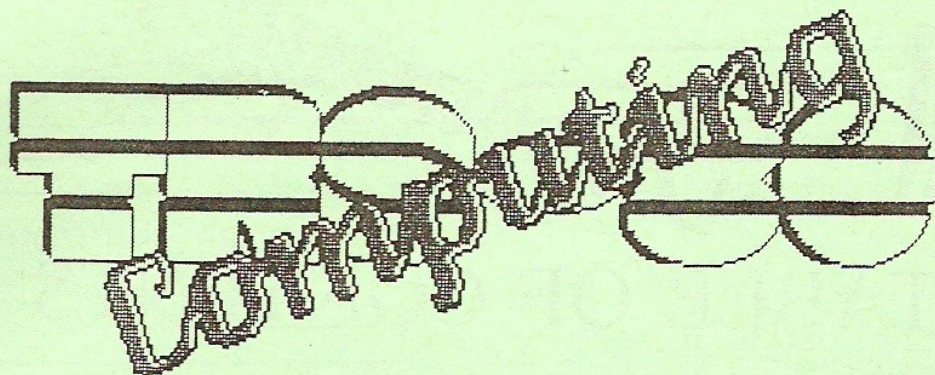


DECEMBER 1990

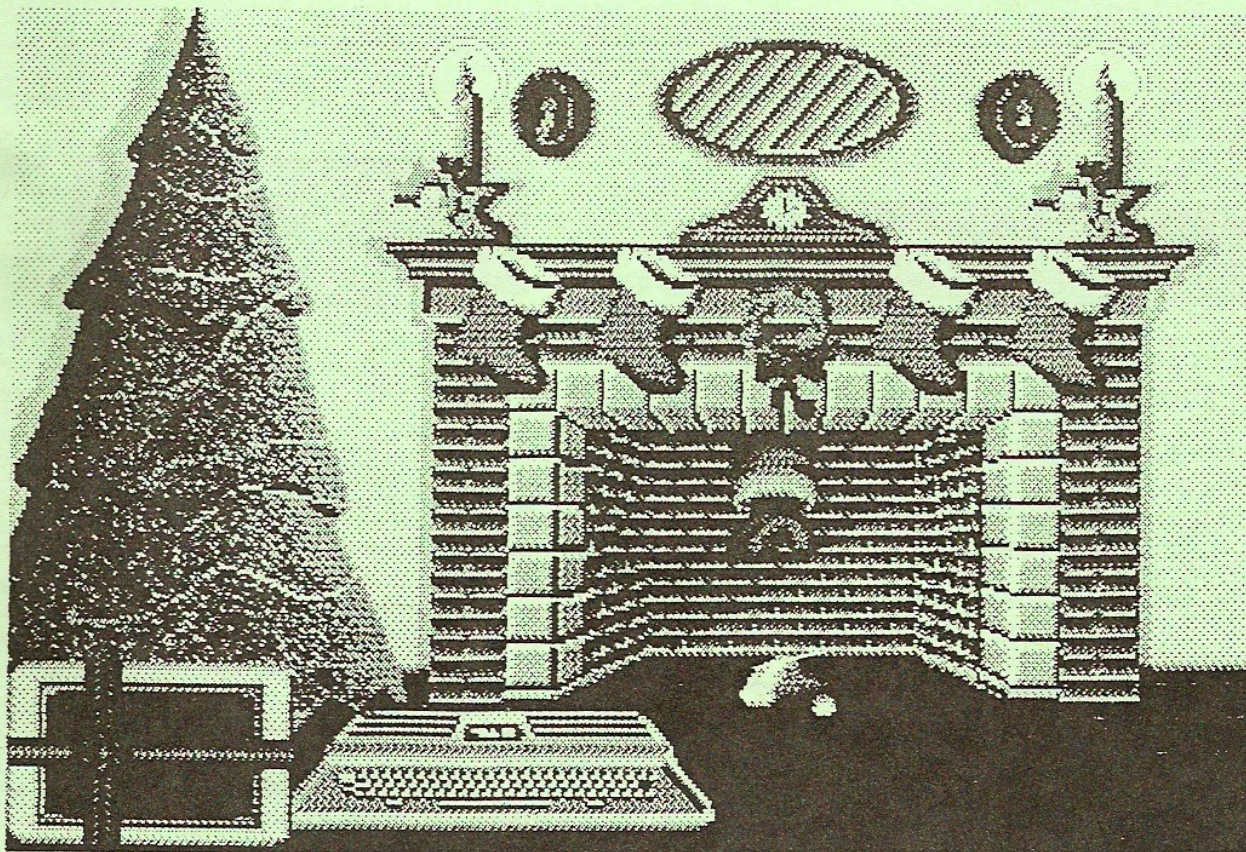
\$1.75
CANADIAN \$2.75

VOLUME 4
NUMBER 4



The bi-monthly magazine for Color Computer users

SEASON'S GREETINGS



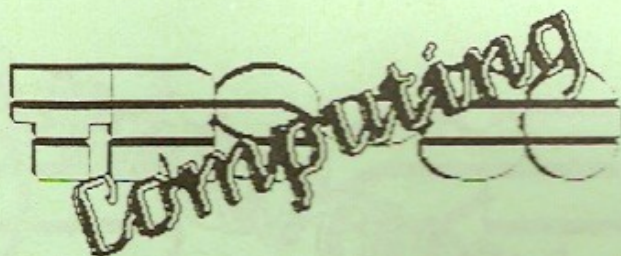
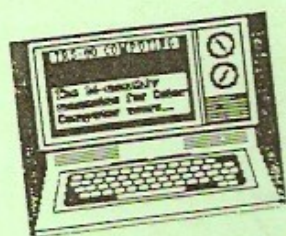


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I find it hard to believe that we are at the end of the 1990 year already. In a matter of two weeks this year will be drawing to a close. How the time flies! Along with trying to get all the shopping completed for the upcoming Christmas holiday, we here at TRS-80 Computing are in the midst of laying down some new plans for next year. The first item that you will notice in our next issue is a different typestyle for all the articles and programs. We will be transferring printers from a DMP-105 to the new Radio Shack DMP-134. Second, we have worked out the Editorial Calendar for next year. We planned out our editorial themes based on what you suggested in the reader's survey from the October issue. We were unable to fit in a telecommunications issue, but there is a good chance that the Vice Chairperson from the Snake River CoCo Club in Idaho Falls, Idaho, Michael Holtry, will be starting a column in the near future. The 1991 Editorial Calendar along with topics and submission deadlines will be printed in the February issue. And finally, for the past three and a half years that we've been printing this publication, the title has always been TRS-80 Computing. After many months of thinking it over, and many months of receiving numerous letters with suggestions, we've finally decided that the name "TRS-80 Computing" implies more to a publication written for Radio Shack's TRS-80 Models 3 & 4, rather than the CoCo. Beginning sometime next year, we will be changing the name of the magazine to Color Computing. The style will remain the same, and so will the format; the only difference being the title. So don't be surprised if you receive a magazine called "Color Computing" in your mailbox around the middle of February. Speaking about the February issue, I am happy to inform you that Boisy Pitre, an active CoCoer from Natchez, Mississippi, will be writing a hardware review on Interactive Media System's new MM/I. The review will run about 2-4 pages containing his opinions on the different features of the computer, plus a "look inside" with a couple of photographs. If it wasn't for the many delays IMS has been experiencing trying to ship out the MM/I's, the review would've probably been printed in this issue. Right now it looks as though the company will be getting the computer out in the mail either prior to Christmas, or shortly afterwards.

With one computer coming out on the market, and another slowly leaving (namely the CoCo 3), many of you are probably wondering if we plan to gradually go over to the MM/I and completely abandon the CoCo 3. Definitely not. The CoCo 3 may be losing popularity at Radio Shack with sales going downhill and possible discontinuation of the product by the end of next year, but that does not mean the CoCo Community will lose interest in it. The longer we continue supporting this computer, the longer TRS-80 Computing will continue keeping strong support for the rest of our existence.

TRS-80 COMPUTING
SINCE 1987

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TRS-80 COMPUTING CLUB

We are happy to announce our new club. A membership fee of \$35 a year will give you and your CoCo great benefits. It includes:

- * A years subscription or extension to TRS-80 Computing
- * Newsletters telling of upcoming events, software releases, etc...
- * A membership card which entitles you to get software discounts, enter in contests, etc...
- * Five disks with games, utilities, hints, tips, adventures, etc... which will be sent over a one year period
- * Plus much more!!

A fee of \$25 a year will get you everything above except the years subscription or extension to TRS-80 Computing.

All prices include:

- | | |
|------------------|---|
| * printing costs | * disk costs |
| * postage costs | * \$5 deposit on the disks
(deduct \$5 for tape users) |

Note: There is no deposit for tape users. Specify tape or disk when ordering.

Each of the five disks has a \$1.00 deposit on it. For every disk you copy (for you personal use only) and send back, we will send you back \$1.00 at the end of your membership. This will help keep costs down.

Any member is welcome to send in programs they have written to be included on the disks. Much of the club depends on your submissions.

Note: All programs on the disks are free and Public Domain (typed from a magazine, submitted, etc...) Price is for costs (see above) and membership only.

As soon as you become a member of the TRS-80 Computing Club we will send you information on submitting programs if you are interested.

If you have any further questions feel free to write. Write in c/o David McNally.

.....

JOIN NOW! Simply fill out the small form below, and send it along with your name & full address (make sure to include the payment along with your order).

Please x one: A) \$25 club membership for one year
..... B) \$35 club membership and renew/extend/start
a subscription to TRS-80 Computing (6 issues).

All prices have postage included and a \$5.00 deposit for the five disks. You will be sent \$1.00 for every disk you copy and return to use so we can reuse them. **THANK-YOU!!**

.....
DUE TO CONFUSION OF THIS MONTH'S EDITORIAL DEADLINE, "COCO GRAPHICS
CORNER" WILL NOT BE PRINTED. THE COLUMN WILL RETURN IN FEBRUARY.
.....

Specials - REPORT

News from the...

ATLANTA COCOFEEST

ATLANTA, GEORGIA
OCTOBER 6-7th

(Editor's Note: The following report was downloaded from the "CoCo Conference" folder of a CoCo EES, and edited somewhat by Dave Myers from CoCoPRO! and I. The original author of this "review" is Tom Seagrove.)

Well, I thought that I would let you in on some of the details that went on at the Atlanta CoCoFEEST and how I feel it went.

SOFTWARE AND HARDWARE:

Alpha Software Technologies: The debut of their new data base program "Data-Windows" seemed a big success (I bought a copy). It comes with a users manual and a reference manual. He is going to introduce soon some support programs which include Data-Merge- to use the data-windows file format inside of documents (free to registered users). Data-Developer- A toolkit for developing apps that use the DB9-90 file format (Data Windows file format) specs. Included will be assembly, C, and Basic09 interfaces for DB9-90 databases. Data-App- A utility for creating Data-Windows stand-alone applications without programming. Develop the system under Data-Windows, then use the Data-App to make it a complete stand-alone program that can be uploaded, shared, and even sold!! Finally, Data-Forms- is used to create and print user definable forms from Data-Windows databases.

Atlanta Computer Society: They were selling T-shirts with logos on the front and back, which sold very well. They gave away door prizes every hour, and I happened to of won a 1987 GIME and a program from Johnson Software called Mailman to help maintain a mailing list. Many of the vendors present contributed various items for these hourly drawings.

Burke & Burke: They had their usual line of hardware and software as well as a new program called "File Recovery System." It is used to recover lost files and directories caused by power failures or software glitches. They also had a demo of a new product called "CyberVoice". It uses a file to determine rules for pronunciation etc. that can be modified by the user. It uses a speech synthesizer that plugs into the multi-pak or you can get just the software and it will use Speech Systems SUPER VOICE. The cost is \$74.95 and \$24.95 respectively (the Speech Systems SUPER VOICE is not included).

The CoCo Corner: They had the usual MIDI setup and were selling a new version of LYRA (version 2.82 I think) that would work with Hyper I/O. There were some additional volumes to the Lyra <<Trax>> series that they also carry.

CoCoPro!: The big guys at the Fest!! They were selling many goods from Radio Shack for the CoCo including Scenery disk #7 for Flight Simulator II covering Japan. They were handling Oblique Triad, Sundog Systems, Gimmesoft, and Disto Products. At one time you could have gotten a Disto Super Controller II and a 4-in-1 board for just \$175.00. That was real tempting!! Two new games were announced by Sundog Systems, The Contrass and Crystal City, but were not available for demo.

ColorSystems: They had just about all their programs including their new game Knightsbridge. It is played on a 7x7 grid and each player gets seven knights along opposite ends. A flip of the coin determines who goes first. The idea is to capture five of your opponent's pieces before he gets five of yours. One problem, the computer randomly picks which knight you get to move each time, so it can get real tricky!

Delmar/Peripheral Technologies: They exhibited their OSK machine which is called the PT68K System V. I don't really know much about it except that it has a PC bus and accepts PC bus cards.

Frank Hogg Labs: They had the TC-9 and the TC70 boards there, and expect to begin mass production within 2 weeks. They had some really good deals on the 6809 and 68000 versions of their software and had a lot of interest their way.

Interactive Media Systems: There were proto-types of the MM/I and a couple of final versions there on display. There were some really neat graphics demos that Kevin Darling put together for us. A number of folks put down a deposit for the machines. They expect to ship prior to Christmas. It was also announced that QuickBasic will be available on the MM/I. It compiles source from GW-Basic, MBasic, and BasicA.

KB Enterprises: They had the CEBBS BBS package for sale. From the looks of it, the BBS is pretty neat.

Second City Software: A new program for RS-DOS called Coloring Book (a hands on children's educational program) was on sale. Also available was version 4.7 of UltiMuse III as well as a new terminal program for OS-9 called KCom by Eddie Kuns.

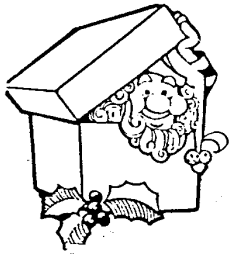
Sub-Etha Software: They had a new utility to provide more memory for BASIC programmers and a BBS that promises power, speed, and flare. I bought a banner-making program that looks really neat. It lets you print out banners a few lines high as well as what character to use for the fill character, in order to make the letters on the banner.

Three C's Projects: They had their new adventure "Power Stones of Ard II (The Five Towers of Trafa-Zar)" It had great graphics and a friend of mine bought a copy. He was told that there are 2 more planned to continue the saga. Another new character is planned for the next adventure. (which will be coming out over the next three years or so).

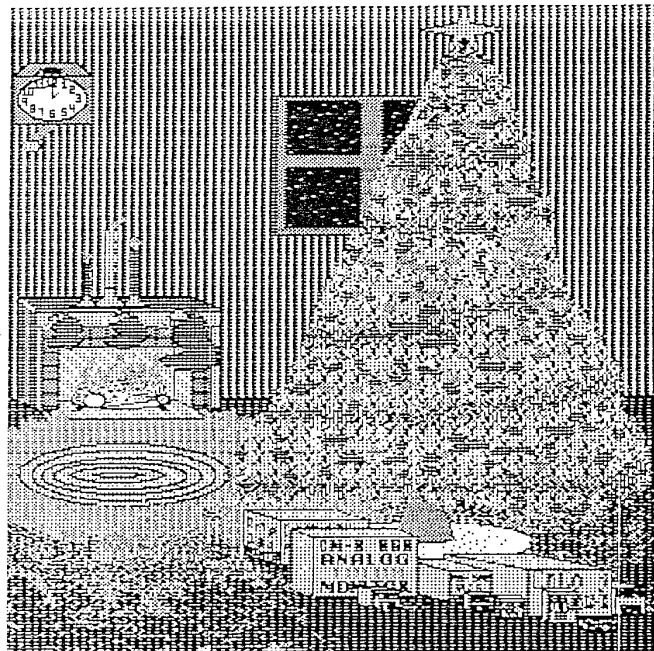
Zebra Systems: They introduced three new Picture Disks for use with their programs. These include EDUCATION, HOBBIES, and UNITED STATES MAPS.

I have spoken only on those that I had dealings with and knew something of. I could not give an accurate report of any others and be fair.

I feel the Fest went really well, although the attendance was not as large as it could've been (about 650 CoCoers attended). It was worth the trip and I encourage all to go the next time. Once the new machines are out, things should begin to pick up once again.



THE PROGRAMMER



(COCOMAX III DRAWING BY THOMAS SINCLAIR)

THE PROGRAMMER DECEMBER '90

THIS MONTH...

1. CoLo Christmas Cards 7
sing, along with the code!
2. Wreath & Star Designer 10
JUST BY ENTERING A FEW NUMBERS, YOU
CAN CREATE ALL KINDS OF FANCY DESIGNS.



CoCo Christmas Carols
by David McNally
 PROGRAM EDITOR

Season's Greetings! The holiday season is here once again! Time to get out all those Christmas decorations from the attic and start setting up the Christmas tree. You're probably already starting to round up all the colorful and musical holiday programs that you have stored "somewhere" with all your other programs. Well, here's another one to add to your holiday music collection.

The program below consists of a combination of three holiday songs: Santa Claus is Coming to Town, The Twelve Days of Christmas, and Let it Snow! This particular music program is different from the others that we've listed in past Holiday issues of TRS-80 Computing. Rather than being written in SOUND commands, it is stored in the CoCo's graphics memory, and is called up by READ/DATA statements. After typing the program, save it to tape or disk and coldstart the CoCo. Before loading, you will have to do a PCLEAR 0. In order to do this, type: POKE 25,6:POKE 31,6 <ENTER> if you have a tape system, and POKE 25,14:POKE 26,1:POKE 3584,0 <ENTER> if you have a disk system. Now you may load in the program (Donot use the format RUN "filename" or LOAD "filename",R when loading, or you will get an error.) When the OK prompt appears, proceed by typing RUN <ENTER>. The CoCo will take a few seconds to set up. After that, you can start singing along with your Color Computer!

THE LISTING: XMASCRLS

```

0 REM COPYRIGHT 1990
1 REM BY TRS-80 COMPUTING
2 REM ALL RIGHTS RESERVED
3 REM PROGRAM BY DAVID MCNALLY
4 REM PCLEAR 0 BEFORE LOADING
   (SEE DIRECTIONS ON HOW TO
   DO THIS IN 12/90 ISSUE)
5 CLEAR 100,&H29C0
10 DATAD,E,F,11,12,14,15,16,18,1
9,1B,1C,1D,1F,20,22,23,26,27,29,
2A
15 DATA2B,2D,2E,30,31,32,34,35,3
7,38,38,39,3B,3B,3C,3C,3E,3E,3E,
3F,3F
20 DATA3F,3F,3F,3F,3F,3E,3E,3E,3
C,3C,3B,3P,39,38,37,37,35,34,32
31,30
25 DATA2E,2E,2D,2B,2A,29,27,26,2
4,23,22,20,1F,1F,1D,1C,1B,1B,19,
19,18
30 DATA18,16,16,15,15,15,15,15,1
5,15,15,15,15,15,15,16,16,16,
18,18
35 DATA18,19,19,1A,1A,1B,1B,1B,1
C,1C,1E,1F,1F,20,20,22,22,22,22,
22,23
40 DATA23,23,23,23,23,23,22,22,2
2,22,20,20,20,1F,1F,1D,1D,1C,1C,
1B,19
45 DATA19,18,16,15,15,14,12,12,1
1,F,E,E,D,B,B,R,8,8,7,7,6
50 DATA6,4,4,3,3,3,1,1,1,1,1,1,0
,0,0,0,0,1,1,1,1
    
```


55 DATA1,1,1,3,3,3,3,3,4,4,4,4,4,4,6,6,6,6,6,6,6,6
60 DATA7,7,7,7,7,7,7,6,6,6,6,6,6,6,6,6,4,4,4,4,4
65 DATA4,4,4,4,4,4,3,3,3,4,4,4,4,4,4,4,6,6,6,7,7,7,8
70 DATAA,A,B,D,0,0,2,6F,2,94,2,B,B,2,E4,3,10,3,3F,3,71,3
75 DATAA5,3,DC,4,17,4,56,4,98,4,DD,5,28,5,76,5,C9,6,21,6,7F
80 DATA6,E2,7,4A,7,B9,8,2F,8,AC,9,30,9,BB,A,50,A,ED,B,93,C
85 DATA43,C,FE,D,C4,E,95,F,73,10,5F,11,58,12,60,13,77,14,A0,15,0A
90 DATA17,26,18,87,19,FC,1B,88,1D,2B,1E,E7,20,BE,22,B0,24,C0,26,EF,29
95 DATA0,2B,B4,2E,4D,31,E,33,F9,37,10,3A,57,3D,CF,41,7C,45,60,49,81
100 DATA4D,DF,52,81,57,69,5C,9B,62,1D,AA,AA,AA,AA,55,47,55,55,AA,AA,AA
105 DATAAA,55,55,55,55,A8,2B,AA,AA,55,46,55,55,AE,A2,AA,AA,55,51,55,55
110 DATAAA,A8,AA,AE,55,55,55,51,AA,AA,AA,AA,55,55,55,55,8A,AB,AA,AA,54
115 DATA54,55,55,AA,AE,AA,AA,55,55,55,55,AA,AA,AA,AA,55,55,55,55,AA,AA
120 DATAAA,AA,55,55,55,55,AA,AA,AA,AA,55,55,55,55,AA,AA,AA,AA,55,55,55
125 DATA55,AA,AA,AA,AA,55,55,55,55,AA,AA,AA,AA,55,55,55,55,AA,AA,AA,AA
130 DATA55,55,55,55,AA,A2,AA,AA,86,3F,B7,FF,23,8E,2A,0,BF,29,C3,BF,29
135 DATAC6,BF,29,C9,BF,29,CC,8E,2D,0,BF,29,C0,7E,2C,9B,BE,29,C0,A6,80
140 DATAB7,29,C2,39,31,8D,FE,D6,A6,80,EE,A6,FF,29,CF,A6,80,EE,A6,FF,29
145 DATAD1,A6,80,EE,A6,FF,29,D3,A6,80,EE,A6,FF,29,D5,BF,29,C0,39,10,8E
150 DATA0,68,A6,9F,29,C3,AB,9F,29,C6,A9,9F,29,C9,A9,9F,29,CC,B7,FF,20
155 DATAFC,29,C4,F3,29,CF,FD,29,C4,FC,29,C7,F3,29,D1,FD,29,C7,FC,29,CA
160 DATAF3,29,D3,FD,29,CA,FC,29,CD,F3,29,D5,FD,29,CD,31,3F,26,7,7A,29
165 DATAC2,27,C,20,BA,A6,84,20,0,20,0,20,0,20,B4,39,17,FF,7F,81,0

170 DATA26,1,39,17,FF,80,8D,A2,20,F1,AA,A2,55,5D,55,55,AA,AA,AA,AA,55
175 DATA55,55,55,AA,A8,AA,AE,55,55,55,55,AA,AA,BA,55,55,55,51,AA,AB
180 DATAAA,AA,55,55,55,55,AA,AE,AA,AA,55,55,55,55,AA,AA,AA,AA,55,55,55
185 DATA55,AA,AA,AA,A8,55,57,55,55,AA,BB,AE,AE,55,55,55,54,AA,AE,AA,8A
190 DATA55,54,55,55,AA,AA,AA,AA,55,51,55,55,20,40,0,0,0,12,3A,1A,1A
195 DATA3A,12,3C,1A,1A,3C,20,40,20,22,40,14,40,28,22,40,12,40,0,0,40
200 DATA12,44,24,0,44,20,4A,2C,32,4A,22,4A,2C,32,4A,12,3A,1A,0,3A,12
205 DATA3C,1A,0,3C,20,40,28,24,40,20,40,0,0,40,12,40,20,40,28,24,40,20,40,0,0,40,12,44
210 DATA24,0,44,12,40,24,0,40,20,3C,32,2C,3C,24,3C,32,2C,3C,20,3A,28
215 DATA0,3A,20,40,28,0,40,20,32,2C,0,32,20,3A,2C,0,3A,20,36,24,0
220 DATA36,20,3C,2C,0,3C,20,30,20,0,30,48,32,22,22,32,96,0,0,0,0
225 DATA12,32,32,32,32,12,32,32,32,32,20,32,32,14,14,12,3C,3C,14,14,12
230 DATA3C,3C,14,14,20,3C,3C,14,14,12,3A,3A,14,14,12,3C,3C,14,14,12,40
235 DATA40,40,40,12,44,44,44,44,12,48,48,48,48,12,40,40,40,40,26,44,44
240 DATA14,14,12,48,48,14,14,20,4A,4A,14,14,12,4E,4E,4E,4E,12,48,48,48
245 DATA48,12,44,44,14,14,12,3C,3C,14,14,20,40,40,40,40,2A,3C,3C,3C,3C
250 DATA96,0,0,0,0,10,32,32,32,32,10,4A,4A,14,14,10,2,10,32,32,32,32,10,4A,4A,14,14,10
255 DATA4A,4A,14,14,20,46,46,14,14,20,44,44,22,22,20,40,40,22,22,20,3C
260 DATA3C,14,14,20,32,32,14,14,10,32,32,14,14,E,32,32,14,14,1E,40,40
265 DATA14,14,12,3C,3C,14,14,1E,40,40,14,14,12,3C,3C,14,14,20,3A,3A,22
270 DATA22,20,32,32,22,22,20,36,36,22,22,12,4E,4E,16,16,12,4E,4E,16,16

```

275 DATA20,4A,4A,16,16,20,46,46,
24,24,20,44,44,24,24,1E,40,40,16
,16,14
280 DATA52,52,16,16,10,4E,4E,16,
16,20,4A,4A,22,22,14,4A,4A,22,22
,10,46
285 DATA6,22,22,20,44,44,22,22,
14,44,44,22,22,10,40,40,22,22,23
,3C,3C
290 DATA14,14,14,0,0,0,0,0,0,0,0
,0,0,0,0,0,0,AA
295 FOR T=&H2A00 TO &H2EA9:READ
T#:POKE T,VAL("&H"+T#):NEXT T
300 CLS

```

```

305 PRINTTAB(1)"SANTA CLAUS IS
COMING TO TOWN"
310 PRINTTAB(4)"TWELVE DAYS OF C
HRISTMAS"
315 PRINTTAB(10)"LET IT SNOW,"
320 PRINTTAB(10)"LET IT SNOW,"
325 PRINTTAB(10)"LET IT SNOW!"
330 PRINT:PRINTTAB(8)"BY DAVID M
CNALLY"
335 PRINT:PRINTTAB(3)"HAPPY HOLI
DAYS FROM TRS-80"
340 PRINTTAB(11)"COMPUTING!"
345 EXEC &H2C00:FOR T=1 TO 1000:
NEXT T:GOTO 345

```

END OF PROGRAM

Great OS-9 Software

VED, OS-9 Text Editor.....\$24.95

The best editor for OS-9 just got better. Version 2.0 of this best seller now includes 36 definable macros, case-switcher, and even more speed. See the review in Mar/Apr Clipboard. Works with 128 or 512K.

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Wynndel, B.C. Porthill, ID
Canada V0B 2N0 USA 83853-0355

ANSWERS TO SPEAKING ABOUT BASIC...
(from page 29)

1. close (CLS)
2. strip poker (STR\$ and POKE)
3. land or lint (AND or INT)
4. nephew (NEW)
5. random (RND)
6. squirt (SQR)
7. sketch (SET)
8. spinner (SIN)
9. caboose (COS)
10. putter (PUT)

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WREATH & STAR DESIGNER

by David McNally, Program Editor

After several hours of working at my computer, I finally finished writing this program. After I ran it a few times, I realized that the designs that it would create resembles that of a Christmas wreath or a star. That is when I decided that this would be a great program to include in this issue.

The program is very simple to use. Just key in the listing and type RUN. The small box in the center of the text portion of the screen is called the task box. This box will constantly tell you what the computer is doing. As soon as you type RUN, the words INPUT #'S will appear. This means that the computer is waiting for you to type in the settings it needs to draw your design. First, enter the number of dots you want the computer to use to draw the circle (don't use zero or you will get a ?/0 error). All inputs must be three digit numbers. For example: Let's say you wanted to type the number 9. To enter it you would type 009 and press <ENTER>. A tone will sound to let you know that the number has been entered. Secondly, type in the number of dots to skip to on the first jump. Again, use a three digit number. Repeat step two a second time to tell the computer how many dots to skip to on the second jump. There can't be more than 360 dots in the circle and the step rates must be smaller than the number of dots in the circle. When the <ENTER> key is pressed, the task box will display the word DRAWING... and the computer will draw your design. You can put as many designs on top of each other as you want. To clear the screen, wait until the task box displays INPUT #'s and then press the <CLEAR> key. The task box will then say ERASING... It will take a few seconds before it is done erasing, but when the INPUT #'S prompt comes back, the computer is finished. If you want to change the size of your design, press <S> when the task box reads INPUT #'S. You will hear a high pitched tone and the task box will display SCALE MODE. Use the up and down arrow keys to raise or lower the scale of the design. Press <ENTER> when you are done to return to normal input mode. Pressing <BREAK> during DRAWING or SCALE mode will abort the task and return you back to the normal mode. Pressing <BREAK> during the normal mode will stop the program. Try using 050 020 000 for an input. Look familiar?

THE LISTING: WRTHSTAR

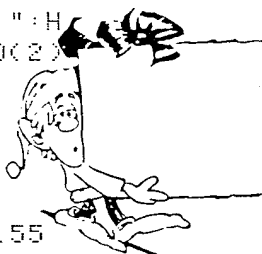
```

0 REM COPYRIGHT 1990
1 REM TRS-80 COMPUTING
2 REM PROGRAM BY DAVID MCNALLY
5 REM *****SET UP*****
10 ON BRK GOTO 365
15 DIM S(360),T(360)
20 POKE &HF015,18:POKE&HF016,18
25 CLS:C=5:A=50
30 REM *****SCREEN SET UP*****
35 HSCREEN 2
40 PALETTE CMP
45 PALETTE 0,0:HCLS0:HCOLOR 1,0
50 HLINE(6,0)-(6,192),PSET:HLINE
(106,0)-(106,192),PSET
55 HLINE(6,0)-(320,192),PSET,B
60 HLINE(6,92)-(106,106),PSET,B
65 REM *****TEXT BLOCK*****
70 HCOLOR 1,0
75 HPRINT(2,1),"POINTS:"
80 HPRINT(2,2),"STEP 1:"
85 HPRINT(2,3),"STEP 2 "
```

```

90 HPRINT(2,5), "<S>CALE=" : HPRINT
(10,5), C
95 HPRINT(2,8), "LAST INPUT:"
100 HPRINT(2,18), " <CLEAR>"
105 HPRINT(1,19), "CLEAR SCREEN"
110 HPRINT(3,21), "<BREAK>"
115 HPRINT(1,22), "ABORT TASK!"
120 REM *****INPUT ROUTINE*****
125 Q=9:L=1:K=1
130 HPRINT(1,9), "          " : H
PRINT(1,9), O(1) : HPRINT(5,9), O(2)
: HPRINT(9,9), O(3)
135 HPRINT(2,12), "INPUT #'S"
140 FOR T=1 TO 4
145 POKE 135,0
150 ON BRK GOTO 365
155 A#=INKEY#: IF A#="" THEN 155
160 IF A#=CHR$(13) OR A#=CHR$(8)
THEN GOTO 175
165 IF A#=CHR$(12) THEN GOTO 380
170 IF ASC(A#)<48 OR ASC(A#)>57
AND A#<>"C" AND A#<>"S" THEN GOT
O 155
175 IF A#="S" THEN HPRINT(2,12),
"SCALE MODE": SOUND 200,2: GOSUB 3
25
180 IF ZZ=1 THEN ZZ=0: GOTO 155
185 IF T=4 AND A#=CHR$(13) THEN
GOTO 200 ELSE IF T<4 AND A#=CHR$
(13) THEN GOTO 155 ELSE IF T=4 A
ND A#=CHR$(8) THEN GOTO 190 ELSE
IF T=4 THEN GOTO 155
190 IF A#=CHR$(8) AND Q>9 THEN T
=T-1: Q=Q-1: HPRINT(Q,L), " " : GOTO
155 ELSE IF A#=CHR$(8) AND Q<10
THEN GOTO 155
195 HPRINT(Q,L), A#: Q=Q+1: R(T)=VA
L(A#): NEXT T
200 O(K)=R(1)*100+R(2)*10+R(3)
205 SOUND 150,2
210 IF K=3 THEN GOTO 220
215 K=K+1: Q=9: L=L+1: GOTO 140
220 IF O(1)>360 OR O(2)>O(1) OR
O(3)>O(1) THEN SOUND 5,5: HPRINT(
9,1), " " : HPRINT(9,2), " " : HPR
INT(9,3), " " : GOTO 125
225 REM *****DRAW ROUTINE*****
230 X=212: Y=96: U=1
235 HPRINT(2,12), "DRAWING..."
240 ON BRK GOTO 370
245 V=57.29577951
250 I=360/O(1)
255 FOR L=1 TO 360 STEP I
260 S(U)=A#*COS((90+L)/V)+X: T(U)=
-A#*SIN((90+L)/V)+Y: HSET(S(U),T(U
),1): U=U+1
265 NEXT L
270 J=1: S1=O(2): S2=O(3): B=O(1)
275 HLINE(S(J),T(J))- (S(J),T(J))
, PSET
280 J=J+S1: IF J>B THEN P=J-B: J=P
: P=0

```



```

285 HLINE -(S(J),T(J)), PSET
290 IF J=1 THEN GOTO 315
295 J=J+S2: IF J>B THEN P=J-B: J=P
: P=0
300 HLINE -(S(J),T(J)), PSET
305 IF J=1 THEN GOTO 315
310 GOTO 280
315 HPRINT(9,1), " " : HPRINT(9,2
), " " : HPRINT(9,3), " " : HPRINT
(2,12), " "
320 GOTO 125
325 REM *****SCALE ROUTINE*****
330 ON BRK GOTO 370
335 E#=INKEY#: IF E#="" THEN 335
340 IF E#="^" AND C<9 THEN C=C+1
: HPRINT(10,5), C
345 IF E#=CHR$(10) AND C>1 THEN
C=C-1: HPRINT(10,5), C
350 IF E#=CHR$(13) THEN A=C*10: H
PRINT(2,12), "INPUT #'S " : ZZ=1: RE
TURN
355 GOTO 335
360 REM *****BREAK ROUTINES*****
365 HSCREEN 0: CLS: END
370 HPRINT(9,1), " " : HPRINT(9,2
), " " : HPRINT(9,3), " " : HPRINT
(2,12), " " : GOTO 125
375 REM *****CLEAR ROUTINE*****
380 HPRINT(2,12), "ERASING..."
385 HLINE(107,2)-(318,190), PRESE
T, BF
390 HPRINT(9,1), " " : HPRINT(9,
2), " " : HPRINT(9,3), " " : HPRIN
T(2,12), " " : GOTO 125

```

END OF PROGRAM



DRAWING LINES ON THE SET/RESET SCREEN

By David McNally, Program Editor

Last time I showed you how to draw circles on the SET/RESET screen. Not only can we simulate the CIRCLE command, but we also can apply mathematics to compute and draw a line. (Your CoCo's ROM has the ability to compute lines using the LINE command, but unfortunately it is more difficult on the SET/RESET screen.)

The equation of a line can be found by the formula $y=mx+b$, where m is the slope and b is the y-intercept (see Figure A).

First it is necessary to define where the line is to be drawn. This can be done by stating the X and Y coordinates for both the starting and ending points of the line to be drawn. Lines 29-34 in the listing of my program allows you to move a dot around the screen using the arrow keys. When you have the dot positioned at the line's starting point, press <ENTER>. A second dot will appear in the middle of the screen (which is controlled by lines 10-14). You can now define the endpoint of the line in the same manner.

The next step is to compute the slope of the line. This is done by the following equation:

$$M = \frac{\text{change in Y coordinates}}{\text{change in X coordinates}}$$

The CoCo would recognize this as:

$$M = (Y2-Y1)/(X2-X1)$$

If $M=0$ then we know that the line to be drawn is horizontal. If $X2-X1=0$ then we say there is no slope, therefore it is a vertical line. We must check for vertical lines before computing the slope because if it is a vertical line, a division by zero error will occur. Line 19 checks for a vertical line. If it is a vertical line it will be drawn, otherwise the slope will be computed in line 20.

(CONTINUED ON NEXT PAGE)

```

2 CLS0
4 GOSUB 29:REM *** POSITION DOT
NUMBER 1***
6 V=32:W=16
8 SET(V,W,1)
9 REM *** POSITION DOT NUMBER 2
***
10 A#=INKEY#:IF A#="" THEN 10
12 IF A#="^" THEN GOSUB 28:W=W-1
:GOSUB 100:GOTO 8 ELSE IF A#=CHR
#(10) THEN GOSUB 28:W=W+1:GOSUB
102:GOTO 8
13 IF A#=CHR#(8) THEN GOSUB 28:V
=V-1:GOSUB 104:GOTO 8 ELSE IF A#
=CHR#(9) THEN GOSUB 28:V=V+1:GOS
UB 106:GOTO 8 ELSE IF A#=CHR#(13
) THEN 16 ELSE GOTO 10
14 GOTO 10
16 X2=V:Y2=W
17 REM ** COMPUTE EQUATION OF LI
NE **
18 IF X1>X2 THEN A=X1:B=Y1:X1=X2
:Y1=Y2:X2=A:Y2=B
19 IF (X2-X1)=0 THEN FOR X=Y1 TO
Y2:SET(X,1):NEXT X:GOTO 26
20 M=(Y2-Y1)/(X2-X1):B=Y1-M*X1
21 REM *** DRAW LINE ***
22 FOR X=X1 TO X2-1:Y=M*X+B
24 SET(X,Y,1):NEXT X
25 REM *** STOP PROGRAM ***
26 GOTO 26
28 RESET (V,W):RETURN
29 SET(X1,Y1,1)
30 A#=INKEY#:IF A#="" THEN 30
32 IF A#="^" THEN GOSUB 34:Y1=Y1
-1:GOSUB 100:GOTO 29 ELSE IF A#=
CHR#(10) THEN GOSUB 34:Y1=Y1+1:G
OSUB 102:GOTO 29
33 IF A#=CHR#(8) THEN GOSUB 34:X
1=X1-1:GOSUB 104:GOTO 29 ELSE IF
A#=CHR#(9) THEN GOSUB 34:X1=X1+
1:GOSUB 106:GOTO 29 ELSE IF A#=C
HR#(13) THEN RETURN ELSE GOTO 30
34 RESET (X1,Y1):RETURN
100 IF Y1<0 THEN Y1=Y1+1:SET(X1,
Y1,1):RETURN ELSE IF W<0 THEN W=
W+1:SET(V,W,1):RETURN
101 RETURN
102 IF Y1>31 THEN Y1=Y1-1:SET(X1
,Y1,1):RETURN ELSE IF W>31 THEN
W=W-1:SET(V,W,1):RETURN
103 RETURN
104 IF X1<0 THEN X1=X1+1:SET(X1,
Y1,1):RETURN ELSE IF V<0 THEN V=
V+1:SET(V,W,1):RETURN
105 RETURN
106 IF X1>63 THEN X1=X1-1:SET(X1
,Y1,1):RETURN ELSE IF V>63 THEN
V=V-1:SET(V,W,1):RETURN
107 RETURN

```

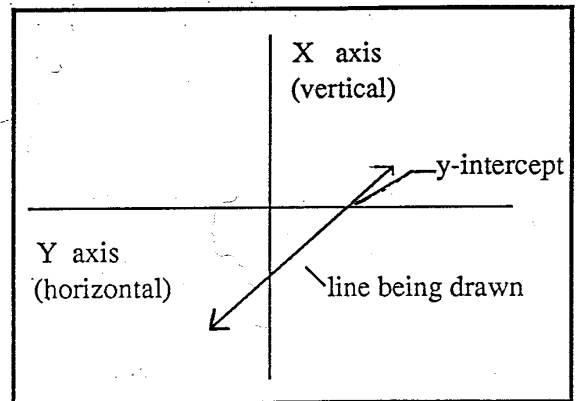


FIGURE A

Now that we know the slope, we can get the y-intercept. This can be done by the equation:

$$B = Y1 - M * X1$$

which is also computed in line 20. Remember, the computer follows the correct order of operations.

Last, we plot the line. This is done by using a FOR...NEXT loop starting at X1 and ending at X2-1. We'll call this the X loop because it determines the final X coordinate. Remember that the Y coordinate is found by $Y=mx+b$. The computer plots the point and continues the loop until the line is complete (see lines 21-24).

This technique will work in any graphics mode, but is not necessary because of the LINE command. Hey, how about referring to my last article (Drawing Circles on the SET/RESET Screen Part II) to convert lines to the text screen? 'Till next time!



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COCO PEN-PALS

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- I have a 512k CoCo 3, monitor, a Star NX-1000 printer, Tandy double-sided drive system, and a Avatex 2400-baud modem. I'm interested in all aspects of computers, especially telecommunications.

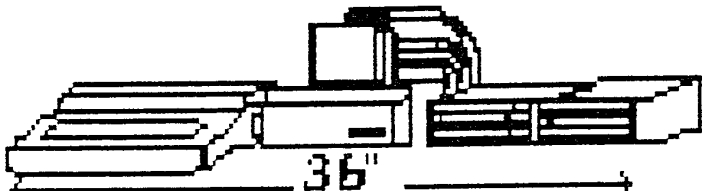
*Michael Holtry
695 Park Ave. #216
Idaho Falls, ID 83402*

- I own a CoCo 3, DMP-132 printer, ED-501 disk drive, and OS-9 Level 2. Some of my interests are playing video games, reading, and playing chess.

*Bob Wensler
151 Plum St., Apt 207
Oil City, PA. 16301*

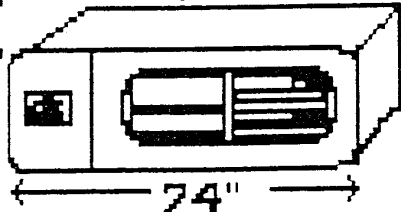
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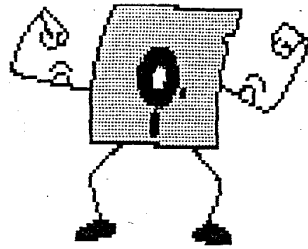
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Keeping Your Disk In Shape

BY JOE AHERN PUBLISHER

Storing information by the means of a disk is the number one storage method in small computer systems. A disk, as we all know, is that very valuable piece of flexible magnetic material that has many hours of tedious typing saved upon it. The loss of any of this important data would result in spending many more frustrating hours trying to re-type all this information back in. In this article, I am going to give you a couple of tips and steps to follow in order to prevent any of this from happening. But first, I am going to give a quick run-down on what the disk is all about.

If you were to take the actual disk media out of its square, plastic jacket, all you would be looking at is this small, bendable record or "disk". In reality, a disk is made up of many magnetic particles that are organized into what are called tracks and sectors (see Figure 1). A 5-1/4" disk, by the way is the general disk size that the CoCo uses (unless you use a hard drive). Brand new disks that have never been used before must be initialized (or formatted). This process is necessary to give the disk a way to align these magnetic particles, and then divide them into 35 tracks and 18 sectors. Disk formatting is done on the CoCo by the Disk BASIC command DSKINI (DiSK INitalize).

Here are a couple of tips to follow by when using your disks:

* Always make backups of your disks (especially ones that contain valuable information). Something as minor as an electrical glitch can destroy thousands of bytes of important data instantly.

* Use write protect tabs These small pieces of tape cover the write-protect notch of a disk to prevent anyone from accidentally saving or formatting the disk. If you attempt to save or format a write-protected disk you will be prompted by the CoCo with a ?WP error.

* Use VERIFY ON when saving disk files (especially M.L. programs or programs with lots of DATA statements). It may take longer to save, but it will guarantee that there are no flaws in what the CoCo is writing.

DISK CARE

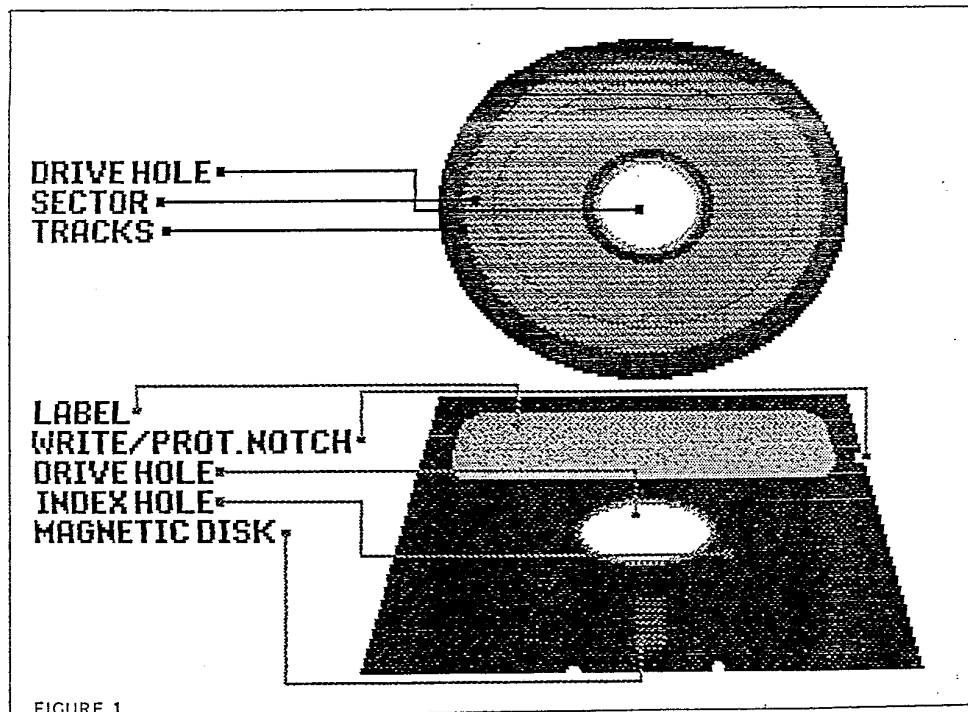
Proper care of your disks is necessary to keep them from being damaged or destroyed in any way. One important point to keep in mind is how you store and handle your diskettes -- making sure that they do not come into any contact with magnetic fields. Magnetism is what allows

(CONTINUE ON NEXT PAGE)

information to be saved on a disk, but it can also destroy this information. These steps should be taken into consideration in order to prevent this hazard from occurring:

1. DISKS SHOULD NEVER BE STORED NEAR ANY DEVICE WHICH PRODUCES HEAT OR IS MAGNETIC. This includes a monitor, television set, on top of a disk drive, or even a small space heater.
2. ALL STORAGE EQUIPMENT (DISK DRIVE, CASSETTE RECORDER) SHOULD BE ON THE RIGHT SIDE OF YOUR MONITOR OR TV SET. The flyback transformer is located on the left side, and any interference may cause those annoying ?IO errors.
3. NEVER TOUCH THE EXPOSED SECTION OF A DISK, OR BEND IT IN ANY WAY.
4. PROTECT THE DISK FROM DIRT AND DUST BY KEEPING IT IN ITS SLEEVE (UPRIGHT) WHEN NOT IN USE.
5. ALWAYS CAREFULLY INSERT THE DISK INTO THE DISK DRIVE. JAMMING THE DISK IN QUICKLY WILL CAUSE IT TO BEND, AND POSSIBLY DAMAGE IT.
6. STORE YOUR DISKS AT ROOM TEMPERATURE. NEVER KEEP THEM IN ROOMS WITH TEMPERATURES BELOW 50 F AND ABOVE 125 F. ALSO, NEVER EXPOSE DISKS TO DIRECT SUNLIGHT, AS THEY WARP QUICKLY.
7. MAKE SURE THAT YOU PERIODICALLY CLEAN YOUR DRIVE HEAD TO REMOVE FRAGMENTS OF DIRT & DUST THAT MIGHT SCRATCH THE DISK.
8. SLUGGISH DRIVE OPERATION AND CONTINUOUS ERRORS SIGNIFY THAT THE DRIVE HEAD MAY NEED RE-ALIGNMENT.

Remember, when dealing with disks, keep these rules in mind. By taking care of your disks, you can be sure that your data will be secure.



The Ins and Outs of Machine Language

Column by David McNally, Program Editor

In case you didn't know, submissions to this section are open to anyone who has a machine language subroutine or PEEK/POKE to share. Assembly language programs are also welcome. These routines and POKES are not copyrighted, and can be used by anyone.

LISTING 1

PURPOSE: The following routine changes the OK prompt to the READY prompt.

USE: To use this routine, simply key it in and type RUN.

LIMITS: Disengages when RESET is pressed. Works only on the COCO 3.

THE LISTING:

```
5 POKE &H7F05,13
10 FOR I=&H7F06 TO &H7F0A
15 READ B#:POKE I,ASC(B#)
20 NEXT I
25 POKE &H7F0B,13
30 POKE &H7F0C,0
35 POKE &HAC77,&H7F
40 POKE &HAC78,&H05
45 DATA R,E,A,D,Y
```

LISTING 2

PURPOSE: The following machine language program can be used to draw text on the PMODE 4 screen without having to predefine the letters by drawing them with the DRAW command.

USE: Type the program and insert normal PRINT commands where indicated. Proceed by typing RUN and the text screen will be dumped to the PMODE 4 screen.

LIMITS: You must EXEC this routine after the lines to be printed are displayed on the text screen using the PRINT command. This may disable some ASCII disk commands.

THE LISTING:

```
5 L=PEEK(27)*256+PEEK(28)-783
10 POKE 359,57:PMODE 4,1
15 SCREEN 1,1
20 (ALL PRINT COMMANDS GO HERE)
200 EXEC L
202 A#=INKEY#:IF A#="" THEN 202
204 POKE 359,126:END
```

LISTING 3

PURPOSE: This POKE is used to disable the LIST command on a COCO 3.

USE: Type the POKE and press <ENTER>.

LIMITS: This POKE only works on a COCO 3. Use POKE 383,158 for a COCO 2. POKE 383,0 enables LIST on a COCO 2.

THE LISTING:

```
POKE 43698,0 to disable LIST.
POKE 43698,212 to enable LIST.
```

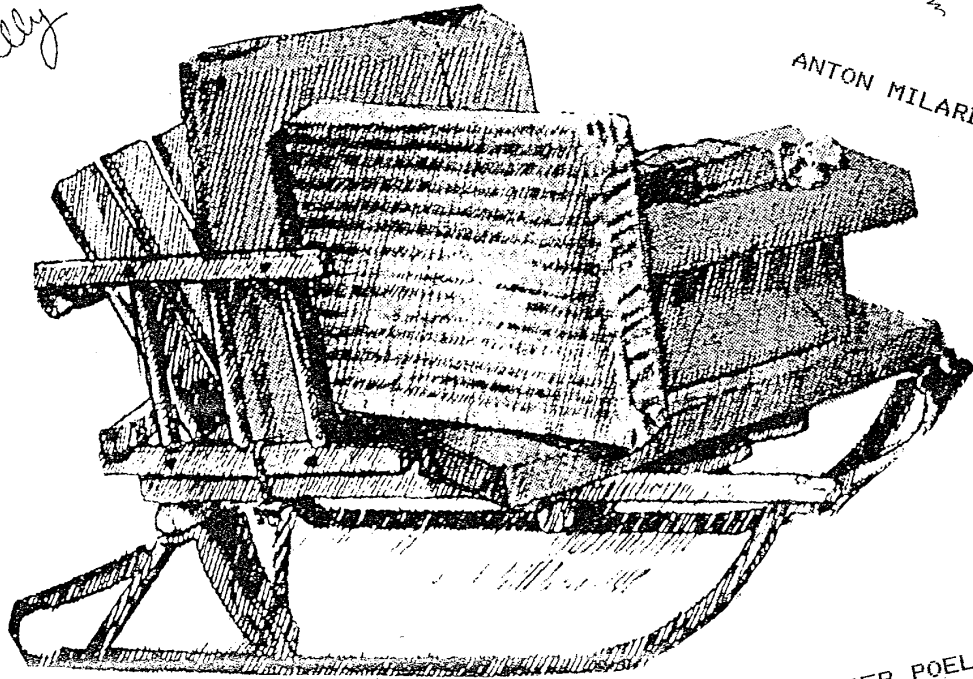
HAPPY HOLIDAYS
to the CoCo Community

from all of us at TRS-80 Computing

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Programming
Puzzle

Write a program in which the user can calculate the sales tax of an item. Assume the sales tax is 6%. Round your answer to the nearest cent. Don't use the PRINT USING command.

**ANSWER to October's
Programming Puzzle**

In order to enter a five digit number using INKEY\$, your program coding should be similar to this:

```
10 CLS:FOR T=1 TO 5
15 A$=INKEY$:IF A$="" THEN 15
20 B(T)=VAL(A$):NEXT T
30 B=B(1)*10000+B(2)*1000+
B(3)*100+B(4)*10+B(5)
40 PRINT B:END
```

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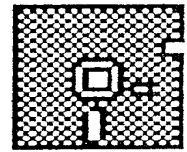
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COCO



PRODUCT REVIEW

Software Review

SOUNDTRAX

SoundTrax is the first sound sequencing program produced for the Color Computer. It allows the user to load in digitized sounds and scale these sounds down their octave to create songs. (If you don't own a sound digitizer, don't despair. SoundTrax comes with its own disk of sounds. Sundog Systems is also selling three more disks full of digitized sounds.)

The program includes a well-written, 14 page manual and one "flippy" disk. The front side of the disk contains the main program and a sample song. The reverse side of the disk is the sound disk with a large variety of sounds.

Upon typing LOADM "ST", an impressive title screen appears and the program is loaded in. SoundTrax uses a point-and-click graphics interface to allow the user to point-click-and drag the menu of their choice for easy access of any feature.

SoundTrax includes many features which makes composing songs easy. Some of the features are:

- * The ability to have multiple sounds in memory at one time.
- * A METRONOME, which is used to help the user stay with the beat as notes are being played.
- * TEMPO CONTROL, which allows the metronome to play at the speed desired.
- * SAVE AND LOAD CONFIGURATION, which saves the current settings including the tempo and the instruments in memory.
- * An INFORM screen, which informs the user of how much free memory there is and the name of the current score that was loaded in memory.
- * POLYPHONIC SOUND, which allows two different KEYS to be played at the same time.
- * FOUR SEPARATE RECORDING TRACKS that can be played back simultaneously. Instruments can be switched at any time (sounds are recorded EXACTLY the way they are played).
- * LOOP SETTINGS for continuous play.

- * Easy editing which includes COPY, CUT, PASTE, and ERASE.
- * A special SYNC TRACK option, which will align the stop/start marker to the metronome, producing a more accurate score to the beat.
- * SAVING and LOADING SCORES which automatically load in the correct configurations to go with the song that is to be loaded.
- * EXCELLENT GRAPHICS and many other smaller features.

A few things came to my mind before I got SoundTrax. The advertisement for UP TO FOUR at one time. Was only a 512K 128K machine only two voices in surprise, a 512K all four voices machine can hold about four to eight voices at once, depending on the length of the digitized sound.

SOUNDTRAX includes many features which makes composing songs easy.

The SoundTrax stated that INSTRUMENTS could play this a feature that machine had? Would a be able to hold one or memory at once? To my is not needed to play at once and a 128K

There are a few drawbacks to this program though. One of them is that scores are recorded EXACTLY as they are played. Even if you are trying to find the next key you want to press, the pause is recorded. I think a feature that should have been added is the one key play buttons found on most of the low cost electronic keyboards. These keys allow the user to playback a recorded score to their liking. For example, the first time you press the one key play button, the first recorded note on a particular track will play until the button is depressed. At this point, the second note will play until the button is pressed again and so on. Using this technique will allow the user to get rid of the unnecessary pauses in the track.

The sounds aren't recorded as musical notes on a staff either. Instead, a marker is placed in the measure display box to indicate the places on the track where a sound is to be played.

Another improvement the program needs is the ability to delete or insert single notes. If you want to do this you must rerecord the entire measure.

I think the program is a little over priced, but it produces exactly what is promised by the advertisement. This program is the newest sound sensation yet for the COCO, and is HIGHLY recommended for those music lovers out there.

SOUNDTRAX DEMO DISK (Includes 10% discount when you purchase SOUNDTRAX).....\$4.95

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- by David McNally

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THE SHELL

bi-monthly column devoted to the OS-9 operating system



C

Language Compatibility

by Bob van der Poel

Contributing Editor

PASCAL

BASIC

ASSEMBLY LANGUAGE

Since I've started playing with computers it seems that I've spent a lot of time re-inventing the wheel. The same programs I wrote for my first CoCo 1 with a tape drive I had to modify when I got disk drives. Later these programs were re-worked for the CoCo 3, and, still later, completely re-written to run under OS-9. A lot of this has been an interesting learning experience; but a lot was a waste of time. I know I'm going to end up eating my words, but I hope that I'll never have to re-invent that wheel again!

The reason for all this invention? Mostly I found that when I changed systems the things which used to work no longer did. Simple commands like PRINT worked differently when a disk system was hooked up to my CoCo 1 (in all honesty I don't remember the exact problem--but I do remember long evenings of head scratching). When I "graduated" to OS-9 the BASIC was entirely different and assembler was different enough to need major re-writes.

So how do we avoid all this? Simple: write programs in a "portable language" which is available on a large number of different computers. This language should be structured and lend itself to the inclusion of lots of comments as well as meaningful variable names for self-documentation. Is there such a language? Maybe, but first let's have a look at some of the problems with common computer languages.

Microsoft BASIC: This is the language you get with your CoCo. It is moderately powerful, relatively fast and is available on a large number of different computers. However, because of its structure (or lack of it) programs are difficult to debug, and even more difficult for someone else to figure out (substitute "you" for "someone else" if a space of more than six months elapses). Even though the language appears to be the same on different computers (ie. CP/M and MS-DOS) there are enough differences to make transfers a difficult, time-consuming job.

Assembler: This is the language a lot of programs you are familiar with are written in. Extended Color BASIC is written in assembler. So is the OS-9 operating system. Include applications like Telewriter-128, VED, CoCo Max and hundreds of others and you may well think that assembler must be the "best" language to use. Well, if you are concerned with the fastest program using the smallest amount of memory then, yes, assembler is best. But, assembler lacks structure, is very hard to learn, and is completely different for each different type of microprocessor.

(CONTINUED ON NEXT PAGE)

Pascal: A language designed for teaching computer programming. It is structured and lends itself to lots of internal documentation. It has been used in a number of professional packages, although it never really took off for the CoCo (OS-9 Dynastar was originally written in Pascal). I've played with this language, but I found it too limiting in a number of aspects.

Others: We could make a list which went on forever--Forth, an eclectic favorite, comes to mind. I'm sure you know of others (APL, COBOL, LISP, LOGO . . .). But none of these has the portability of my new favorite--C.

The C language was created by a programmer, for programmers. It is certainly not a language for everyone (and I really don't recommend it to beginners). It is a language which falls in between high-level languages like Pascal and the low-level assembler. C produces very fast code and is available on nearly every computer system I'm aware of. And it is remarkably portable.

As you know, there are a number of new computer systems being developed by some third party developers. These computers will not use a 6809 CPU, so assembler programs will have to be completely re-written (and the programmer will have to learn yet another language). They will use OS-9 as their operating system, so it will be relatively simple to port programs written in Basic09--but this language, too, has a lot of drawbacks (grist for another article). I plan to get myself one of these new machines and write programs for them. Initially, it will be my old favorites which will get translated. These were all written in Microsoft BASIC, assembler, or Basic09. They will all be translated into C.

Why C? Simply because I know I won't have to re-write them again. Just to illustrate my confidence I can tell you that I have been writing a new version of my VED text editor. When finished, this new program will not work under Level II OS-9; it will only work under OS-9/68000. The program is now 99% complete, but I won't be able to finish it until I get my new computer. Yes, it was (is being) written and tested almost entirely on my CoCo. The plan is that it should take less than an hour to get it working on the new computer. Will it? Well, it should. Stay tuned, the complete details will follow in a future column.

Another plus for C is the vast stock of library routines already in circulation. I have ported a number of complex routines originally written for an MS-DOS machine to my CoCo--the changes I made were more cosmetic than anything else. Countless books are available with countless routines in them just waiting to be used. A large number of public domain UNIX programs have been ported over to OS-9--it is my understanding that very few changes (with the exception of screen/terminal I/O stuff) needed to be made to most of these programs.

The fact that I can, using OS-9 and C, write a program for a computer not yet in production should get a few of you die-hard RS-DOSers thinking! When I get my new system the learning time to learn OS-9/68000 will be nearly nothing--a good thing since I have better things to do with my time. If you haven't yet learned the joys of the

OS-9 operating system, give it a try. I'm sure that you will be glad that you did.

This column is being written for you. It is my chance to share some of my experiences and programming knowledge, but I need to know what parts to share. Drop me a note and let me know what topics you'd like to see covered in the future: using the OS-9 operating system, making new system disks (please not!), Basic09 programming, C programming, or philosophical chatter? You can address mail to me care of this magazine or directly to me at:

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SPEAKING

ABOUT BASIC...

Fill in the blanks using letters of standard Radio Shack BASIC and Disk BASIC commands to make words. In some places you can use more than one word, in some places you need more than one command. The letters must be kept in the regular order.

Example: E - - T O -

Insert DIR, and you get

E D I T O R

1. - - O - E
2. - - - I - P - - - R
(2 commands)
3. L - - -
4. - - P H E -
5. - A - - O M
6. - - U I - T
7. - K - - C H
8. - P - N - E R
9. - A B O - - E
10. - - T - E R

See answers on page 9.

Computerists have added new symbols to their written language. The Smiley. (-) is one. The Wink (;-) is a second. The Shock (:o) is a third. The Sorrow (:() is a fourth. The Sarcasm (:/) is a fifth. Give this printed paragraph a clockwise turn sideways, and look at the symbols again.

- NORMAN THODE
Austin, Texas

Computerists have added new symbols to their written language. The Smiley. (-) is one. The Wink (;-) is a second. The Shock (:o) is a third. The Sorrow (:() is a fourth. The Sarcasm (:/) is a fifth. Give this printed paragraph a clockwise turn sideways, and look at the symbols again.

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