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HOLIDAY ISSUE!

TRS-80 COMPUTING

THE BI-MONTHLY MAGAZINE FOR COLOR COMPUTER USERS

SEASON'S GREETINGS!

* HOLIDAY
  MUSIC

* PART III ON
PROGRAMMING
HIGH-RES GRAPHICS
ON THE COCO

* SOFTWARE
  REVIEW

* HOLIDAY
  GRAPHICS

* MORE FACTS
ABOUT DISKS

* CONVERTING DECIMAL
NUMBERS TO BINARY
NUMBERS

TRS-80 COMPUTING

TABLE OF CONTENTS

* NOTE: THERE IS A CORRECTION FROM THE
OCTOBER 1989 ISSUE ON PAGE 4.

Santa's Sleigh
Graphics Program

ECB required

Ho Ho Ho! Merry Christmas! This short little graphics program draws Santa's sleigh about ready to take off filled with all kinds of presents for good little boys and girls. A few notes from Deck the Halls is included to liven it up. Oh no! Santa dropped a CoCo — don't let him leave it behind!

THE LISTING: SLEIGH

```
1 ' SANTA'S SLEIGH
2 ' PROGRAMMED BY JOE AHERN
3 ' COPYRIGHT (C) 1989
4 ' BY TRS-80 COMPUTING
5 PMODE 3,1:PCLS:SCREEN 1,1
8 DRAW
"C6;BM56,76;R12F12D4F4D4F9D4R4F2
R20U25EU8E12R8E8R16ER18D4L18G4L1
3G8L4GL4G4D6F2D24"
10 DRAW
"R4D4G4L28HL8H4L4HU6H8U2H12L6G4L
4H4U6E4R6L6G4D6F4R4E4R6D18GD10G2
D16F2R104U12"
12 DRAW"E2U12E2U12E3U8E3U8E7U6"
14 DRAW
"BM42,128;L4GD4FR6E8H8L8G12D6F16
R148L15H16G16H16G16H16G16L15E8H8
"
16 DRAW
"BM96,112;U12R20L20E6R16L16H4G12
F8H8E12F4U16R16L16D8H12E12F4D12U
20R20D16"
20
DRAW"U16L20E6R20G6E6D16U6E16F14H
3E4H6G4H3"
22 PAINT(156,88),6,6
24 PAINT(60,80),7,6
26 DRAW
"BM172,136;E16F28G16H28;BM180,13
0;R4L4D4R4BR4BD2R4D4L4U4D4R4BR4B
D2R4L4D4R4BR4BD2R4D4L4U4"
28 DRAW
"BM0,154;R254D40L254U37C5;BM192,
154;R16":PAINT(128,172),6,6
30 P$="L4.;C;L8;B-
;L4;A;G;F;G;A;F;L8;G;A;B-
;G;L4.;A;L8;G;L4;F;E;L2;F"
32 PLAY"T5;O3;XP$;T5;O4;XP$;"
35 GOTO 35
```

— END OF LISTING —

NOTE: Pressing the <BREAK> key will exit the program.

TRS-80 COMPUTING MAIL

We here at TRS-80 Computing would like to begin a new column as part of some of the changes that will take place in this publication. If you (our readers) have some comments, questions, or just something that you would like to tell the CoCo Community about, then send it to our office c/o TRS-80 Computing Mail. If we get enough response in time for the February issue (around 1/15/90), then this column will begin then. Thank-you.

— TRS-80 Computing Staff

Editor's Note ...
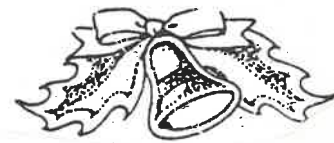
Seasons Greetings! We are now at that time of year again when everyone's out busily shopping for holiday gifts, trying to get all the presents before it's too late.

Looking through a copy of my Radio Shack Christmas sale catalog, I can see that they have some good markdowns on a lot of CoCo hardware/software. The CoCo 3 is down to $130, while the FD-502 disk drive has been slashed from $300 to $200. Did anyone happen to purchase a CoCo 3 last month and get the DCM modem for $9.95 along with it? As for software sales at Radio Shack, up to $15 can be saved on some of the popular program paks.

Another thing I'm happy about this month along with the excitement of the holiday season, is last month we had our first published advertisement put into a well-known "BIG" magazine, Computer Shopper. It was a small Classified ad (21 words to be exact) and it appeared in the November issue. Many of you would say, "Oh big deal", but it was a big deal because we got an overwhelming amount of responses from the tiny little ad. The TRS-80 Computing staff and I decided that we should give it a try because we needed more readers because of the "summer slump". Now we're glad we did, and you should see another ad in there in the near future.

As a result of the ad, we have many newcomers to TRS-80 Computing. So if this is your first time seeing our publication, then I would like to welcome you and hope that you enjoy TRS-80 Computing as much as we enjoy making it for you.

Next month (or next year I should say) we will have a beginner's issue. It will contain tutorials, beginner's programs, our annual "flowchart" to the main program, hints & tips, and more! So for those of you who plan to buy a CoCo 3 this Christmas/Channukah, the February issue will be definitely for you.

Also, we got a lot of "thumbs down" response from our readers last month about the new format of the program listings. So, instead of switching back to the old 80-character format, we now have gone to 32-column (but this time the colons are included!)

Well, I wish everyone a great holiday, a happy 1990, and a lot of fun with their CoCo! Until next year...

Joe Ahern
Joe Ahern
Editor/Publisher
TRS-80 Computing

COMPUTER PENPALS

The following people are proud owners of Tandy Color Computers, and would like to have penpals to talk about their CoCo and exchange ideas. Please - NO PIRACY!

CHARLES B. COX
401 S. HANCOCK ST., BLDG 35
LOUISVILLE, KY 40202

DAVID McNALLY
267B PLEASANT STREET
CANTON, MA 02021

ANTON P. MILARDOVIC
94 SUNRISE PLACE
KITCHENER, ON N2B 3S9
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ALBERT NOAH
P.O. BOX 1142
MARSHALL, NC 28753

KEVIN ARMALAY
586 WEBSTER AVENUE
PENNDEL, PA 19047

THIS MONTH: MAKING CONVERSIONS   PART II OF III

TO CHANGE DECIMAL TO BINARY

Look at the bit pattern again (Figure 1). To find out the binary number, divide the powers of two (128, 64, 32, 16, 8, 4, 2, 1) into your decimal number starting with 128. If 128 goes into your number (it doesn't matter if it goes in evenly) you write yes next to 128 (Remember yes=1, no=0). If it is a yes, subtract the bit power from your number and continue with the new number.

Ex. To change 121 into binary:

1. Does 128 go into 121?	no
2. Does 64 go into 121?	yes
3. Does 32 go into 57?	yes
4. Does 16 go into 25?	yes
5. Does 8 go into 9?	yes
6. Does 4 go into 1?	no
7. Does 2 go into 1?	no
8. Does 1 go into 1?	yes

121-64=57
57-32=25
25-16=9
9-8=1

Now going down changing each no to a zero and each yes to a 1. 01111001 is the binary number.

7	6	5	4	3	2	1	0	bit

1=yes   0=no

FIGURE 1

TO TRY

1. Convert to binary:

A. 255	D. 32
B. 113	E. 128
C. 102	

2. Refering to the "Binary to Decimal" article on page 4 of the October issue, convert each to decimal:

A. 10111011	C. 00001001
B. 11111011	D. 00110011

3. Now convert each both ways to see how it works.

A. 10110110	C. 212
B. 11001101	D. 200

The answewers to the above practice problems will be found on the last page of this issue.

CORRECTION:

We've had many responses about "The Facts About Disks" article on page 14 of last month's issue. On page 20 of this issue, part II will clear up the mis-understanding.

THE PROGRAMMER

D   E   C   E   M   B   E   R

THIS MONTH'S PROGRAM

LET IT SNOW!
(WITH TWO VOICES?)

LET IT SNOW!
With Two Voices?
BY DAVID McNALLY

This version of Let It Snow is played by SOUND commands, by playing the first note as a chord and the second as the melody, it gives the effect of two voices. Carefully type in the listing, RUN it, and hear the results for yourself.

THE LISTING: LETSNOW

```
1  REM *********************
2  REM *     LET IT SNOW     *
3  REM * BY:  DAVID MCNALLY *
4  REM *        C1989        *
5  REM * TRS-80 COMPUTING   *
6  REM *********************
7  A=1:DIM A(117),B(117),C(117):CLS
8  FOR T=1 TO 117:READ A(T),B(T),C(T)
9  IF A(T)=-4 THEN FOR P=1 TO 80:NEXT
P:NEXT T
10 IF A(T)=-3 THEN GOSUB 20:NEXT T
11 IF A(T)=-2 THEN FOR Y=1 TO
200:NEXT Y:NEXT T
12 IF A(T)=-1 THEN SOUND B(T),C(T)
ELSE SOUND A(T),1:SOUND B(T),C(T)
14 NEXT
15 END
20 SOUND 229,1:SOUND 89,4
22 FOR W=3 TO 37
24 IF A(W)=-2 THEN FOR K=1 TO
200:NEXT K:NEXT W
26 SOUND A(W),1:SOUND B(W),C(W)
28 NEXT W
30 RETURN
100 DATA -1,89,5,-
1,89,5,229,176,4,229,176,4,229,165,4,
218,159,4,218,147,4,229,133,4,229,89,
4,-2,-2,-2
102 DATA
229,89,2,229,89,4,229,147,2,229,133,4
,229,147,2,229,133,4,218,125,4,218,89
,4,-2,-2,-2
104 DATA
218,108,4,218,185,4,218,185,4,218,176
,4,223,165,4,223,159,4,223,147,2,-
2,-2,-2
106 DATA
223,193,2,223,185,4,218,89,4,-2,-2,-
2,218,89,2,218,165,4,218,159,4,-2,-
2,-2,218,159,2,218,147,4,218,133,2,-
2,-2,-2
108 DATA -3,-3,-3,229,133,2
110 DATA -2,-2,-
2,229,125,4,229,133,4,229,147,2,229,1
59,4,229,147,4,229,125,4,229,176,4,22
9,147,2,-2,-2,-2
112 DATA
229,125,2,229,147,4,223,133,4,223,133
,2,223,125,4,204,108,4,204,89,2,204,1
08,4,218,125,2,-2,-2,-2
114 DATA
218,125,2,218,133,4,218,147,4,218,159
,2,218,147,4,218,125,4,218,176,4,218,
147,4,-2,-2,-2
116 DATA
223,176,2,223,170,4,223,159,4,204,170
,4,204,159,2,204,170,4,218,176,2,-
2,-2,-2
118 DATA
218,89,4,197,176,2,197,176,4,197,165,
4,218,159,4,218,147,4,197,133,4,197,8
9,4,-2,-2,-2
120 DATA
197,89,2,197,89,4,192,147,2,-4,-4,-
4,197,133,4,197,147,2,197,133,4,218,1
25,4,218,89,4,-2,-2,-2
122 DATA
218,108,2,218,108,4,218,185,4,218,185
,4,218,176,4,223,165,4,223,159,4,223,
147,2,-2,-2,-2
124 DATA
223,193,2,223,185,4,218,176,4,-2,-
2,-2,218,176,2,218,165,4,218,159,4,-
2,-2,-
2,218,159,2,218,147,4,229,133,2
```

— END OF LISTING —

A HOLLY JOLLY CHRISTMAS
BY JOE AHERN
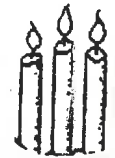
It's Christmas time again, and this popular song is just our way of wishing the CoCo Community a holly jolly Christmas! The words for the song are centered at the top of the screen each time a note is played. The routine for that is in line 16 which centers text read from DATA statements.

THE LISTING: HOLJOLLY

```
1 ' A HOLLY JOLLY CHRISTMAS
2 ' PROGRAMMED BY JOE AHERN
3 ' COPYRIGHT (C) 1989
4 ' BY TRS-80 COMPUTING
5 DIM W$(125):DIM H(125)
6 CLS:H=1
8 FOR L=1 TO 121
10 READ W$(H):READ A
12 IF A=0 THEN FOR T=1 TO
150:NEXT T:GOTO 25
14 IF A=-1 THEN FOR T=1 TO
20:NEXT T:GOTO 25
16 X=PEEK(136)-
4:X=X*256+16+PEEK(137):TX=LEN(W$
(H)):X=X-
INT(TX)/2:PRINT@X,W$(H)
18 IF L=113 OR L=114 OR L=115
OR L=116 OR L=117 OR L=118 OR
L=120 THEN SOUND A,6:CLS:GOTO
25
20 IF L=121 THEN SOUND
A,8:CLS:GOTO 25
24 SOUND A,4:CLS
25 H=H+1:NEXT L
30 CLS:END
50 DATA
HAVE,108,A,133,HOL,170,LY,170,JO
L,159,LY,159,CHRIST,147,MAS,108,
-,0,IT'S,108,THE,133,BEST,147,TI
ME,147,OF,133,THE,133,YEAR,58,,,
0
52 DATA
I,159,DON'T,159,KNOW,159,IF,147,
THERE'LL,133,BE,133,SNOW,133,-
,-
1,BUT,108,HAVE,133,A,133,CUP,125
,OF,133,CHEER,108,,,0
54 DATA
HAVE,108,A,133,HOL,170,LY,170,JO
L,159,LY,159,CHRIST,147,MAS,108,
.,0,AND,108,WHEN,133,YOU,147,WAL
K,147,DOWN,133,THE,133,STREET,58
,,0
56 DATA
SAY,159,HEL,159,LO,159,TO,147,FR
IENDS,133,YOU,133,KNOW,133,AND,1
08,EV,133,'RY,133,ONE,125,YOU,89
,MEET,78,,,0
58 DATA
OH,170,HO,147,THE,170,MIS,159,TL
E,133,TOE,133,-,-
1,HUNG,147,WHERE,125,YOU,125,CAN
,147,SEE,133,-
,0,SOME,125,BOD,89,Y,133,WAITS,1
08,FOR,147,YOU,147,-,-1
60 DATA
KISS,89,HER,89,ONCE,108,FOR,125,
ME,133,,,0,HAVE,108,A,133,HOL,17
0,LY,170,JOL,159,LY,159,CHRIST,1
47,MAS,108,-,0
62 DATA
AND,108,IN,133,CASE,147,YOU,147,
DID,133,N'T,133,HEAR,58,-
,0,OH,159,BY,159,GOL,159,LY,147,
HAVE,133,A,125,HOL,108,LY,133
64 DATA
JOL,133,LY,170,CHRIST,176,MAS,14
7,-,-1,THIS,159,YEAR!,176
```

16K
HOLIDAY
MUSIC
REQUIREMENTS:
NONE

Erich Sweaney Software

Slam Bam ©

Have you ever wanted to slam dunk? Well now's your chance. Slam Bam offers you over 27 different kinds of slam dunks, from a one handed dunk to a Statue-of-Liberty slam. It also features a high score board to keep track of all those champion slammers's. Play by yourself, or with a friend!   Only $15.95

req. CoCo III, and one joystick.   more.

The CoCo Notes Newsletter

This is a brand new magazine on disk for the Tandy Color Computer 1, 2, and 3. It features many articles on OS-9, Basic09, Machine-Language, and any other type of stuff that interest us CoCo Users. It features a monthly review, editor notes, a CoCo Crossword puzzle, and much much more. Only $10.00 for a subscription, and $2.25 for a single issue! ©

NewCoNet BBS Systems, a whole new look on CoCo 111's bulletin Board Systems.©

Features: Multi-User Chat, Bulletins, Multi-User, Online-Games, Personal Stats, Shell Access [For those with given access], Message Bases, Private/Public Mail, Ascii & Xmodem protocals, and much more. Even works with the CoCo III, and the SERIAL PORT, and the RS-232pak. req. Tandy Color Computer 3 128k, OS9 Level II, and at least two single sided disk drives. Only $49.95.

Utility Pak for only $29.95, or sold seperately.

XChanger- Directory Utility, $9.95

DCM Fix- A Patch for DCM Modems, $12.95

CoCo192/198- A Advance CoCo Drawing Utility, each $11.95.

CoPatch- Makes CoCo 2 games run on the CoCo 3. $11.95

Game Pak for only $34.95, or sold seperately.

Faclon Fighter- Shoot down enemy spy planes. $11.95.coco 3

Ninja Star- A CoCo 2 ninja game. $9.95

Loader- A CoCo 3 Kids game. $10.95

World of Wrestling A wrestling promoter simulation game. Specify OS-9 Level 2 or Rs-Dos. $10.95

Note: OS-9 Level 2 version can be used as a ON-Line Game with the CoNet BBS Package

Programmers Note: If you have a program of any kind, submit it to the Erich Sweaney Software, we pay very good royalities.

Send check or money order to:

Erich Sweaney Software c/o The CoCo Notes Newsletter

P.O. Box 45434 Tacoma, WA 98445   [206]-535-9733

XMAS PROGRAMS (APPLE / VIC-20)
by David McNally

We realize that this is a CoCo magazine, but a few of our readers have requested putting in a few programs that will RUN on other computers. The two programs that you see below; one of them, "Christmas Tree", a graphics program that will run on most Apple II computers, and the other, "Santa Claus Is Coming To Town", is a music program that will run on a Commodore VIC-20. These Xmas programs can be used by those of you that may have an Apple or VIC-20 besides the CoCo.

THE LISTING: XMASTREE   (APPLE II)

```
0   REM   CHRISTMAS TREE
1   REM   BY DAVID MCNALLY
2   REM   COPYRIGHT 1989 BY TRS-80 COMPUTING
3 N = 0: HOME
5   HGR
10 X =   INT (279 / 2):Y = 5
12   HCOLOR= 1
14   FOR T = 1 TO 100
16   FOR L = X TO X + N: HPLOT L,Y: NEXT L
18 N = N + 2:X = X - 1:Y = Y + 1
20   NEXT T
22   FOR T = X TO X + N: HPLOT T,Y: NEXT T
26 Y = Y + 1
28 X = 135: FOR L = 1 TO 25
30   FOR T = X TO X + 10: HPLOT T,Y: NEXT
32 Y = Y + 1: NEXT L
33   HCOLOR= 3
34   FOR H = 1 TO 130 STEP 2: FOR G = 1 TO 40:D =   INT ((279 - 1 + 1) *   RND
     (1) + 1): HPLOT D,H: NEXT G: NEXT H
36   VTAB (24): HTAB (14): PRINT "HAPPY HOLIDAYS"
40   GOTO 40
```

THE LISTING: SANTA   (COMMODORE VIC-20)

```
1 REM SANTA IS COMING TO TOWN
2 REM BY DAVID MCNALLY
3 REM COPYRIGHT 1989 BY TRS-80 COMPUTING
4 REM ALL RIGHTS RESERVED
5 POKE 36878,15
10 READ P
12 IF P=-1 THEN 100
13 IF P=-2 THEN READ P:FOR T=1 TO P:NEXT T:GOTO 10
14 POKE 36876,P:POKE 36874,P:POKE 36875,P
16 READ D
18 FOR T=1 TO D:NEXTT
20 POKE 36876,0:POKE 36874,0:POKE 36875,0
22 FOR T=1 TO 20:NEXT
24 GOTO 10
100 POKE 36876,0
102 END
```

```
200 DATA
215,200,207,180,209,170,215,200
202 DATA 215,200,-2,300
204 DATA
215,200,219,150,223,160,225,180,225,2
00,-2,300
206 DATA
207,180,209,180,215,190,215,200,-
2,100
208 DATA
215,170,219,180,215,180,209,180,209,1
90
210 DATA -
2,150,207,200,215,200,195,200,207,190
212 DATA 201,180,209,200,-
2,50,191,180,195,210
214 DATA -
2,380,215,190,207,160,209,170,215,195
,215,150,-2,155
216 DATA
215,170,219,160,223,170,225,175,225,2
00,-2,190
218 DATA
207,160,209,165,215,170,215,170,215,1
75,219,180,215,175
220 DATA 209,175,209,195
222 DATA -
2,130,207,195,215,200,195,200,207,195
,201,195
224 DATA 207,190,191,190,195,210
226 DATA -
2,300,225,180,228,190,225,180
228 DATA
223,190,225,185,215,190,215,200
230 DATA -
2,200,225,180,228,176,225,180,223,180
,225,160,215,165
232 DATA -
2,200,228,180,231,175,225,180,223,180
,225,180,219,180
234 DATA 219,180,219,180,-2,100
236 DATA
219,170,223,170,225,170,223,170,219,1
70,215,170,209,160
238 DATA -
2,300,215,190,207,180,209,185,215,190
,215,160,-2,200,215,190
240 DATA
219,180,223,185,225,180,225,190,-
2,200
242 DATA
207,180,209,180,215,180,215,180,-
2,60,215,180,219,185,215,180,209,190
,209,200
244 DATA -
2,250,207,240,215,230,195,240,207,240
,201,240,209,320,191,250,195,
260,-1
```

TRS-80 COMPUTING

SUBCRIPTION FORM

TRS-80 Computing, a bi-monthly magazine for Color Computer users, has up to 35 pages filled with programs, great articles, product reviews, graphics, hints & tips, etc... Different issues feature games, graphics, utilities, business, beginner's guides, and always our end-of-the-year holiday issue. Just to show you that every other month brings you a variety for you Tandy Color Computer. So subscribe to TRS-80 Computing today! (trial issues can be bought for $1.50 each)

I would like:

.... 3 issues (1/2 year) for $6
.... 6 issues (1 year) for $10
.... 12 issues (2 years) for $15
.... 1 trial issue for $1.50

I am paying by:

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(Payment must accompany order)

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Address................................

City............State.....Zip.......

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* We are not responsible for issues you donot receive after we send it, but we do check after the first issue to see if you got it alright.
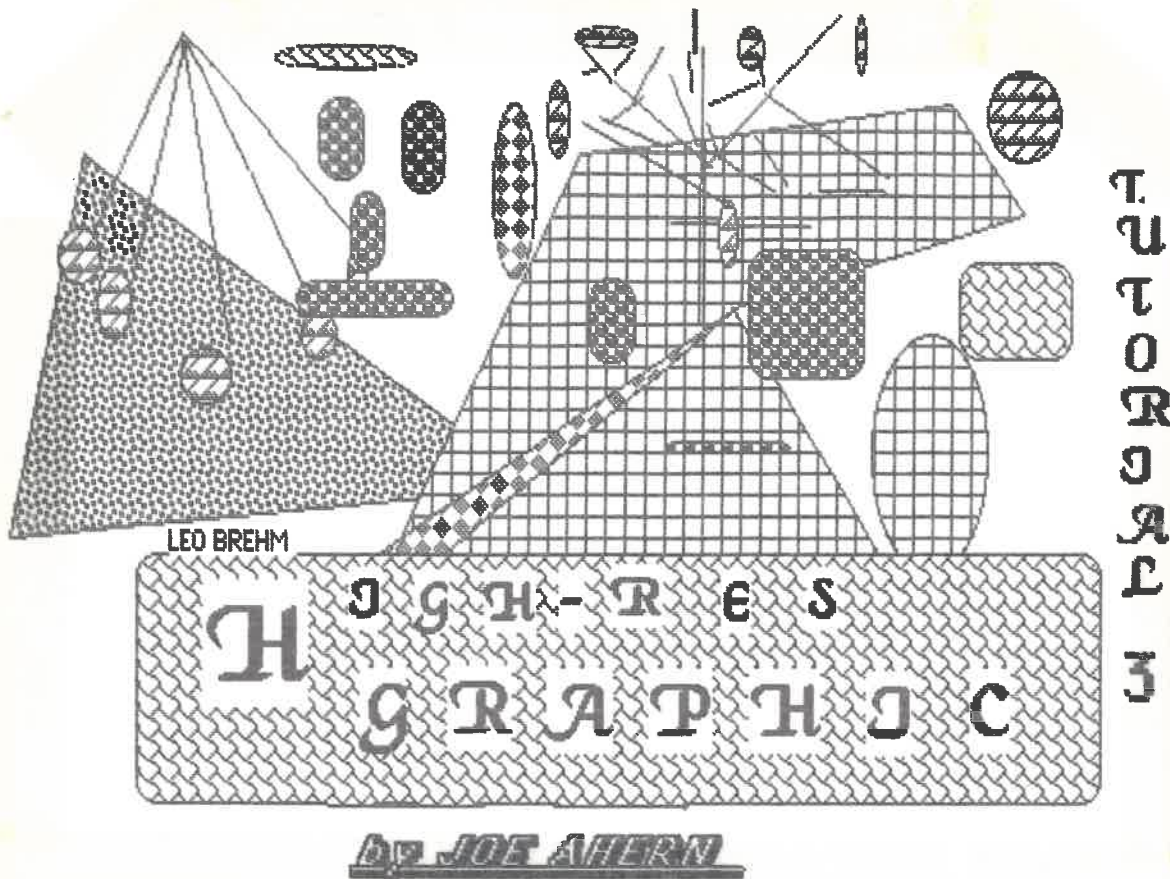* Postage and the cover price is included in all rates.
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* A receipt will be given with the first issue you receive.

THANK-YOU!

TRS-80 COMPUTING
65 OAK ROAD
CANTON, MA. 02021-2605

TUTORIAL 3

HIGH-RES GRAPHIC

LEO BREHM

by JOE AHERN

In my opinion, one of the most easiest high-res graphics commands to use on the CoCo is Extended Color BASIC's DRAW command. It acts like a shortcut to all other commands and can draw a bunch of things all in one program line. I, personally, use the DRAW command the most when writing graphics programs.

This month I am going to explain the DRAW command and all the different options you have with it.

First of all, let's take a look at the format of the DRAW command:

        DRAW "string"

It looks pretty simple doesn't it? It may, but there is a lot more to it than you think (to see what I mean, take a look at table 1 for all the options available in the DRAW command).

When you use the LINE command, you always have to keep track of exactly where the line began and ended on your Graphics Screen Worksheet which caused a lot of confusion at times. With the DRAW command, this is all eliminated. All you really have to do is specify the starting point (if you donot the default is 0,0) and you go on from there by using simple motion commands within your DRAW string (up, down, left, right, etc...) To see what I mean, take a look at the example below:

MOTION COMMANDS (U, D, L, R, E, F, G, H)

        DRAW "BM128,96; U20 ; R20 ; D20 ; L20"

" " left 20 points

starts to draw at coordinate 128, 96

moves line "up" 20 points

moves line "right" 20 points

" " down 20 points

(See Figure 1 for more details). This simple command draws a
small box starting in the center of the screen. But before you
enter in the starting coordinates, always place a "BM" command
in front of them. It stands for "blank-move" and it acts as an
imaginary cursor until it comes across a motion command such as
U20.
NOTE: The semi-colons that seperate each command are not
required. It justs makes it much easier to read.
       Now besides just moving DRAW lines up, down, left & right,
you can also move them in different angles. You can move them
in 45, 135, 225, 315 degree angles. See Figure 2 for the 4
different angles and what direction they go in.
       The example below draws a diamond-shaped figure using the
angle-motion commands:

       DRAW "BM128,96; E25 ; F25 ; G25 ; H25"

See Figure 3 for more details.

COLOR
COMMAND

       Now that you have learned how to draw boxes and diamonds
using the DRAW command, how about putting a little color in it?
That's where the "C" option comes in. First of all, let's take
the very first example I gave you
(DRAW"BM128,96;U20;R20;D20;L20") and put it into a program that
looks something like this:

       5 PMODE 3,1
       10 PCLS
       15 SCREEN 1,1
       20 DRAW "BM128,96;U20;R20 D20;L20"
       30 GOTO 30

Now go back to line 20 and add C8; at the beginning of the
line, after the quotes and before BM, so that line 20 will now
look like this:

       20 DRAW "C8;BM128,96;U20;R20;D20;L20"

Now RUN the program and you see that your box is an orange
color (code#8) on a buff backround. The format of the "C"
option is:

                    Cx

where "x" is the color code 0-8. If you omit x, the foreground
color is used.
       If you wish, the C command can be inserted anywhere in the
DRAW statement. For example, DRAW
"C2;BM128,96;R20;D20;C4;L20;U20" would draw a box with 2 lines
yellow and 2 lines red.

ANGLE
COMMAND

       Here's an option that lets you specify the angle in which
a line is to be drawn. It is the "A" command. You can put it
in 0, 90, 180, and 270 degree angles. The format is:

                    Ax

where "x" equals 0 for 0 degrees, 1 for 90 degrees, 2 for 180
degrees, and 3 for 270 degrees. An example of the A command

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would be say for instance you wanted a straight line to be put
into a 180 degree angle. If it was plain old straight, going
to the right let's say, the statement would be like so: DRAW
"BM128,96;R40". Now to put it into a 180-degree angle you
would change it to look like this: DRAW "A2;BM128,96;R40".
This command comes in really handy when you have to put a line
into an angle that isn't available in any of the motion
commands. In other words, there is no motion command (E,F,G,H)
that puts a line into a 270 degree angle; that's when the A
command comes in.

          The Scale command (S) is a very powerful feature of the
DRAW command. It allows you to scale a display from small to
very large. The format is Sx where x is a number that ranges
from 1 to 62, indicating a scale factor in units of 1/4 that is
shown below:
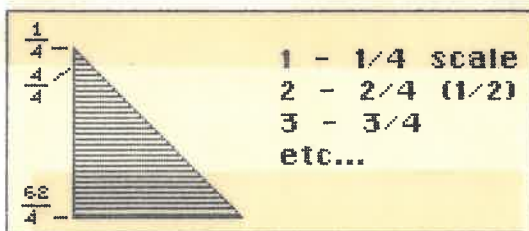
Say for example you drew a square using DRAW, like so:
DRAW"BM128,96;U20;R20;D20;L20". Now you added the Scale
command at the beginning of the statement and scaled it down to
1/2 size (2) like this: DRAW "S2;BM128,96;U20;R20;D20;L20".
Your square would be half the size you specified (instead of
U20;R20 etc... it would really be U10;R10 etc...). I realize
that this may seem a little confusing, but it is a hard option
in DRAW to explain.

          The N, or No Update command is another optional command
that maybe used in DRAW. N allows the next motion command to
be executed but never updates the original cursor position.
For example, if you started a line at coordinate 0,0 and had it
go right 20 points, and followed it by "N", instead of the
computer going to the next motion command in the DRAW string
and updating that at coordinate 20,0, it wouldn't. It would
never update the cursor and therefore execute the next command
where it originally started (coordinate 0,0). See Figure 4 for
a more clear example.

          There are two ways that you can execute a string when
using DRAW. First, you can assign a variable, say D$, to draw
a 10x10 box:
    D$="R10;D10;L10;U10"
And to execute this variable:
    DRAW D$
But, say you didn't want to draw this 10x10 box right away
until you have drawn say a line going across the top of the
box, to make it look like a table. That's when the X command
comes in. Here's what I mean:

    10 D$="R10;D10;L10;U10"
    20 DRAW"BM120,96;R16;L12;XD$"

now executes
your string D$

goes back
left 12

draws big
line

As you can see, line 10 assigns your string to variable D$, and line 20 draws a line to the right (R16) and then back to the left (L12), and then finally executes D$.
NOTE: The computer will error if you donot put the X command before the variable.

Next month we will take a look at the different methods of animating graphics, and learn the GET and PUT commands. Until next time!!
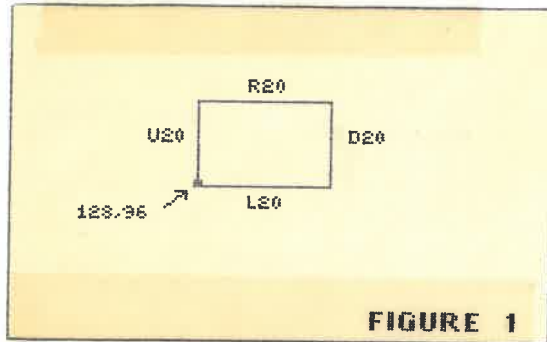
FIGURE 1

FIGURE 2

FIGURE 3

With "N"
(no update)

Without "N"
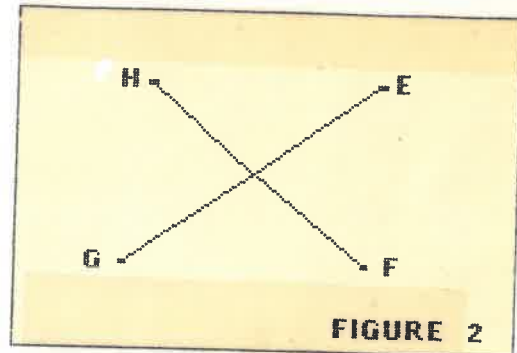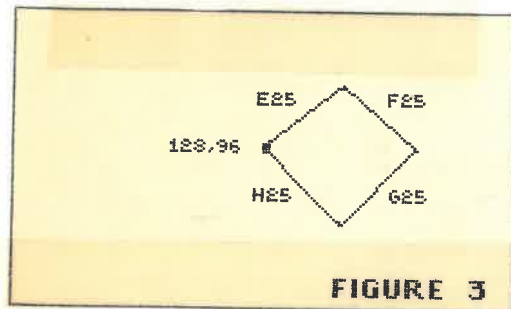
FIGURE 4
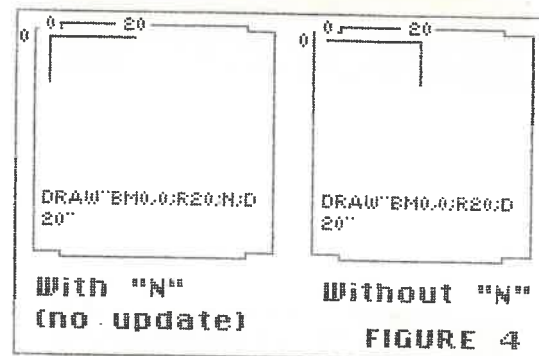
MOTION COMMANDS	TABLE 1
M - Moves cursor	
U - Moves up	
D - Moves down	
L - Moves left	
R - Moves right	
E - Moves 45° angle	
F - Moves 135° angle	
G - Moves 225° angle	
H - Moves 315° angle	
X - Executes a substring	

MODES

C - Sets color
A - Sets angle
S - Sets scale

OPTIONS

N - No update of draw
B - Blank (no draw, just move)

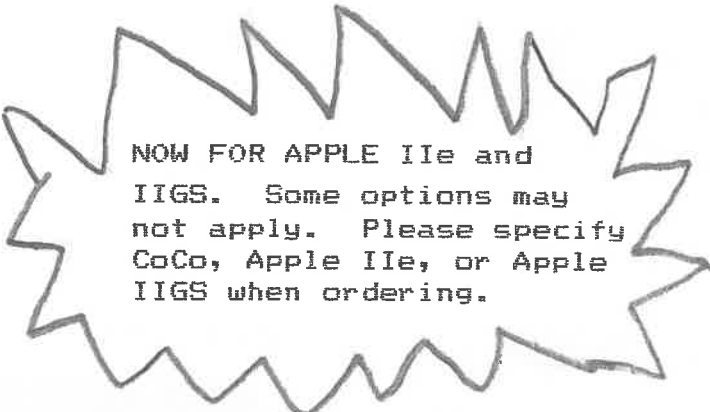| NEEDED	DESCRIPTION	PRICE
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The Facts About Disks! (Part II)
by: Anton P. Milardovic

As Dave McNally mentioned in his article "The Facts About Disks" (Page 14, October 1989) it is possible for you to use both sides of your disks. First, some terms to remember:

SS — Single sided. These disks have been factory tested to make sure that there are no flaws on one side of the disk's surface.

DS — Double sided. These disks have been factory tested to make sure that there are no flaws on either side of the disk's surface.

SD — Single density. These disks have been made so that you can only record on one side. If you try to store media on the other side, your first side will be erased.

DD — Double density. These disks, though not much thicker than SD disks, the two sides are seperated so that it's possible to record on both sides.

From the definitions above, two conclusions can be drawn:
1. SD disks CANNOT be DS;
2. DD disks can be either SS or DS.

What Dave was saying is that 'SS DD' and 'DS DD' disks are the same. According to what's above, they are, except for testing. If you're a CoCo veteran like myself, you know that 99% of all SS DD disks have a good "side two."

Here is the complete process for double siding your disks. One thing will come in handy for this project: a cardboard template of a disk.

The template must include the write protect notch and the timing hole. To make it first trace the disk on paper. Cut it out, use a hole punch to punch out the timing hole. Now fold the paper in half, mark where the write protect notch and timing hole are and cut them out. Your disk should be symmetrical.

Now trace that out on some cardboard and cut it out. Now you're set to double your disks!

Place your template on the disk, and with a pencil mark the timing holes and write protect notch on both sides. Cut out the write protect notch. Now VERY CAREFULLY, insert your hole punch between the disk envelope and disk and punch out the timing holes. DO NOT PUNCH A HOLE IN THE DISK! If your one hole punch does not have one of those plastic "catchers" make sure to put some tape on the metal so as not to scratch the disk. I find the best thing is an address label (Radio Shack Cat. 26-1328 or similar) as it doesn't tear as easily as tape, and it's a lot smoother on the disk surface.

Now it's time to format the disk. Format the front side. Sometimes you will get an ?IO ERROR and will not be able to format the front of the disk. Ignore this. Usually, after successfully formatting the back side of the disk you will be able to.

While formatting the back, one of three things will happen:

1. Successful format — no problem.

2. ?WP ERROR — the write protect notch wasn't cut properly. Take another disk and compare the location of the notch.

3. ?IO ERROR — Your timing hole is a little bit off. Don't forget though, check both sides. (I myself have never bothered to check which side it uses.)

The whole process should take about 45 minutes the first time. I don't use templates and it takes me 15 minutes, including formatting time. Happy hole punching!

Anton Milardovic is the newest member of our staff. He is a Grade 13 student planning to study Computer Science and has been CoCoing for 7 years. Any questions or comments can be sent to him at 94 Sunrise Pl., Kitchener, ON, CANADA N2B 3S9.-----

" TRYTHIS "
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TRYTHIS, a challenging game of strategy and skill, simulates the popular game of Tetris, which first originated in Russia.

When you first play Trythis, it will seem very simple to you, but its complexity is surprising. But one word of warning: it's very addictive!

After LOADMing (or CLOADMing) Trythis you will be given a creative looking title screen made out of flashing reverse video letters and be prompted to select either keyboard or joystick.

Now you have three (3) skill levels to select from - A, B, and C. A for easier, B for intermediate, and C for harder. Pressing <ENTER> will begin the game.

On the game screen, there is a rectangular black "pit" in the center with your score on the left side, and high score on the right. Pieces composed of four shapes (each a different color) fall from the top of the screen and into the pit.

Your goal is to try to fit these falling shapes in such a way that you can create solid rows, leaving no gaps or empty spaces (which isn't easy!) You can move the shapes left and right using either the keyboard or joystick (whichever one you selected) and rotate them in 90-degree increments. If you let the pieces pile up all the way to the top of the screen, the game is over. As long as you can keep filling rows as best as you can, the shapes will keep dropping. But the more skilled you get at it, the faster the shapes fall.

The program comes with a short, but easy-to-understand instruction manual. You also receive a free joystick directory program with every disk order to Gregory Software.

I really don't have much of any complaints to Trythis, except that it could've been done in high-resolution graphics (although that would make it harder to program!). Overall, the program is very challenging, and a must to add to your CoCo software collection!

(Gregory Software, Box 573, Kirkland, IL. 60146; $9.95 for tape/disk, S & H included)

* FOR A MORE COMPLETE LIST OF GREGORY SOFTWARE, SEE THE FULL-PAGE ADVERTISEMENT IN THIS ISSUE.

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1.
  A. 11111111
  B. 01110001
  C. 01100110
  D. 00100000
  E. 10000000

2.
  A. 187
  B. 9
  C. 251
  D. 51

3.
  A. 182
  B. 205
  C. 11010100
  D. 11001000