC$="MICHAEL J HIMOWITZ":P
A=391:PRINT@PA,;:FOROC=1TOLEN(OC
$):PRINT@PA,CHR$(128);:PLAY"CCCC
":PRINT@PA,MID$(OC$,OC,1);:PA=PA
+1:NEXT
20070 OC$="AUSTRALIAN RAINBOW JA
NUARY 1984":PA=448:PRINT@PA,;:FO
ROC=1TOLEN(OC$):PRINT@PA,CHR$(12
8);:PLAY"CCCC":PRINT@PA,MID$(OC$
,OC,1);:PA=PA+1:NEXT
20080 PRINT@492,"<ENTER>";:IFINK
EY$<>CHR$(13)GOTO20080
20090 QQ=6
20100 CLS(RND(8)):IF(PEEK(65314)
/2)<>INT(PEEK(65314)/2)THENPRINT
@QQ,"put printer on line";:PLAY"
L250CP99DP99E":QQ=QQ+32:IFQQ>487
THENQQ=6:GOTO20100ELSE20100
20110 RETURN
```

CoCo



MATCHEM

by C. Bartlett 16K ECB

THIS is a hi-res version of the game concentration, the aim of which is to find matching patterns in the concealed boxes. When started the game will ask for the number of players. Move the joystick left or right to make your selection.

Box selection is achieved through the use of the joysticks. Your position is indicated by the blinking box. Press the fire button to select the box. The contents will be revealed. Now move to your next selection and press the fire button. The contents of this box will be displayed. If they match, then both boxes will change to your player colour. If they don't match a tone will be heard and the boxes will revert back to the original color.

There are over 50 available patterns that the computer can choose from. Some of the patterns are very similar with just the colors in a different order, so care in selecting your boxes is needed.

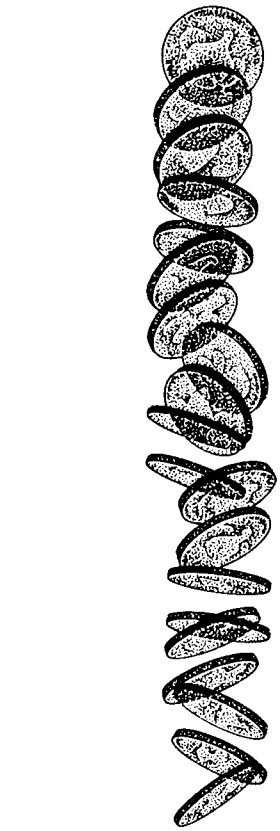
At the end of the game, the scores will be displaed and you will be asked if you wish to play again. Move the joystick left or right to make your choice.

The Listing:

```
0 GOTO10
1 ' (C) C. BARTLETT  1/5/86

3 SAVE"MATCHEM:3":END
10 DIMP(48,2),R(51)
20 P1=1:GOSUB1280
30 PMODE3,1:PCLS2:SCREEN1,0
40 COLOR3
50 FORR=1TO51:R(R)=0:NEXT
60 K=1:FOR Y=5 TO 165 STEP 30
70 FOR X=10TO220 STEP30
80 P(K,0)=X:P(K,1)=Y:GOSUB920:K=
K+1
90 LINE(X,Y)-(X+25,Y+25),PSET,BF
100 NEXTX:NEXTY
110 GOTO140
120 Z=P1:ON P(Z,2)  GOSUB360,370
,380,390,400,410,420,430,440,450
,460,470,480,490,500,510,520,530
,540,550,560,570,580,590,600,610
,620,630,640,650,660,670,680,690
,700,710,720,730,740,750,760,770
,780,790,800,810,820,830,840,850
,860,870,880,890
130 RETURN
140 FORL=0TO NP:FORQ=1TO2
150 COLOR3:LINE(P(P1,0),P(P1,1))
-(P(P1,0)+25,P(P1,1)+25),PSET,B:
GOSUB950:COLOR2:LINE(P(P1,0),P(P
1,1))-(P(P1,0)+25,P(P1,1)+25),PS
ET,B160 PE=PEEK(65280):IF L=0 AN
D PE=126 OR PE=254 THEN 190
170 IF L=1 AND PE=125 OR PE=253
THEN 190
180 GOTO150
190 SOUND200,1:COLOR2:LINE(P(P1,
0),P(P1,1))-(P(P1,0)+25,P(P1,1)+
25),PSET,BF:COLOR3:LINE(P(P1,0),
P(P1,1))-(P(P1,0)+25,P(P1,1)+25)
,PSET,B:GOSUB120
194 IF Q=2 AND P(Z,0)=P(Z1,0) AN
D P(Z,1)=P(Z1,1)THEN GOSUB1370:G
OTO150
195 IFP(Z,2)=53 OR P(Z,2)=54 THE
N GOSUB1370:GOTO150
200 IFQ=1THEN Z1=Z:C1=P(Z,2)
210 IFQ=2THEN Z2=Z:C2=P(Z,2)
220 NEXTQ:GOSUB1050
230 NEXTL
240 GOTO140
250 CIRCLE(P(Z,0)+12,(P(Z,1)+13)
),13:PAINT(P(Z,0)+12,(P(Z,1)+13)
),C,3:RETURN
260 LINE(P(Z,0)+12,P(Z,1)+3)-(P(
Z,0)+12,P(Z,1)+23),PSET:LINE(P(Z
,0)+2,P(Z,1)+13)-(P(Z,0)+22,P(Z,
1)+13),PSET:RETURN
270 PAINT(P(Z,0)+14,P(Z,1)+7),C,
3:RETURN
280 PAINT(P(Z,0)+14,P(Z,1)+17),C
,3:RETURN
290 PAINT(P(Z,0)+6,P(Z,1)+17),C,
3:RETURN
300 PAINT(P(Z,0)+6,P(Z,1)+7),C,3
:RETURN
310 LINE(P(Z,0),P(Z,1))-(P(Z,0)+
25,P(Z,1)+25),PSET:LINE(P(Z,0),P
(Z,1)+25)-(P(Z,0)+25,P(Z,1)),PSE
```

```
T:RETURN
320 PAINT(P(Z,0)+2,P(Z,1)+5),C,3
:RETURN
330 PAINT(P(Z,0)+22,P(Z,1)+5),C,
3:RETURN
340 PAINT(P(Z,0)+2,P(Z,1)+1),C,3
:RETURN
350 PAINT(P(Z,0)+4,P(Z,1)+23),C,
3:RETURN
360 C=0:GOSUB250:RETURN
370 C=1:GOSUB250:RETURN
380 C=2:GOSUB250:RETURN
390 C=3:GOSUB250:RETURN
400 GOSUB900:C=0:GOSUB270:C=1:GO
SUB280:C=3:GOSUB300:RETURN
410 GOSUB900:C=1:GOSUB270:C=3:GO
SUB280:C=0:GOSUB300:RETURN
420 GOSUB900:C=0:GOSUB290:C=1:GO
SUB270:C=3:GOSUB300:RETURN
430 GOSUB900:C=3:GOSUB290:C=0:GO
SUB270:C=1:GOSUB300:RETURN
440 GOSUB900:C=1:GOSUB290:C=3:GO
SUB270:C=0:GOSUB300:RETURN
450 GOSUB900:C=0:GOSUB270:GOSUB2
80:RETURN
460 GOSUB900:C=0:GOSUB290:GOSUB3
00:RETURN
470 GOSUB900:C=0:GOSUB300:GOSUB2
70:RETURN
480 GOSUB900:C=0:GOSUB290:GOSUB2
80:RETURN
490 GOSUB900:C=0:GOSUB270:GOSUB2
90:RETURN
500 GOSUB900:C=0:GOSUB280:GOSUB3
00:RETURN
510 GOSUB900:C=1:GOSUB270:GOSUB2
80:RETURN
520 GOSUB900:C=1:GOSUB290:GOSUB3
00:RETURN
530 GOSUB900:C=1:GOSUB300:GOSUB2
70:RETURN
540 GOSUB900:C=1:GOSUB290:GOSUB2
80:RETURN
550 GOSUB900:C=1:GOSUB270:GOSUB2
90:RETURN
560 GOSUB900:C=1:GOSUB280:GOSUB3
00:RETURN
570 GOSUB900:C=3:GOSUB270:GOSUB2
80:RETURN
580 GOSUB900:C=3:GOSUB290:GOSUB3
00:RETURN
590 GOSUB900:C=3:GOSUB300:GOSUB2
70:RETURN
600 GOSUB900:C=3:GOSUB290:GOSUB2
80:RETURN
610 GOSUB900:C=3:GOSUB270:GOSUB2
90:RETURN
620 GOSUB900:C=3:GOSUB280:GOSUB3
00:RETURN
630 GOSUB310:RETURN
640 GOSUB310:C=0:GOSUB320:C=1:GO
SUB330:C=3:GOSUB340:RETURN
650 GOSUB310:C=1:GOSUB320:C=3:GO
SUB330:C=0:GOSUB340:RETURN
660 GOSUB310:C=3:GOSUB320:C=0:GO
SUB330:C=1:GOSUB340:RETURN
670 GOSUB310:C=0:GOSUB330:C=1:GO
SUB340:C=3:GOSUB350:RETURN
680 GOSUB310:C=1:GOSUB330:C=3:GO
SUB340:C=0:GOSUB350:RETURN
690 GOSUB310:C=3:GOSUB330:C=0:GO
SUB340:C=1:GOSUB350:RETURN
700 GOSUB310:C=0:GOSUB320:GOSUB3
30:RETURN
710 GOSUB310:C=0:GOSUB340:GOSUB3
50:RETURN
720 GOSUB310:C=0:GOSUB320:GOSUB3
40:RETURN
730 GOSUB310:C=0:GOSUB330:GOSUB3
50:RETURN
740 GOSUB310:C=0:GOSUB320:GOSUB3
50:RETURN
750 GOSUB310:C=0:GOSUB340:GOSUB3
30:RETURN
760 GOSUB310:C=1:GOSUB320:GOSUB3
30:RETURN
770 GOSUB310:C=1:GOSUB340:GOSUB3
50:RETURN
780 GOSUB310:C=1:GOSUB320:GOSUB3
40:RETURN
790 GOSUB310:C=1:GOSUB330:GOSUB3
50:RETURN
800 GOSUB310:C=1:GOSUB320:GOSUB3
50:RETURN
810 GOSUB310:C=1:GOSUB340:GOSUB3
30:RETURN
820 GOSUB310:C=3:GOSUB320:GOSUB3
30:RETURN
830 GOSUB310:C=3:GOSUB340:GOSUB3
50:RETURN
840 GOSUB310:C=3:GOSUB320:GOSUB3
40:RETURN
850 GOSUB310:C=3:GOSUB330:GOSUB3
50:RETURN
860 GOSUB310:C=3:GOSUB320:GOSUB3
50:RETURN
870 GOSUB310:C=3:GOSUB340:GOSUB3
30:RETURN
880 COLOR0:LINE(P(P1,0),P(P1,1))
-(P(P1,0)+25,P(P1,1)+25),PSET,BF
:RETURN
890 COLOR1:LINE(P(P1,0),P(P1,1))
-(P(P1,0)+25,P(P1,1)+25),PSET,BF
:RETURN
900 C=2:GOSUB250:GOSUB260:RETURN
910 GOTO910
920 R=RND(51):IF R(R)<>0THEN920E
LSE R(R)=R
930 IFP(K,2)<>0THEN RETURNELSE P
(K,2)=R
940 R2=RND(48):IFP(R2,2)<>0THEN9
40ELSEP(R2,2)=R:RETURN
950 FORJ=0TO3:J(J)=JOYSTK(J):NEX
TJ
960 IFL=0THEN H1=0:H2=1 ELSE H1=
2:H2=3
970 IFJ(H1)<5THENP1=P1-1:IFP1<1T
HEN P1=1
980 IFJ(H1)>60THENP1=P1+1:IFP1>4
8THEN P1=48
990 IFJ(H2)<5THENP1=P1-8:IFP1<1T
HEN P1=P1+8
1000 IFJ(H2)>60THENP1=P1+8:IFP1>
48THEN P1=P1-8
1010 FORE=1TO150:NEXTE
1020 IF P1<>LP THEN GOSUB1350
1030 LP=P1
1040 RETURN
1050 IF L=0 AND C1=C2 AND Z1<>Z2
 AND C1<>53 AND C1<>54  THEN GOS
UB1190:RETURN
1060 IF L=1 AND C1=C2 AND Z1<>Z2
 AND C1<>54 AND C1<>53 THEN GOSU
B1200:RETURN
1070 IFC1=53 OR C1=54 THEN GOSUB
1370
1080 FOR E=1TO1000:NEXTE:P1=Z1:G
OSUB1100:P1=Z2:GOSUB1100:SOUND50
,2:GOSUB1160:RETURN
1090 RETURN
1100 IF P(P1,2)<>53 AND P(P1,2)<
>54  THEN COLOR3:LINE(P(P1,0),P(
P1,1))-(P(P1,0)+25,P(P1,1)+25),P
SET,BF:RETURN
1110 RETURN
1120 IFL=0THEN S1=S1+1:G1=G1+1
1130 IFL=1THEN S2=S2+1:G2=G2+1
1140 IF S1+S2=24 THEN1210
1150 RETURN
1160 IFL=0THEN G1=G1+1
1170 IFL=1THEN G2=G2+1
1180 RETURN
1190 P(Z1,2)=53::P(Z2,2)=53:GOSU
B1360:GOSUB1120:FORE=1TO1000:NEX
TE:P1=Z1:GOSUB880:P1=Z2:GOSUB880
:RETURN
1200 P(Z1,2)=54:P(Z2,2)=54:GOSUB
1360:GOSUB1120:FORE=1TO1000:NEXT
E:P1=Z1:GOSUB890:P1=Z2:GOSUB890:
RETURN
1210 CLS:IF S1>S2 THEN NM$="ONE"
:GOSUB1340
1211 IFS2>S1 THEN NM$="TWO":GOSU
B1340:GOTO1230
1212 IF S1=S2 THEN IF G1<G2 THEN
 NM$="ONE":GOSUB1340:GOTO1230
1213 IF S1=S2 THEN IF G2<G1 THEN
 NM$="TWO":GOSUB1340
1230 PRINT@96,"PLAY AGAIN (Y/N)
";
1240 IFJOYSTK(0)<10 THEN POKE113
2,25:PRINT@110,"N";:W=1
1250 IFJOYSTK(0)>50 THEN POKE113
4,14:PRINT@108,"Y";:W=2
1260 F=PEEK(65280):IF F=127 OR F
=255 THEN 1240
1270 IF W=1 THEN RUN ELSE CLS:PR
INT"END":END
1280 CLS:PRINT" * * *  M A T C H
 - E M  * * *";:FOR D=1TO500:NEX
TD
1290 PRINT@96,"1 OR 2 PLAYERS"
1300 IFJOYSTK(0)<10 THEN POKE112
0,49:PRINT@101,"2";:NP=0
1310 IFJOYSTK(0)>50 THEN POKE112
5,50:PRINT@96,"1";:NP=1
1320 O=PEEK(65280):IF O=127 OR O
=255 THEN 1300 ELSE RETURN
1330 PRINTPEEK(65280):GOTO1330
1340 PRINT"PLAYER ";NM$;" WINS":
PRINT"PLAYER ONE = ";S1;" IN ";G
1;"TURNS":PRINT"PLAYER TWO = ";S
2;" IN ";G2;"TURNS";:RETURN
1350 PLAY"V31T255O1N8O5N3N8O1N3"
:RETURN
1360 PLAY"T100L1":FOR U=1TO 2:PL
AY"V31T+O3N1N2N3T>N4N5N6N7N8O4T<
N1N8N5N9":NEXTU:RETURN
1370 PLAY"T200L100O1N1N2N3N7N3N7
N3N7N3N7N3N7N3N5N1N5N1N5N1N5N9N1
N2N3N2N1":RETURN
```

FLIPPIN' HECK



THIS program is based on the board game of OTHELLO and is played the same way, except that the squares are selected by using joysticks.

When the program starts, it asks

1 OR 2 PLAYERS

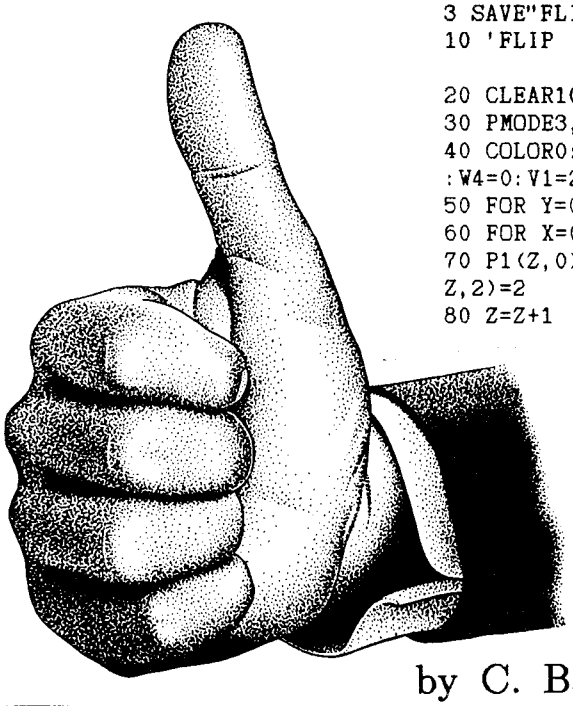
This simply allows you to play against yourself should you wish to. The game is played on a hi-res screen, with on screen scores and player turn indication. A flashing block indicates the position you are at. Use the joystick to move in any direction. When the block is at the required position, press the fire button. Illegal moves are checked for. If the position you have selected is invalid, a tone will be heard and the request ignored.

P - You can't go, pass to the next player

Q - Both players can't go, show scores and end game.

The Listing:

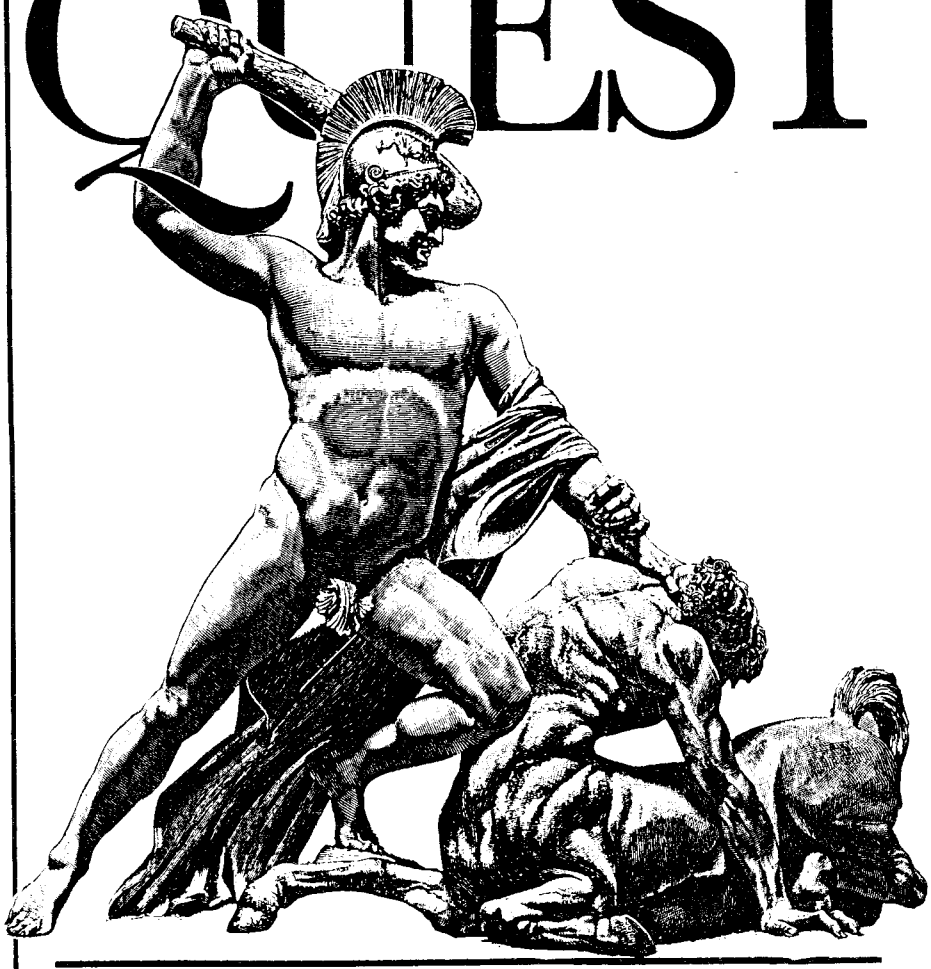
```
0 GOTO10
3 SAVE"FLIP:1":END
10 'FLIP  (C) C. BARTLETT 1/5/86

20 CLEAR1000:DIM P1(74,2):CN=0
30 PMODE3,1:PCLS2:SCREEN1,0
40 COLOR0:Z=1:K=1:W1=0:W2=0:W3=0
:W4=0:V1=2:V2=2
50 FOR Y=0TO 140 STEP20
60 FOR X=0 TO 140 STEP 20
70 P1(Z,0)=X+10:P1(Z,1)=Y+10:P1(
Z,2)=2
80 Z=Z+1
90 LINE(X,Y)-(X+20,Y+20),PSET,B
100 NEXTX,Y
110 Z=28:GOSUB240:Z=37:GOSUB240:
Z=29:GOSUB250:Z=36:GOSUB250
120 FL$="U3NR2U3R3BR4D6R3BR4R1NR
1U6NL1R1BR4ND6R3F1D1G1L3BR6BD3"
130 Z=1:P$="U6R3F1D1G1L3D3BR7;NU
6R4BR3;U5E1R2F1D2NL4D3BR3;BR2U3H
2U1BR4D1G2D3BR5;U3NR3U3NR4D6R4BR
3;U6R3F1D1G1NL3F1D2BR4":N$(1)="B
R1R1U6NG1D6R1BR2":N$(2)="E4U1H1L
2G1BD5R4BR2":N$(3)="BU1F1R2E1U1H
1NLE1U1H1L2G1BD5BR6"
140 N$(4)="BR3U6G3R4BD3BR2":N$(5
)="BU1F1R2E1U1H1L3U3R4BD6BR2":N$
(6)="BU1F1R2E1U1H1L3ND2U2E1BD6BR
5":N$(7)="U1E4U1NL4BD6BR2":N$(8)
="BU1F1R2E1U1H1E1U1H1L2G1D1F1NR2
G1D1BD1BR6":N$(9)="BU1F1R2E1U4H1
L2G1D1F1R3BD3BR2":N$(0)="BU1U4E1
R2F1D4G1L2H1BD1BR6"
150 COLOR3:DS$="S8BM170,20"+P$:N
$="S10BM200,50"+N$(1):M$="S10BM2
00,50"+N$(2):GOSUB650
160 COLOR0:DRAW"S12BM170,100;XFL
$;"
170 FOR L=0 TO 1:COLOR2:LINE(170
,0)-(250,60),PSET,BF:IFL=0 THEN
COLOR3:DRAW DS$:DRAW N$ ELSE COL
OR 1:DRAW DS$:DRAW M$
180 GOSUB260:IF M=80 THEN POKE 1
35,0:SOUND110,1:SOUND90,1:GOTO 2
20 ELSE IF M=81 THEN GOTO560
190 IF P1(Z,2)<>2 THEN SOUND10,3
:GOTO180
200 GOSUB440:IF F=0 OR E>=8 THEN
 SOUND10,3:GOTO180
210 CN=CN+1:IF CN=60 THEN 560
220 NEXTL
230 GOTO170
240 COLOR3:CIRCLE(P1(Z,0),P1(Z,1
)),8:PAINT(P1(Z,0),P1(Z,1)),3,3:
P1(Z,2)=3:RETURN
250 COLOR1:CIRCLE(P1(Z,0),P1(Z,1
)),8:PAINT(P1(Z,0),P1(Z,1)),1,1:
P1(Z,2)=1:RETURN
260 IF L=0 THEN CC=3 ELSE CC=1
270 IF P1(Z,2)=2 THEN COLOR CC E
LSE COLOR 2
280 LINE(P1(Z,0)-4,P1(Z,1)-5)-(P
1(Z,0)+5,P1(Z,1)+5),PSET,BF
290 GOSUB550:IF M=80 THEN RETURN
 ELSE IF M=81 THEN GOTO 560
300 P=PEEK(65280):IF P=126 OR P=
254 THEN RETURN
310 IF P=125 OR P=253 THEN RETUR
N
320 IF P1(Z,2)<>2 THEN COLOR P1(
Z,2) ELSE COLOR2
330 LINE(P1(Z,0)-4,P1(Z,1)-5)-(P
1(Z,0)+5,P1(Z,1)+5),PSET,BF
340 FOR J=0TO3:J(J)=JOYSTK(J):NE
XTJ
350 FOR Y=0 TO 3 STEP 2
360 IF J(Y)<5  THEN Z=Z-1:K=K-1:
IF K<1 THEN K=K+1:Z=Z+1
370 IF J(Y)>55 THEN Z=Z+1:K=K+1:
IF K>8 THEN K=K-1:Z=Z-1
380 IF J(Y+1)<5 THEN Z=Z-8:IF Z<
1 THEN Z=Z+8
390 IF J(Y+1)>55 THEN Z=Z+8:IF Z
```



by C. Bartlett 16K ECB

```
>64 THEN Z=Z-8
400 NEXT Y
410 IF LZ<>Z THEN SOUND200,1
420 LZ=Z
430 GOTO260
440 E=0:F=0:FOR LP=1 TO 8:READ I
N,ST:GOSUB450:NEXT LP:RESTORE:RE
TURN
450 KK=K:ZZ=Z:IFL=0 THEN C1=1:C2
=3 ELSE C1=3:C2=1
460 ZZ=ZZ+IN:KK=KK+ST:IF KK<1 OR
 KK>8 OR ZZ<1 OR ZZ>64 THEN E=E+
1:RETURN
470 IF P1(ZZ,2)=C1 THEN 460 ELSE
 IF P1(ZZ,2)<>C2 THEN E=E+1:RETU
RN
480 IF P1(ZZ,2)=C2 AND ZZ=Z+IN T
HEN E=E+1:RETURN
490 IF L=0 AND F=0 THEN V1=V1+1:
GOSUB240:GOSUB650 ELSE IF L=1 AN
D F=0 THEN GOSUB250:V2=V2+1:GOSU
B650
500 Z2=Z:FOR Z=Z2+IN TO ZZ-IN ST
EP IN:IFL=0 THEN V1=V1+1:V2=V2-1
:GOSUB240:GOSUB650  ELSE V1=V1-1
:V2=V2+1:GOSUB250:GOSUB650
510 F=1
520 NEXTZ:Z=Z2:RETURN
530 DATA1,1,9,1,8,0,7,-1
540 DATA-1,-1,-9,-1,-8,0,-7,1
550 M=PEEK(135):RETURN
560 IF V1=V2 THEN590
570 IF V1>V2 THEN 600
580 IF V1<V2 THEN 610
590 CLS:PRINT"DRAW":GOTO620
600 CLS:PRINT"PLAYER 1 WINS":PRI
NT:GOTO620
610 CLS:PRINT"PLAYER 2 WINS":PRI
NT
620 PRINT"PLAYER 1 SCORE ";V1:PR
INT"PLAYER 2 SCORE ";V2
630 PRINT:PRINT"PLAY AGAIN (Y/N)
 ";
640 I$=INKEY$:IFI$=""THEN640ELSE
 IF I$="Y" THEN RUN ELSE IF I$="
N" THEN CLS:END ELSE 640
650 COLOR2:DRAW S1$:DRAW S2$:W1=
INT(V1/10):IF W1<0 THEN W1=0
660 W2=V1-(W1*10):W3=INT(V2/10):
IF W3<0 THEN W3=0
670 W4=V2-(W3*10)
680 COLOR3:S1$="S8BM190,150"+N$(
W1)+N$(W2):DRAW S1$
690 COLOR1:S2$="S8BM190,180"+N$(
W3)+N$(W4):DRAW S2$:RETURN
```

QUEST



by Andrew McLintock 32K ECB

QUEST is a dungeon & dragon style adventure game where you, the adventurer must destroy the evil magician. To do this you must fight evil monsters, collect various items and unravel the mysteries of the dungeon.

Before you set out on your QUEST you must first buy your weapons and armour. You will be shown a map and then you set out in search of the evil magician.

Quest requires 32K ECB. If a cassette is used then line 0 should be ommitted as it is only required for a disk version. The first time the program is run with a disk drive an FC error will result but it will run correctly the second time. QUEST has full instructions, so good luck adventurer...you'll need it !!

(Unfortunately, as with most adventure programs, QUEST would take heaps of space in our beloved 'rag', so we thought we'd tease you with the above description, then, if you were tempted beyond belief you'll be please to know it is on the August edition of CoCoOZ in all its glory - ED.)

64K DECB Game

a never ending Jigsaw

by C. Bartlett

IF YOU like jigsaws, you will love "The Never Ending Jigsaw". Unlike a normal jigsaw, where once you get to know the picture, some of the fun goes out of that particular jigsaw as it now has become too easy because you know the picture so well. The only thing you can do is go out and buy a new jigsaw.

NO MORE!! Use the NeverEnding Jigsaw and change the picture as often as you like. Not only that but you don't have to write a program to produce a picture, you can use the pictures from almost any program, even machine language commercial programs.

BASIC INFORMATION

The jigsaws in this program are made up of forty pieces. That might not sound like a lot, but remember, these pieces are all the same shape (no shaped edges to guide you). I wrote the program and I find it hard to complete the jigsaws, so don't be put off. Forty pieces is plenty. Now on the face of it, with forty pieces we should need fourty dimension statements and forty GET subroutines and forty PUT subroutines. A quick look at the program listing reveals that no such routines appear to exist. They do, though!

The Dimension, GET and PUT statements are generated by the program as they are needed. To do this the program pokes itself, normally typing a program like this in from the magazine is a real pain as self poking programs normally have to have EVERY line typed in "EXACTLY" as listed. Not so with this program. Only three small sections of the program have to be enetered exctly as listed.

1) The Dimension statement generator starts at line 610 to line 630.
2) The GET statement generator starts at line 260 to line 280.
3) The PUT statement generator starts at line 390 to line 420

The above lines must be typed in exactly as shown, the rest of the program can be typed in as you like. I suggest you SAVE the program BEFORE you RUN it. If you get a Syntax Error in one of the above lines, it will indicate that you have not typed the lines in exactly. Edit the offending line and correct your mistake. Each of the generators is self contained, getting one of them wrong will not affect the other two.

GETTING STARTED

Any picture drawn be a program on a PMODE3,1 or PMODE4,1 screen can be used by Jigsaw. To get a picture, LOAD and RUN the program that creates the picture. When the picture has been drawn, STOP the program. Now load in Jigsaw. Jigsaw kows where to find the picture, so all you have to do is select '1' from the Jigsaw menu. Jigsaw will then ask for a filename. Type in an 8 character legal filename. Jigsaw will then add its own extension of '/JIG' to the filename and SAVE the picture to disk. Anytime you want a new picture, thats all you have to do. For machine language programs, type POKE113,0 BEFORE you type EXEC. Then once you have the required picture from the game on the screen, press the reset buton and load in Jigsaw and use function number 1 to save the picture. Easy, isn't it?

When Jigsaw is first run, the screen is cleared and there is a short pause while jigsaw pokes itself to death creating those forty Dimension statements. After this the main menu is displayed and Jigsaw quietly and continuously plays a tune until you make your selection.

Function 2 loads in previously SAVEd pictures. Jigsaw will add its own filename extension.

Function 3 is used to alter the stored picture if required. The mask function places a grid over the top of the picture to indicate the edges of the pieces (this makes it a little easier to solve the Jigsaw). Once the grid is in place, a flashing cursor appears at the top left of the picture. Use the joystick to move the cursor around the picture. If your picture has a lot of blank spaces, this can make solving the puzzle very hard because just like those puzzles with lots of identicle blue sky, this Jigsaw puzzle considers each blank to be different and until they are back in their correct position you cannot solve the puzzle. To help with this problem, Jigsaw will place a letter from the word Jigsaw in the square occupied by the cursor. To place a letter, press the fire buttn on the joystick. Each time the button is pressed, the next letter in the word Jigsaw will be drawn. When the last letter from the word Jigsaw has been used, the program will start over with the first letter.

Once you are satisfied with the appearance of the picture, press 'Q' to quit. This will take you back to the menu where you can now SAVE the picture to disk.

Function 4 will invert your picture. You can invert the picture as many times as you like until you are pleased with its appeareance. The inverting function is useful if you find the Mask Grid or the letters from Jigsaw do not show up very well due to the background color of your picture. Invert the picture, then use the mask function. Then if you wish, invert the picture back again.

You an experiment with these two functions as long as you like until you are pleased with the appearance of the picture.

Function 5 is used simply to examine the picture. When you have finished looking press the space bar to return to the menu.

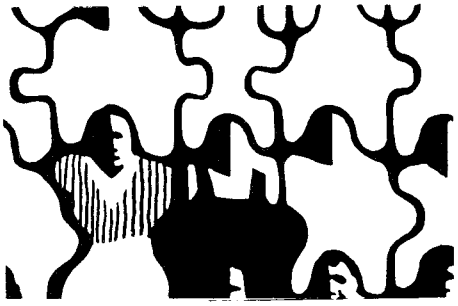
Function 6 is what it is all about. When you select this function, Jigsaw will shuffle all the pieces around. The same flashing white cursor shows you where you are. To move, place the cursor over the piece you want to move and press the fire button. A sound will be heard. Now move the cursor to the place you want the piece to go. Press the fire button again and a different sound will be heard and the pieces will be swapped over. Jigsaw will tell you when you have correctly solved the puzzle.

If you can't solve the puzzle or just want to stop, press 'Q' and the program will return to the menu. At this stage the jumbled picture is still in memory. Avoid the temptation to save the jumbled picture to return to the play mode as Jigsaw will consider the jumbled state of the picture to be the finished state of the Jigsaw and you won't be able to solve it!

Function 7 is used to end Jigsaw and returns to the computer to normal. Use this to end, DON'T press BREAK.

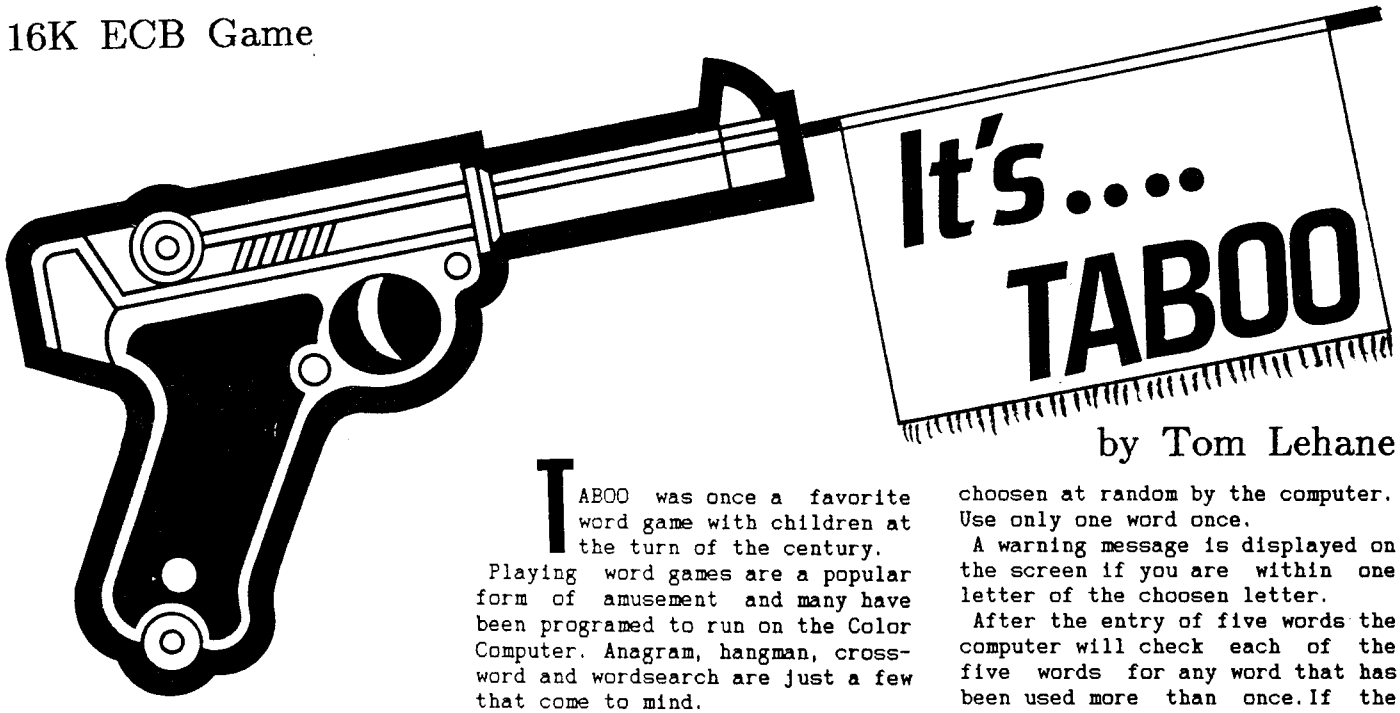
The Listing:

```
0 GOTO10
3 SAVE"JIGSAW:3":END
10 '    THE NEVER ENDING JIGSAW
       (C)  C. BARTLETT 1/6/86

20 CLS:POKE65495,0:CLEAR1000:PCL
EAR4:DIM A(1280),P(41,2),R(40),X
X(30):GOSUB610:GOSUB660
30 M=1:CLS2:PRINT@5,"THE NEVER E
NDING JIGSAW";:PRINT@72,"1 = SAV
E A JIGSAW";:PRINT@104,"2 = LOAD
 A JIGSAW";:PRINT@136,"3 = MASK
A JIGSAW";
40 PRINT@168,"4 = INVERT JIGSAW"
;:PRINT@200,"5 = VIEW A JIGSAW";
:PRINT@232,"6 = PLAY A JIGSAW";:
PRINT@264,"7 = END OF JIGSAW";
50 I$=INKEY$:GOSUB690:IFI$=""THE
N50ELSEIFI$="1"THEN80ELSEIFI$="2
"THEN100ELSEIFI$="3"THEN120ELSEI
FI$="4"THEN220ELSEIFI$="5"THEN23
0ELSEIFI$="6"THEN250ELSEIFI$="7"
THEN POKE65494,0:CLS:END ELSE50
60 GET (P(Z,0),P(Z,1))-(P(Z,0)+3
1,P(Z,1)+37),XX,G:RETURN
70 PUT(P(Z,0),P(Z,1))-(P(Z,0)+31
,P(Z,1)+37),XX:RETURN
80 POKE65494,0:CLS:INPUT"JIGSAW
NAME ";NM$:NM$=LEFT$(NM$,8)+"/JI
G"
90 SAVEM NM$,&HE00,&H25FF,&HE00:
NM$="":POKE65495,0:GOTO30
100 POKE65494,0:CLS:INPUT"JIGSAW
 NAME ";NM$:NM$=LEFT$(NM$,8)+"/J
IG"
110 LOADM NM$:NM$="":POKE65495,0
:GOTO30
120 CLS:COLOR 1:PMODE4,1:SCREEN1
,1:GET(0,0)-(255,191),A,G
130 FORX=0 TO 256 STEP32:LINE(X,
0)-(X,191),PSET:NEXT X:FORY=0 TO
 190 STEP38:LINE(0,Y)-(255,Y),PS
ET:NEXTY
140 PUT(0,0)-(255,191),A,OR
150 SOUND100,1
160 Z=1:U=0
170 GOSUB60:PUT(P(Z,0)+1,P(Z,1)+
1)-(P(Z,0)+31,P(Z,1)+37),XX,NOT:
GOSUB70:J1=JOYSTK(0):J2=JOYSTK(1
):GOSUB480
180 GOSUB60:FC=PEEK(65284):IF FC
=126 OR FC=254 THEN DR$="BM"+STR
$(P(Z,0))+","+STR$(P(Z,1))+"S20"
+J$(U):GOSUB70:DRAW DR$:GOSUB60:
U=U+1:IF U=6 THEN U=0
190 GOSUB70
200 I$=INKEY$:IFI$="Q"THEN30
210 GOTO170
```



```
220 PMODE4,1:SCREEN1,1:GET(0,0)-
(255,191),A,G:PUT(0,0)-(255,191)
,A,PRESET:GOTO30
230 PMODE4,1:SCREEN1,1
240 I$=INKEY$:IFI$=""THEN240ELSE
30
250 CLS RND(8):PRINT"PLEASE WAIT
";
260 D2$="X":V2=PEEK(VARPTR(D2$)+
2)*256+PEEK(VARPTR(D2$)+3)+126
270 Z1=65:Z2=65:FOR Z=1TO40
280 POKEV2,Z2:POKEV2+1,Z1:GET(P(
Z,0),P(Z,1))-(P(Z,0)+31,P(Z,1)+3
7),BN,G
290 Z1=Z1+1:IF Z1=91THEN Z1=65:Z
2=66
300 NEXT Z.
310 PMODE4,1:SCREEN1,1
320 FORK=1TO40:R(K)=0:NEXTK
330 FORZ=1TO40
340 R=RND(40):IF R(R)<>0THEN340E
LSE P(Z,2)=R:R(R)=R
350 W=P(Z,2)
360 GOSUB390:NEXTZ
370 SOUND100,1
380 GOTO430
390 D3$="X":V3=PEEK(VARPTR(D3$)+
2)*256+PEEK(VARPTR(D3$)+3)+166
400 Z1=W:IFZ1>26 THEN Z1=Z1-26
410 IF W<=26 THEN Z2=65 ELSE Z2=
66
420 Z1=Z1+64:POKEV3,Z2:POKEV3+1,
Z1:PUT(P(Z,0),P(Z,1))-(P(Z,0)+31
,P(Z,1)+37),AM:RETURN
430 Z=1:LZ=Z:G0=1
440 W=P(Z,2)
450 J1=JOYSTK(0):J2=JOYSTK(1)
460 GOSUB390:I$=INKEY$:IFI$="Q"T
HEN 30
470 GOSUB480:GOTO530
480 IF J1<5 THEN Z=Z-1:IFZ<1 THE
N Z=1
490 IF J1>55THEN Z=Z+1:IFZ>40 TH
EN Z=40
500 IFJ2<5 THEN Z=Z-8:IFZ<1 THEN
 Z=Z+8
510 IFJ2>55 THEN Z=Z+8:IFZ>40THE
N Z=Z-8
520 RETURN
530 GOSUB60:PUT(P(Z,0),P(Z,1))-(
P(Z,0)+31,P(Z,1)+37),XX,NOT
540 FB=PEEK(65284):IF (FB=126 OR
 FB=254) AND G0=1 THEN TW=P(Z,2)
:SOUND150,1:SOUND100,1:G0=2:FZ=Z
550 IF (FB=126 OR FB=254) AND G0
=2 AND P(Z,2)<>TW THEN SZ=Z:SW=P
(Z,2):P(Z,2)=TW:W=TW:GOSUB390:Z=
FZ:P(Z,2)=SW:W=SW:GOSUB390:Z=SZ:
G0=1:SOUND150,1:SOUND100,1:SOUND
160,1
560 IF (FB=126 OR FB=254) AND G0
=2 AND P(Z,2)=TW THEN SOUND10,3
570 FOR Q=1TO40:IF P(Q,2)<>Q THE
N 590
580 NEXTQ:GOTO600
590 GOTO440
600 CLS:PRINT"WELL DONE, YOU SOL
VED THE PUZZLE";:FOR Q=1TO1000:N
EXTQ:GOTO30
610 D1$="A":V1=PEEK(VARPTR(D1$)+
2)*256+PEEK(VARPTR(D1$)+3)+128
620 Z=1:Z1=65:Z2=65:FORY=0TO152
STEP38:FORX=0TO 224STEP32:P(Z,0)
=X:P(Z,1)=Y
630 POKEV1,Z2:POKEV1+1,Z1:DIM BN
(30)
640 Z=Z+1:Z1=Z1+1:IFZ1=91 THEN Z
1=65:Z2=66
650 NEXTX,Y:RETURN
660 J$(0)="BR1BD1R4L2D4G1L1U1BU5
BR6":J$(1)="BR2BD1R2L1D5L1R2BU6B
R3":J$(2)="BR5BD2H1L2G1D3F1R2E1U
1NL2BU4BR2":J$(3)="BR1BD5F1R2E1U
1H1L2H1E1R2F1BU2BR2":J$(4)="BR1B
D2ND4E1R2F1D2NL4ND2BU4BR2":J$(5)
="BR1BD1D4F1E1NU1F1E1U4BU1BR2":R
ETURN
670 DATAV3T8O3L2.C,O2L4B,L2A,G,L
2.F,L2G,A,O3,C,O2,L2.B,L4A,L2,G,
F,L1E,L3A,L4G,L2F,E,L3D,L4.E,L2F
,A,L2.G#,L4F,L2E,D,L1.C,L2C,L2.D
,L4A,L1..A,L2O3C,O2B,L1...G,O1L2
B,L2.B,O2L4F,L1..F,L2A,G,F,L1..E
680 DATAO3L2.C,O2L4B,L2A,G,L2.F,
L4G,L2A,O3C,O2L2.B,L4A,L2G,F,L1E
,L2.A,L4G,L2F,E,L2.D,L4E,L2F,A,L
2.G#,L4F,L2E,D,L1.C,L2C#,L2.D,L4
A,L1..A,O3L2C,O2B,O3L1..E,L2E,L2
.E,L4C,L1.C,O2L2B,O3D,L1C,O2L1.B
,END
690 READN$:IFN$="END"THEN RESTOR
E:GOTO690
700 PLAYN$:IFM=1 THENPRINT@333,"
select";:M=2:RETURN
710 IFM=2 THENPRINT@333,"SELECT"
;:M=1:RETURN
```

16K ECB Game



by Tom Lehane

TABOO was once a favorite word game with children at the turn of the century.

Playing word games are a popular form of amusement and many have been programed to run on the Color Computer. Anagram, hangman, cross-word and wordsearch are just a few that come to mind.

The object of TABOO is to type in a word with four or more letters trying to avoid the hidden letter choosen at random by the computer. Use only one word once.

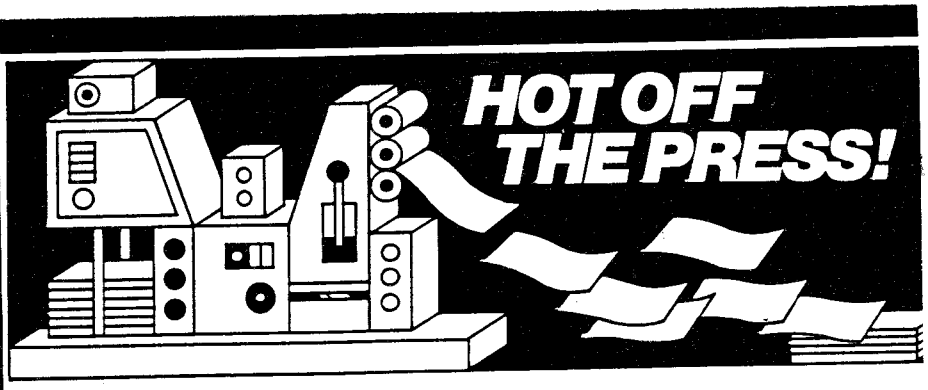
A warning message is displayed on the screen if you are within one letter of the choosen letter.

After the entry of five words the computer will check each of the five words for any word that has been used more than once. If the computer finds two words the same that game is cancelled and no points are awarded.

The Listing:

```
0 GOTO10
1 '******** TABOO **************
   **** TOM LEHANE  ************
3 SAVE"TABOO:3":END
10 CLS:GOSUB 770
20 PRINT@165," NEED INSTRUCTIONS
?
30 PRINT:PRINT TAB(8)" < Y = YES
 >
40 PRINT@356,CHR$(139)+CHR$(129)
50 PRINT@390,CHR$(132)
60 PRINT@392,"PROGRAM BY TOM LEH
ANE "
70 PRINT TAB(15)"1986"
80 GOSUB 1100
90 IF I$="Y" THEN 1140
100 CLEAR100
110 DIM A$(5)
120 PA=1
130 CLS
140 S=164
150 GOSUB 770
160 GOSUB 530
170 L=RND(24)+64
180 E$=CHR$(L)
190 PRINT@66,"TYPE WORD HERE"
200 PRINT@82,">";:INPUTW$
210 A$(PA)=W$
220 REM break word up and check
230 C=LEN(W$)
240 IF C <4 THEN GOTO 960
250 PASS=PASS+1
260 TL=274
270 FOR CH=1 TO C
280 LL$= MID$(W$,CH,1)
290 PRINT@TL,LL$;:SS=ASC(LL$):SO
UND SS+120,2:SOUND SS+100,1
300 TL=TL+1
310 IF LL$=E$ THEN 450
320 NEXT
330 S=S+32
340 PRINT@S,W$;
350 PRINT@273,"*           *";
360 TR=TR+10
370 'check how close to letter
380 FOR L=1 TO C
390 LL$=MID$(W$,L,1)
400 IF ASC(E$)+1=ASC(LL$) GOTO 1
270
410 IF ASC(E$)-1=ASC(LL$) GOTO 1
270
420 RESTORE
430 IF PASS=6 THEN 640
440 GOTO 190
450 GOSUB 1290
460 FOR WIPE=384 TO 479:PRINT@WI
PE,CHR$(191);:NEXT
470 PRINT@352,"   ##### YOU ARE
OUT #####"
480 PRINT@390,"THE LETTER WAS- <
"E$">";
490 PRINT@422,"YOUR SCORE IS.."L
S;
500 PRINT@480,"--> PRESS ENTER T
O CONTINUE";
510 GOSUB 1100
520 GOTO 120
530 PRINT@130,"THE LUCKY ONES";
540 PRINT@177,"CHECK ON WORD";
550 PRINT@241,"**************";
560 PRINT@273,"*";:PRINT@285,"*"
;
570 PRINT@305,"**************";
580 PRINT@194,"1 ----";
590 PRINT@226,"2 ----";
600 PRINT@258,"3 ----";
610 PRINT@290,"4 ----";
620 PRINT@322,"5 ----";
630 RETURN
640 CLS0:GOSUB 770
650 PRINT@74,"word"CHR$(128)"che
ck";
660 PA=1
670 FOR CH=1 TO 5
680 IF PA=CH THEN NEXT CH
690 PRINT@229,"WORD..."A$(PA)
700 PRINT@293,"CHECK.."A$(CH)
710 GOSUB 1080
720 IF A$(PA)=A$(CH) THEN 850
730 NEXT CH
740 PA=PA+1
750 IF PA=5 THEN 810
760 GOTO 670
770 PRINT TAB(12)"TABOO"
780 FOR X=1 TO 32:PRINTCHR$(147)
;
790 NEXT
800 RETURN
810 PRINT@352,"ALL WORDS HAVE BE
EN CHECK"
820 GOSUB 1290
830 PRINT"YOUR SCORE SO FAR IS..
"LS
840 GOTO 890
850 PRINT@352,"THE ABOVE TWO WOR
DS ARE THE SAME";
860 PRINT"YOUR SCORE REMAINS.."L
S
870 TR=0
880 PRINT@416,"SORRY THIS IS A N
O GO GAME"
890 PRINT"ANOTHER GAME ( Y = YES
 )
900 PRINT@128," THE SECRET LETTE
R WAS.. "E$
910 GOSUB 1100
920 IF I$="Y" THEN 940
930 GOTO 1040
940 RESTORE
950 GOTO 120
960 R$="WORDS TO BE 4 LETTERS OR
 MORE"
970 FOR X=1 TO LEN(R$)
980 Q$=MID$(R$,X,1)
```

```
990 PRINT@65+X,Q$
1000 SOUND RND(50)+100,1
1010 NEXT X
1020 GOSUB 1080
1030 GOTO 190
1040 CLS 0:GOSUB 770
1050 PRINT:PRINT@160," YOUR FINA
L SCORE IS :"LS
1060 GOSUB 780
1070 END
1080 FOR TL=1 TO 500:NEXT TL
1090 RETURN
1100 I$=INKEY$
1110 SC=RND(0)
1120 IF I$="" THEN 1100
1130 RETURN
1140 ' INSTRUCTIONS
1150 CLS
1160 GOSUB 770
1170 PRINT"THE OBJECT OF THIS GA
ME IS TO":PRINT"TYPE FIVE WORDS
WITH 4 OR MORE"
1180 PRINT"LETTERS AND TRY TO AV
OID THE":PRINT"HIDDEN LETTER WHI
CH THE COMPUTER";
1190 PRINT"HAS CHOOSEN. EVERY WO
RD THAT":PRINT"PASSES THE COMPUT
ERS CHECK IS"
1200 PRINT"AWARDED 10 POINTS.":P
RINT"DO NOT USE THE SAME WORD TW
ICE."
1210 PRINT:PRINT"THE COMPUTER WI
LL CHECK EACH OF THE FIVE WORDS
"
1220 PRINT"FOR ANY WORD THAT HAS
 BEEN USED"
1230 PRINT"MORE THAN ONCE"
1240 PRINT"any key to start";
1250 GOSUB 1100
1260 GOTO 100
1270 R$="one of the letters was
close"
1280 GOTO 970
1290 LS=LS+TR:TR=0
1300 RETURN
```



by G. Adamczewski

16K ECB Utility

IF YOU own a STAR GEMINI 10X (or 15X) printer and have wanted to create your own (downloadable) character set but felt that the task was too complicated then .... feel no more!

GEMINI allows you to simply and quickly create a new character set to practically or completely replace the printer's STANDARD character set. But that's not all.

Having created the new characters GEMINI then saves the necessary information to DISK or TAPE in the form of a program called 'DOWNLOAD' which you then load and run to download your new character set to the printer's RAMs.

Not bad eh? To use this program you need to recognise that each character that you can generate from your keyboard (including non-printable characters) is represented by a number - the ASCII code - for example...

If you type CHR$(75);CHR$(106) the letters 'K' and 'j' will be printed by your printer. In other words decimal 75 and 106 are the ASCII codes for the letters 'K' and 'j' respectively. The ASCII code for the printer's STANDARD character set starts at decimal 32 and ends at 127 (a total of 96 characters). These codes are summarised in your printer manual. Instructions are included in the GEMINI program.

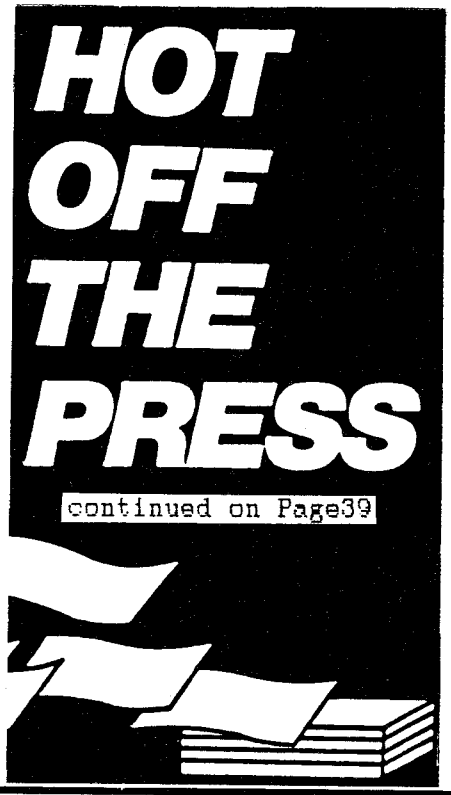
Note that the program detects if you have a disk or tape system and saves the DOWNLOAD program accordingly.

For those two-fingered typists (e.g. me!) who feel the program is too long then delete the REMARK lines and lines 121-132 although I recommend you leave them in for future reference.

Once downloaded to your printer the new character(s) can be turned off by the following CHR$(27);CHR$(36);CHR$(0). To turn it on again type CHR$(27);CHR$(36);CHR$(1).

The Listing:

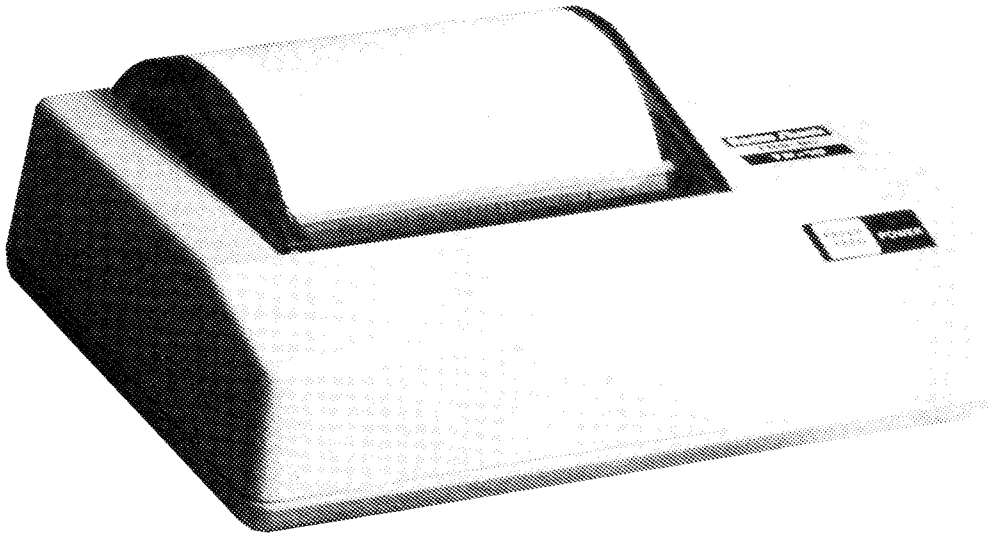
```
1 'GEMINI*G.ADAMCZEWSKI*MAY 1986
2 GOTO 4
3 SAVE"GEMINI.BAS":END
4 CLEAR 400
5 CLS:PRINT@40,"STAR GEMINI 10X"
6 S$="DOWNLOADER"
7 FOR I=1 TO 10
8 L$=MID$(S$,I,1)
9 PRINT@74+33*I,L$
10 FOR J=1 TO 70
11 NEXT J,I
12 GOSUB 138
13 PMODE4,1
14 POKE 65495,0
15 IF PEEK(&HBC)=&HE THEN TD=1:T
D$="DISK":ELSE TD=-1:TD$="TAPE"
16 POKE 150,7:POKE 155,255
17 DIM V(10,10),L(11,10),T(96,9)
,W(20,20),D(96),C(96)
18 CLS:PRINT@257,"DO YOU NEED IN
STRUCTIONS (Y/N)?"
19 I$=INKEY$:IF I$="" THEN 19 EL
SE IF I$="Y" THEN GOSUB 121
20 CLS:ST=0:PRINT@70,"character
number";N+1:PRINT@129,"ENTER THE
 'ASCII' CODE OF THE  CHARACTER
 YOU WISH TO REDEFINE  (A NUMBER
 BETWEEN 32 AND 127)":PRINT@267,
"CHR$( )"
21 PRINT@452,"ENTER <X> WHEN ALL
 DONE"
22 R$=""
23 I$=INKEY$:IF I$="" THEN 23 EL
SE IF I$=CHR$(13) THEN 24 ELSE I
F I$=CHR$(8) THEN 20 ELSE IF I$=
"X" THEN 72 ELSE PRINT@272+ST,I$
+")";:ST=ST+1:R$=R$+I$:GOTO 23
24 R=VAL(R$):IF R<32 OR R>127 TH
EN SOUND10,4:GOTO 20:ELSE N=N+1:
C(N)=R
25 CLS:PRINT@261,"SETTING UP GRA
PHICS..."
26 'SET UP GRAPHICS PAGE
27 PCLS
28 CIRCLE(50,15),10
29 GET(40,5)-(60,25),W,G
30 FOR X=40 TO 210 STEP 20
31 FOR Y=5 TO 165 STEP 20
32 IF Y=5 AND X=40 THEN 34
33 PUT(X,Y)-(X+20,Y+20),W,PSET
34 NEXT Y,X
35 LINE(48,13)-(52,17),PSET,B:PA
INT(50,15),7,7
36 LINE(0,144)-(40,146),PSET,B:L
INE(220,144)-(260,146),PSET,B
37 GET(48,13)-(52,17),V,G
38 GET(40,5)-(60,25),W,G
39 X=48:Y=13
40 SCREEN1,1
41 'KEYBOARD SCAN ROUTINE
42 LC$=INKEY$:IF LC$="" THEN 42
43 IF LC$=CHR$(8) THEN 49 ELSE I
F LC$=CHR$(9) THEN 48 ELSE IF LC
$=CHR$(10) THEN 46 ELSE IF LC$=C
HR$(94) THEN 47
44 IF LC$=CHR$(32) THEN 60 ELSE
IF LC$=CHR$(13) THEN 51 ELSE GOT
O 42
45 'MOVE CURSOR
46 GOSUB 100:Y=Y+20:GOTO 103
47 GOSUB 100:Y=Y-20:GOTO 103
48 GOSUB 100:X=X+20:GOTO 103
49 GOSUB 100:X=X-20:GOTO 103
50 'SET/RESET CHARACTER CELLS
51 H=(X-48)/20+1:V=(Y-13)/20+1
52 IF V<=2 AND S=8 OR V>=8 AND S
=1 THEN GOSUB 108
53 IF L(H-1,V)<>0 OR L(H+1,V)<>0
 THEN SOUND 200,3:GOTO 42:ELSE L
(H,V)=V
54 IF V<=2 THEN S=1 ELSE IF V>=8
 THEN S=8
55 IF PPOINT(X-1,Y-1)=5 THEN PUT
(X-8,Y-8)-(X+12,Y+12),W,PSET:L(H
,V)=0:GOTO 42
56 PUT(X,Y)-(X+4,Y+4),V,NOT:PAIN
T(X+2,Y+2),5,5
57 PUT(X,Y)-(X+4,Y+4),V,NOT
58 GOTO 42
59 'CALCULATE CHARACTER CODES
60 CLS:PRINT@257,"STORING NEW CH
ARACTER DATA..."
61 SCREEN0,0
62 IF S=8 THEN U=2:D(N)=1
63 FOR H=1 TO 9
64 FOR V=1 TO 9
65 IF L(H,V)=0 THEN 68
66 IF S=8 THEN U=2
67 T(N,H)=INT(T(N,H)+2^(L(H,V)-(
1+U)))
68 NEXT V
69 NEXT H
70 GOSUB 115:IF N<96 THEN 20
71 'CREATE/SAVE "DOWNLOAD.BAS"
72 CLS:IF N=96 THEN PRINT@196,"9
6 CHARACTERS REDEFINED"
73 PRINT@264,"GET "+TD$+" READY.
..":GOSUB 138
74 CLS:PRINT@259,"CREATING 'DOWN
LOAD' FILE."
75 POKE 65494,0
76 OPEN"O",#TD,"DOWNLOAD.BAS"
77 PRINT#TD,"0 'PROGRAM TO REDEF
INE THE          STAR GEMINI 10X
DOWNLOADABLE     CHARACTER SET (G
ENERATED BY      'GEMINI.BAS' PRO
GRAM).
78 PRINT#TD,"1 CLS:PRINT@261,"+C
HR$(34)+"SET BAUD RATE TO 4800"
79 PRINT#TD,"2 PRINT@456,"+CHR$(
34)+"<PRESS ANY KEY>"
80 PRINT#TD,"4 IF INKEY$="+CHR$(
34)+""+CHR$(34)+"THEN 4
81 PRINT#TD,"5 POKE 150,7:POKE 6
5494,0"
82 PRINT#TD,"10 PRINT#-2,CHR$(27
);CHR$(42);CHR$(0);"
83 FOR I=1 TO N
84 S1$=STR$(20*I):S2$=STR$(20*I+
10):S3$=STR$(20*I+20):C$=STR$(C(
I)):D$=STR$(D(I)):T1$=STR$(T(I,1
)):T2$=STR$(T(I,2)):T3$=STR$(T(I
,3)):T4$=STR$(T(I,4)):T5$=STR$(T
(I,5)):T6$=STR$(T(I,6)):T7$=STR$
(T(I,7)):T8$=STR$(T(I,8)):T9$=ST
R$(T(I,9))
85 PRINT#TD,S1$+"'REDEFINES THE
<"+CHR$(C(I))+"> CHARACTER"
86 PRINT#TD,S2$+" PRINT#-2,CHR$(
27);CHR$(42);CHR$(1);CHR$("+C$+"
);CHR$("+D$+");CHR$("+T1$+");CHR
$("+T2$+");CHR$("+T3$+");CHR$("+
T4$+");CHR$("+T5$+");CHR$("+T6$+
");CHR$("+T7$+");CHR$("+T8$+");C
HR$("+T9$+");"
87 NEXT I
88 PRINT#TD,S3$+"PRINT#-2,CHR$(2
7);CHR$(36);CHR$(1);
89 CLOSE#TD
90 CLS:PRINT@259,"NOW LOAD AND R
UN THE NEWLY       CREATED 'DOWN
LOAD' FILE!"
91 END
92 'CURSOR WRAPAROUND ROUTINE
93 IF X>208 THEN X=48
94 IF X<48 THEN X=208
95 IF Y>173 THEN Y=13
96 IF Y<13 THEN Y=173
97 IF Y>=153 AND S=1 OR Y<=33 AN
D S=8 THEN SOUND20,2:SOUND5,2
98 RETURN
99 'CURSOR SET/RESET ROUTINES
100 IF PPOINT(X-1,Y-1)=5 THEN PU
T(X,Y)-(X+4,Y+4),V,PSET:GOTO 102
101 PUT(X,Y)-(X+4,Y+4),V,NOT
102 RETURN
103 GOSUB 93
104 IF PPOINT(X,Y)=5 THEN PUT(X,
Y)-(X+4,Y+4),V,NOT:GOTO 42
105 PUT(X,Y)-(X+4,Y+4),V,PSET
106 GOTO 42
107 'RESET TOP/BOTTOM TWO ROWS
108 FOR Q=S TO S+1
109 FOR P=1 TO 9
110 IF L(P,Q)<>0 OR E=1 THEN L(P
,Q)=0:PUT(20*P+20,20*Q-15)-(20*P
+40,20*Q+5),W,PSET:PUT(20*P+28,2
0*Q-7)-(20*P+32,20*Q-3),V,NOT:SO
UND1,1
111 NEXT P,Q
112 IF S=1 THEN S=8 ELSE S=1
113 RETURN
114 'RESET FOR NEXT CHARACTER
115 FOR K=1 TO 9
```



continued on Page39

Tandy ELECTRONICS

COLOR COMPUTER THERMAL PRINTER



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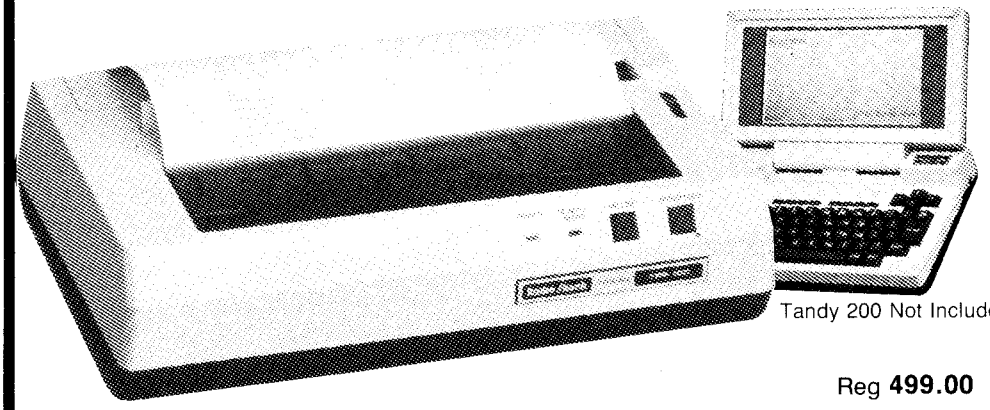

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*All Wordprocessing Paper has "INVISIBLE" vertical edge perforations.

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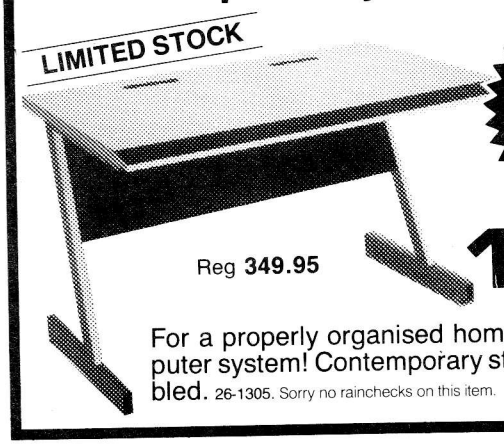

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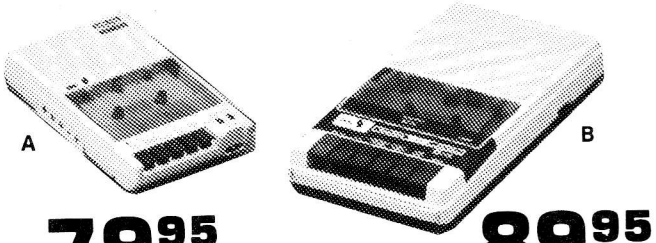

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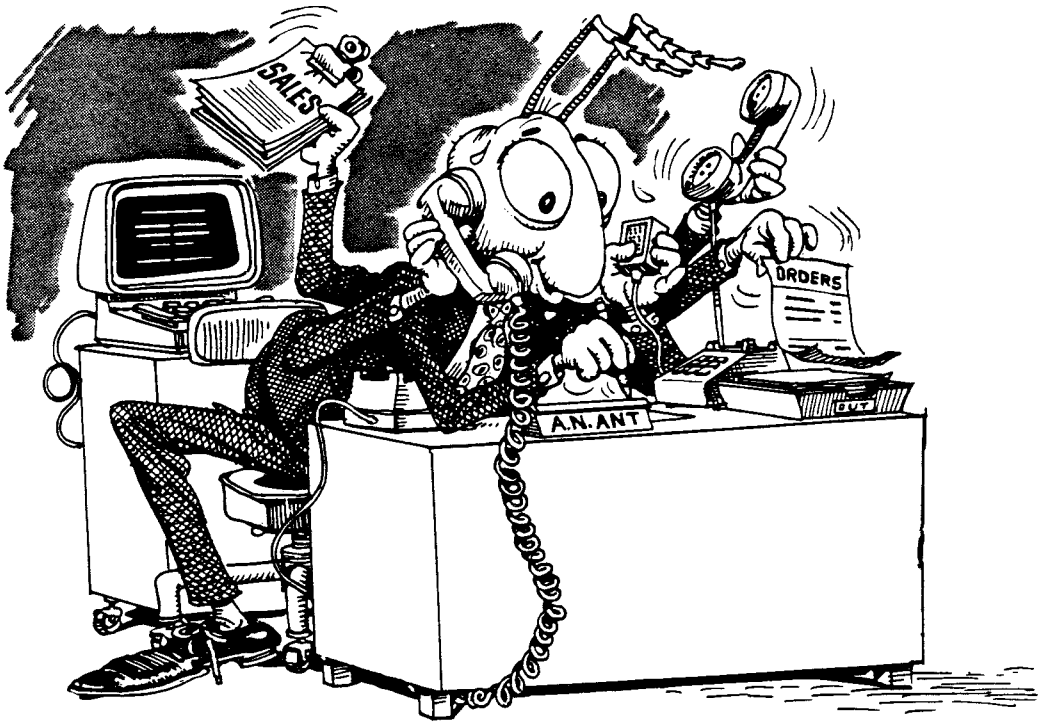
TAPE SORT



32K ECB Utility

by Ray Hendry

ALTHOUGH the idea of a tape-sort program is not original this program is. I gathered the idea of tapesort from other programs and books, I needed a program such as this but didn't want to pay a lot of money for a tape directory program.

It begins by asking if you want instructions it then either displays 4 screens of instructions or else it asks the user a series of questions via prompts. Although this program was written for a DMP110 printer by inserting your own printers code(s) for elongation and to stop elongation you may use any printer. If you want to make a permenant copy for your printer change line 1040 to your printers codes. It then asks for the title of the tape and starts reading the files on that tape. It prints out the program name,type of program,command needed to load it,the code,and on machine language programs the start and exec address. I wanted to include an end address but PEEK(126)*256+PEEK(127)-1 for some reason only returns the end address of the rom used to load the buffer. I have included 2 columns so both the end address and the tape recorders counter position can be added at a later date in handwriting. I hope this program is able to help some other users to organise thier tape collections as much as it has helped me.

The Listing:

```
0 GOTO10
1 SAVE"TAPESORT:2
2 END
10 '*****************************
20 '*  TAPE SORT BY RAY HENDRY *
30 '*    65D MCQUOID STREET,    *
40 '*         QUEANBEYAN        *
50 '*       N.S.W.   2620       *
60 '*           1986            *
70 '*****************************
80 GOTO740
90 CLS:IF (PEEK(65314) AND 1)=1
THEN 100 ELSE 110
100 CLS:PRINT@196,"PRINTER IS OF
FLINE!!!!!";:SOUND40,3:GOTO90
110 CLS:PRINT@130,"IS YOUR PRINT
ER A DMP 110                (
Y/N)?"
120 GOSUB1020
130 IFA$="N"THEN150
140 IFA$="Y"THEN1040ELSE120
150 CLS:PRINT@130,"ENTER YOUR PR
INTERS CODE TO   START ELONGATIO
N (E.G.27)  THEN PRESS ENTER.PRE
SS ENTER AFTER   EACH CODE IS IN
SERTED IF YOUR    PRINTER REQUIR
ES MORE THAN ONE CODE.ENTER 100
WHEN COMPLETED."
160 INPUTA:IFA=100THEN 180
170 DW=DW+1:DW$(DW)=CHR$(A):GOTO
 160
180 IF DW=0THEN DW$=""ELSEIFDW=1
THEN DW$=DW$(1)ELSEIFDW=2THEN DW
$=DW$(1)+DW$(2)ELSEIFDW=3THEN DW
$=DW$(1)+DW$(2)+DW$(3)
190 CLS:PRINT@130,"ENTER YOUR PR
INTERS CODE TO   STOP ELONGATION
 (E.G.27) ENTER        100 WHEN
FINISHED."
200 INPUTA:IFA=100THEN 220
210 DO=DO+1:DO$(DO)=CHR$(A):GOTO
200
220 IFDO=0THEN DO$=""ELSEIFDO=1T
HEN DO$=DO$(1)ELSEIFDO=2THEN DO$
=DO$(1)+DO$(2)ELSEIFDO=3THEN DO$
=DO$(1)+DO$(2)+DO$(3)
230 CLS:PRINT@162,"IS YOUR CASSE
TTE READY (Y/N)":PRINT@260,"IF N
OT PRESS PLAY BUTTON"
240 GOSUB1020
250 IF A$="Y" THEN260 ELSE IF A$
="N"THEN230 ELSE GOTO240
260 CLS:PRINT@230,"DO YOU WANT A
UDIO ON?":PRINT@332,"YES/NO"
270 GOSUB1020
280 IF A$="Y"THEN 290 ELSE IF A$
="N" THEN 300 ELSE GOTO270
290 AUDIO ON
300 CLS:PRINT@128,"TYPE TITTLE O
F TAPE THEN ENTER"
310 INPUTTT$
320 T=LEN(TT$):TA=(40-T)/2:IFTA<
> INT(TA)THEN TA=INT(TA)+1
330 SO$=STRING$(T,45)
340 PRINT#-2,DW$;STRING$(TA," ")
;TT$;STRING$(TA," ");DO$;
350 X=LEN(SO$):TA=(40-X)/2
360 PRINT#-2,DW$;STRING$(TA," ")
;SO$;STRING$(TA," ");DO$;
370 CLS:PRINT@37,"READING TAPE N
OW ..."
380 PRINT@257,"PROGRAM BEING REA
D     MEMORY":PRINT@418,"PRESS R
ESET BUTTON TO STOP AT     THE E
ND OF CURRENT TAPE"
390 PRINT#-2:PRINT#-2,"     FILE
NAME   TYPE    COMMAND   CODE
  START   END    EXEC   COUNTER"
400 PRINT#-2:PRINT#-2,"     "+ST
RING$(67,45)
410 PRINT@37,"READING TAPE FILES
 NOW...."
420 POKE126,1:POKE127,218
430 EXEC 42753
440 A=PEEK(124):IFA=255 THEN700
```

```
450 IF A<>0 AND N=0 THEN PRINT#-
2,"           LOADING ERROR ....
"
460 IF A<>0 THEN N=N+1:GOTO430
470 N=1
480 PRINT#-2,"     ";:FOR B=474T
O481:PRINT#-2,CHR$(PEEK(B));:NEX
T B
490 PRINT@323,;:FOR I=474TO481:P
RINTCHR$(PEEK(I));:NEXT I
500 TP=PEEK(482):PRINT#-2,"   ";
510 IF TP=0 THEN PRINT#-2,"BASIC
   CLOAD ";
520 IF TP=1 THEN PRINT#-2,"DATA
      ";
530 IF TP=2 THEN PRINT#-2,"MACHL
   CLOADM";
540 IF TP=3 THEN PRINT#-2,"EDITO
R  SOURCE";
550 IF TP>3 THEN PRINT#-2,"UNKNO
WN FILE TYPE"
560 CF=PEEK(483):PRINT#-2,"   ";
570 IF CF=0 AND TP=2  THEN PRINT
#-2,"BINARY";
580 IF CF=0 AND TP=0 THEN PRINT#
-2,"BINARY"+STRING$(26,32)+STRIN
G$(7,46)
590 IF CF <> 0 AND TP=2 THEN PRI
NT#-2,"ASCII ";
600 IF CF <> 0 AND TP=1 THEN PRI
NT#-2,"ASCII"+STRING$(27,32)+STR
ING$(7,46)
610 IF CF<>0 AND TP=0 THEN PRINT
#-2,"ASCII"+STRING$(27,32)+STRIN
G$(7,46)
620 IF CF<>9 AND TP=3 THEN PRINT
#-2,"FILE "+STRING$(27,32)+STRIN
G$(7,46)
630 IF TP=2 THEN 640 ELSE 700
640 ST=PEEK(487)*256+PEEK(488)
650 PRINT#-2,"   ";:PRINT#-2,USI
NG"#####";ST;
660 PRINT#-2,"   ";:PRINT#-2,STR
ING$(5,46);
670 EX=PEEK(485)*256+PEEK(486)
680 PRINT#-2,"  ";:PRINT#-2,USIN
G"#####";EX;
690 PRINT#-2,"   ";:PRINT#-2,STR
ING$(7,46)
700 PRINT@344,MEM
710 BA=PEEK(484)
720 IF BA<>255 GOTO730
730 EXEC42705:N=-1:GOTO430
740 CLS:X=24:DIM L(25),P(25)
750 DATA 1132,84,1133,65,1134,80
,1135,69,1136,83,1137,79,1138,82
,1139,84,1231,66,1232,89
760 DATA 1323,82,1324,65,1325,89
,1326,143,1327,72,1328,69,1329,7
8,1330,68,1331,82,1332,89,1422,1
13,1423,121,1424,120,1425,118
770 FORC=1TO X:READ L(C),P(C):NE
XTC
780 FORC=1TO X:POKE(L(C)),P(C):N
EXT
790 FOR T=1TO 1000:NEXTT
800 CLS:PRINT@164,"DO YOU WANT I
NSTRUCTIONS?":PRINT@235,"YES/NO"
810 GOSUB1020
820 IFA$="Y"THEN 830 ELSE IF A$=
"N"THEN 90 ELSE GOTO810
830 CLS:PRINT@100,"THIS PROGRAM
WILL READ ANY  TAPE AND PRINT OU
T A LIST OF ALLPROGRAMS ON THE T
APE FOR A HARD COPY. A PRINTER I
S NEEDED."
840 PRINT@228,"THE PROGRAM DISTI
NQUISHES    BETWEEN BASIC,MACHIN
E LANGUAGE AND EDITOR SOURCE FIL
E PROGRAMS ALSO BETWEEN BINARY A
ND ASCII   CODES.    IT WILL TEL
L YOU IF A PROGRAM SHOULD BE CLO
AD(ED) OR            CLOADM(ED).
"
850 PRINT@483,"PRESS <ENTER> TO
CONTINUE"
860 GOSUB1020
870 IF A$<>CHR$(13)THEN860
880 CLS:PRINT@100,"THE PROGRAM W
ILL ENSURE YOU TURN ON YOUR PRIN
TER, LOAD  YOUR RECORDER AND TUR
N IT ON.BY THE USE OF PROMPTS DU
RING EXECUTION."
890 PRINT@260,"IF A LOADING ERRO
R OCCURS   WHILE THE PROGRAM IS
READING, ITWILL SKIP THE ERROR A
ND CONTINUEEXECUTING. YOUR PRINT
OUT WILL   SHOW AN ERROR MESSAGE
."
900 PRINT@483,"PRESS <ENTER> TO
CONTINUE"
910 GOSUB1020
920 IF A$<>CHR$(13)THEN910
930 CLS:PRINT@100,"IF THE PROGRA
M ENCOUNTERS A TAPE ERROR OR FIL
E TYPE IT DOES NOT RECOGNIZE, IT
 WILL PRINT THE   WORD UNKNOWN A
ND CONTINUE    EXECUTING.";
940 PRINT"  YOUR RECORDER WILL
CLICK ON AND OFF RAPIDLY WHEN AN
 ERROR OCCURS MUCH LIKE IT DOES
 WHEN READING ASCII FILES.
     THIS  IS NORMAL."
950 PRINT@483,"PRESS <ENTER> TO
CONTINUE"
960 GOSUB1020
970 IFA$<>CHR$(13)THEN960
980 CLS:PRINT@100,"WHEN THE END
OF THE TAPE IS REACHED, YOU MUST
 MANUALLY STOP  THE PROGRAM BY U
SING THE RESET   BUTTON  TO READ
 ANOTHER TAPE     SIMPLY RERUN T
HE PROGRAM."
990 PRINT@483,"PRESS <ENTER> TO
CONTINUE"
1000 GOSUB1020
1010 IFA$<>CHR$(13)THEN1000 ELSE
 GOTO90
1020 A$=INKEY$
1030 IFA$=""THEN1020ELSERETURN
1040 DW$=CHR$(27)+CHR$(14):DO$=C
HR$(27)+CHR$(15)
1050 GOTO230
```

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```
116 FOR J=1 TO 9
117 L(K,J)=0
118 NEXT J,K
119 S=0:U=0
120 RETURN
121 CLS:PRINT"   THIS UTILITY EN
ABLES YOU TO   RAPIDLY CREATE NE
W CHARACTERS   TO REPLACE SOME O
R ALL OF THE   STAR GEMINI 10X/1
5X STANDARD    CHARACTER SET I.E
. CHR$(32) TO  CHR$(127).
122 PRINT"   ONCE THE DESIRED NU
MBER OF    CHARACTERS HAVE BEEN
REDEFINED  THE UTILITY THEN SAVE
S THEM TO  TAPE OR DISK AS A PRO
GRAM NAMED 'DOWNLOAD'.";
123 PRINT" YOU MAY THEN <LOAD> A
ND <RUN> THIS PROGRAM TO       D
OWNLOAD THE NEW SET TO YOUR    P
RINTER"
124 GOSUB 138
125 CLS:PRINT"   COCO DRAWS A 9
BY 9 CELL GRID REPRESENTING THE
LOCATIONS AT   WHICH THE PRINT H
EAD PINS CAN   PRINT FOR ANY ONE
 CHARACTER.
126 PRINT"   NEW CHARACTERS ARE
DESIGNED   BY SETTING THE CHARAC
TER CELLS  WHICH ARE TO BE PRINT
ED.
127 PRINT"   CHARACTERS ARE PRIN
TED ABOUT  THE HORIZONTAL LINE T
HROUGH THE GRID.  CELLS SET IN T
HE TWO     ROWS BELOW THIS LINE
FORM THE   'DESCENDERS' OF A CHA
RACTER,    AS IN THE LOWERCASE L
ETTERS 'y' OR 'g'.
128 GOSUB138
129 CLS:PRINT"   NOTE THAT ONLY
THE TOP SEVEN  OR BOTTOM SEVEN R
OWS OF THE     GRID CAN BE SET F
OR ANY ONE     CHARACTER.
130 PRINT"   IF CHARACTER CELLS
HAVE BEEN  SET IN THE TOP TWO RO
WS AND YOU THEN SET A CHARACTER
CELL IN    THE BOTTOM TWO ROWS,T
HE TOP TWO ROWS WILL BE CLEARED
(OR VICE   VERSA). A WARNING SOU
NDS IF YOU ENTER A DANGER ZONE.
131 PRINT"   NOTE ALSO THAT THER
E MUST BE  A SPACE BETWEEN SET C
HARACTER   CELLS IN ANY ROW.
132 GOSUB 138
133 CLS:PRINT:PRINT"   THE CURSO
R IS MOVED ABOUT THE GRID BY THE
 FOUR <arrow> KEYS.  IT WILL WRA
P AROUND THE SCREEN  IN BOTH DIR
ECTIONS.
134 PRINT:PRINT"   THE CURRENT C
ELL IS SET/RESET BY TOGGLING THE
 <enter> KEY.
135 PRINT:PRINT"   PRESS THE <sp
acebar> WHEN YOU HAVE FINISHED C
REATING YOUR NEW CHARACTER.
136 GOSUB 138
137 RETURN
138 PRINT@456,"<PRESS ANY KEY>"
139 IF INKEY$="" THEN 139 ELSE R
ETURN
```

HINTS,TIPS & TRICKS

HIS is a compilation of nearly all peeks, pokes, execs and hints that have been through the pages of Rainbow & CoCo that will work.

If one particular peek, poke, exec or hint won't work, it may be just incompatability with your CoCo or DOS version.

To all those who did send us something in, thank you. Your information has helped many other people across Australia (me for one!).

If you do have a peek, poke, exec or a hint you can share with others, send it in and we'll add it on to the long list.

It was interesting to say the least to see what each peek, poke, exec or hint did to my CoCo!

Alex.

********** Printer **********

To route all normal text output from the screen to a printer, type POKE360,162:POKE361,191. If you have Color Basic, add POKE359,126. To restore normal print operation, type POKE359,57 in Color Basic, POKE360,130:POKE361,115 in Extended Color Basic, and POKE360,203:POKE361,74 in Disk Basic.

To check your printer's on/off status, PEEK(65314) and PEEK(65318). If you get a 4 or a 6, everything is OK, but a 5 or a 7 indicates the printer is offline or just off.

The pens on the CGP-115 printer dry out if not used evey day or two. If you turn it on every day, the start-up sequence is enough to keep the ink flowing evenly. The best idea is to buy a power strip and plug all your equipment into it. Whenever you use your computer, your printer will automatically go through its start-up sequence without your having to do it explicitly.

For different printer bauds, POKE150,'x' - where 'x' is one of these:

180	for 300 baud
87	for 600 baud
41	for 1200 baud
25	for 1800 baud
23	for 2000 baud
18	for 2400 baud
10	for 3600 baud
7	for 4800 baud
3	for 7200 baud
0	for 9600 baud

********** Disk Basic **********

To turn your drive motors on, type POKE&HFF40,60. To turn them off, type POKE&HFF40,0. They are also turned off by normal disk commands.

To disable Disk Basic without unplugging the cartridge, type POKE298,0:POKE303,0. This makes Basic ignore all the Disk Basic commands. To restore normal operation, type POKE298,25:POKE303,14. Pressing the reset button won't restore everything.

To get a printed copy of your disk directory and the remaining free granules, type

```
POKE111,254:DIR:PRINT#-2,"Free ="FREE(0).
```

To protect your disk files/programs from unauthorized access, save them with a graphics code embedded, ie. SAVE"file"+CHR$(143). The file will list in the directory, but you can't reload it unless you use the same methods as you used to save it: LOAD"file"+CHR$(143). CHR$(143) is a graphics space, so no-one will know it's there but you!

Want to see where your head is at? Typing PRINTPEEK(235) will return what drive you're using, PRINTPEEK(236) will return the track number you're on, and PRINTPEEK(237) will return the sector number.

Want to know if your VERIFY is on or off? PRINTPEEK(2439) will return a 0 if it's VERIFYOFF. Otherwise it's VERIFYON.

********** Programming **********

To protect video information from scrolling off the screen, POKE359,1 for a cassette system or POKE359,0 for a disk system. After this POKE only PRINT@'s and POKE to the video memory will show up on the screen. To restore normal operation type POKE359,126

For less consistant random numbers (RND function always starts up with the same sequence), add this to the start of your programs: POKE280,PEEK(275). Location 280 is one of the RND seed addresses, and location 275 contains a constantly changing number.

To load two BASIC programs into memory without erasing one, try this: Renumber the programs so that they don't overlap one another (the beginning of one doesn't stat before the end of another); CLOAD the lower number program; type

```
POKE25,PEEK(27):POKE26,PEEK(28)-2; CLOAD the second
```

program. With Color Basic type POKE25,6 and with Extended Color Basic type POKE25,30.

Type POKE26,1. Now CSAVE the new, combined program

Here's an easy way to verify tape saved programs without losing the copy in memory: rewind the tape and type SKIPF. It'll read over your file and report any errors without erasing the file in memory. If there is a problem, you still have a copy in memory for a second save.

To load an assembly language tape or disk to a different location in memory by putting an "offset" value after the filename, ie: CLOAD"file",offset. To move upwards in memory, the offset is calculated by subtracting the old start address from the new one. To move down, subtract the old address from the new one, and add 65536.

If you are transferring your tape files to disk but you don't know their Start, End, or Exec addresses, this is the way to go.

CLOADM the file, then save the file onto disk like this:

```
SAVEM"file",PEEK(487)*256+PEEK(488),PEEK(126)*
 256+PEEK(127)-1,PEEK(157)*256+PEEK(158)
```

More Next Month! -Alex.

CLOSE ENCOUNTERS 4

by Laurie O'Shea

In recent months there has been some rather negative publicity about the socially disadvantaged aspects of microcomputers for children. We have read of child hackers wreaking havoc with US Defense systems in the pentagon and with telephone systems.

There have been a few rather alarmist articles about children becoming psychiatrically disturbed and addicted to computer games. Dr Misra - a consultant psychiatrist at Glasgow Hospital in Scotland - claims she has been treating youths for "computer addiction".

Dr Misra reported that one boy was so ill and psychotic after being seperated from his computer that he had to be hospitalized. He suffered from withdrawal symptoms from his computer.

We have to be realistic and try to get a balanced point of view.

Glasgow is a bleak industrial city, in decline, with unemployment exceeding 24% and with many social problems. This boy hay have had other social and enviromental problems leading up to his "computer addiction".

Some education authorities also question the value of computers in education. Some of these authorities want more research done before we expand the use of computers in school.

Well, looking at the other side of the coin, there is plenty of proof that even child computer "hackers" can turn out to be happy, adjusted adults.

Bill Gates, co-founder of MICROSOFT, was a teenage hacker who got into all sorts of problems because of his insatible curiosity about computing. Look at him now!! President of a large corporation.

Similarly with Stephan G. Wozniak and Steven Jobs, the co-founders of Apple Computers, who were both high-sprited young hackers who nearly got themselves into serious problems with "hacking".

Computers have an important role to play in assisting brain damaged children and adults in rehabilitation. In my own experience with children, I've seen over 200 children benefit from computing and only one boy has temporary problems. He came from a very disturbed background.

Children with Autism and severe epilepsy offer a real challenge in being helped with the use of computers, as well as brighter retarded children, especially those with Down's syndrome.

As many of the readers of "Australian CoCo" are teachers, and other readers may have children or have friends with children requiring special help, looking at the use of computers in educating and rehiblitation them could benefit many children.

The key is the willingness to experiment and the determination to be patient. And above all children are themselves great teachers and children can help other children.

Autism is a condition where a child rejects practically all human contact. The word comes from the Greek - autos - and means self-love, the ultimate in narciscissism.

Psychiatrists state it as abnormal selfabsorption characterized by lack of response to people and limited ability to communicate.

Working with retarded, autistic children and otherwise disabled children, it is best to teach parents along with their children. This is wise for many reasons as inter-action with adults is an important aspect of socializing as well as learning new educational skills.

I've seen an eight-year old autistic girl after only 3 or 4 sessions with her mother, start to spontaneously opperate a learning game on a computer. She'd acquired quite a good grasp of computer skills in a few hours.

Helen (not her real name) and her mother developed quite a good relationship while playing games and educational programs on the computer together. Helen's mother had reported that the little girl never responded to her previously in any way - seemingly to regard the mother as a "robot" (a typical autistic child).

Over a period of a few weeks Helen seemed to enjoy using the computer with her mother and seemed to become warmer in her responses - as if the computer acted as a human "interface" between the two of them and a key to meaningful communication through which a lonely child could interact with the world.

We have to think creatively and sensitively when we use computers with children. While doing this, we may learn many new skills and a lot more about ourselves than we realise is ever possible.

One of the most common disabilities in children is Down's syndrome. These children are often born in a family without any previous evidence of disabilities, and quite frequently to older mothers. They are brighter than most other retarded children.

Greg was a gentle, happy nine year old boy with Down's syndrome. (Again most such children are gentle and sociable.) His father was a doctor who had asked me to help him sort out his difficulties with a new business computer system.

To the surprise of both of us, Greg learned faster than his father, (please I'm not having a POKE or a PEEK at doctors,) and quickly became adept at manipulting the computer. Again it created a bond between father and son. (Dad had been quietly admitting to a bit of embarressment over his son's disability.)

Greg (again like all of these children, not his real name) became so absorbed and challenged by computing that his Dad was persuaded to buy him a machine of his own and both had a lot of fun together playing games.

Again the computer became a "social interface" rather than a machine. This is an important aspect of computing that requires very careful thought. It may be one of it's most important aspects of using computers with children, especially those with disabilities or social problems.

An eight year old autistic boy would not learn without his ten year old normal brother being present. Gradually the autistic boy, John, became so proficient that his older brother, Michael, was able

to phase out of the learning program.

Again both boys developed a comradship that was previously absent. Instead of being a "tool" to be manipulated by John, Michael became a real friend with his brother as they played games together on their computer.

The computer helped the whole family develop better relationships. With disturbed behavior patterns exhibited by autistic or brain-damaged children, family relationships can become very strained. Parents become tense, children have difficulties with each other and life becomes very difficult.

We have to take into account parental expectations of their children. We are all proud of our children aren't we? (I know my heart swells with pride at my two childrens' achievements and hurts with their disappointments and setbacks.) So imagine how the parents of disabled children feel?

The more they can achieve, and this is where computers can really help, the more pride a parent can feel and the more positive the relationships between parents and children.

Children with disabilities often have short attention spans and need to be gradually encouraged to take up a new skill, but as they become absorbed in the fun of computing, their attention span may be rapidly extended to quite useful levels. This may help them in other skills including general learning efforts.

Youngsters with disabilities often appear restless. This may, to a large extent, be due to their more limited range of activities. They are usually denied the children's world of "gangs", climbing trees, riding bicycles, rushing here, there and everywhere, burning up that remarkable amount of raw energy and bubbling enthusiasm that is childhood.

Such children often show a remarkable persistance with computers because it is a world that they can explore and have a large degree of control and even adventure. All children need to master some aspects of their environment. For children with many disabilities computing can be that opportunity to challenge, be challenged and to master part of the world around them.

Paul, a ten year old boy, who had been diagnosed as partly autistic but who had developed sufficient social skills to participate in a special class in an ordinary school, was one such child.

Paul drove his family to intense irritation by his inability to stay still. Similarly at school, Paul's teachers commented that his poor concentration skills prevented him from learning successfully. The child would always be touching things (and breaking them) and his restless roaming at school and home led to a serious confrontation.

Paul was to be considered for institutionalization. The family purchased a home computer and the other children were only mildy interested after the novelty wore off.

Paul however, took to it with so much enthusiasm his parents were unable to believe it. The boy was able to concentrate for longer and longer periods.

Paul and Graham (his younger brother) became inseparable friends after Paul showed the younger brother how to do some very interesting things with Logo.

When the family purchased a turtle robot which the boys could manupulate with computer commands, Paul's world entered a new and remarkable period.

Other children in the neighbourhood came to play with Paul and Graham (mostly the six year old's friends) but Paul became the center of a growing group of older and younger children. One child whose brother had died of leukemia and who was suffering severe depression became part of the group.

Paul involved little Jimmy in the activities and within weeks that child too, showed an unbelieveable change. Paul and Jimmy became buddies and Jimmy's terror of dying (his brother suffered for 3 years a terrible illness), faded to the background.

This is another example of the "social interface" aspect of computing, especially with the disabled and brain-injured. Thus we gain by using computing activities as a social learning experience rather than just regarding it as a machine.

There are some special aspects of using computers with such children. Over 17% of high school children show some signs of a learning problem. Over 40% of prison inmates have a learning problem or a functually illiterate. Perhaps it is more humane to present these difficulties as an over representative percentage of inmates in prisons and mental hospitals are disabled.

Logo is an exiting language to use with children and Tandy Logo is child-orientated. Logo has fascinating possiblities for use with disabled children because the child is free of most of the constraints of BASIC and similar programming languages.

Special training is not needed with Logo and children can commence programming within a very short time on their first lesson. It ought to be considered by all parents and all teachers, but especially with special education.

Other than Logo there are excellent programs in the Tandy range, such as the Sesame Street and similar series of educational programs. A "mouse" is valuable for input by children unable to efficiently use keyboard or programs designed to use joysticks or touch pads or even specially designed interfaces for children with severe disabilities.

CoCoMax and Graphicom offer fascinating possibilities for use of graphics with children.

CoCoMax especially lends itself to use by children and should open a real challenge to creative efforts by young and medium aged children.

The programs offered in "Australian CoCo" and "Australian Rainbow" are often quite challenging and should be readily adapted for use by disabled youngsters. The readers of these magazines offer a magnificent collective resource.

Two books are worth considering for the bookselves of every teacher and parent who wish to enlarge the horizons of our children.

They are "Mindstorms: Children, Computers, and Poewerful Ideas" (New York: Basic Books, 1980) by Seymour Papert one of the originators of Logo and "Special Technology for Special Children" by Dr. E. Paul Goldenberg. Both have special application for use with disabled youngsters.

Parents are eductors too. Maybe the best because they love their children. (Wish certain preschools knew that! G.) Secondly, computing, especially with Logo, allows us to encourage young minds to seek their own destiny and truths.

Thirdly, for any parents or teachers of disabled or disturbed children, Piaget's vision applies just as much to our special children as it does to their "normal" brothers and sisters. We just have to find to means to achieve it. I hope I have contributed some useful thought and ideas to this end.

Finally for parents worried about children becoming addicted to computing - that is up to us. My ten year old son has been fascinated by computers since he was six. He even has his own computer magazine subscriptions.

Computing is an exiting part of his life but he shares it with football, camping, cricket, Boy's Brigade and other activities. We have encouraged him to keep it in perspective. That is the answer in the long run, keeping all activities and interests in perspective.

TALKING TURKEY

by Mike Turk

(Editor's Note: I asked Mike for this series of articles because so many of our readers/contributors are involved in study, that it makes sense to try and assist you as you work, if we can.

Look forward too, to an article soon on the problems of the exceptionally gifted child - this article is a response to the expressed needs of a number of parents whose children read this magazine. G.)

KEY CONCEPTS:

This series will contain the following:

- Hints and techniques for secondary and tertiary students.
- Note taking, assignments and revision
- Pre-exam technique
- Exam technique
- Subject specific skills
- Job hunting

This month we also covered a problem solving technique:

- define the problem
- break it up into think-size chunks
- work backwards by figuring out what you need to do a step at a time.

Introduction

Late last year a friend of mine came over a week before his final exams to get some help with some physics problems.

Within an hour or so it became painfully obvious that he had not adequately prepared during the year for anything - let alone this subject. He did not know that there was a set of principles that he could follow that would guarantee better marks and generally make studying a lot easier.

My friend made a fundamental mistake - he failed to prepare properly and he left his run far too late. As we chatted about how to avoid similiar problems in the future I made some notes. These articles are an expansion of those notes. If you are a high-school, college or university student then this survival kit could turn a potential failure into a pass and a potential pass into a credit, distinction or even better. The guide will also help you to prepare for getting the job that you want.

This is what I intend to cover in this mini-series:

1. Note-taking, assignments and revision,
2. Pre-exam preparation,
3. Exam technique,
4. Techniques for specific subjects,

and 5. Job hunting.

A Diversion? .. Maybe Not!

Why these topics? I'll apply the old problem - solving technique to show why they are all necessary. The first step is to define the problem. If you can define the problem then you are part way there.

Problem:

a. How do I get the job I want?
b. How do I get the marks I want to go to the uni/college/trade course of my choice?

Now the solution - I'll work backwards:

To get the job you want, you have to convince your potential employer that you are the BEST candidate for the job. This is where job hunting (5) comes in. There is a 'Catch 22' about job-hunting. When I first left Uni it was like beating my head against a brick wall. It seemed to go like this. To get a job you need experience. To get experience you need a job! Hmmm!

Failing that what do you do? Well, if you haven't got the experience, you need to convince your future employer that you can do the job anyway..... Good marks in appropriate subjects, good samples of your handywork and a record of holiday employment should all help depending on the type of job you want.

A suitable approach to an employer, in person or in a letter and good handling of the interview is a must. In a later article I will cover these in more detail.

To impress a potential employer in some fields of work or to get into the next step of education, you need good marks. Good exam technique (3) will enable you to make the best of an exam, to express yourself clearly and to get the examiner on side. The key here is to figure out the purpose of each question in the exam and to then tell the examiner in a clear way what he/she wants to know.

To do well in exams you have to prepare. It is not as difficult as you may think to do this. However it does require consistent, thoughtful preparation, both immediately prior to the exams and during the year (1,2).

For some jobs, it is important to demonstrate other skills - people skills, manual and creative skills. Good marks will of course give you an advantage over equally skilled applicants.

Apart from the general principles such as exam preparation, exam technique and job-hunting, each subject or group of subjects has its own specific techniques that you can use to help you learn and express what you have learnt, especially as these days in some subjects in some states there is less emphasis on exams (4) ... and so on.

As you can see each of the areas that I mentioned in the introduction are relevant. They are the essential building blocks in the solution to the problem I stated earlier.

An Example.

Let me illustrate what I am saying with a simple

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DISK CRASHES Part 2

DISK RECOVERY– BLOOD SWEAT and TEARS SECTION A

by Ian G. Clarke

Part I of this article dealt with the cause and effect of my recent (and first) disk crash. I mentioned that the disk could be recovered and that is what Part II is all about.

For disk recovery you need four extra things - pencil and paper, time, a disk zap utility and a knowledge of how the computer stores and uses directory and file data. We'll dispose of the two easy things first and then move on.

**Pencil and paper. Just because you have a computer it doesn't mean you have to give up writing. I find it easier to make notes as I go along rather than relying on memory (both mine and the computer's).

**Time. It took me about eight hours and I still haven't fully tested all the recovered files. Mind you this was the first time I've done this! The disk had more than twenty files on it and I did waste six hours... more on that later.

**Disk zapper. For those of you who are not familiar with the term, whip out the notebook you keep for buzz words. A "zapper" is a disk utility which enables the user to read the information stored on the disk without loading the file. It also enables the user to change said information byte by byte (i.e. character by character). It may also do a variety of other things but we are not concerned with those here.

**Disk data storage. A number of excellent articles have appeared in Rainbow and CoCo magazines dealing with how the directory and FAT/GAT function (no not Fat Cat... File Allocation Table or Granule Allocation Table). I will therefore only refer to this in brief. Should you be interested in further research dig, out your old Rainbows/CoCos or order them from Graham. This knowledge is essential for disk recovery... after all you have to have some idea of what to look for. (I know it ends with a preposition - get off my back!). I will however pass on the minimum information necessary for understanding the recovery process as we go along.

Having now dispensed with the preliminaries we move on to the main event.

You will recall from Part I that I was left with a double-sided disk which used the second side as the backup and I had crashed both sides.

The first step was to find out what had happened. I listed the directory (DIR) and found I had twenty-odd files using a total of 35 granules with 44 granules free.

Pardon? That adds up to 79 granules and there should only be 68 granules available. So I have already found out that the directory track can be read but the system cannot correctly identify the disk storage space allocation.

Let's quickly look at how the disk is formatted. Tandy's DOS uses 35 tracks one of which (track 17) is set aside for the directory. This leaves 34 tracks for file storage, each track consisting of two granules, each granule consisting of nine sectors, each sector consisting of 256 bytes (or characters if you like). Each file stored on the disk will commence at the start of a granule - never part way through.

How does the computer know where to look for a file?

It uses track 17, the directory track, to store the necessary information. Each time a file is saved to disk, the computer grabs a 32 byte block out of sectors 3 to 11 on track 17 and uses the first half of this block as follows:

```
Bytes 0 to 7 - File name
Bytes 8 to 10- Extension
Byte 11 - File type (0=BASIC 1=ML 2=DATA
          3=ASM)
Byte 12 - File format (0=BINARY $FF=ASCII)
Byte 13 - No. of 1st granule of file
Byte 14 - Unused
Byte 15 - No. of bytes in last sector of
          file.
```

The first 68 bytes of sector 2 are used for the FAT (or GAT). The remainder of track 17 can be dismissed out of hand.

The keen reader who is still with me can now grab a cuppa and prepare for action. We are ready to begin the recovery procedure. It is now 11pm - not essential for disk recovery but in my house it means peace and quiet for 3-4 hours (hopefully).

So we have time, pencil and paper, a smidgeon of knowledge... what about a zapper? I have written my own IGCZAP which has been submitted for publishing at the time of writing this article but any zapper will suffice.

We now run the zapper and insert the crashed disk.

Using my noodle I assume that my backup copy has been damaged less than the original (don't ask me why!) and so we look at the FAT (track 17 sector 2 first 68 bytes). Why? Because as the directory appears intact but the granules do not add up correctly we assume the FAT is corrupted. It certainly is! All but one of the 68 bytes are showing a value of $FF (hex for 255) which tells the computer the corresponding granule is currently free for use. If the granule is in use it should show either a value between $00 and $43 or a two digit hex value starting with "C".

The values from $00 to $43 indicate (i.e. are pointers to) the next granule used by that particular file. (Granules are numbered 0 to 67 not 1 to 68). If the value is in the form $Cn this indicates this granule is the last one used by the file with "n" being the number of the final sector used.

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MINDSTORMS AND MICROWORLDS 2

by Laurie O'Shea

(Tandy have just released DL Logo for CoCos with Disk systems. This Logo appears to be an excellently conceived version which will find favour with those who work with Logo professionally.

We'll provide more information on DL Logo, as soon as we can motivate Ross Eldridge (who has the only copy in Queensland), to gasp estatically on paper instead of verbally over this product!. G.)

In my previous article on LOGO, I indicated some valuable aspects of this computer language in education and the home, particularly with very young children and the disabled. There is another important area where LOGO can be unique.

Girls are not as readily involved in computing as boys. This may be partly because of more encouragement being given to boys, as well as the emphasis on "SPACE INVADERS" type computer games. But there are other reasons including the myth that computing demands a high degree of mathematical skills or interests.

LOGO helps introduce girls to computing because of its lesser emphasis in mathematical skills and the ability of very young children to relate to LOGO. The earlier children are introduced to computing the more likely girls are to become involved.

This is probably due to conditioning procedures and if computing activities start after about six years of age the more likely it is to be regarded as a boys' activity. In fact it is believed that the optimum age for children to start with computing to avoid this conditioning is around four or five years of age.

(By the way, I do not subscribe to the myth that mathematics and science are predominantly male areas in skills. My daughter is good at mathematics. My wife taught mathematics and science and has a degree in these subjects, and would run rings around me anytime in maths because she likes the subject. I don't. I like science however. We must avoid sterotyping.)

LOGO can help introduce mathematical concepts, even quite complex ones in such a way that children can quickly grasp the principles in an experimental and interactive way. Children learn to actually solve problems in mathematics rather than by rote learning.

LOGO allows some very active ways for children to learn programming. Since a turtle is a concrete concept that even a very young child can perceive this leads to fascinating possibilities.

Mechanical robots can be used - also called TURTLES. These are wheeled robots attached to the computer and responding to the commands typed into the computer via an interface and cable.

The PENUP and PENDOWN proceedures draw lines and patterns on large sheets of paper and buzzers and bells can also be programmed on various turtles. A range of turtles called the TASMAN TURTLES are manufactured by FLEXIBLE SYSTEMS in Hobart, Tasmania which also have a robotic arm as an option.

One model attaches via an RS232 interface so should be suitable for TANDY CoCo's.

The electromechanical turtles open the opportunities for children to be physically involved in learning to simulate the turtle's actions. They can also learn debugging procedures since they can see their success and mistakes in a virtual, experiental situation.

After fixing a procedure "manually" a child can become more involved into fixing it symbolically. The TASMAN TURTLE and its cousins enable children as young as three to become really involved, so its never too early.

An english robotic turtle offers even more fascinating possibilities for disabled children.

Blind and partially sighted children have great difficulty in gaining perceptions of their environment and computing is also a difficult concept for such children.

Speech synthesis will enable older children with such disablilities to use computers but the reality of LOGO is not possible. The english turtle uses various sensors including a bar-code reader sensor. Thus with speech synthesis and bar-coded cards and strips on the floor a blind child could move the turtle (or "buggy" as this machine is called) around and get a response.

This would enable the child to explore the room with clever planning of bar-code cards and strips. Some printers will produce bar-codes and I'm sure that Australian manufactureres can come up with a bar-code "sensor" for a TURTLE robot.

In my research so far I've not come across the actual use of such a system but there are many blind or partially sighted children, teenagers and adults. There are many other fascinating possibilities for the actual use of bar-codes and speech synthesis in assisting the disabled but those are outside the scope of this particular article and I'll cover them later.

For anyone considering designing/modifiing such a turtle, the english system also has an infra-red sensor and this may help such a system to be manoeuvered to use the bar-codes. And suitable software would need to be developed.

LOGO offers a child the chance to also pretend to be the turtle and work through a turtle-graphics procedure as the turtle might suit. This makes it possible for children to understand difficult geometric constructions even if they have little or no formal traning in geometry. Playing turtle involves also the thinking through of a procedure before programming it, as much as it does walking through an existing procedure.

This is important in respect to more complex procedures such as teaching the turtle to make a circle. As the children develop the concept they can practice FORWARD and turning until they have "de-buged" the program on the floor and then try it out on the computer.

Playing turtle could be most valuable in the 3 year - 10 year age group and with disabled children of any age. This procedure can be repeated as often as necessary in say, developing a CIRCLE sequence until the children begin to reason out the details of how much to turn, how many times to repeat the process and how big they want to make each step.

One of the basic philosophical concepts of LOGO (especially as proposed by Seymour Papert) is "powerful ideas". Papert proposes that all computer microworlds (see earlier article) should be constructed around a powerful idea valuable enough to justify your time in designing it and the student's time in exploring it.

Seymour Papert (in "Mindstorms") offers four criteria for computer based microworlds, powerful ideas. They should be simple, general, useful, and syntonic. What Papert describes as "syntonic" is a characteristic which focuses on how an idea assumes power within the mind of an individual.

An idea is powerful for a person if it relates and unifies knowledge gained in diverse experiences and it can be reduced to a concrete model that serves for the basis of the solving and interpretation of subsequent problems. Models prove more or less powerful depending on the individual's interests and experiences. But the ideas behind a microworld must be formulated as simply as possible as an idea can only be powerful when understood.

An excellent way to harness the student's understanding for involvement and exploring with ideas is to liberate their creative expressions. Because LOGO is a pathway for free exploration, knowledge built from LOGO is a syntonic, intimate part of the self.

Such is the power of this approach to learning, that it frees the individual to create within a social context. This makes the most powerful ideas of our culture accessable. Children are able to roam free whenever they choose within the boundaries established by the rich and highly structured LOGO environment.

LOGO appears to touch something quite fundamental in children's learning procedures entirely irrespective of the school process of the child. Even 10-year olds can grasp concepts such as negative numbers and cartesian co-ordinates in a very short time in mathematics. Again girls do as well as boys.

With LOGO the definition of "program" is greatly broadened from the idea we have about the word in normal programming. A LOGO program is a whole show. A LOGO program is a whole learning experience which is very entertaining, stimulating, as well as educational. Children can physically act out the programs by "playing" turtle.

It is permissable, even encouraged for children to include skits, songs, dances, acts, and routines. But "routines" are not used to mean part of a computer program. Rather in LOGO we write procedures. The "top-level procedure" runs a program that may be quite simple or may involve the use of several subprocedures. If it makes use of subprocedures, this top-level procedure may be referred to as a super-procedure.

As children build up the sub-procedures, top level procedures and super-procedures and develop powerful ideas, they can really throw themselves into the project with enthusiasm and a joy for learning. This enjoyment of learning to reason, to think, to challenge, to perceive the complex world about them will be a benefit to all children.

To disabled and culturally deprived or disadvantaged children the benefits of LOGO learning when applied this way can sow the seeds of enthusiasm for learning and self-discovery that will last a life-time.

Learning is the focus of the LOGO environment. What one does for oneself.

LOGO is an excellent way of using computers in the context of a "social interface" as I have detailed elsewhere. It has been observed in several different educational concepts that children seem to collaborate and teach each other more than when they work with microcomputers.

It has been shown by studies (and I've seen it myself), that children talk more to each other about problems they are having when they work with microcomputers, as opposed to other classroom work. But the occurence and the quality of the interaction when children work together are important because collaboration in work is an important learning context.

As I pointed out in the first article, children (or adults - even those with minimal literacy skills), can rapidly develop programs and these are far simpler to design than BASIC or any other language.

A square can be developed by the following program.

```
TO SQUARE: SIZE
REPEAT 4 [FORWARD: SIZE RIGHT 90]
END
```

The SQUARE 100, SQUARE 75, SQUARE 50, will draw with 100, 75, or 50 turtle steps. From the SQUARE procedures (and others) can be built up complex patterns, designs and effects. LOGO has built-in comands, called primitives (FORWARD, BACKWARD, LEFT, RIGHT, PENUP, PENDOWN, etc) and we teach the computer procedures using the primitives.

Using the SQUARE function we can build a tower as follows:

```
TO TOWER
REPEAT 4 [SQUARE FORWARD 40]
END
```

LOGO also offers the advantage that you can build up top-level procedures using lower-level procedures that you have not yet written. You can even start in the middle and work outwards from there.

A lovely design can be made by the following procedure, a one-line procedure (try that with BASIC!):

```
TO DESIGN
REPEAT 6 [FORWARD 20
  RIGHT 60 SQUARE 75]
END
```

This makes a procedure that produces a design by repeatedly going forward, turning and drawing a sqaure. It repeats the following steps six times:

go FORWARD 20 units (turtle steps),
turn RIGHT 60 degrees

and draw a square of size 75 turtle steps (units).

There is a variation of SQUARE which is important. It is 'SQ.'

```
TO SQ.:SIZE
FORWARD:SIZE
RIGHT 90
SQ:SIZE
END
```

'SQ' makes the turtle retrace the same path over and over again or until you tell the computer to stop. The command 'SQ 100' makes the turtle go FORWARD 100 units (turtle steps) RIGHT 90 degrees, and then do SQ 100 again and so on.

This can then be extended to a fascinating procedure called POLY which can give children unlimited variations on the screen. POLY repeatedly repeats the sequence: go FORWARD some fixed distance: and turn RIGHT some fixed angle. The procedure takes as inputs, the size and the angle of each turn:

```
TO POLY: SIZE: ANGLE
FORWARD: SIZE
RIGHT: ANGLE
POLY: SIZE: ANGLE
END
```

POLY 80 144 produces a six-point star; POLY 50 120 a triangle; POLY50 160 a nine-pointed star. There are countless variations.

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VAGG 6

by Johanna Vagg

It's the Queen's birthday weekend, two years since Greg Wilson died. July's magazine was late and I thought Greg must be sick as his magazines were never late.

When the magazine arrived I was shocked to read that he was dead. Apparently he died before I managed to get my first two articles on paper. I had written them that weekend.

Greg had called for Australian authors to help him put out an all-Australian magazine.

Although I am not all Australian, I answered his call. To show that I could write, I sent him a long letter, adding that I thought 'a pretty turn of phrase' would not be sufficient for a computer magazine. He answered by sending me a present (some CoCoOz tapes) and telling me to get on with it!

Naturally I thought my writing career was over before it began. Some time later Graham rang me. He had found my articles and was checking if they were meant for CoCo, which he was planning to print.

Do you realise that if you take our first editor's initials, turn the 'W' upside down, you get our second editor's initials? I wonder if there is any significance in that??

I told Graham not to expect any more articles. I had the perfect excuse in which to hide my cold feet - I had four kids and was expecting my fifth.. but just as Greg had inspired confidence, so did Graham, and two years later I am still having articles and programs printed.

Although I didn't fully believe my own words the other day, I think Graham made me feel confident enough to say I'd come to CoCoConf and talk to people about something called basic BASIC??

Sometimes I think I should be writing hints for new Mums instead of new computerists.. How to feed a family on limited funds.. shortcuts in the home.. even haircuts in the home.. I'm an expert on changing nappies. I had six months of changing nappies in a children's home, but that was nothing: with my five kids, I've changed 25,000 nappies, give or take 1000.. No, I won't continue on that theme, but maybe I could write about kids and computers in the home. Next time.

CoCo

DISK CRASHES Part 2

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If the FAT shows any value other than those already mentioned it has been corrupted.

So we have over twenty files and only one granule showing as used. The next step is to list directory information. I don't have a printer so out with pencil and paper. Working through track 17 sectors 3 to 11, we list all file names, extensions, file types (if not obvious from the extension), first granule used and number of bytes in final sector. We also draw up a blank FAT with 68 empty boxes so we can jot down the FAT values as we find them. On listing the directory we find some file names with $00 as the first character. This means the file has been killed and we may be able to make use of this.

The next step is to use the zapper to read each granule starting at the first granule (i.e. granule 0 on the first track). If the first section of the first sector is full of $FFs then the granule has not been used and we can immediately write "FF" in the appropriate box in our blank FAT. I was able to account for about 10 of the 68 granules by doing this.

Next we look at the killed files. I should mention here (I should have earlier), that it is a great advantage if you have created the files/programs which you are trying to recover, as you will have a fair idea what they should look like.

Now back to the killed files.

We get the first granule number from the directory information and have a look at the first sector of that granule. What we will probably see is a mixture of garbage numbers and recognisable words. The reason is that BASIC and BIN files are saved in "crunched" (or binary) format.

This means that all BASIC reserved words are allocated a numerical code and this code is saved instead of the word. This code is called a "token" and instead of seeing "PRINT" we see a single graphics character. However variables and strings should be obvious and recognisable and so should remarks.

Most BASIC programs start with remarks detailing program name, author etc., and this is what we are looking for. (There's that preposition again!). Does this remark information correspond with the killed file?

Yes? Good - we mark another "FF" in the appropriate FAT box. Be sure though; a "live" file might have overwritten this granule. If the killed file was in ASCII format we would be even luckier as it would be completely readable - no tokens, which is why it takes more file space.

We've gone through the sweat and tears - the final article will deal with recovery of "live" files. Meanwhile use a zapper to look at a disk. Don't bother changing anything (please!), just look at how different types of files are stored.

Alright... if you must experiment with changes backup a disk and use the backup. Then it doesn't matter if you crash it; it can be re-formatted.

TALKING TURKEY

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example. Consider a house suitable for living in, your standard three bedroom model will do.

When you see a house ready to move in there is a lot you take for granted.... Plans are drawn up and approved; there are hidden structures built on firm foundations..... (preparation eh). There are the visible external and internal surfaces, (exam marks and samples of work) and there is the sales presentation and sale of the product (job hunting). A house built by skilled tradesmen is more likely to sell and to last (specific skills).

What's Next

This month you have seen the plans. Next month we lay the foundations: good note-taking, assignments and revision.

HELP!

As these articles appear, you may have a few hints or tips that you may care to share with our readers. You may have some specific questions you want answered.

I will try to incorporate them in future articles. I will start with general principles but I am looking for some subject-area specific hints not only in the numeric, scientific and logical fields (my particular speciality) but also in the areas of communications (English, History), language, manual and visual arts and crafts (art, pre-trade), music, commercial and people skills etc... you name it.

Please send your hints and questions to:

Mike Turk,
3 Lochbuy Street,
Macquarie, ACT 2614.

MINDSTORMS AND MICROWORLDS 2

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These recursive procedures SQ and POLY are very simple but they are only a beginning. Recursion is a powerful idea that can be used to obtain much more complicated effects. A simple further step produces POLYSPI.

POLYSPI is a powerful idea that is very important as a procedure and itself forms a basis to many exciting microworlds and top-level procedures.

```
TO POLYSPI: SIZE: ANGLE
FORWARD: SIZE
RIGHT: ANGLE
POLYSPI: SIZE+3: ANGLE
END
```

The command POLYSPI 1 120 gives a triangular spiral in which each of the sides is three steps larger than the previous side. The following occurs

```
FORWARD 1
RIGHT 120
FORWARD 4
RIGHT 120
FORWARD 7
RIGHT 120
```

More ideas next article as we have not yet begun to explore the possibilities of LOGO!

CLASS OF '86

Using a Tandy computer when involved in the education of people of all ages has definite advantages.

Support is the thing with a computer, and Tandy do support you.

To underline this, Tandy are about to unveil their all new, totally revised Software Sourcebook, which for the first time will also be of benefit to owners of other brands of computers.

This is a major piece of work, and Carel Davey (Tandy Head Office) has been burning the midnight oil to get the thing out before the schools go on holidays.

She has succeeded and this valuable edition, which covers the software available on MS DOS computers, is about to be made available through your local Tandy store.

Two other Pieces of news for the Educator include the long awaited release of PenPal (for CoCo's) in Australia through Paris Radio in Sydney and our move into Viatel.

PenPal is a desktop system after the style of DeskMate, but in this case the program is better because it allows for greater control over the facilities provided. These include a word processor, a spreadsheet, a data base, a graphs package and a 300 baud communications package.

The whole lot integrates and is very easy to use. At $149.95, it is not cheap, but it is good software, and it is worth the price.

Viatel, on the other hand is cheap, and is a very useful tool for use in the school. Apart from the very valuable information available from a number of service providers, such as Australian Bureau of Statistics, Westpac, most of Australia's Education Departments, and many of Australia's Universities and CAE's, we at Goldsoft will also have extensive material available for Tandy computer users.

The intent is to have software for download, and articles to both read and discuss. Later on we'll run class projects in the system as well.

Viatel will make a big change to the way we use our computers, both in the school and in the home.

WORD USAGE

by Dean Hodgson

THIS is a simple word usage exercise prog-ram I wrote last year for another teacher.
Instructions are in the pro-gram, and 16K is all that is required.

The Listing:

```
1 GOTO50
10 PX=PEEK(136)*256+PEEK(137):CX
=PEEK(PX)
11 BD=RND(8)*16+112:IFCX=BD+15 T
HEN11
12 BK=1:POKE282,255
13 DL=0
14 A$=INKEY$:IFA$<>""THENPOKEPX,
CX:SOUNDASC(A$),1:RETURN
15 DL=DL+1:IFDL>4THENPOKEPX,VAL(
MID$("14130711",BK,2))+BD ELSE14
16 BK=BK+2:IFBK>7THEN12
17 GOTO13
20 I$="":GOSUB30
21 GOSUB10
22 IFA$=CHR$(8)ANDLEN(I$)>0THENP
X=PX-1:I$=LEFT$(I$,LEN(I$)-1):PR
INT"-";:PRINT@PX-1024,;:GOSUB13:
GOTO22
23 IFA$=CHR$(13)THENRETURN
24 IFLEN(I$)=LX ORA$<" " THENSOU
ND1,1:GOTO21
25 I$=I$+A$:PRINTA$;:GOTO21
30 PX=PEEK(136)*256+PEEK(137)-10
24:PRINTLEFT$("----------------
----",LX);:PRINT@PX,;:RETURN
35 K=31:IFLEN(A$)<K+1THENPRINTA$
:RETURN
36 IFMID$(A$,K,1)<>" "THENK=K-1:
GOTO36
37 PRINTLEFT$(A$,K-1):A$=MID$(A$
,K+1):GOTO35
40 CX=PEEK(1024)
41 BD=(RND(7)+1)*16+127:IFCX=BD
THEN41
42 BD=BD-6:FORI=0TO30:PRINT@I,CH
R$(BD);:PRINT@I+480,CHR$(BD);:NE
XT
43 FORI=31TO479STEP32:PRINT@I,CH
R$(BD)CHR$(BD);:NEXT:POKE1535,BD
:RETURN
45 PRINT@458,"press enter";
46 IFINKEY$<>CHR$(13)THEN46
47 RETURN
48 CX=PEEK(1024):FORM=1408TO1440
:POKEM,CX:NEXT:RETURN
50 READ NL,NQ:DIMQ$(NQ),A$(NQ),B
$(NQ),D$(NQ)
100 CLS:PRINT@107,"WORD USAGE":P
RINT@229,"WHICH LESSON? (1-"NL;C
HR$(8)")":GOSUB40
120 PRINT@366,;:LX=2:GOSUB20:LE=
VAL(I$):IFLE<1ORLE>NL THENSOUND1
,1:GOTO100
200 CLS:PRINT@98,"WHAT IS YOUR F
IRST NAME?":GOSUB40:PRINT@169,;:
LX=12:GOSUB20:N$=I$
210 IFLEN(I$)=0 THEN200
300 CLS:PRINT@129,"I AM NOW FIND
ING YOUR LESSON,  "N$"."
310 FORI=1TOLE:PRINT@237,I;
320 READC$:FORJ=1TONQ:READQ$(J),
A$(J):NEXTJ
330 NEXTI
340 SOUND89,10
350 CLS0:PRINT@192,"TYPE THE WOR
D THAT GOES IN THE  BLANK SPACE
THEN PRESS ENTER."
360 GOSUB45
400 POKE359,57:POKE65314,13:FORI
=1TONQ:TR=0:GOSUB1000
410 IF TR=0 THENSC=SC+1
420 NEXTI:POKE65314,5
430 IF SC=NQ THEN500
```

```
440 POKE65314,13:FORI=1TONR:Q$(I
)=B$(I):A$(I)=D$(I):GOSUB1000:NE
XTI
500 POKE359,126:CLS:PRINT@104,"E
ND OF LESSON"LE
510 G=INT(SC/NQ*100):H=(INT(LE/2
)=LE/2)
520 PRINT@170,"SCORE"G"%"
530 IF G>=90 AND H=0 THENI=LE+2:
GOTO600
540 IF G>=90 THENI=LE+1:GOTO600
550 IF G<40 THENI=LE:GOTO600
560 IF H THENI=LE-1:GOTO600
570 I=LE+1
600 IF I=LE THENPRINT@256,;:A$="
LOOKS LIKE YOU HAD SOME TROUBLE,
"+N$+".  BETTER TRY LESSON"+STR$
(LE)+" AGAIN.":GOSUB35:GOTO700
610 IF I<LE THENPRINT@256,;:A$="
YOU SHOULD GO BACK AND DO LESSON
"+STR$(I)+" AGAIN, "+N$+", FOR M
ORE PRACTICE.":GOSUB35:GOTO700
615 IFI>NL THENPRINT@260,"ALL LE
SSONS COMPLETED!":GOTO700
620 PRINT@256,;:A$="NEXT TIME DO
 LESSON"+STR$(I)+", "+N$+".":GOS
UB35
700 GOSUB45
720 RUN
1000 POKE282,255:CLSRND(8)
1010 PRINT@128+15-INT(LEN(C$)/2)
,C$;
1020 PRINT@256,;
1030 J=1
1032 IFMID$(Q$(I),J,1)<>"@"THENJ
=J+1:GOTO1032
1034 A$=LEFT$(Q$(I),J)+"-------"
+MID$(Q$(I),J+1)
1040 PRINT@256,;:GOSUB35
1100 J=1
1110 IFPEEK(1279+J)<>64 THENJ=J+
1:GOTO1110
1120 P=J
1200 PRINT@255+P,;:LX=7:GOSUB20
1210 IF I$=A$(I) THEN1500
1220 TR=TR+1:IF TR>1 THEN1400
1230 NR=NR+1:B$(NR)=Q$(I):D$(NR)
=A$(I)
1300 ON RND(4) GOTO1310,1320,133
0,1340
1310 A$="TRY AGAIN":GOTO1350
1320 A$="WRONG WORD":GOTO1350
1330 A$="NO, THAT'S NOT IT":GOTO
1350
1340 A$="OOPS...TRY AGAIN"
1350 IF RND(2)=2 THENA$=A$+", "+
N$
1360 PRINT@384+15-INT(LEN(A$)/2)
,A$;
1370 SOUND1,5:FORJ=0TO500:NEXT
1380 GOTO1200
1400 FORJ=1 TO 5:PRINT@255+P,A$(
I);:SOUND200,5:PRINT@255+P,"----
----";
1410 FORK=1 TO 100:NEXTK
1420 NEXTJ
1430 GOTO1200
1500 GOSUB48
1505 IFI>2AND TR=0 ANDRND(3)>2 T
HEN1580
1510 ON RND(4) GOTO 1520,1530,15
40,1550
1520 A$="GOOD":GOTO1560
1530 A$="YES":GOTO1560
1540 A$="THAT'S RIGHT":GOTO1560
1550 A$="SPOT ON"
1560 IFRND(2)=2 THENA$=A$+", "+N
$
1570 PRINT@384+15-INT(LEN(A$)/2)
,A$;
1580 FORJ=0TO10:SOUNDRND(255),1:
NEXTJ
1600 RETURN
3000 DATA56,5
3010 DATA"TWO,TOO,TO",THERE ARE
@ BROKEN WINDOWS IN THE ROOM.,TW
O,WE ALL WENT @ MELBOURNE FOR OU
R HOLIDAYS.,TO,THE BOYS HAD HAIR
 THAT WAS @ LONG.,TOO,I SAW THAT
 FILM @.,TOO,THERE IS STILL A LO
NG TIME @ WAIT BEFORE CHRISTMAS.
,TO
3020 DATA"TWO,TOO,TO",THERE ARE
@ SHOES IN A PAIR.,TWO,"MARY HAD
 A BAD COLD, AND JENNY HAD ONE @
 .",TOO,WASHING THE CAR TOOK ME
@ HOURS.,TWO,I SPENT @ LONG CLEA
NING MY TEETH.,TOO,I SAW THE ROA
D THAT LEADS @ THE OLD MINE.,TO
3030 DATA"IS,ARE",THE BOYS @ ON
HOLIDAYS.,ARE,TOM @ THE BEST OF
THE RIDERS IN OUR SCHOOL.,IS,I A
M PLEASED TO SAY THAT YOU @ ON T
HE PRIZE LIST.,ARE,THE CAT @ BUZ
Y LOOKING AT THE CANARY.,IS,TOO
MANY PEOPLE @ IN THE CLASSROOM.,
ARE
3040 DATA"IS,ARE",JIM @ WORKING
VERY HARD.,IS,DO YOU SEE THAT BI
RD?  IT @ A VERY RARE ONE.,IS,TH
ERE @ A CRASHED CAR DOWN THE ROA
D.,IS,IF YOU WORK HARD YOU WILL
FIND THAT YOU @ ABLE TO PLAY THA
T TUNE.,ARE,THE THREE GIRLS @ GO
ING TO THE PARTY TOGETHER.
3041 DATA ARE
3050 DATA"WAS,WERE",AT BREAKFAST
 TIME I @ HUNGRY.,WAS,THE MILK @
 SPILT YESTERDAY.,WAS,WE @ AT HO
ME ALL DAY.,WERE," @ YOUR BROTHE
R AT HOME?",WAS,YOU @ IN FRONT O
F ME.,WERE
3060 DATA"WAS,WERE",THE TWO BOYS
 @ AT SCHOOL.,WERE,INSIDE THE HO
USE THE LIGHTS @ SWITCHED ON.,WE
RE,MY PET CAT @ CHASING A MOUSE.
,WAS,HIS SISTER @ GOING HOME.,WA
S,TODAY OUR COWS @ MILKED EARLY.
,WERE
3070 DATA"IS,ARE",YOU @ PLAYING
CRICKET.,ARE,WE @ QUITE CORRECT.
,ARE,OUR PET DOG @ CALLED 'BOOTS
'.,ARE," @ THAT DOOR LOCKED?",IS
,IT @ TOO EARLY FOR BREAKFAST.,I
S
3080 DATA"IS,ARE",MOTHER DUCK AN
D HER DUCKLINGS @ SWIMMING.,ARE,
" @ YOU COMING WITH US?",ARE," @
 THAT YOUR CAT?",IS,IN THE YARD
THERE @ THREE PIGEONS.,ARE,SIX B
IRDS @ ON THE FENCE.,ARE
3090 DATA"WAS,WERE",ALL THE FLOW
ERS @ PICKED.,WERE,TOM @ A GOOD
STUDENT.,WAS,JACK AND JILL @ GOI
NG FOR WATER.,WERE,A PEN @ ON MY
 DESK.,WAS,SOME PENCILS @ FOUND
ON THE FLOOR.,WERE
3100 DATA"WAS,WERE",A SOCK @ IN
THE BASKET,WAS,SOME CLOTHES @ IN
 THE BASKET.,WERE,A BOY @ LOOKIN
G FOR HIS FRIEND.,WAS,THEY @ GOO
D SWIMMERS.,WERE,THE CATS @ MAKI
NG A NOISE.,WERE
3110 DATA"HAS,HAVE",TOM @ A NEW
HAT.,HAS,MARY @ A NEW DRESS.,HAS
,TOM AND MARY @ NEW SHOES.,HAVE,
I @ A DOLLAR NOTE.,HAVE,YOU @ A
NEW BOOK.,HAVE
3120 DATA"HAS,HAVE",DOES JUNE @
A NEW DRESS?,HAVE,MY SISTER @ MA
NY PAIRS OF SHOES,HAS,WE @ TWO B
ASKETBALLS.,HAVE,OUR CAT @ NINE
KITTENS.,HAS," @ YOUR FRIENDS AR
RIVED YET?",HAVE
3210 DATA"HAS,HAVE",WHERE @ THEY
 GONE?,HAVE,@ MY BROTHER ARRIVED
 YET?,HAS,WHY @ YOU DONE THAT?,H
AVE,MY SISTER @ GONE SHOPPING.,H
AS,@ THE DOGS BEEN FED?,HAVE
3220 DATA"HAS,HAVE",THAT BOY @ H
IS BOOK.,HAS,ALL THOSE ORANGES @
 BEEN SOLD.,HAVE,WHERE @ THE BIR
DS BUILT THEIR NEST?,HAVE,HE @ B
EEN GONE FOR SOME TIME.,HAS,@ OU
R MATHS BEEN MARKED?,HAS
3230 DATA"I,ME",@ HAD A BIRTHDAY
 PARTY.,I,MY SISTER GAVE @ A PAR
CEL,ME,IN IT @ FOUND A BALL.,I,T
HIS WAS A PRESENT FOR @.,ME,JIM
AND @ PLAY WITH IT EVERY DAY.,I
3240 DATA"I,ME",SHE THROWS IT TO
 @.,ME,YESTERDAY @ WENT TO THE B
EACH.,I,MUM GAVE MARY AND @ SOME
 LUNCH.,ME,JOAN AND @ BOUGHT AN
ICECREAM EACH.,ME,@ SHOULD BE EA
RLY FOR SCHOOL EVERY DAY.,I
3270 DATA"AM,ARE",TOM AND MARY @
 GOING HOME.,ARE,I @ HOPING TO V
ISIT MY FRIEND'S HOUSE.,AM,DID Y
OU KNOW I @ LEAVING NEXT WEEK?,A
M,BILL AND JOHN @ VERY BUSY.,ARE
,THEY @ NEATLY DRESSED.,ARE
3280 DATA"AM,ARE",I @ WEARING A
NEW DRESS.,AM,THE CHILDREN @ BUI
LDING SAND CASTLES.,ARE,DID YOU
KNOW I @ GOING TO ADELADE?,AM,WE
 @ TAKING A PLANE.,ARE,@ ARE GOI
NG TOO?,ARE
3290 DATA"HE,HIM",DID @ HAVE NEW
 SHOES?,HE,HIS FATHER BOUGHT THE
M FOR @.,HIM,@ CLEANS THEM EVERY
 MORNING.,HE,UNCLE GAVE @ SOME I
CE-CREAM.,HIM,@ AND I WALKED TO
THE RIVER.,HE
3300 DATA"HE,HIM",WE WAVED TO @
FROM OUR CAR.,HIM,A DOG BARKED A
T @ YESTERDAY.,HIM,TODAY @ BUMPE
D HIS KNEE.,HE,TOMORROW @ SHOULD
 BE BETTER.,HE,AUNTY ZELDA GAVE
ME AND @ AN APPLE EACH.,HIM
3310 DATA"SHE,HER",@ SAW ME AT T
HE PICTURES.,SHE,THIS BOOK BELON
S TO @.,HER,@ AND I WENT HOME TO
GETHER.,SHE,DID @ SEE YOU IN THE
 STREET?,SHE,HER MOTHER LETS @ G
IVE THE CAT SOME MILK.,HER
3320 DATA"SHE,HER",DO YOU LIKE @
 CAT?,HER,DID @ DUST HER DESK?,S
HE,MUM GAVE @ A RIBBON.,HER,DID
@ GIVE HER A BLUE OR RED ONE?,SH
E,WAS @ COMING TO SEE YOU?,SHE
3330 DATA"DO,DOES",TOM @ GOOD WO
```

```
RK.,DOES,MARY @ GOOD WORK.,DOES,
MARY AND TOM @ GOOD WORK.,DO,I @
 MY WORK NEATLY.,DO,DID YOU @ YO
UR HAIR?,DO
3340 DATA"DO,DOES",THE CHILDREN
SHOUL @ UP THEIR OWN SHOES.,DO,@
 MARY WISH TO PLAY SOCCER?,DOES,
JIM ALWAYS @ HIS SEWING WELL.,DO
ES,@ YOU KNOW MY FRIEND?,DO,@ BI
LL WANT TO PLAY TENNIS?,DOES
3350 DATA"THERE,THEIR",WHO IS @?
,THERE,@ IS NOBODY THERE.,THERE,
IN THE NEST @ ARE FIVE EGGS.,THE
RE,HE SAID @ WAS NO HURRY.,THERE
,JUST STAND @ FOR A MINUTE.,THER
E
3360 DATA"THERE,THEIR",THOSE ARE
 @ BOOKS.,THEIR,THAT IS @ BROTHE
R'S FARM.,THEIR,I SAW @ NEW CAR.
,THEIR,MAY I RIDE ON @ PONY?,THE
IR,WERE IS @ HOUSE?,THEIR
3370 DATA"THERE,THEIR",@ HAS BEE
N NO RAIN FOR A WEEK.,THERE,I WE
NT OVER TO @ HOUSE.,THEIR,I MUST
 GO OVER @.,THERE,HAVE @ BEEN AN
Y ACCIDENTS LATELY?,THERE,I HAVE
 FOUND @ LOST PENCILS.,THEIR
3380 DATA"THERE,THEIR",@ BOOKS N
EED REPLACING.,THEIR,I FLEW OVER
 @ NEW FARM.,THEIR,I WANT YOU TO
 GO @ FOR A PICNIC.,THERE,@ HAVE
 BEEN TOO MANY AWAY THIS WEEK.,T
HERE,OF COURSE @ IS A NEED FOR M
ORE CARE.,THERE
3390 DATA"HERE,HEAR",WHAT CAN YO
U @?,HEAR,@ ARE THE PLAERS.,HERE
,WE COULD NOT @ THEM VERY WELL.,
HEAR,YOUR BOOK IS NOT @.,HERE,TH
EY HAVE GONE TO @ THE SINGERS.,H
EAR
3400 DATA"HERE,HEAR",WAS HE @ YE
STERDAY?,HERE,THERE ARE SOME BER
RIES @ AND THERE.,HERE,DID HE @
 ME WHISTLING?,HEAR,EVERY MORNING
 WE @ THE BIRDS.,HEAR,@ HE COMES
 NOW.,HERE
3410 DATA"WERE,WHERE",@ DID I PU
T MY LUNCH?,WHERE,WHEN @ THOSE P
ENCILS SHARPENED?,WERE,I KNOW @
 YOU ARE HIDING.,WHERE,@ YOU TOLD
 WHERE TO GO?,WERE,WHY @ YOU SO
TIRED?,WERE
3420 DATA"WERE,WHERE",WHEN @ BIL
L AND JOE HERE?,WERE,JUST @ HAVE
 THE GIRLS GONE?,WHERE,@ THEY PL
AYING FOOTBALL?,WERE,@ ARE YOU G
OING?,WHERE,SHE DID NOT KNOW @ T
O GO.,WHERE
3430 DATA"A,AN",I FOUND @ APPLE.
,AN,HE HAD @ EGG FOR TEA.,AN,OUR
 DOG CHASED @ RABBIT.,A,WHAT @ F
INE DAY IT IS!,A,MY MUM HAD @ MA
RS BAR.,A
3440 DATA"A,AN",DAD LIKES TO WEA
R @ OLD HAT AT GOLF.,AN,I READ @
 INTERESTING BOOK.,AN,DO YOU LIK
E TO GO FOR @ WALK?,A,I READ @ C
URIOUS STORY ABOUT A WHALE.,A,@
ELEPHANT HAS A TERRIFIC MEMORY.,
AN
3450 DATA"OF,OFF",@ HE WENT IN A
 HURRY.,OFF,THAT PEARCH DROPPED
@ THIS TREE.,OFF,DID YOU KNOW I
HAD A BOOK @ ADVENTURE STORIES?,
OF,THE DOG RAN @ VERY QUICKLY.,O
FF,KEEP @ THE GRASS.,OFF
3460 DATA"OF,OFF",THE SAUCEPAN I
S FULL @ CARROTS.,OF,DO NOT KNOC
K ITS LID @.,OFF,OUR BUS STARTED
 @ WITH A JERK.,OFF,IT WAS FULL
@ GIRLS AND BOYS.,OF,THE THREE P
LAYERS RAN @ THE OVAL.,OFF
3470 DATA"COME,CAME",I @ TO SCHO
OL EARLY.,COME,HAVE I @ TO SCHOO
L?,COME,HE @ WITH ME.,CAME,HE HA
D @ WITH ME BEFORE.,COME,I HAVE
@ TO PLAY WITH YOU.,COME
3480 DATA"COME,CAME",I @ YESTERD
AY BUT YOU WEREN'T HOME.,CAME,TO
M AND BILL @ TO THE BEACH FOR A
SWIM.,CAME,SOMEBODY @ TO THE DOO
R JUST THEN.,CAME,THE PLUMBER HA
S @ TO FIX THE TAP.,COME,DO YOU
WISH TO @ WITH ME?,COME
3490 DATA"WENT,GONE",THE CHILDRE
N @ TO THE BEACH ON SATURDAY.,WE
NT,THEY @ AGAIN ON SUNDAY.,WENT,
THE GIRLS HAVE @ TO THE BEACH.,G
ONE,THEY HAVE @ WITH THEIR COUSI
NS.,GONE,THEIR MOTHER HAS @ TOO.
,GONE
3500 DATA"WENT,GONE",WE @ TO VIS
IT OUR FRIENDS.,WENT,OUR FIENDS
@ WITH US TO THE ZOO.,WENT,THE B
OYS HAVE @ TO SLEEP ON THE BEACH
.,GONE,MUM HAS @ SWIMMING.,GONE,
WE @ TO SEE THE SEALS.,WENT
3510 DATA"DID,DONE",@ YOU SEE ME
 YESTERDA?,DID,TOM @ HIS BEST WO
RK.,DID,I HAVE @ ALL I CAN.,DONE
,TOM HAS @ HIS BEST WRITING.,DON
E,WE @ OUR BEST DRAWINGS TODAY.,
DID
3520 DATA"DID,DONE",HAS HE @ HIS
 MATHS YET?,DONE,HAVE WE @ WHAT
WE SHOULD HAVE?,DONE,TOM AND BIL
L @ THE PAINTING TODAY.,DID,HE @
 THAT KIND OF SUM BEFORE.,DID,TH
E GIRLS @ THEIR WORK WELL.,DID
3530 DATA"RUN,RAN",THE DOG @ AFT
ER THE RABBIT.,RAN,I CAN @ FASTE
R THAN YOU CAN.,RUN,THE HARE AND
 THE TORTISE @ A RACE.,RAN,DID Y
OU @ AT THE PICNIC?,RUN,I HAVE O
FTEN @ ALONG THE SEASHORE.,RUN
3540 DATA"RUN,RAN",COUL YOU @ AN
Y FASTER?,RUN,MY CAT HAS @ AFTER
 THE MOUSE.,RUN,HE HAD @ TO THE
SHOP.,RUN,I @ THERE AND BACK LAS
T NIGHT.,RAN,JACK AND JILL @ TO
THE POND.,RAN
3550 DATA"GAVE,GIVEN",MUM @ ME F
IVE CENTS.,GAVE,DAD HAD @ ME FIF
TY CENTS LAST NIGHT.,GIVEN,THE L
UCKY BOYS WERE @ AN ICECREAM EAC
H.,GIVEN,TOM HAS @ HIS SISTER AN
 ORANGE.,GIVEN,WE HAVE @ OUR OLD
 COMICS AWAY.,GIVEN
3560 DATA"GAVE,GIVEN",AUNTY AND
UNCLE @ SOME NEW ONES TO US.,GAV
E,JACK HAD @ UP TEASING HIS SIST
ER.,GIVEN,MY FRIEND @ ME A NEW R
ADIO.,GAVE,BILL @ JACK A NEW BAL
L.,GAVE,WERE YOU @ ANYTHING?,GIV
EN
3570 DATA"WROTE,WRITTEN",MY FRIE
ND @ TO ME.,WROTE,HE HAD @ TO ME
 LAST WEEK TOO.,WRITTEN,HAS HE E
VER @ TO YOU?,WRITTEN,TOM AND BI
LL @ TO HIM BEFORE.,WROTE,I @ SI
X LINES OF POETRY.,WROTE
3580 DATA"WROTE,WRITTEN",HAVE YO
U @ ANY POEMS?,WRITTEN,MY UNCLE
BILL @ TWO SHORT STORIES.,WROTE,
HENRY HAS NOT @ ANYTHING.,WRITTE
N,DURING DECEMBER JIM @ TO FATHE
R CHRISTMAS.,WROTE,HAVE YOU @ TO
 HIM YET?,WRITTEN
3590 DATA"NO,KNOW",@ YOU MAY NOT
 GO!,NO,I HAD @ BREAKFAST THIS M
ORNING.,NO,THAT BOY HAD @ SHOES
ON.,NO,I @ MY TABLES.,KNOW,DID Y
OU @ THAT MY UNCLE WAS ILL?,KNOW
3600 DATA"NO,KNOW",WE @ YOU HAVE
 A NEW BIRO.,KNOW,MUM HAD @ LUCK
 AT BOWLING.,NO,"DID YOU @ MY CO
USIN, JULIE?",KNOW,@ DOGS ARE AL
LOWD IN THE SHOPS.,NO,THERE ARE
@ BUNS LEFT ON THE TABLE.,NO
3650 DATA"BETWEEN,AMONG",THE HUT
 STANDS @ THOSE TWO TREES.,BETWE
EN,THAT HUT STANDS @ THOSE TREES
.,AMONG,DIVIDE THAT CAKE @ MARY
AND TOM.,BETWEEN,"THIS CAKE SHOU
L BE SHARED @ TOM, MARY, JACK AN
D HELEN.",AMONG,THE CAT RUSHED Q
UICKLY @ YOU AND ME.,BETWEEN
3660 DATA"BETWEEN,AMONG",THE SMA
LL BOY HAD TO STAND @ THE REST O
F HIS CLASS.,AMONG,THE CHOCOLATE
 IS TO BE DIVIDED @ YOU AND ME.,
BETWEEN,THE DRINK IS TO BE DIVID
ED @ THE WHOLE CLASS.,AMONG,@ TH
E TWO OF US WE SHOULD CATCH ENOU
GH FISH.,BETWEEN
3661 DATA THERE SHOULD BE ENOUGH
 TO SHARE @ ALL OF US.,BETWEEN
3670 DATA"PASSED,PAST",I @ HIM B
EFORE HE REACHED THE CORNER.,PAS
SED,TOM @ INTO YEAR FOUR.,PASSED
,WE MAY LEARN MUCH FROM THE @.,P
AST,HAVE YOU @ BY THE FESTIVAL T
HEATRE?,PASSED,WE RUN @ THE POST
 OFFICE.,PAST
3680 DATA"PASSED,PAST",HOW MANY
TIMES HAVE YOU GONE @ OUR SCHOOL
?,PAST,WE HAVE @ IT SEVERAL TIME
S.,PASSED,IN DAYS GONE @ WE USED
 HORSES.,PAST,OUR BUS @ THE PETR
OL STATION.,PASSED,HISTORY IS ST
ORIES OF THE @.,PAST
3690 DATA"TEACH,LEARN",HE WILL @
 HIS HORSE TO RUN.,TEACH,HIS HOR
SE WILL @ TO RUN.,LEARN,WILL YOU
 @ ME TO SWIM?,TEACH,I WILL @ TO
  SWIM FROM YOU.,LEARN,ARE YOU G
OING TO @ TO DRIVE THE CAR?,LEAR
N
3700 DATA"TEACH,LEARN",THE MAN W
HO IS TO @ BOB SWIMMING IS THE S
AME ONE WHO TAUGHT ME.,TEACH,DID
 YOU @ HOW TO PLAY TENNIS?,LEARN
,DID I @ YOU HOW TO PLAY?,TEACH,
WOULD YOU LIKE ME TO @ YOU TO PL
AY?,TEACH,YOU CAN @ FROM THE COM
PUTER.,LEARN
9999 REM WORD USAGE BY DEAN HODG
SON, COPYRIGHT (C)1984, PYRAMID
SOFTWARE,2 MARY ST,GAWLER EAST,
SA 5118
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TABLES 2&3

by Bob Horne

WANT to spend a little time running off some table sheets and have a basis for a group competition ? If so, then here is an easy answer.

Both programs generate a sheet of tables. You can photocopy, or make a stencil and run off, enough copies for your class. Slice the sheets down the middle and do one of the resulting sheets each day.

Make a couple of copies of the answer sheets and get some of your students to do the marking.

My class love doing these and helping with the marking.

My printer is a TANDY DMP100 so I have included REMarks in each program explaining the printer codes.

Feel free to alter the numbers generated to suit your class.

The Listing:

```
0 GOTO10
1 REM*****************************
2 REM*       TABLES 2              *
3 REM*     BY BOB HORNE            *
4 REM*****************************
5 SAVE"TABLES1:3":END
10 CLS:PRINT@260,"TABLES GEN. SH
EET":DIMAN(2,30)
15 REM* PRINTER CODES *
16 REM* CHR$(31) SET DOUBLE
WIDTH * CHR$(30) TURN OFF DOUBLE
WIDTH * CHR$(15) TURN ON UNDER-
LINE  * CHR$(14) TURN OFF UNDER-
LINE  *
20 PRINT#-2,TAB(0);CHR$(31);"NAM
E";CHR$(30);CHR$(15);STRING$(30,
32);CHR$(14);:PRINT#-2,TAB(40);C
HR$(31);"NAME";CHR$(30);CHR$(15)
;STRING$(30,32);CHR$(14)
30 SH=RND(-TIMER):SH=RND(100000)
:PRINT#-2,TAB(10);"SHEET #";SH;:
PRINT#-2,TAB(50);"SHEET #";SH+1:
PRINT#-2,CHR$(15);STRING$(80,32)
;CHR$(14);:PRINT#-2
40 PRINT#-2,TAB(10);CHR$(15);"LI
ST A";CHR$(14);:PRINT#-2,TAB(50)
;CHR$(15);"LIST B";CHR$(14):CLS
50 FORX=1TO30
58 REM* PRINTER CODES *
59 REM* CHR$(16);"39" IS THE
EQUIVALENT OF TAB(40) *
60 FORY=1TO2:PRINT@270,(X-1)*2+Y
70 IF Y=1 THENPRINT#-2,TAB(0);""
; ELSE IF Y=2 THENPRINT#-2,CHR$(
16);"39";"";
80 PRINT#-2,USING" ##)";X;
90 A=RND(10)+10:B=RND(10)+10:GOS
UB580
100 R=RND(4):ON R GOTO110,200,38
0,500
109 REM****ADDITION TYPES*******
110 S=RND(8):ON S GOTO120,130,14
0,150,160,170,180,190
120 PRINT#-2," THE SUM OF "A$" A
ND "B$"  ...";:AN(Y,X)=A+B:GOTO5
90
130 PRINT#-2," ";A$" PLUS "B$" =
 ...";:AN(Y,X)=A+B:GOTO590
140 A=RND(7)+3:B=RND(7)+3:C=RND(
10)+10:GOSUB580:PRINT#-2," "A$"
+ "B$+" + "C$" =....";:AN(Y,X)=A
+B+C:GOTO590
150 A=RND(7)+2:B=RND(7)+2:C=RND(
7)+2:D=RND(7)+2:GOSUB580:PRINT#-
2," ";A$" + "B$" + "C$" + "D$" =
....";:AN(Y,X)=A+B+C+D:GOTO590
160 A=RND(7)+2:B=RND(7)+2:C=RND(
7)+2:D=RND(7)+2:E=RND(7)+2:GOSUB
580:PRINT#-2," ";A$" + "B$" + "C
$" + "D$" + "E$" = ...";:AN(Y,X)
=A+B+C+D+E:GOTO590
170 A=RND(7)+2:B=RND(7)+2:C=100-
A:GOSUB580:PRINT#-2," "A$" + "B$
" + "C$" = ...";:AN(Y,X)=A+B+C:G
OTO590
180 A=RND(7)+3:B=RND(30)+10:C=10
00-A:GOSUB580:PRINT#-2," "A$" +
"B$" + "C$" = ...";:AN(Y,X)=A+B+
C:GOTO590
190 A=RND(90)+9:B=RND(7)+2:GOSUB
580:PRINT#-2," ";A$;" + ";B$;" =
 ...";:AN(Y,X)=A+B:GOTO590
199 REM**MULTIPLICATION TYPES***
200 A=RND(8)+1:B=RND(8)+1:GOSUB5
80
210 T=RND(8):IF T=6 OR T=7 THEN2
70 ELSE IF T=8 THEN330 ELSE ON T
 GOTO220,230,240,250,260
220 PRINT#-2," MULTIPLY "A$" BY
"B$" ...";:AN(Y,X)=A*B:GOTO590
230 PRINT#-2," THE PRODUCT OF "A
$" AND "B$" ...";:AN(Y,X)=A*B:GO
TO590
240 PRINT#-2," "A$" X "B$" = ...
";:AN(Y,X)=A*B:GOTO590
250 PRINT#-2," DOUBLE "A$" ...";
:AN(Y,X)=A*2:GOTO590
260 PRINT#-2," "A$" TIMES "B$" =
 ...";:AN(Y,X)=A*B:GOTO590
270 IF T=7 THEN280 ELSEPRINT#-2,
" SQUARE "A$" ...";:AN(Y,X)=A*A:
GOTO590
280 FORU=1TO4:V=RND(4)
290 NU(U)=RND(8)+2
300 NEXTU
310 NU(V)=0:A=NU(1):B=NU(2):C=NU
(3):D=NU(4):GOSUB580:GOTO320
320 PRINT#-2," "A$" X "B$" X "C$
" X "D$" = ...";:AN(Y,X)=0:GOTO5
90
330 ON RND(2) GOTO340,360
340 IF RND(2)=1 THENA=RND(98)+1:
B=10:ELSE A=10:B=RND(98)+1
350 GOTO370
360 IF RND(2)=1 THEN A=RND(98)+1
:B=100 ELSE A=100:B=RND(98)+1
370 GOSUB580:PRINT#-2," ";A$;" X
 ";B$;" = ....";:AN(Y,X)=A*B:GOT
O590
379 REM****SUBTRACTION TYPES****
380 A=RND(10)+10:B=RND(18)+2:IF
A<=B THEN380ELSE GOSUB580:AN(Y,X
)=A-B
390 U=RND(9):ON U GOTO400,410,42
0,430,440,450,460,470,480
400 PRINT#-2," TAKE "B$" FROM "A
$" ...";:GOTO590
410 PRINT#-2," "A$" LESS "B$" =
...";:GOTO590
420 PRINT#-2," SUBTRACT "B$" FRO
M "A$" ...";:GOTO590
430 PRINT#-2," "A$" MINUS "B$" =
 ...";:GOTO590
440 IF RND(2)=1 THEN PRINT#-2,"
DIFFERENCE BETWEEN "A$" AND "B$"
 ...";:GOTO590 ELSEPRINT#-2," DI
FFERENCE BETWEEN "B$" AND "A$" .
..";:GOTO590
450 C=A+B:GOSUB580:PRINT#-2," AD
D "A$" TO ... TO GET "C$;:AN(Y,X
)=B:GOTO590
```

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460 PRINT#-2," "A$" - "B$" = ...
";:GOTO590
470 PRINT#-2," "A$" SUBTRACT "B$
;" = ...";:GOTO590
480 A=RND(90)+9:B=RND(7)+2:IF A=
<B THEN480
490 GOSUB580:PRINT#-2," ";A$;" -
";B$;" = ...";:AN(Y,X)=A-B:GOTO
590
499 REM*****DIVISION TYPES******
500 A=RND(8)+1:B=RND(8)+1:C=A*B:
GOSUB580
510 V=RND(5):ON V GOTO520,530,56
0,540,570
520 PRINT#-2," DIVIDE "C$" BY ";
A$" ...";:AN(Y,X)=C/A:GOTO590
530 PRINT#-2," "C$" DIVIDED BY "
;A$;" = ...";:AN(Y,X)=C/A:GOTO59
0
540 IF RND(2)=1 THEN A=10:B=RND(
98)+1:C=A*B ELSE A=100:B=RND(98)
-1:C=A*B
550 GOSUB580
558 REM* PRINTER CODES FOR
DIVISION SIGN *
559 REM* CHR$(18) SET GRAPHICS
MODE   * CHR$(28);CHR$(2);CHR$(1
36) REPEAT GRAPHIC CHARACTER 136
 TWO TIMES * CHR$(30) GO BACK TO
ORDINARY PRINTING *
560 PRINT#-2," "C$" ";CHR$(18);C
HR$(28);CHR$(2);CHR$(136);CHR$(2
8);CHR$(2);CHR$(201);CHR$(28);CH
R$(2);CHR$(136);CHR$(30);" ";A$;
" = ...";:AN(Y,X)=C/A:GOTO590
570 A=(RND(39)+10)*2:GOSUB580:PR
INT#-2," HALVE ";A$;" ...";:AN(Y
,X)=A/2:GOTO590
579 REM* CONVERT NUMBERS TO
STRINGS *
580 A$=STR$(A):B$=STR$(B):C$=STR
$(C):D$=STR$(D):E$=STR$(E):A$=RI
GHT$(A$,LEN(A$)-1):B$=RIGHT$(B$,
LEN(B$)-1):C$=RIGHT$(C$,LEN(C$)-
1):D$=RIGHT$(D$,LEN(D$)-1):E$=RI
GHT$(E$,LEN(E$)-1):RETURN
590 NEXTY:FORZ=1TO2:PRINT#-2:NEX
TZ:NEXTX
599 REM* PRINT THE ANSWERS THREE
 TIMES *
600 CLS:PRINT@264,"PRINTING ANSW
ERS":FORX=1TO3:PRINT#-2:NEXTX
610 FORZ=1TO3
620 PRINT#-2,TAB(0);"ANSWERS SHE
ET #";SH;:PRINT#-2,TAB(40);"ANSW
ERS SHEET #";SH+1:PRINT#-2,CHR$(
15);STRING$(80,32);CHR$(14)
630 PRINT#-2,TAB(5);CHR$(15);"LI
ST A";CHR$(14);TAB(46);CHR$(15);
"LIST B";CHR$(14)
640 FORX=1TO15
650 PRINT#-2,TAB(0);"";:PRINT#-2
,USING"##)";X;:PRINT#-2,TAB(4);"
";:PRINT#-2,USING"####";AN(1,X);
:PRINT#-2,TAB(14);"";:PRINT#-2,U
SING"##)";X+15;:PRINT#-2,TAB(18)
"";:PRINT#-2,USING"####";AN(1,X+
15);
660 PRINT#-2,TAB(40);"";:PRINT#-
2,USING"##)";X;:PRINT#-2,TAB(44)
"";:PRINT#-2,USING"####";AN(2,X)
:PRINT#-2,TAB(54);"";:PRINT#-2,
USING"##)";X+15;:PRINT#-2,TAB(58
)"";:PRINT#-2,USING"####";AN(2,X
+15)
670 NEXTX
680 PRINT#-2:NEXTZ
690 CLS:PRINT:PRINT"RUN AGAIN (Y
/N)":A$=INKEY$
700 A$=INKEY$:IF A$="Y" THEN RUN
 ELSE IF A$<>"N" THEN700
710 END
```

```
0 GOTO10
1 REM*****************************
2 REM*         TABLES3           *
3 REM*       BY BOB HORNE        *
4 REM*****************************
5 SAVE"TABLES3:3":END
10 CLS:PRINT@260,"TABLES GEN. SH
EET"
18 REM * PRINTER CODES *
19 REM * CHR$(31) SET DOUBLE
WIDTH  * CHR$(30) TURN OFF
DOUBLE WIDTH * CHR$(15) TURN ON
UNDERLINE    * CHR$(14) TURN OFF
UNDERLINE    *
20 PRINT#-2,TAB(0);CHR$(31);"NAM
E";CHR$(30);CHR$(15);STRING$(30,
32);CHR$(14);:PRINT#-2,TAB(40);"
";:PRINT#-2,CHR$(31);"NAME";CHR$
(30);CHR$(15);STRING$(30,32);CHR
$(14)
30 SH=RND(-TIMER):SH=RND(100000)
:PRINT#-2,TAB(15);"SHEET #";SH;:
PRINT#-2,TAB(55);"SHEET #";SH+1:
PRINT#-2,STRING$(80,"-")
40 PRINT#-2,TAB(5);CHR$(15);"LIS
T A";CHR$(14);:PRINT#-2,TAB(27);
CHR$(15);"LIST B";CHR$(14);:PRIN
T#-2,TAB(49);CHR$(15);"LIST C";C
HR$(14);:PRINT#-2,TAB(70);CHR$(1
5);"LIST D"CHR$(14);:PRINT#-2
50 DIMAN(4,30)
60 CLS:FORX=1TO30
70 FORY=1TO4:PRINT@270,(X-1)*4+Y
78 REM * PRINTER CODES *
79 REM * CHR$(16);"0" IS THE
EQUIVALENT OF TAB(0) * CHR$(16);
"19" IS THE EQUIVALENT OF
TAB(20) ETC. *
80 IFY=1THENPRINT#-2,CHR$(16);"0
"; ELSE IF Y=2 THENPRINT#-2,CHR$
(16);"19"; ELSE IF Y=3 THENPRINT
#-2,CHR$(16);"39"; ELSE IF Y=4 T
HENPRINT#-2,CHR$(16);"59";
90 PRINT#-2,USING" ##";X;
100 PRINT#-2,")";
110 ON RND(4) GOTO120,140,170,18
0
119 REM****ADDITION EXAMPLES****
120 IF RND(2)=1 THENA=RND(15)+5:
B=RND(15)+5 ELSE A=RND(89)+10:B=
RND(8)+2
130 S$="+":AN(Y,X)=A+B:GOTO190
139 REM***SUBTRACTION EXAMPLES**
140 IF RND(2)=1 THENA=RND(12)+8:
B=RND(17)+3 ELSE A=RND(89)+10:B=
RND(8)+2
150 IF A<=B THEN140
160 S$="-":AN(Y,X)=A-B:GOTO190
169 REM*MULTIPLICATION EXAMPLES*
170 A=RND(7)+2:B=RND(7)+2:S$="X"
:AN(Y,X)=A*B:GOTO190
179 REM****DIVISION EXAMPLES****
180 C=RND(7)+2:B=RND(7)+2:A=C*B:
AN(Y,X)=C:GOTO210
190 PRINT#-2,A;S$;B;" =";
200 GOTO220
208 REM * PRINTER CODES *
209 REM * CHR$(18) TURN ON
GRAPHIC MODE * CHR$(28);CHR$(3);
CHR$(136) REPEAT GRAPHIC
CHARACTER 136 THREE TIMES *
CHR$(30) GO BACK TO ORDINARY
CHARACTER PRINTING *
210 PRINT#-2,A;CHR$(18);CHR$(28)
;CHR$(3);CHR$(136);CHR$(28);CHR$
(2);CHR$(201);CHR$(28);CHR$(3);C
HR$(136);CHR$(30);B;" =";
220 NEXTY:PRINT#-2:PRINT#-2:NEXT
X
230 FORX=1TO3:PRINT#-2:NEXTX
239 REM * PRINT ANSWER SHEETS *
240 CLS:PRINT@264,"PRINTING ANSW
ERS":FORX=1TO3
250 PRINT#-2,TAB(0);"ANSWERS SHE
ET #"SH;:PRINT#-2,TAB(40);"ANSWE
RS SHEET #"SH+1
260 PRINT#-2,TAB(5);CHR$(15);"LI
ST A";CHR$(14);:PRINT#-2,TAB(27)
;CHR$(15);"LIST B";CHR$(14);:PRI
NT#-2,TAB(49);CHR$(15);"LIST C";
CHR$(14);:PRINT#-2,TAB(70);CHR$(
15);"LIST D";CHR$(14)
270 FORZ=1TO15
280 PRINT#-2,TAB(0);"";:PRINT#-2
,USING"##)";Z;:PRINT#-2,TAB(4)""
;:PRINT#-2,USING"###";AN(1,Z);:P
RINT#-2,TAB(10);"";:PRINT#-2,USI
NG"##)";Z+15;:PRINT#-2,TAB(14)""
;:PRINT#-2,USING"###";AN(1,Z+15)
;
290 PRINT#-2,TAB(20);"";:PRINT#-
2,USING"##)";Z;:PRINT#-2,TAB(24)
"";:PRINT#-2,USING"###";AN(2,Z);
:PRINT#-2,TAB(30);"";:PRINT#-2,U
SING"##)";Z+15;:PRINT#-2,TAB(34)
"";:PRINT#-2,USING"###";AN(2,Z+1
5);
300 PRINT#-2,TAB(40);"";:PRINT#-
2,USING"##)";Z;:PRINT#-2,TAB(44)
"";:PRINT#-2,USING"###";AN(3,Z);
:PRINT#-2,TAB(50);"";:PRINT#-2,U
SING"##)";Z+15;:PRINT#-2,TAB(54)
"";:PRINT#-2,USING"###";AN(3,Z+1
5);
310 PRINT#-2,TAB(60);"";:PRINT#-
2,USING"##)";Z;:PRINT#-2,TAB(64)
"";:PRINT#-2,USING"###";AN(4,Z);
:PRINT#-2,TAB(70);"";:PRINT#-2,U
SING"##)";Z+15;:PRINT#-2,TAB(74)
"";:PRINT#-2,USING"###";AN(4,Z+1
5)
320 NEXTZ:FORY=1TO3:PRINT#-2:NEX
TY
330 NEXTX:FORY=1TO5:PRINT#-2:NEX
TY
340 CLS:PRINT:PRINT"RUN AGAIN (Y
/N)":A$=INKEY$
350 A$=INKEY$:IF A$="Y" THEN RUN
 ELSE IF A$<>"N" THEN350
360 END
```

B.C.

MICO

FOR YOUR TANDY MC-10 COMPUTER

The recent survey which we held for the purpose of gauging just how many people there are who were still MC10 users has told us that there are many who do not wish, for one reason or another, to update to another machine. this is good news and provides encouragement to carry on.

Regarding our 44K Conversion, I am still awaiting word from the US in an endeavour to identify the Radio Shack part number of the chips with own Australian items. As soon as this information comes to hand I will pass it on. In the meanwhile, John Dyer of 198 Boundary St., Townsville 4810 is available to carry out conversions. He is, in fact, at present working on his own version and on a periphel interface and also a new keyboard.

Grahame Pollock has asked that a new user group be added to the list. This is

MC10 User Group
Box 103
Owensville IN 47665 USA

This could well be a very handy address for anyone wishing to obtain contact with the US and should be listed with those previously given for California.

I am keeping this short this month to give us more program room, so get on with it and have fun.

Jim

BIRTHDAY

by Tony Hollwey

A pretty little Birthday treat for the youngsters who can take part in it for themselves or for their parents and friends. No instructions are required but you alter the program by inserting the names to suit. Tony says you may wish to alter or improve on the music.

The Listing: BIRTHDAY

```
1 CLS
2 PRINT @77,"TO MUMMY"
3 PRINT @106,  "HAPPY BIRTHDAY!"
4 PRINT@129, "LOVE, DADDY,MATTY,JIMBO &
CINDYXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX"
5 PRINT:PRINT
7 PRINT
8 PRINT:INPUT "          PRESS <ENTER>";
E$
9 CLS
10 PRINT:PRINT:PRINT:PRINT:INPUT "WHAT I
S YOUR NAME";N$
15 PRINT
20 PRINT"         HELLO "N$"!"
25 PRINT
30 INPUT " HOW OLD ARE YOU";A
31 PRINT:PRINT"   WELL, I HAVE NEWS FOR
YOU!":FOR Z=1 TO 2000:NEXT
32 CLS:PRINT@ 131,"HAPPY BIRTHDAY TO YOU
!
33 SOUND147,6:SOUND147,6:SOUND159,8:SOUN
D147,8:SOUND176,6:SOUND170,8
34 PRINT@ 195,  "HAPPY BIRTHDAY TO YOU!"
35 SOUND147,6:SOUND147,6:SOUND159,8:SOUN
D147,8:SOUND108,6:SOUND89,8
36 PRINT@259,"HAPPY BIRTHDAY DEAR " N$"!
"
37 SOUND147,4:SOUND147,4:SOUND147,6:SOUN
D125,6:SOUND89,6:SOUND170,8:SOUND159,8
38 PRINT@323,  "HAPPY BIRTHDAY TO YOU!"
39 SOUND133,6:SOUND133,6:SOUND125,8:SOUN
D89,8:SOUND108,8:SOUND89,15
40 FOR Z=1 TO 100:NEXT
45 CLS
50 FOR H=15 TO 48:FOR V=16 TO 23:SET(H,V
,7):NEXT V,H
60 PRINT@302,A;
70 FOR H=30 TO33:FOR V= 10 TO 15:SET(H,V
,2):NEXT V,H
120 FOR H=10 TO 53
130 SET(H,23,1)
140 NEXT H
217 SOUND133,6:SOUND133,6:SOUND125,8:SOU
ND89,8:SOUND108,8:SOUND89,20
220 SET (32,7,8):SET(32,8,8):SET(31,9,8)
230 RESET(32,7):RESET(32,8):RESET(31,9)
235 FOR Z=1 TO 100:NEXT
239 PRINT@393,"HAPPY BIRTHDAY"
240 GOTO 220
```

HORSE RACE

by John Nyveld

Here is a variation on the Horse Race version submitted by Jason Krah. It is similar but with a difference and will be a worthy addition to your library of games for the MC10.

You select the horse that you think will win, then place your bets and let the comuter decide who will collect all the winnings. Don't blame us if you backed the wrong horse.

Thanks John -- very good and hope we have some more from you soon.

The Listing: HORSERAC

```
1 RESTORE:CLS
2 REM HORSE RACE BY JOHN NYVELD
3 REM 28/8/85
4 PRINT:PRINT
5 FORI=1TO21
7 READA$
9 PRINTTAB(5)A$;
10 FORD=1TO250:NEXT
11 NEXTI
12 PRINT:PRINT:PRINT
15 FORI=1TO8
17 READA$
18 PRINTTAB(11)A$;
19 FORD=1TO300:NEXT
20 NEXTI
25 PRINT:PRINT:PRINT
30 FORI=1TO21:READA$
31 PRINTTAB(6)A$;
32 FORD=1TO200:NEXT
35 NEXTI
37 PRINT:PRINT:PRINT:PRINT
40 PRINTTAB(7)"HIT ENTER TO STAR
T";
41 PRINT:PRINT:PRINTTAB(9)"BY JO
HN NYVELD"
45 FORI=1TO50:SOUND255,1
46 Q$=INKEY$:IFQ$=""THEN48
47 GOTO60
48 NEXTI
49 RESTORE:GOTO1
60 REM
100 A1$="██"
101 A2$="█ "
102 B1$="██"
103 B2$="█ "
104 C1$="██"
105 C2$="█ "
106 D1$="██"
107 D2$="█ "
108 E1$="██"
109 E2$="█ "
110 F1$="██"
111 F2$="█ "
112 G1$="██"
113 G2$="█ "
114 H1$="██"
115 H2$="█ "
130 GOSUB2000
150 HP(1)=96:HP(2)=128
155 HP(3)=160:HP(4)=192
160 HP(5)=224:HP(6)=256
165 HP(7)=288:HP(8)=320
180 CLS0
192 F=F+1:IFF>=3THENF=1
193 IFF=1THENF$="██"
194 IFF=2THENF$="██"
195 FORD=1TO15:PRINTF$;:NEXT
196 FORW=95TO357STEP32:PRINT@W,"
█";:NEXT
200 FORQ=1TO8
210 A=RND(3)
220 H(Q)=HP(Q):GOSUB500
230 NEXTQ
231 GOSUB800
233 FORD=1TO500:NEXT
235 CLS0
240 GOTO180
500 IFA=1THENHP(Q)=HP(Q)
510 IFA=2THENHP(Q)=HP(Q)+1
520 IFA=3THENHP(Q)=HP(Q)+2
560 IFQ=1THENPRINT@HP(Q),A1$;:PR
INT@HP(Q)+32,A2$;
565 IFH(Q)=H(2)THENPRINT@HP(Q),B
1$;:PRINT@HP(Q)+32,B2$;
570 IFH(Q)=H(3)THENPRINT@HP(Q),C
1$;:PRINT@HP(Q)+32,C2$;
575 IFH(Q)=H(4)THENPRINT@HP(Q),D
1$;:PRINT@HP(Q)+32,D2$;
580 IFH(Q)=H(5)THENPRINT@HP(Q),E
1$;:PRINT@HP(Q)+32,E2$;
585 IFH(Q)=H(6)THENPRINT@HP(Q),F
1$;:PRINT@HP(Q)+32,F2$;
590 IFH(Q)=H(7)THENPRINT@HP(Q),G
1$;:PRINT@HP(Q)+32,G2$;
595 IFH(Q)=H(8)THENPRINT@HP(Q),H
1$;:PRINT@HP(Q)+32,H2$;
597 RETURN
800 REM
804 IFHP(1)>=125THENCOL=1:GOTO12
00
805 IFHP(2)>=157THENCOL=2:GOTO12
00
810 IFHP(3)>=189THENCOL=3:GOTO12
00
815 IFHP(4)>=221THENCOL=4:GOTO12
00
820 IFHP(5)>=253THENCOL=5:GOTO12
00
825 IFHP(6)>=285THENCOL=6:GOTO12
00
830 IFHP(7)>=317THENCOL=7:GOTO12
00
835 IFHP(8)>=349THENCOL=8:GOTO12
00
845 RETURN
1200 FORD=1TO250:NEXT
1205 CLSCOL
1210 IFCOL=1THENPRINT@231," GREE
N FIELDS  ";
1211 IFCOL=2THENPRINT@231," YELL
OW TERROR ";
1212 IFCOL=3THENPRINT@231," BLUE
 STREAK    ";
1213 IFCOL=4THENPRINT@231,"    RE
D DEVIL    ";
1214 IFCOL=5THENPRINT@231,"WHITE
 LIGHTNING";
1215 IFCOL=6THENPRINT@231," CYAN
 THUNDER   ";
1216 IFCOL=7THENPRINT@231," PINK
 PUSSYCAT ";
1217 IFCOL=8THENPRINT@231," NAVE
L ORANGE   ";
1218 PRINT@481,"    HIT ANY KEY F
OR NEW RACE    ";
1219 FORW=1TO255STEP8:SOUNDW,1:N
EXT
1220 QRY$=INKEY$:IFQRY$=""THEN12
20
1230 GOTO1
2000 REM
2001 CLS0
2030 PRINT@2,A1$;"    GREEN FIELD
S     ";:PRINT@34,A2$;
2040 PRINT@66,B1$;"    YELLOW TER
ROR    ";:PRINT@98,B2$;
2050 PRINT@130,C1$;"    BLUE STRE
AK       ";:PRINT@162,C2$;
2060 PRINT@194,D1$;"    RED DEVIL
       ";:PRINT@226,D2$;
2070 PRINT@258,E1$;"    WHITE LIG
HTNING ";:PRINT@290,E2$;
2080 PRINT@322,F1$;"    CYAN THUN
DER      ";:PRINT@354,F2$;
2090 PRINT@386,G1$;"    PINK PUSS
YCAT     ";:PRINT@418,G2$;
3000 PRINT@450,H1$;"    NAVEL ORA
NGE      ";:PRINT@482,H2$;
3010 QRY$=INKEY$:IFQRY$=""THEN30
10
3020 RETURN
4000 DATA█,M,I,C,O,V,I,L,L,E,█,█
,R,A,C,E,█,C,L,U,B
4010 DATAP,R,E,S,E,N,T,S
4020 DATAH,█,O,█,R,█,S,█,E,█,█,█
,R,█,A,█,C,█,E,█,█,
```

20K

THE GOLDEN FLUTE

by Delton Horn

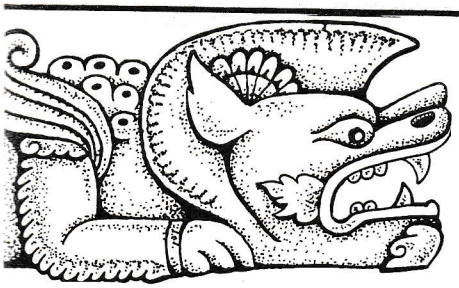
You have volounteered, with the help of Coramble, the great Oracle, to find "The Golden Flute of Love" and return it to its rightful place in the Woodlands.

You are given full instructions on where to go and what to do, but YOU have to make the decisons.

Beware that they are the right ones.

The Listing: FLUTE

```
9 REM 20 K REQUIRED!!!!!!!
10 REM *THE GOLDEN FLUTE*
       DELTON T. HORN (C) 1984
       ALL RIGHTS RESERVED....
20 CLEAR100
30 DIMA(100),B(100),C(9)
40 CLS2:PRINT@71,"the golden flu
te";
41 PRINT@71+96,"by delton t horn
";
42 FORX=1TO3600:NEXTX
55 PW=0:GW=0
59 CLS
60 PRINT:PRINT:PRINT:INPUT"
 YOUR NAME";N$
70 BR=1:DG=1:GR=1:RU=1:SJ=1:JS=1
:AL=1:PM=1
80 AX=0:LC=1:M=1:SW=0:FL=0:MO=0:
GL=0:MZ=0
90 FOR X=1 TO 100:A(X)=0:B(X)=0:
NEXT
95 FOR X=1 TO 9:C(X)=1:NEXT
100 CLS:PRINT:PRINT:PRINT"
     SETTING VARIABLES":PRINT:PR
INT:PRINT:FORX=1TO30:NEXTX
109 REM WOODS
110 A(1)=1:A(2)=1:A(11)=1:A(12)=
1
119 REM ORACLE
120 A(33)=2
129 REM PITS
130 X=RND(7)+2:Y=RND(4)+4:X=X+Y*
10:Y=X+1
140 A(X)=3:A(Y)=3:X=X+10:Y=Y+1:A
(X)=3:A(Y)=3
149 REM WALL
150 Q=0
160 Q=Q+1:X=(RND(4)+3)*10+RND(3)
+3:Y=X+5:Z=0
170 IF Q>7THEN220
180 FOR V=X TO Y:IF A(V)>0 THEN
Z=1
190 IF A(V+10)>0 THEN Z=1
200 NEXT:IF Z=1 THEN GOTO 160
210 FOR V=X TO Y:A(V)=13:A(V+10)
=14:NEXT
220 FORX=1TO100:B(X)=A(X):PRINT"
■■";:NEXT:PRINT
229 REM HIDDEN ITEMS
230 X=RND(100)
232 IF B(X)>0 THEN GOTO 230
235 B(X)=29
239 REM TERAK & GUARDS
240 X=(RND(4)+4)*10+RND(7)+2:IF
B(X)>0 THEN GOTO 240
250 B(X)=4:Z=9:Y=X-1:GOSUB 5010
260 Y=X+10:GOSUB 5010
270 Y=X-10:GOSUB 5010
280 Y=X+1:GOSUB 5010
290 Y=Y+10:GOSUB 5010
300 Y=Y-20:GOSUB 5010
309 REM GARGOYLES
310 U=RND(10)+2:FOR X=1 TO U:Y=R
ND(100):GOSUB 5010:NEXT
320 Y=RND(70)+30:PRINT"■■";:IF B
(Y)>0 THEN320
330 B(Y)=5
340 Y=RND(100):IF B(Y)>0 THEN GO
TO 340
350 B(Y)=21:FOR X=1 TO 3
360 Y=RND(100):IF B(Y)>0 THEN GO
TO 360
370 B(Y)=22:NEXT
380 Y=RND(50):IF B(Y)>0 THEN GOT
O 380
390 B(Y)=23
400 Y=RND(50):IF B(Y)>0 THEN GOT
O 400
410 B(Y)=24
420 Y=RND(90):IF B(Y)>0 THEN GOT
O 420
430 B(Y)=25
440 Y=RND(80)+15:IF B(Y)>0 THEN
GOTO 440
450 B(Y)=26:FOR X=1 TO 5
460 Y=RND(80)+15:IF B(Y)>0 THEN
GOTO 460
470 B(Y)=27:NEXT
480 Y=RND(100):IF B(Y)>0 THEN GO
TO 480
490 B(Y)=26
500 Z=6:FOR X=1 TO 10:Y=RND(80)+
20:GOSUB 5010:NEXT
510 Z=8:FOR X=1 TO 10:Y=RND(100)
:GOSUB 5010:NEXT
520 Y=RND(100):IF B(Y)>0 THEN GO
TO 520
530 B(Y)=7:Z=10:FOR X=1 TO 10:Y=
RND(95)+5:GOSUB 5010:NEXT
540 Y=RND(100):IF B(Y)>0 THEN GO
TO 540
550 B(Y)=11:QQ=0
560 F=RND(100):IF B(F)>0 THEN GO
TO 560
570 B(F)=15
580 Y=RND(55)+45:IF B(Y)>0 THEN
GOTO 580
590 B(Y)=17:BZ=0
599 REM INTRO
600 CLS:PRINT:PRINT"GREETINGS, "
;N$:PRINT
610 PRINT"YOU'VE JOINED THE CREA
TURES OF":PRINT"THE WOODLANDS IN
 THEIR QUEST"
620 PRINT"TO FIND THE GOLDEN FLU
TE OF LOVEFROM THE EVIL GREMLIN,
 TERAK."
630 PRINT"AND RETURN IT TO THE W
OODS."
640 PRINT"WATCH OUT FOR DRAGONS,
 SIRENS,  GOBLINS, GARGOYLES AND
 THE HOPE-LESS PITS."
650 PRINT"CORAMBLE, THE GREAT OR
ACLE OF   PURLICON MTN. WILL HEL
P YOU."
651 PRINT:PRINT
680 INPUT"DO YOU WANT DIRECTIONS
";Q$:Q$=LEFT$(Q$,1)
690 IF Q$="Y" THEN GOSUB 5030
695 LC=1:A(LC)=12
699 CLS
700 PRINT:GOSUB 5000
710 PRINT"THE CHARIOT IS NOW CAR
RYING -"
720 PRINT N$;", THE HUMAN"
730 IF BR=1 THEN PRINT"BROMBIRAN
, THE ELF"
740 IF DG=1 THEN PRINT"DAGGLETTE
, THE ELF"
750 IF GR=1 THEN PRINT"GROMPHLUR
, THE ELF"
760 IF RU=1 THENPRINT"RULF, THE
SATYR"
770 IF SJ=1 THENPRINT"SEJJAN, TH
E FAIRY"
780 IF JS=1 THENPRINT"JESSAN, TH
E FAIRY"
790 IF AL=1 THEN PRINT"ALLEGRECI
A, QUEEN OF SPRITES"
800 IF PM=1 THEN PRINT"PRINCESS
MELVA"
810 IF FL=1 THEN PRINT"THE GOLDE
N FLUTE"
820 IF MO=0THENPRINT"A MAGIC ORB
"
830 IF SW=1 THEN PRINT"A MAGIC S
WORD"
840 IF BZ=1 THEN PRINT"A MAGIC B
AZOOKA"
850 IF GL<1 THEN GOTO 880
860 PRINTGL;"PIECE";:IF GL>1 THE
NPRINT"S";
870 PRINT" OF GOLD"
880 IF MZ=1 THEN PRINT"A MAGIC Z
ITHER"
890 INPUT"PRESS ENTER ";Q$
899 REM MAIN PLAY
900 ZZ=LC:PRINT"YOU'RE AT POINT
#";LC"  MOVE #";M
910 INPUT"'H'=HELP..... WHICH W
AY?";Q$:Q$=LEFT$(Q$,1)
920 IF Q$="H"THEN4000
925 IF Q$="M" THEN GOTO 7000
930 IF Q$="B" AND BZ=1 THEN4030
935 M=M+1:A(LC)=B(LC)
940 IF Q$="D"THEN1000
950 IF Q$="U"THEN1190
960 IF Q$="R"THEN1200
970 IF Q$="L"THEN1220
980 PRINT" ","INVALID MOVE!"
990 GOTO910
1000 LC=LC+10:IF LC>100GOTO1020
1010 GOTO4250
1020 PRINT:PRINT"THE CHARIOT HAS
 LEFT THE BORDER OF THE KINGDOM.
 WITH NO"
```



```
1030 PRINT"MAGIC, THE CHARIOT CR
ASHES":PRINT
1040 GOSUB5000
1050 GOSUB 5000:M=M-1:PRINT"YOU
LOSE THIS TIME !":SOUND60,3:SOUN
D60,3:SOUND60,3:SOUND20,7
1060 PRINT"IT TOOK YOU ";M;" MOV
ES"
1070 IF PW=0 OR PW=M THEN1100
1080 PRINT"PREVIOUS WIN RECORD W
AS ";PW
1100 PRINT
1110 GW=GW+1:PRINT"THIS WAS GAME
 #";GW
1120 INPUT"PLAY AGAIN";Q$:Q$=LEF
T$(Q$,1)
1130 IF Q$="Y" THEN GOTO 8000
1140 END
1150 M=M-1:PRINT"YOU WIN THIS TI
ME.":SOUND125,2:SOUND147,2:SOUND
170,2:SOUND197,3:SOUND185,2:SOUN
D197,4
1155 PRINT"IT TOOK YOU ";M;" MOV
ES"
1160 IF PW=0 THEN GOTO 1175
1170 PRINT"PREVIOUS BEST SCORE W
AS ";PW:IF PW<M GOTO1100
1175 PW=M:GOTO 1100
1190 LC=LC-10:IF LC<1GOTO1020
1195 GOTO4250
1200 LC=LC+1:X=LC/10:Y=(X-INT(X)
)*10:IF (Y=0) OR (Y)1.5) THEN GO
TO 4250
1210 GOTO 1020
1220 LC=LC-1:X=LC/10:Y=(X-INT(X)
)*10:IF Y=0GOTO1020
1230 GOTO 4250
4000 PRINT"U=UP, D=DOWN, R=RIGHT
, L=LEFT   M=SEE MAP, B=FIRE BAZ
OOKA"
4010 IF BZ>0 THEN PRINT"B=FIRE B
AZOOKA, "
4020 GOTO910
4030 PRINT"LOADED! DIRECTION OF
BLAST??":GOTO4031
4031 INPUT"U,D,L,R - PRESS x TO
DISARM...";Q$
4040 Q$=LEFT$(Q$,1):IF Q$="X" TH
EN GOTO 900
4050 IF Q$="U" THEN GOTO 4100
4060 IF Q$="D" THEN GOTO 4160
4070 IF Q$="R" THEN GOTO 4190
4080 IF Q$="L" THEN GOTO 4210
4090 GOTO4030
4100 BU=10000:BS=1:BT=-10
4109 PRINT:PRINT
4110 PRINT" K E R-";:FOR X=1 TO
300:NEXT:PRINT"         P O W !!"
:PRINT:X=LC
4120 X=X+BT:IF X<BS THEN GOTO 90
0
4130 IF X>BU THEN GOTO 900
4140 IF(X<1) OR (X>100) THEN GOT
O 900
4150 A(X)=20:B(X)=20:GOTO 4120
4160 BU=10000:BS=0:BT=10
4170 GOTO 4110
4180 PRINT" ","PHFFT!!":PRINT:GO
TO900
4190 G=INT(LC/10):IF G=LC/10 THE
N GOTO 4180
4200 BS=0:BU=G*10+10:BT=1:GOTO 4
110
4210 G=INT(LC/10):H=LC/10-G:IF H
=0.1 THEN GOTO 4180
4220 BU=10000:BS=G*10+1:BT=-1:GO
TO 4110
4250 PRINT:PRINT:A(LC)=12
4260 XX=B(LC)
4270 IF (LC=1) OR (LC=2) OR (LC=
11) OR (LC=12) THEN GOTO 10000
4280 IF LC=33 THEN GOSUB 5120
4290 IF (LC)21 AND LC<25) OR (LC
>41 AND LC<45) THEN GOSUB 5300
4300 IF LC=32 OR LC=34 THEN GOSU
B 5300
4310 IF XX=4 THEN GOSUB 5310
4320 P=RND(150):IF (P)148) AND (
FL=0) THEN GOTO 10030
4330 IF XX=3 THEN GOTO 10080
4340 IF XX=5 THEN GOTO 10200
4350 X=LC-1:GOSUB 5580
4360 X=LC+1:GOSUB 5580
4370 X=LC-10:GOSUB 5580
4380 X=X-1:GOSUB 5580
4390 X=X+2:GOSUB 5580
4400 X=LC+10:GOSUB 5580
4430 IFXX=6THEN10240
4440 IFXX=7THENGOSUB5600
4450 IFXX=8THENGOSUB5610
4460 IFXX=9THEN10250
4470 IFXX=10THEN10260
4480 IFXX=11THENGOSUB5630
4490 IFXX=13 ORXX=14THEN11700
4500 IF XX=15 THEN GOTO 11780
4510 IFXX=17THENGOSUB5640
4520 IF XX=20THENPRINT"THIS AREA
'S A SMOULDERING RUIN!"
4525 IF XX=21 THEN GOTO 10270
4527 IF XX=22 THEN GOTO 10280
4530 IF XX=23 THEN GOSUB 5660
4540 IF XX=24 THEN GOSUB 5670
4550 IF XX=25 THEN GOSUB 5750
4560 IF XX=26 THEN GOSUB 6000
4570 IF XX=27 THEN GOTO 11800
4580 IF XX=28 THEN GOSUB 6010
4590 IF XX=29 THEN GOSUB 6050
4900 GOTO700
4999 STOP
5000 FOR TT=1TO234:NEXT:RETURN
5009 REM
5010 IF B(Y)=0 THEN B(Y)=Z
5020 PRINT"#";:RETURN
5029 REM
5030 CLS
5031 PRINT:PRINT
5040 PRINT"MOVES ARE (U)P, (D)OW
N, (R)IGHT AND (L)EFT. TO SEE TH
E MAP PRESS(M). TO FIRE THE BAZO
OKA, IF YOUHAVE IT, PRESS (B)."
5100 PRINT"TO HAVE TERAK'S LOCAT
ION DIS-   PLAYED, VISIT PURLICO
N MTN. IF  YOU HAVE THE MAGIC OR
B, CORAMBLEMAY TELL YOU MORE."
5110 PRINT"THE OBJECT OF THE GAM
E IS TO RE-TURN THE GOLDEN FLUTE
 TO THE    WOODLANDS IN THE FEWE
ST POSSIBLEMOVES.":PRINT
5115 PRINT"PRESS <ENTER> TO STAR
T ";:INPUT0$:RETURN
5120 IF XX=20 THEN GOTO 5290
5130 PRINT"CORAMBLE, THE GREAT O
RACLE,     REVEALS THAT TERAK'S
LAIR IS"
5131 FOR X=1 TO 1200: NEXT X
5140 PRINT"AT LOCATION #";
5141 FOR X=1 TO 2000:NEXT X
5150 FOR Y=1 TO 100:IF B(Y)=4 TH
EN GOTO 5170
5160 NEXT:IF MO=1 THEN GOTO 5180
5165 IF MO<>1 THEN RETURN
5170 PRINT Y:A(Y)=4:GOTO 5160
5180 IF AX=3 THEN RETURN
5190 AX=AX+1:A=RND(6)+4:IF (A=5)
 OR (A=9) OR (A=10) THEN GOTO 52
10
5200 RETURN
5210 PRINT"HE ALSO REVEALS THE L
OCATION":PRINT"OF ALL ";
5211 FOR X=1 TO 1800:NEXT X
5220 IF A=5 THEN PRINT"SIRENS"
5230 IF A=6 THEN PRINT"DRAGONS"
5240 IF A=9 THEN PRINT"GARGOYLES
"
5250 IF A=10 THEN PRINT"GOBLINS"
5260 PRINT"THEY'LL BE SHOWN ON N
EXT MAP"
5270 FOR X=1 TO 100:IF B(X)=A TH
EN A(X)=B(X)
5280 NEXT:RETURN
5290 PRINT"THE GREAT ORACLE'S BO
DY LIES    SMOKING IN THE CORNER
.":RETURN
5300 PRINT"YOU'RE AT THE FOOT OF
 PURLICAN":PRINT"MOUNTAIN":RETUR
N
5310 PRINT"YOU'VE INFILTRATED TE
RAK'S DEN!":GOSUB 5000
5320 IF FL=1 THEN GOTO 5360
5330 FL=1:PRINT"YOU RECOVER THE
GOLDEN FLUTE!"
5331 FOR X=1 TO 2000:NEXT X
5340 IF MO>0 THEN GOTO 5540
5350 RETURN
5360 D=RND(8):IF D=1 AND BR=0 TH
EN GOTO 5530
5370 IF D=2 AND DG=0 THEN GOTO 5
530
5380 IF D=3 AND GR=0 THEN GOTO 5
530
5390 IF D=4 AND RU=0 THEN GOTO 5
530
5400 IF D=5 AND SJ=0 THEN GOTO 5
530
5410 IF D=6 AND JS=0 THEN GOTO 5
530
5420 IF D=7 AND AL=0 THEN GOTO 5
530
5430 IF D=8 AND PM=0 THEN GOTO 5
530
5440 IF D=1 THEN PRINT"BROMBIRAN
";:BR=0
5450 IF D=2 THEN PRINT"DAGGLETTE
";:DG=0
5460 IF D=3 THEN PRINT"GROMPHLUR
";:GR=0
5470 IF D=4 THEN PRINT"RULF";:RU
=0
5480 IF D=5 THEN PRINT"SEJJAN";:
SJ=0
5490 IF D=6 THEN PRINT"JESSAN";:
JS=0
5500 IF D=7 THEN PRINT"ALLEGRECI
A";:AL=0
5510 IF D=8 THEN PRINT"PRINCESS
MELVA";:PM=0
5520 PRINT" IS DEAD":PRINT
5530 RETURN
5540 A=RND(3):IF A=1 THEN GOTO 5
360
5550 IF A=3 THEN GOTO 5570
5560 RETURN
5570 PRINT"MAGIC ORB IS DESTROYE
D!":MO=0:RETURN
5580 IF (X<1) OR (X>100) THEN RE
TURN
5590 IF B(X)=5 THENPRINT"AN EERI
E SWEET SINGING IS       HEARD I
N THE DISTANCE."
5595 RETURN
5600 PRINT:PRINT"YOU JUST FOUND
A MAGIC SWORD!!":B(LC)=0:SW=1
5601 FOR X=1 TO 1000:NEXT X
5610 X=RND(199)+1:PRINT"YOU FOUN
D ";X;" PIECES OF GOLD"
5611 FOR Z=1 TO 1500:NEXT Z
5620 B(LC)=0:GL=GL+X:PRINT:RETUR
N
5630 PRINT"YOU FOUND A MAGIC ORB
":PRINT:MO=1:B(LC)=0:RETURN
5631 FOR X=1 TO 1000:NEXT X
5640 B(LC)=0:PRINT"YOU FOUND A";
:PRINT:GOSUB 5000
5650 PRINT"*****MAGIC BAZOOKA***
**":BZ=1:RETURN
5651 FOR X=1 TO 800:NEXT X
5660 G$="GRIMPH":GOTO 5680
5670 G$="FRIEK"
5680 IF FL=0 THEN RETURN
5690 PRINT G$;",GARGOYLE SLAVE O
F TERAK,"
5691 FOR X=1 TO 1000:NEXT X
5700 IF SW=1 THEN GOTO 5720
5710 PRINT"STEALS THE FLUTE AGAI
N!":FL=0:RETURN
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5711 FOR X=1 TO 2000:NEXT X
5720 PRINT"TRIES TO STEAL THE FL
UTE AGAIN":PRINT
5721 FOR X=1 TO 400:NEXT X
5730 PRINT"BUT THE MAGIC SWORD K
ILLS ";G$;"!":PRINT
5731 FORX=1TO 2000:NEXTX
5740 B(LC)=0:RETURN
5750 PRINT"YOU'RE IN THE ENCHANT
ED FOREST!":PRINT
5751 FOR X=1 TO 300:NEXT X
5760 ZX=BR+DG+GR+RU+SJ+JS+AL+PM
5770 IF ZX>5 THEN RETURN
5780 R=RND(10):IF R>8 THEN RETUR
N
5790 IF (R=1) AND (BR=0) THEN GO
TO 5880
5800 IF (R=2) AND (DG=0) THEN GO
TO 5890
5810 IF (R=3) AND (GR=0) THEN GO
TO 5900
5820 IF (R=4) AND (RU=0) THEN GO
TO5910
5830 IF (R=5) AND (SJ=0) THEN GO
TO 5920
5840 IF (R=5) AND (JS=0) THEN GO
TO 5930
5850 IF (R=7) AND (AL=0) THEN GO
TO 5940
5860 IF (R=8) AND (PM=0) THEN GO
TO 5950
5870 RETURN
5880 PRINT"BROMBIRAN";:BR=1:GOTO
 5970
5890 PRINT"DAGGLETTE";:DG=1:GOTO
 5970
5900 PRINT"GROMPHLUR";:GR=1:GOTO
 5970
5910 PRINT"RULF";:RU=1:GOTO 5970
5920 PRINT"SEJJAN";:SJ=1:GOTO 59
70
5930 PRINT"JESSAN";:JS=1:GOTO 59
70
5940 PRINT"ALLEGRECIA";:AL=1:GOT
O 5970
5950 PRINT"PRINCESS MELVA";:PM=1
:GOTO 5970
5970 C(R)=1.5:B(LC)=0:PRINT" IS
MAGICALLY REVIVED"
5980 PRINT:RETURN
6000 PRINT"YOU FOUND A MAGIC ZIT
HER!!!":FOR X=1 TO 1900:NEXT X:P
RINT:MZ=1:B(LC)=0:RETURN
6010 PRINT"THE CHARIOT FLEW OVER
 AN":PRINT"ENCHANTED LAND MINE"
6020 GOSUB 5000:FOR X=1 TO 50:XZ
=RND(1022):PRINT@XZ,"*";
6030 U=XZ*X:NEXT:PRINT
6040 GOTO 5360
6050 IF GL<2 THEN RETURN
6060 PRINT"A WITCH STEALS YOUR G
OLD!!"
6061 FOR X=1 TO 1200:NEXT X
6070 GL=0:PRINT:PRINT"","HEE HEE
 HEE!!":PRINT
6080 RETURN
6999 REM
7000 CLS:Z=1:FOR X=1TO10:PRINT"
";
7010 FOR Y=1 TO 10:V=A(Z)
7020 IF (V=0) OR (V=7) OR (V=8)
OR (V=11) OR (V>15 AND V<20) OR
(V>22 AND V<27) THEN PRINT". ";
7030 IF V=1 THEN PRINT"W ";
7040 IF V=2 THEN PRINT"M ";
7050 IF V=3 THEN PRINT"P ";
7060 IF V=4 THEN PRINT"T ";
7070 IF V=5 THEN PRINT"S ";
7080 IF V=6 THEN PRINT"D ";
7090 IF V=9 THEN PRINT"G ";
7100 IF V=10 THENPRINT"9 ";
7110 IF V=12 THENPRINT"C ";
7120 IF (V=13) OR (V=14) THEN PR
INT"X ";
7130 IF V=15 THEN PRINT"F ";
7140 IF V=20 THEN PRINT"* ";
7150 IF V=21 THEN PRINT"s ";
7160 IF V=22 THEN PRINT"d ";
7170 IF V=27 THEN PRINT"R ";
7180 IF V=28 THEN PRINT"! ";
7190 IF V=29 THEN PRINT"w ";
7200 Z=Z+1:NEXT Y:PRINT:NEXT X
7210 PRINT"C CHARIOT(YOU),D=DRAG
ON,d=DWARF":PRINT"F=FOG,G=GARGOY
LE,9=GOBLIN"
7220 PRINT"M=MOUNTAIN,P=THE HOPE
LESS PITS,"
7230 PRINT"R=ROCK,S=SIRENS,s=MAG
IC SPARROW,T=TERAK'S LAIR,W=WOOD
S,w=WITCH, !=LAND MINE,*=SMOULDE
RING RUIN"
7250 GOTO 900
8000 FOR X=1 TO 100:A(X)=0:B(X)=
0:PRINT"&";:NEXT
8101 GOTO 70
10000 PRINT"YOU'RE IN THE ELVES
HOME.":PRINT
10001 FOR X=1 TO 200:NEXT X
10010 IF FL=1THENPRINT"YOU RECOV
ERED THE GOLDEN FLUTE!":GOTO1150
10020 GOTO 4280
10030 PRINT"TERAK FEARS YOUR APP
ROACH       AND MOVES HIS LAIR !
!!":PRINT
10040 FOR X=1 TO 100:IF B(X)=4 T
HEN B(X)=0:A(X)=0
10050 NEXT
10060 X=RND(100):IF B(X)>1 THEN
GOTO 10060
10070 B(X)=4:GOTO 4310
10080 PRINT"THE CHARIOT IS STUCK
 IN THE":PRINT"HOPELESS PITS"
10081 FOR X=1 TO 2000:NEXTX
10090 IF MO=1 THEN GOTO 10130
10100 A=RND(5):IF A>3 THEN PRINT
"YOU'RE DOOMED":GOTO 1050
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10110 IF A<3 THEN GOSUB 5360
10120 PRINT"YOU MANAGE TO GET TH
E MAGIC      CHARIOT FREE OF THE
MUCK!!":GOTO700
10130 INPUT"DO YOU RUB YOUR MAGI
C ORB";Q$:Q$=LEFT$(Q$,1)
10140 IF Q$="Y" THEN GOTO 10160
10150 GOTO 10100
10160 GOSUB 5000:CLS:PRINT:PRINT
10170 CLSRND(8):PRINT"       ****
 P o o f ****":PRINT
10171 FOR X=1 TO 800:NEXT X
10180 LC=RND(100):PRINT"THE CHAR
IOT IS MOVED TO # ";LC
10190 A(ZZ)=B(ZZ):A(LC)=12:GOTO
700
10200 PRINT"THE SIRENS SONG MESM
ERIZES YOU!":FOR X=1TO1000:NEXT:
PRINT
10210 GOSUB 5000
10220 PRINT"THE MAGIC CHARIOT CR
ASHES!!:PRINT:GOSUB5000
10230 GOTO 1050
10240 PRINT"A DRAGON ";:FO=1:GOT
O 10300
10250 PRINT"A GARGOYLE ";:FO=2:G
OTO 10300
10260 PRINT"A GOBLIN ";:FO=3:GOT
O 10300
10270 PRINT"A MAGIC SPARROW ";:F
O=4:GOTO 10300
10280 PRINT"AN ANCIENT DWARF ";:
GM=RND(150):FO=5
10300 AM=RND(4):PRINT"IS IN YOUR
 PATH":PRINT:GOSUB 5000
10310 A(LC)=B(LC)
10320 PRINT"POSSIBLE ACTIONS":PR
INT
10330 PRINT"1-MOVE THE CHARIOT"
10340 PRINT"2-THROW GOLD COINS O
VERBOARD"
10350 PRINT"3-HAND TO HAND COMBA
T"
10360 IF MO=1 THEN PRINT"4-RUB M
AGIC ORB"
10370 IF SW=1 THEN PRINT"5-UNSHE
ATH MAGIC SWORD"
10380 IF MZ=1 THEN PRINT"6-PLAY
MAGIC ZITHER"
10390 INPUT"YOUR CHOICE";P
10400 IF P=1 THEN GOTO 10490
10410 IF P=2 THEN GOTO 10660
10420 IF P=3 THEN GOTO 11000
10430 IF (MO=1) AND (P=4) THEN G
OTO 10160
10440 IF (SW=1) AND (P=5) THEN G
OTO 11500
10450 IF (MZ=1) AND (P=6) THEN G
OTO 11630
10460 PRINT"INVALID MOVE":PRINT:
GOTO 10320
10490 IF FO>3 THEN GOTO 910
10500 PRINT:INPUT"DIRECTION";M$:
M$=LEFT$(M$,1)
10520 IF M$="U" THEN GOTO 10570
10530 IF M$="D" THEN GOTO 10580
10540 IF M$="R" THEN GOTO 10590
10550 IF M$="L" THEN GOTO 10600
10560 GOTO 10500
10570 IF AM=1 THEN GOTO 1190
10575 IF AM>4 THEN GOTO 10610
10580 IF AM=2 THEN GOTO 1000
10590 IF AM=3 THEN GOTO 1200
10600 IF AM=4 THEN GOTO 1200
10610 PRINT:PRINT"THE ";:IF FO=1
 THENPRINT"DRAGON";
10620 IF FO=2 THEN PRINT"GARGOYL
E";
10630 IF FO=3 THEN PRINT"GOBLIN"
;
10640 PRINT" WON'T LET YOU":PRIN
T"PASS THAT WAY!!"
10650 GOTO 10320
10660 PRINT:INPUT"HOW MUCH GOLD
DO YOU TOSS OVER";H
10670 A=ABS(H):H=INT(H):IF H=0 T
HEN GOTO 10660
10680 IF H>GL THEN GOTO 10995
10690 GL=GL-H
10700 IF FO=1 THEN GOTO 10900
10710 IF FO=2 THEN GOTO 10910
10720 IF FO=3 THEN GOTO 10940
10730 IF FO=4 THEN GOTO 10980
10740 PRINT"THE DWARF THANKS YOU
 POLITELY "
10750 GM=GM-H:IF GM>1 THEN GOTO
10320
10760 PRINT"AND HE REVEALS THE L
OCATION OF ";
10770 DF=RND(4):IF DF=1 THEN GOT
O 10840
10780 IF DF=2 THEN GOTO 10860
10790 IF DF=3 THEN GOTO 10880
10800 PRINT"SIRENS":FOR X=1 TO 1
00:IF B(X)=5 THEN A(X)=5
10810 NEXT
10820 PRINT"THIS INFORMATION WIL
L BE DIS-   PLAYED ON YOUR NEXT
MAP.."
10830 A(LC)=12:GOTO 700
10840 PRINT"GOBLINS":FOR X=1 TO
100:IF B(X)=10 THEN A(X)=10
10850 NEXT:GOTO 10820
10860 PRINT"GARGOYLES":FOR X=1 T
O 100:IF B(X)=9 THEN A(X)=9
10870 NEXT:GOTO 10820
10880 PRINT"DRAGONS":FOR X=1 TO
100:IF B(X)=6 THEN A(X)=6
10890 NEXT:GOTO 10820
10900 PRINT"DRAGONS HAVE NO NEED
 FOR GOLD":PRINT:GOTO 10320
10910 PRINT"THE GARGOYLE PUTS TH
E GOLD INTO":PRINT"ITS SACK ";
10920 I=RND(200):IF H<I THEN PRI
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NT:GOTO 10320
10930 PRINT"AND LEAVES":B(LC)=0:
A(LC)=12:GOTO 700
10940 I=RND(200):PRINT"THE GOBLI
N EATS THE GOLD"
10941 FOR Z=1 TO 600:NEXT Z
10950 IF H<1 THEN PRINT:GOTO 103
20
10960 FOR X=1 TO 700:NEXT X:PRIN
T"AND DIES OF TERMINAL":PRINT"IN
DIGESTION!"
10961 FOR X=1 TO 900:NEXT X
10970 B(LC)=0:A(LC)=12:GOTO 700
10980 PRINT"WHAT WOULD A BIRD DO
":PRINT"WITH ";H;" PIECES OF GOL
D?":PRINT
10990 GOTO 10320
10995 PRINT"YOU DON'T HAVE ";H;"
 PIECES":PRINT"OF GOLD!!":GOSUB5
360:GOTO 10320
11000 PRINT:PRINT"YOUR CHAMPION?
"
11010 IF BR=1 THEN PRINT"1-BROMB
IRAN"
11020 IF DG=1 THEN PRINT"2-DAGGL
ETTE"
11030 IF GR=1 THEN PRINT"3-GROMP
HLUR"
11040 IF RU=1 THEN PRINT"4-RULF"
11050 IF SJ=1 THEN PRINT"5-SEJJA
N"
11060 IF JS=1 THEN PRINT"6-JESSA
N"
11070 IF AL=1 THEN PRINT"7-ALLEG
RECIA"
11080 IF PM=1 THEN PRINT"8-PRINC
ESS MELVA"
11090 PRINT"9- ";N$
11100 INPUT"YOUR CHOICE";CH
11110 IF CH=1 AND BR=1 THEN GOTO
 11210
11120 IF CH=2 AND DG=1 THEN GOTO
 11220
11130 IF CH=3 AND GR=1 THEN GOTO
 11230
11140 IF CH=4 AND RU=1 THEN GOTO
 11240
11150 IF CH=5 AND SJ=1 THEN GOTO
 11250
11160 IF CH=6 AND JS=1 THEN GOTO
 11260
11170 IF CH=7 AND AL=1 THEN GOTO
 11270
11180 IF CH=8 AND PM=1 THEN GOTO
 11280
11190 IF CH=9 THEN GOTO 11290
11200 PRINT" ","WHO???":PRINT:GO
TO 11010
11210 I=50:GOTO 11300
11220 I=55:GOTO 11300
11230 I=45:GOTO 11300
11240 I=85:GOTO 11300
11250 I=25:GOTO 11300
11260 I=25:GOTO 11300
11270 I=50:GOTO 11300
11280 I=40:GOTO 11300
11290 I=75
11300 H=I*C(CH):C(CH)=C(CH)-.1:G
OSUB 5000
11310 PRINT:PRINT:RS=RND(100)
11320 IF FO=4 THEN GOTO 11390
11330 IF FO=5 THEN GOTO 11490
11340 IF RS>H THEN GOTO 11390
11350 PRINT"THE ";:IF FO=1 THEN
PRINT"DRAGON";
11360 IF FO=2 THEN PRINT"GARGOYL
E";
11370 IF FO=3 THEN PRINT"GOBLIN"
;
11380 PRINT" IS SLAIN!":PRINT:B(
LC)=0:A(LC)=12:GOTO 700
11390 IF CH=1 THEN PRINT"BROMBIR
AN";:BR=0
11400 IF CH=2 THEN PRINT"DAGGLET
TE";:DG=0
11410 IF CH=3 THEN PRINT"GROMPHL
UR";:GR=0
11420 IF CH=4 THEN PRINT"RULF";:
RU=0
11430 IF CH=5 THEN PRINT"SEJJAN"
;:SJ=0
11440 IF CH=6 THEN PRINT"JESSAN"
;:JS=0
11450 IF CH=7 THEN PRINT"ALLAGRE
CIA";:AL=0
11460 IF CH=8 THEN PRINT"PRINCES
S MELVA";:PM=0
11470 IF CH=9 THEN PRINT N$;" IS
 SLAIN!":PRINT"GAME OVER!":GOTO
1050
11480 C(CH)=0:PRINT" IS SLAIN!":
PRINT:GOTO 10320
11490 PRINT"THE DWARF IS SLAIN!"
:B(LC)=0:A(LC)=12:GOTO 700
11500 Q=RND(100):IF FO=1 THEN GO
TO 11550
11510 IF FO=2 THEN GOTO 11600
11520 IF FO=3 THEN GOTO 11350
11530 IF FO=4 THEN GOTO 11390
11540 IF FO=5 THEN GOTO 11490
11550 IF Q<65 THEN GOTO 11350
11560 PRINT"THIS DRAGON IS IMMUN
E TO":PRINT"YOUR SWORD!!":PRINT:
GOSUB 5000
11570 PRINT"IT ATTACKS THE CHARI
OT!":PRINT:GOSUB 5000
11580 GOSUB 5360:IF Q<80 THEN GO
TO 10320
11590 PRINT"YOUR SWORD IS DESTRO
YED!":PRINT:SW=0:GOTO 10320
11600 IF Q<50 THEN GOTO 11350
11610 PRINT"GARGOYLE DRAWS HIS O
WN SWORD!!":PRINT:GOSUB 5000
11620 GOTO 11580
11630 IF FO=1 THEN GOTO 11350
11640 IF FO=3 THEN GOTO 11670
11650 PRINT:PRINT"NO ONE IS PART
ICULARLY IMPRESSEDWITH YOUR TALE
NT....":PRINT
11660 GOTO 10320
11670 Q=RND(10):IFQ>5 THEN GOTO
11350
11680 GOSUB 5360:GOTO 10320
11699 REM
11700 PRINT"YOU JUST HIT A BRICK
 WALL!!":FORX=1TO1000:NEXT:PRINT
11710 QQ=RND(3)+QQ:IF QQ<7 THEN
GOSUB 5360
11720 IF QQ>10 THEN GOTO 11750
11730 A(LC)=B(LC):IF XX=13 THEN
 LC=LC-20:IF XX<>13 THEN LC=LC+2
0
11740 PRINT"THE CHARIOT IS THROW
N BACKWARDS!":FORX=1TO1100:NEXT:
GOTO4250
11750 PRINT"THE MAGIC CHARIOT IS
 REDUCED TO A SMALL PILE OF JUNK
...":PRINT
11760 GOSUB 5000
11770 PRINT"YOU AND YOUR PARTY A
RE DEAD":PRINT:GOTO 1050
11780 PRINT"THE MAGIC CHARIOT HA
S FLOWN INTOA THICK, MYSTERIOUS
FOG!!":FORX=1TO1500:NEXT:PRINT
11781 FOR X=1 TO 1000:NEXT X
11790 FORX=1TO160:PRINT"#";:NEXT
:A(LC)=15:LC=RND(50)+30
11795 PRINT:PRINT" T H E   F O G
  C L E A R S.":ZZ=A(LC):A(LC)=1
2:GOTO 700
11800 PRINT:PRINT"A GIGANTIC BOU
LDER":PRINT"BLOCKS YOUR PATH !!"
:PRINT
11800 PRINT:PRINT"A GIGANTIC BOU
LDER":PRINT"BLOCKS YOUR PATH !!"
:PRINT
11810 R=RND(4)
11820 A(LC)=27:ZZ=27
11830 INPUT"WHICH WAY DO YOU TRY
 TO GO";M$:M$=LEFT$(M$,1)
11840 M=M+1
11850 IF M$="D"AND R=1 GOTO1000
11860 IF M$="U"AND R=2GOTO1190
11870 IF M$="R"AND R=3GOTO1200
11880 IF M$="L"AND R=4GOTO1220
11890 PRINT"THE BOULDER IS IN YO
UR WAY !":PRINT
11895 FOR X=1 TO 9:C(X)=C(X)-(C(
X)/20):NEXT:GOTO 11830
```

CONTROL SHIFT

by Gordon Thurston

```
5 REM     CONTROLSHIFT
6 REM   BY GORDON THURSTON
7 REM
10 CLEAR50,20447
20 FORA=20447TO20478
30 READP:POKEA,P
40 NEXT
45 EXEC20447
46 NEW
50 DATA204,79,235,253,66,173,134
,126,183,66,172,57,56,39,11,193,
17
60 DATA39,10,193,1,39,6,126,249,
34,126,249,17,126,249,0
```

softgold

It seems like it was only yesterday, that simply loading Lotus 123 or your favorite word processor into your computer with a full 64K of RAM, was the way to be productive.

Not anymore. Now you will need 640K or more to run some of the latest business software.

Take the new release of Lotus 123 for example, it will work with spreadsheets as large as 2 Megabytes (or if you prefer 2000 K).

As well as such programs as this you could well be using memory resident programs like Sidekick, Lightning, Polywindows, Prokey, RAM disks, print buffers and so on. All of which take up more of your valuable RAM.

The question that begs is "Do I require more RAM?"

Well I guess a general rule of thumb would be to check how much memory you are using at any one time (with your favorite application loaded).

An easy way to do this is to use the CHKDSK command which will give you a precise total of your computer's total RAM and the free memory you have left. If you find that you are continually using around 80 percent of your memory then it is time for an upgrade.

"Why would I need to upgrade if I still have 20 percent free", I hear you ask!

Simple.

For 2 reasons.

1 the speed with which memory resident programs are being released, you are bound to get another one soon (!)

and 2, the next version of your favourite application software will be at least 10-20 percent larger than the present version you are using.

The price of additional memory has dropped dramatically over the last year or so. Also there are more people producing add-on cards now than ever before.

In the same amount of time the memory restrictions of the IBM PC and compatibles has lifted. Where the "top" used to be 640K, the mark is now around the 2 megabytes of RAM. This ceiling is still going up. There is now one card available which takes one slot and supplies a whole 2 megabytes of RAM to it.

Where is the limit? My personal thoughts on that matter are quite simple. There are none.

Why?

Look at what is happening in general, from the now normal 5 1/4 inch floppy disk drive we glean a total of 326k bytes of memory, which recently with new technology has been increased to a minimum of 720K bytes. The hard disk which was standard at 10 Megabytes is now standard at 20/30 Megabytes and goes up as high as 120 Megabyte. Laser disks which are still on the brink of being released (they have been for about 6 months), are rumoured to have the capability of 550 megabytes.

Now with all this on-line storage capability, I think that it is safe to say that RAM will also increase in size to keep pace with on line memory.

I realize that a lot of you will dissagree with me, simply on the basis of 'there is no use for that amount of memory, and you could never fill it'. Well this may seem true at the moment, however think back to the days (not so long ago) of the 4K computer. When the 16K computer came out, people all over shouted 'too much, we cannot use that much memory'.

Well here we are only 5 or so years down the track from that point.

For a case in point I will take my system. I find that I use Sidekick from Borland so often that it is an integral part of my system now. When I print something I hate to have to stop what I am doing so that something else can print, so naturally I use a print buffer set up at 64K. Also I use a public domain program called Dosedit to save me retyping a DOS command . After these 2 are loaded I am left with only 420K of RAM from my original 640K.

Then if I am using a graphics program, a graphics print program goes into memory as well. This brings my available memory to well below 400K, and now if I use a large(ish) spreadsheet with Lotus, I find all of a sudden that I have no memory left and have to unload something. As for the RAM disk that I want to install somewhere in the region of 200K, well that will have to wait for a while, mainly until I get more memory!

Now let us look at some of these memory resident programs, that are a help to you and your use of the computer.

RAM disks are just what they sound like, they are additional disks in RAM. The advantage may not be apparently obvious, so I will explain.

When you are using a floppy disk drive the access time is governed by the mechanics of the drive itself and not the speed of the computer. Whereas the access time of the RAM disk is governed by the speed of the computer (and we all know how fast that can be).

To give you some idea, the time taken to access data on a RAM disk compared to a floppy disk is in the region of 10 times faster! That is right 10 times!

The speed difference compared to a hard disk is not as noticeable, as it is only 2 to 4 times faster.

You can see from this that the advantage of taking the extra memory for a RAM disk can be greatly outweighed by the need for speed.

There can however be some disadvantages to using a RAM disk, the most obvious of these is if you have a power outage. The information on the RAM disk will be lost forever and cannot be recovered.

Also a RAM disk will not help with copy protected programs, as the copy protection is there to stop you from copying the files to another disk and as far as your computer is concerned, your RAM disk is just another piece of hardware.

Print buffers are another utility which once you have used them, you wonder how you ever did without them! There are many different ones around that give many options, such as:- amount of copies, size of memory, setting up of a queue of things to print and so on.

The advantage of a print buffer is that it frees

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COOCH2

by Chris Manvall

This program is a direct conversion from the same program by one of our budding Australian artists written for the Colour Computer that draws one of our favourite Kiwi characters. The conversion was done by Chris Manvall who also added some nice colour touches to the graphic.

Well done Chris

The Listing

```
10 SCREEN 1:CLS
15 LINE(0,0)-(630,190),3,BF
60 DRAW"BM129,35C0RE5UEU3RER8E2R14LHL3HL
HLHL2G2LG2L3HL3G3LHE5RERER7FH2UH3U2HU2HU
H2LHLHL3GLG2D5FD3FD3FD6FD3GD2G3DBM134,4F
RF2D2GLGLHERE2L3"
70 PAINT(135,15),1,0
72 PAINT(145,20),2,0
74 PAINT(150,20),1,0
76 PAINT(135,25),1,0
80 DRAW"BM168,31c0FGLHBM171,31REHFREBM19
0,57D4F3H3GDGDUEUEULGLG"
100 DRAW"BM149,44D7FD2FD3FD2FD7GD17GD5GD
7FD3FD3FD2FDFDF6RERE4RE5UEU6EU7EU7EU13HU
5HU2HU3HGL2H5U3HU3HU5HU6HGD18GLGL2HLUHUH
UHU3BM180,114F6E2U5HU2HU2HU2HU2HU2"
120 DRAW"C0BM151,106G3D2GD3GD2FDFR2UNE2H
UDFD8GD4F2RFEUEU2D5FE2FR6U8EFD6FR3EFRFRE
RE2FREFRU7HU4EU3H2L4H5BM168,119FDFD3FDF2
D2RU2RD2RU2RDE3U3EUEU3"
140 DRAW"BM161,179L8GL4GL8HLGL3H2U2ERERE
R2ER8ER6U20EU3LR3LDFR4FR5FR3D27L2R2D2L17
GLGL2G3D2F2R21FR3UER6EFR5ER3ERUE2L3HL3U3
HU27H2FDGNU2L7DL6HUH3D2R"
160 DRAW"BM172,26NM191,24M191,20U7E5R24F
5D15G5L24H5U4":DRAW"BM196,19U6DRDF2DRDU6
BR3R2FD4GL2HU4EBR6R2FD2GL3ND2U3EBR5NR4D3
NR3D3NR4BD3BL18ND6DF2NDE2UND6BR4NF2G2D4U
2R4ND2NU2BU4BR2R2ND6R2BR2NR4D3NR3D3R4BR2
UBU2U3"
180 DRAW"BM161,36L2H7U4H2L2DF2DF":DRAW"B
M159,56LU3BU3ULH2L2HLHUHURUEU3HUH4L3U4HL
3D2NGFRLHU2LGD3":DRAW"BM148,42HLH4ULG2L3
HU3EUERERFNGRRD2GDR2F2DFNDRU3R2"
200 DRAW"BM163,35U2LULUNEDLH2LUH2U2ERERN
"
220 DRAW"BM166,41FENU2GF3D2FD2FD2FD2FD3L
":DRAW"BM163,35R5ER4F3D3FD3FD2FD2FD2FD2F
D2FD4FD8FD13GD6GD13GDGD4":DRAW"BM167,44D
2NGFD"
240 DRAW"BM151,69U5H2U2HU3HU5HUHU5"
260 DRAW"BM180,135D9F4D5L5GL6U7HU2EU7"
280 DRAW"BM164,137D6F3D5L5HL3U6HU6"
300 AS$="BM77,184RURU2E5UE5U7NH3RU2RUER2
D2LRD3NH3GL2HE4UE3R3URD2NL2RERNE2NF2LGL2
D2GDF2NRNDH2L2GFRNUD3GNDEURFDNFUH2HGDGDG
D5FD5G2L8GL3NG3E7UE3U2HBM85,181RE5U2BM85
,181R3D3NL2NR7DLR2EFNR5U3L"
305 DRAW AS$
310 DRAW"BM92,169BU3FH":PAINT(92,178),0,
0:DRAW"C5BM84,181ERE4U3R2D3G4"
330 PAINT(183,109),2,0:DRAW"BM183,109FD3
GHU2RUD4C0"
340 DRAW"BM162,179R7BM171,179U24":PAINT(
160,168),0,0:DRAW"D24BL2L2BLBL3L2":DRAW"
BM163,179C0H3UR3D2RDULU4R2ND3R2D4ERD2LDL
"
350 PAINT(168,80),2,0
355 PAINT(170,130),1,0
357 PAINT(180,118),1,0
360 PAINT(156,31),0,0:DRAW"BM164,36L3R3R
"
370 PAINT(180,160),0,0
380 DRAW"BM170,150C3D30L6UULLDD"
500 GOTO 500
```

STOP PRESS!!!STOP PRESS!!!STOP PRESS!!!STOP PRESS!!!STO

STOP PRESS... (I've always wanted to say that). When we published John Archers disk Organiser in the May edition of Softgold. We had at the time a visit from Martha. We wondered at the time why she was so friendly. Well we have at last found out, if you look at the listing of the disk organiser program on page 60 line 2620. It reads

```
2620 b" "dir b: >a:"+RAW$+".raw"
```

this in fact is wrong, it should read

```
2620 SHELL "dir b: >a:"+RAW$+".raw"
```

Looks like Martha decided to have a bit of fun with us all.

BIN TABLE

by Chris Manvall

This is a program that I wrote when I was trying to do some differant characters on my printer. In the graphic mode the computer translates all ASCII character codes to their binary equivelent and prints the corresponding dots.

This program generates 2 different types of charts for the binary equivalent to decimal numbers, giving you a look up table for easier use of the printer.

The Listing

```
10 CLS
20 LOCATE 2,15:PRINT"A PROGRAM TO CONVER
T DECIMAL NUMBERS"
30 LOCATE 4,15:PRINT"    TO THEIR BINARY
 EQUIVELENTS"
40 LOCATE 7,15:PRINT"AND PRINT THEM OUT
IN A CHART FORM"
50 LOCATE 16,15:PRINT"              BY"
60 LOCATE 18,15:PRINT"         CHRIS MAN
VALL"
61 LOCATE 23,20:PRINT"PRESS ANY KEY TO C
ONTINUE"
62 IF INKEY$="" THEN 62
70 '    SET UP VARIABLES
80 DIM A$(256)
90 B$="### \      \    "
100 '    CLEAR SCREEN
110 CLS
120 '    SET UP LOOP TO DO THE WORK
130 FOR LOOP=1 TO 256:NUMBER=LOOP:NUMBER
1=LOOP
140 '    PRINT MESSAGE ON THE SCREEN
150 LOCATE 10,20:PRINT"now working on nu
mber";NUMBER1
160 '    GO AND DO CALCULATIONS
170 GOSUB 440
180 A$(LOOP)=A$
190 NEXT
200 '    ALLOW USER TO SELECT TYPE OF PR
INTOUT
210 CLS:LOCATE 8,20:PRINT"Do you want a
column printout [ENTER 1]"
220 LOCATE 12,20:PRINT"Do you want a lin
e printout   [ENTER 2]"
230 C$=INKEY$:IF C$="" THEN 230
240 IF C$="1" THEN GOTO 270 ELSE GOTO 38
0
250 END
260 '    ROUTINE TO PRINT COLUMN TYPE OF
 PRINTOUT
270 LPRINT:LPRINT"DECIMAL TO BINARY CONV
ERSION TABLE IN COLUMN FORM"
280 FOR LOOP=1 TO 51
290 LPRINT USING B$;LOOP;A$(LOOP);
300 LPRINT USING B$;LOOP+51;A$(LOOP+51);
310 LPRINT USING B$;LOOP+102;A$(LOOP+102
);
320 LPRINT USING B$;LOOP+153;A$(LOOP+153
);
330 LPRINT USING B$;LOOP+204;A$(LOOP+204
);
340 NEXT
350 LPRINT USING B$;256;"........"
360 LPRINT CHR$(12):GOTO 210
370 '    ROUTINE TO PRINT LINE TYPE OF P
RINTOUT
380 LPRINT:LPRINT"DECIMAL TO BINARY CONV
ERSION TABLE IN LINE FORM"
390 FOR LOOP=1 TO 256:NUMBER=LOOP:NUMBER
1=LOOP
400 LPRINT USING"### \      \    ";NUMBE
R1;A$(LOOP);
410 NEXT
420 LPRINT CHR$(12):GOTO 210
430 '    ROUTINE TO CONVERT NUMBERS
440 IF INT(NUMBER/128)=1 THEN A$="1":NUM
BER=NUMBER-128 ELSE A$="."
450 IF INT(NUMBER/64)=1 THEN A$=A$+"1":N
UMBER=NUMBER-64 ELSE A$=A$+"."
460 IF INT(NUMBER/32)=1 THEN A$=A$+"1":N
UMBER=NUMBER-32 ELSE A$=A$+"."
470 IF INT(NUMBER/16)=1 THEN A$=A$+"1":N
UMBER=NUMBER-16 ELSE A$=A$+"."
480 IF INT(NUMBER/8)=1 THEN A$=A$+"1":NU
MBER=NUMBER-8 ELSE A$=A$+"."
490 IF INT(NUMBER/4)=1 THEN A$=A$+"1":NU
MBER=NUMBER-4 ELSE A$=A$+"."
500 IF INT(NUMBER/2)=1 THEN A$=A$+"1":NU
MBER=NUMBER-2 ELSE A$=A$+"."
510 IF INT(NUMBER/1)=1 THEN A$=A$+"1":NU
MBER=NUMBER-1 ELSE A$=A$+"."
520 RETURN
```

TAX

A COMPETITION!!

Have you looked at some of the new tax laws that the poor old Joe on the street now has to keep up with.

As I look through them and see how many records we all have to keep now, not only for this year, but for the last 3 1/2 years, I cannot help but wonder which computer company the government has bought!

What makes me think the government has bought a computer company? Well, it is very simple really. What is a computer really good at, if not at keeping records and sorting information?

So why don't we have a small competition to find who can make the best program to keep track of their personal tax records.

The rules are fairly simple it has to run on a computer supported by this magazine (any Tandy computer or IBM compatible) and cover the requirements of the new tax laws covered in the 4 brochures available from any post office. These are entitled Income Tax and Car Expenses, Income Tax and Travel Expenses, Income Tax and Employees Work Expenses and Income Tax and Entertainment Expenses.

For those of you who cannot get hold of these brochures for one reason or another, I will outline the content of two of them, starting first with the points that are in common to all 4 of the brochures.

Proving your claim.

From 1 July 1986 Travellers/Employees etc who are affected by the new rules must keep certain records and must be able to produce these records when the Tax office asks for them.

Keep all your relevant receipts, invoices and other similar documents. Also in some cases a diary maybe required.

An expense will only be allowable as a deduction where you can provide these records.

When asked to produce your records a schedule that cross-references the documents and summarises the information in them will also be required. If you do not supply the schedule the Tax office will disallow the claim (see told you they bought a computer company).

Receipts

Your receipts must be in English unless the item was paid for in a non-English speaking country.

The receipt must show:- The date of the expense. The date of the document. The name of the supplier or the supplier's business name. The amount in the currency in which it was incurred. What you bought.

When you cannot obtain a receipt you should obtain a statement or a certificate from the supplier, which must show the same information as is required for a receipt.

Receipts are not required if the expense is less than $10, but the total of such entries does not exceed $200 per year. This is a case of if you are not sure then get the receipt anyway.

Keeping records

Employees must keep their records for 3 1/2 years after lodging their tax returns. Self employed people must keep them for 7 years.

Once the Tax office has asked you to prove your claim you must provide the following information within 28 days:- Receipts, invoices etc A schedule in English (for which the Tax office will send you an approved format when asking you to prove your claim) which gives:- A cross reference to the documents A summary of the information in the documents showing all amounts in Australian currency. A travel diary for overseas travel and for extended travel in Australia (for travel expenses) A log book and summary of total kilometres travelled (for car expenses)

Lost or destroyed records

Generally, if your records are lost or destroyed the Tax office will not allow your claim. Unless you can show that your records were lost or destroyed in circumstances beyond your control, despite your having taken reasonable precautions, in which case a copy of the original records or a document containing all the information may be used as proof. Now on to the individual brochures. First we have the travel expenses, which allows the following work-related travel expenses:-

* Employees whose claim for travel expenses is greater than their travel allowance.
* Employees who claim travel expenses for travelling away from home for more than 5 nights in a row.
* Employees who get a travel allowance that is paid at what the Tax office considers to be an unreasonably high rate.
* Employees who claim travel expenses and are not paid a travel allowance.
* Self-employed people.
* Employees or self-employed people who travel overseas. With the exception of:-
* If your claim for travel does not exceed a reasonable travel allowance paid to you by your employer and you are not away from home for more than 5 nights in a row.
* If your total work expenses, including car and travel expenses, are not more than $300.

Travel expenses for which you must keep records include all expenses incurred in travelling outside Australia, or for travel in Australia where you are away from home continuously for more than 5 nights. These expenses include air, bus, train and taxi fares, car hire, meals, accommodation and incidental expenses. They do not include the cost of running your own car.

continued on Page 64

WORDFIND

Original program by Steve Blyn
Conversion by John Archer

Find word was originally written by Steve Blyn for the Color Computer, which is such a nice little program to help young children with their English that I thought it a shame that someone hadn't converted it for the T1000.

So here is the conversion, the only thing you need to really remember is that you must answer the questions with the Caps Llock key on, otherwise all of your answers will be wrong.

I hope your children have as much fun with this program as mine do, and many thanks to Ssteve for the original listing.

```
10 SCREEN 0:WIDTH 80:CLS
20 REM"FIND THE WORD"
30 REM"STEVE BLYN,COMPUTER ISLAND,NY,198
6
40 'CONVERTED FOR THE T1000 BY JOHN ARCH
ER
50 DIM A$(14),B$(14),X$(10),Y$(10)
60 FOR T=1 TO 14:READ A$(T),B$(T):NEXT T
70 R=RND(14)
80 XY=RND
90 CLS
100 LOCATE 1,1:PRINT STRING$(80,1);
110 LOCATE 4,1
120 PRINT"  JACK CLIMBED THE BEANSTALK
A SECOND TIME. HE WAS AGAIN HELPED BY TH
E GIANT'S WIFE. THIS TIME  HE TOOK THE H
EN THAT LAID THE GOLDEN EGGS. HE ESCAPED
 QUICKLY.";
130 PRINT"  JACK PICKED UP THE MAGIC HAR
P ON HIS THIRD TRIP. BUT THE HARP CALLED
 OUT AND  WOKE THE GIANT.  THE GIANT BEG
AN TO CHASE JACK."
140 N=N+1
150 LOCATE 2,20:PRINT "N=";N;"      **
JACK  **   R=";CR;
160 IF N>10 THEN GOTO 520
170 LOCATE 10,1:PRINT STRING$(80,1)
180 LOCATE 18,23:PRINT STRING$(27,1)
190 LOCATE 19,23:PRINT" ANSWER IN CAPITA
LS ONLY "
200 LOCATE 20,1:PRINT STRING$(80,1)
210 LOCATE 13,25:PRINT "TRY TO FIND THE
WORD THAT..."
220 IF R>13 THEN R=0
230 R=R+1
240 LOCATE 14,25:PRINT STRING$(54," ")
250 LOCATE 14,25:PRINT A$(R)
260 LOCATE 15,25:PRINT STRING$(54," ")
270 LOCATE 16,25:PRINT STRING$(54," ")
280 LOCATE 15,25:INPUT C$
290 IF C$=B$(R) THEN PLAY"L10CEGCEGCC":L
OCATE 16,25:PRINT"CORRECT. PRESS ENTER T
O GO ON";:CR=CR+1
300 IF C$<>B$(R) THEN PLAY "L4CC":LOCATE
 16,25:PRINT B$(R)" IS THE ANSWER.";:GOS
UB 480
310 EN$=INKEY$
320 IF EN$=CHR$(13) THEN LOCATE 22,25:PR
INT"                    ";: GOTO 140
330 GOTO 310
340 DATA IS A COMPOUND WORD,BEANSTALK
350 DATA IS A COLOR,GOLDEN
360 DATA HAS AN APOSTROPHE,GIANT'S
370 DATA IS THE OPPOSITE OF HUSBAND,WIFE
380 DATA IS GOOD TO EAT FOR BREAKFAST,EG
GS
390 DATA MEANS MORE THAN TWO TIMES,THIRD
400 DATA MEANS THE OPPOSITE OF SMALL,GIA
NT
410 DATA MEANS THE SAME AS FAST,QUICKLY
420 DATA MEANS THE SAME AS A VOYAGE,TRIP
430 DATA IS THE NAME OF AN ANIMAL,HEN
440 DATA IS A MUSICAL INSTRUMENT,HARP
450 DATA IS THE OPPOSITE OF IN,OUT
460 DATA THAT APPEARS MOST OFTEN ABOVE,T
HE
470 DATA THAT IS USED 3 TIMES,JACK
480 X$(J)=A$(R):Y$(J)=B$(R)
490 J=J+1
500 LOCATE 22,25:PRINT"PRESS ENTER TO GO
 ON";
510 RETURN
520 CLS:PLAY"CDEFG":PRINT"HERE IS YOUR R
EVIEW"
530 IF CR=10 THEN PRINT:PRINT"VERY GOOD
... 100%":GOTO 590
540 FOR K=0 TO J-1
550 PRINT K+1;".";Y$(K);" IS THE WORD TH
AT":PRINT X$(K):PRINT
560 PRINT:PRINT"PRESS ENTER TO GO ON
570 EN$=INKEY$
580 IF EN$=CHR$(13) THEN NEXT K ELSE 570
590 END
```

continued from Page 63

Car expenses are fairly similar to travel expenses, except for the fact that they are geared (excuse the pun) to cars, as follows.

You are allowed to claim:-

* When you do more than 5000 business kilometres a year:-
* Actual business expenses.
* 12 per cent of the cost price of the car or 1/3 of all actual expenses.
* When you do less than 5000 business kilometres a year you can claim:-
* A set rate for business kilometres, or actual business expenses. The booklet then goes on to explain the individual particulars of what is claimable for each type of expense.

As you can see from the above 2 examples. The main points to allow for in your program will the points that are in common to all 4 brochures, and if you really want to get fancy then continue on to the individual brochure.

To give you some ideas for your program the design of the input screen may look something like:-

Tax deductables for 1986/87

Date of purchase	.....
Date of receipt	.....
Supplier	.....
Item	.....
Price	.....
Category	.....
Number of receipt	.....

This would cover the basics of the summary and allow you to find the receipt easily by its number.

Then to cover the "cross reference to the documents" requirement, perhaps the option to sort the information by all the fields.

Then to help you fill in your tax return, possibly a total of the price of all items in a certain category.

So how about it people, which one of you wonderful people will supply the winning entry?

Barry

WHY IBM COMPATIBLE?

by Fred Asstir

Like any value judgement there are as many sides to this question as there are speakers. However a closer look at the question reveals that it is one that must be defined more fully.

IBM-PC's yardstick is a processor that can address a 640K block of user-memory, an 80-column display, is an open design system permitting easy expansion, and has a keyboard with full typewriter, function, numeric, and cursor control keys. When you add to this, the now incredible program library, you have a real market force.

This flexible architecture was introduced by IBM, in the early 80's, into a market where none of it's major competitors could hope to match it. Before I am inundated by irate Apple fans, recall that the fundamental small business/home use for a computer is word processing. Apple's software at that time, had a complex cursor control code and did not make use of function keys. Apple also required an add-on 80-column card and lower case character set.

It must be said that Apple's R&D teams did the hard work and came up with new computers using the 68000 uP from Motorola (the makers of the Co-Co's 6809) and some say the best 16-bit processor in the world. The market had by this time, become almost a one horse race.

While Apple was fighting, Data General and DEC sat on the bench, Tandy at the time lacked the large range of software, Commodore was stuck on 8-bit/64K systems, and Hewlett- Packard went after the scientific market. This left IBM as the market leader in the period of greatest growth in the early 80's.

IBM of course went on to produce the comprehensive range of machines that dominate the business and personal computer scene today.

However IBM is currently being beaten by it's own design. The success of the design has spawned a rash of clones or as their makers prefer, "compatibles". These systems share to varying degrees, the pluses of the IBM design, but they have shown that they can emulate the PC and XT and possibly give you better value for your computer dollar. (As shown by the Tandy 1000)

A comment attributed to the president of a recently failed computer manufacturing company, sums it up very well "Whether you like it or not, the machine with the machine with the most software is the machine that will sell."

In this way the "IBM/MS-DOS" combination has become the industry standard. Remember CP/M ?? However an all powerful standard can deprive us of the latest and most innovative ideas. I believe that because it's a complete hardware/software standard, it has provided the fertile breeding ground for third-party software and hardware peripherals.

Thus, with programs plus add-ons the base unit can do almost any function, so it meets the needs of more users and becomes more accepted as the best one for Mr. Average.

The other strange result of the IBM design's almost total control of the PC market, and the IBM policy of software portability, ie programs written for the 8086 processor in the PC/XT, will run on the 80286 used in the AT, has made a massive pool of 3 million machines in use world wide, whose owners are loath to change to any new model on which their current software will not work.

It has been reported that one big restraint on the development of the next series using the 80386 chip is difficulty maintaining backward compatibility. How ironic IBM has trouble being IBM compatible.

There will always be new and exciting developments in the volatile computer industry and Commodore's new Amiga has opened everyone's eyes with it's brilliant graphics. It remains to be seen if it will de-throne the current king, or like the Macintosh, merely inspire /force a response from the market like the Windows/Gem change. Already there has been an announcement from Intel (the makers of the 8086-80386 chips) of a new graphics chip (co-processor?) to replace the now vastly inadequate EGA graphics system.

It makes more sense to enjoy the benefits of the current strength of the IBM/MS-DOS standard and to disregard it's limitations, they will be overcome, if not voluntarily then forced by innovative newcomers. For now it is the best all round 16-bit system. One day it will go the way of CP/M, the 32-bit (or 64-bit) next generation will make it look as puny as the early 1-4K RAM 8-bit units seem today. So enjoy! Worry about the next generation when it comes. At the current rate of change it might not occur for at least 6 months!

BASICA TUTORIAL

by Barry Cawley

This month I was going to do a tutorial on 2 of the graphic commands of Basica, however after several abortative attempts, I decided to take the easy way.out!

In this case, the easy way is to have some graphic program listings using the LINE and CIRCLE commands of Basica along with some mathematical functions and let you work out for yourself what is going on.

This is not as hard as it may at first seem, due mainly to the fact that the listings are very short and fairly easy to follow, with a little bit of concentration.

So at this point I will leave you and not say another word about how they work.

```
30 SCREEN 1:CLS
50 FOR A=0 TO 360 STEP 100
60 TH=A/57.3
70 FOR M=0 TO 100 STEP 5
110 X=125+M*COS(TH)
120 Y=95+M*SIN(TH)
130 LINE(125,95)-(Y,X),1
160 NEXT M,A
180 FOR R=0 TO 7
190 CIRCLE(130,95),R,0,.4
200 NEXT
220 LINE(5,120)-(85,120),1
230 LINE(135,120)-(250,120),1
999 GOTO 999
```

```
30 SCREEN 1:CLS
40 FOR A=0 TO 150 STEP .8
50 TH=A/57.3
60 C=COS(TAN(TH)):S=SIN(1+ATN(TH))
80 X=100+100*C
90 Y=35+100*S
100 LINE(100,35)-(X,Y),1
130 X=200+50*C
140 Y=50+50*S
150 LINE(200,50)-(X,Y),1
180 X=210+25*C
190 Y=90+30*S
200 LINE(210,90)-(X,Y),1
220 NEXT
320 FOR N=1 TO 30
340 X=RND(250)
350 Y=40-RND(RND(40))
360 R1=RND(18)
380 FOR R=0 TO R1
390 CIRCLE(X,Y),R,0,.25
410 NEXT R,N
999 GOTO 999
```

```
100 REM *** INPUT ***
110 CLS
150 '
200 REM *** SCREEN SET UP ***
210 SCREEN 1
220 CLS
250 FOR N=3 TO 15 STEP 3
260 X1=18*N-54: Y1=80
270 L=120/N
280 '
300 REM *** PROGRAM CONTROL ***
310 Y1=181-.8*Y1
320 GOSUB 5000
330 FOR W=1 TO 200: NEXT W
340 NEXT N
350 IF INKEY$="" THEN 350 ELSE 110
360 END
370 '
5000 REM *** POLYDRAWSUB ***
5010 S=6.2832/N
5020 P=6.2832-S+.01
5030 FOR A = 0 TO P STEP S
5040 X2=X1+COS(A)*L
5050 Y2=Y1-SIN(A)*.8*L
5060 LINE(X1,Y1)-(X2,Y2),1
5070 X1=X2:Y1=Y2
5080 NEXT A
5090 RETURN
```

```
100 REM *** INPUT ***
110 CLS
120 INPUT"NUMBER OF SIDES";N
130 INPUT"LENGTH OF SIDES";L
140 INPUT"INITIAL X,Y";X1,Y1
150 '
200 REM *** SCREEN SET UP ***
210 SCREEN 1
220 CLS
250 '
300 REM *** PROGRAM CONTROL ***
310 Y1=181-.8*Y1
320 GOSUB 5000
330 IF INKEY$="" THEN 330 ELSE 110
340 END
350 '
5000 REM *** POLYDRAWSUB ***
5010 S=6.2832/N
5020 P=6.2832-S+.01
5030 FOR A = 0 TO P STEP S
5040 X2=X1+COS(A)*L
5050 Y2=Y1-SIN(A)*.8*L
5060 LINE(X1,Y1)-(X2,Y2),1
5070 X1=X2: Y1=Y2
5080 NEXT A
5090 RETURN
```

```
10 SCREEN 1
20 CLS
30 DIM A(500),B(500)
40 '
50 '
60 '
70 DRAW"bm 15,1;lgdfreuhlgdfd3l2d2u2r2d2
f2r2l2h2d4g4l4r4e4r4d4"
80 GET (0,0)-(30,30),A
85 CLS
90 DRAW"bm 15,1;lgdfreuhlgdfd3g2f2h2e2d2
d4f4g4e4h4d4g4"
100 GET (0,0)-(30,30),B
110 CLS
115 FOR LOOP =1 TO 283 STEP 6
120 PUT (LOOP,100),A,PSET
125 FOR X=1 TO 100:NEXT
130 PUT (LOOP+3,100),B,PSET
135 FOR X=1 TO 100:NEXT
140 NEXT
1000 LOCATE 20,1
```

continued from Page 60

your computer for use, whilst the print routine takes place.

Sidekick is another memory resident program and probably the one most used in the world today. The reasons for this are apparent as soon as you use it. It contains a Note Pad which functions in the same manner as Wordstar (for the commands). The files it writes are pure ASCII, which means it is a good medium for writing Batch files and the like.

Sidekick also contains a very good calculator, a calendar (or appointment scheduler), a dial facility for use if you have an autodial modem and if you do not it makes a handy telephone directory, and a complete ASCII table (comes in very handy when you are programming). All of this for a very low price. (Sidekick is available from DECRO in Lismore. G.)

Polywindows is essentially the same as Sidekick but is another programmer's method of doing the same thing.

There are many other memory resident programs that I do not have the space to go into here, so for the different variations beyond this, I would suggest you contact your local Software Dealer about what is available.

If you have any further queries about your computer's memory, then the best place to see me would be at CoCoConf, or message me on Viatel 739079460 or the Goldlink response frame (*64213#).

Barry

REVIEW

CCS STOCK CONTROL

Coastal Computers of Cannonvale have submitted a very capable Stock Control system for review, and we have to apologise that it has taken us so long to get it into the magazine.

The reason for the delay is that this program is an excellent package, and we did not wish to rush a review .... oh well so much for our plans!

The CCS Stock Control System comes in a nicely bound package which includes two disks and over 60 pages of instructions.

The functions available include:

* Inventory File Maintainence
* Purchase Order File Maintainence
* Vendor File Maintainence
* Post Receivals
* Post Sales & Returns
* Prepare Suggested Purchase Order
* Print
  - i Master Inventory List
  - ii Current Sales Journal
  - iii Purchase Order List
  - iv Vendor List
  - v Price List
  - vi Stocktake List

In addition to these facilities, there are a number of system facilities available which allow you to configure the system to meet the needs of your present hardware.

We found the system generally very easy to move around in and the on screen prompting in most cases to be sufficient assistance without recourse to the manual.

The system has a theoretic capacity of 99999 stock numbers with a total vale of $9,999,999.00. In other words, the system will handle a small business for a number of years (always provided the Australian Peso maintains its current value).

Other features of the system include up to 12 digit stock numbers, up to 3 selling prices, up to 50 vendors, cost automatically calculated, including sales tax where applicable, last cost and average cost always available and provision for integration of the system with most of the popular printers.

The reports printed from the system are formatted like a stock card and can be utilised in that way should your business be geared to them.

All in all, a very workable system, and one recommended for businesses just entering the computer age.

Further details can be obtained by contacting Coastal Computer Services, 9 Woomerah Ave, Cannonvale, Qld. 4802.

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(Stop between numbers = b.h. else a.h.; but, hyphen between = both.)

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(Hold 2 sep progs in mem)
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(THE tape database)
RESTACC ..... DUNG LY
(Tape restruant accounts)
PRSPDSHT ..... GRAHAM MORPHETT
(Disk print out SPDSHEET)
PERSMAN ..... PAUL HUMPHREYS
(Personal finance management)
CC5 ..... GRAHAM MORPHETT
(Sales Invoicing-tape sys)
COCOFILE ..... BRIAN DOUGAN
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