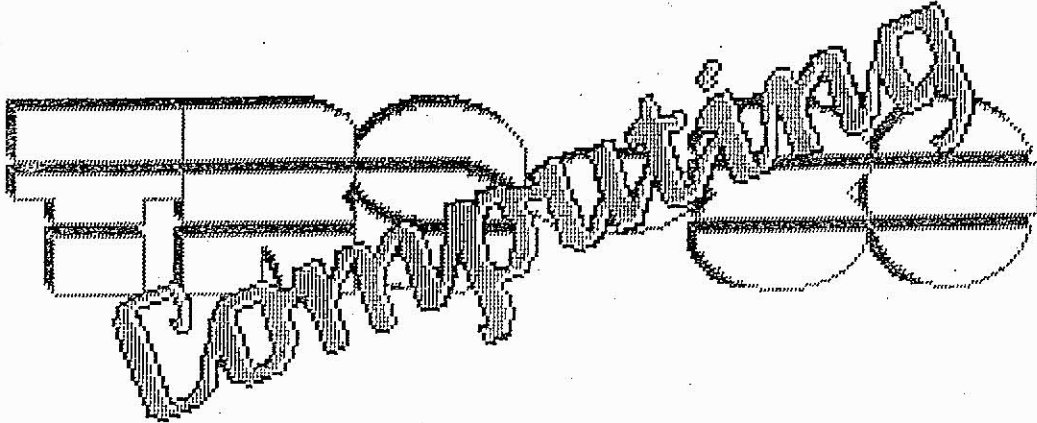


AUGUST 1990

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VOLUME 4  
NUMBER 2



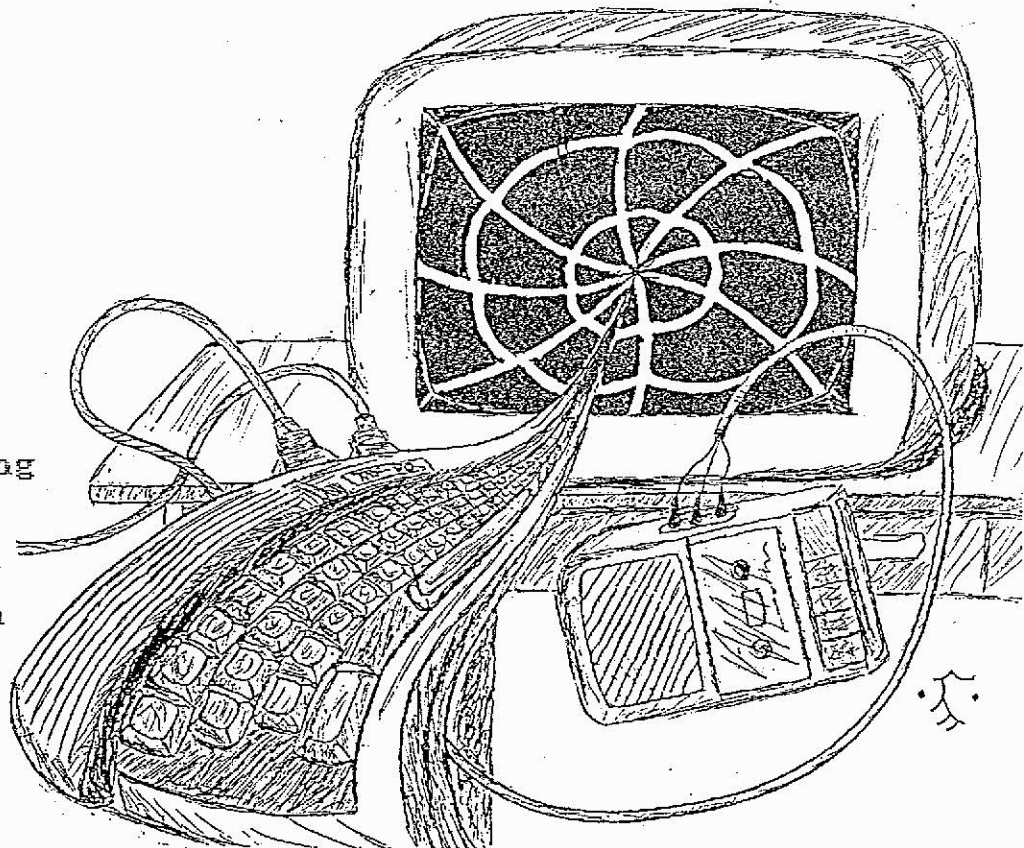
THE BI-MONTHLY MAGAZINE FOR COLOR COMPUTER USERS

## TAKING CARE OF BUSINESS

- a BASIC record keeping program to keep track of your income/expenses
- a look at CoCo business software available for the CoCo
- why you should bother using OS-9 in this month's OS-9 column - The Shell

### And

Learn how to draw circles on a low-res screen using trigonometry.



# Erich Sweaney Software

## Slam Bam

Have you ever dreamed of slam dunking? We'll now take your CoCo into the world of Slam Dunking, with "SLAM BAM". There is over 27 different kinds of slam dunks. Ranging from a back-handed slam, to a full 360 spin slam dunk. You can even break the backboard! It even has a high score board, to keep track of all your high scores. For the Tandy Color Computer 3 Disk ~~XXXXXX~~

**SPECIAL NEW PRICE ONLY UNTIL OCTOBER 15, 1990: \$9.95**

"I definitely recommend that you add Slam Bam to your software collection",  
TRS-80 Computing

## The CoCo Notes Newsletter

This is a bi-monthly magazine, which also includes a on-disk version with a menu driver for only \$10.00. Want to learn how to program (In OS-9, RS-Dos, Basic, Basic09, C, Pascal, etc), and learn new programming concepts? Then the CoCo Notes Newsletter is for you. We also feature the latest information in the CoCo World, like for example we were the FIRST to publish a series of reports on the NEW CoCo 4 MM/1 and TEG. Prices:

\$10.00 for a one year subscription, six issues.

\$5.00 for the On-Disk Version (OS-9 Or RS-Dos Version), six issues.

### NEW Double, Triple and Quadruple Y Cables

These Y cables are made with only the BEST equipment possible, and each cable is fully tested. These cables even work under OS-9 at 2mhz with no problems. These cables are made to work with shareable program paks, like RS-232paks, Modem Pak, Floppy and HARD disk controllers, Speech Pak, etc. Prices:

Double Y Cable-	\$39.95	Even extend your
Triple Y Cable-	\$49.95	multi-pak to even
Quadruple Y Cable-	\$59.95	greater potential!

### NEW OS-9 Level 2/Basic09 Explained for Beginners!

This is a new book, designed to help new users is OS-9 Level 2, and Basic09 to discover how to move around, and use all of the OS-9 commands. Only \$16.95

(A Excellent Reference Guide for Expert OS-9 users)

**Special COMBO PAK:** Get a one year subscription to the CoCo Notes Newsletter plus the On-Disk Version and OS-9/Basic09 Explained for Beginners for only \$21.95. Ends October 15, 1990.

Send Check or Money Order to: Or call 206-535-9733 for info  
Erich Sweaney Software P.O. Box 45434 Tacoma, WA 98445

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**COCOLEID**  
by Richard Butler

Small colored boxes and more small colored boxes. That's what this short graphics program is all about. The CoCo 3 draws in HSCREEN 2 a diamond shaped figure made out of tiny boxes in all sorts of different colors from the palette. The boxes are continuously drawn and erased (high speed POKE is used), so you must hit the <BREAK> key to exit the program.

THE LISTING: COCOLEID

```

1 ' COPYRIGHT (C) 1990
2 ' BY TRS-80 COMPUTING
10 ' COCOLEID BY RICHARD BUTLER
20 POKE65497,0:ONBRKGOTO999
30 HSCREEN2
40 PALETTE0,0
50 P4=ATN(1)
100 R=RND(80):AN=RND(0)*P4:C=RND
(15):SZ=RND(5)
110 OX=INT(COS(AN)*R):OY=INT(SIN
(AN)*R)
120 X=160-OX:Y=96-OY:GOSUB500
130 X=160-OX:Y=96+OY:GOSUB500
140 X=160+OX:Y=96-OY:GOSUB500
150 X=160+OX:Y=96+OY:GOSUB500
160 X=160-OY:Y=96-OX:GOSUB500
170 X=160-OY:Y=96+OX:GOSUB500
180 X=160+OY:Y=96-OX:GOSUB500
190 X=160+OY:Y=96+OX:GOSUB500
200 GOTO100
500 PALETTERND(15),RND(63)
510 HCOLORC:HLINE(X-SZ,Y-SZ)-(X+
SZ,Y+SZ),PSET,B
520 RETURN
999 RGB:POKE65496,0:END

```

# Computer Penpals

THE FOLLOWING PEOPLE ARE PROUD OWNERS OF TANDY COLOR COMPUTERS WHO ARE LOOKING FOR OTHER COCO USERS TO COMMUNICATE BY SHARING IDEAS AND TALKING ABOUT THEIR COMPUTER. PLEASE - NO SOFTWARE PIRACY!

- I have a CoCo 3, 128k, one MPI ds40t drive, a Disto mini controller #1 (RS-DOS), a TP-10 printer, DMP-110 printer, CM-8 monitor, and a Panasonic 300-baud modem.

*Tim Crews*

*4701 NW 34 STREET, T402*

*LAUDERDALE LAKES, FL. 33319*

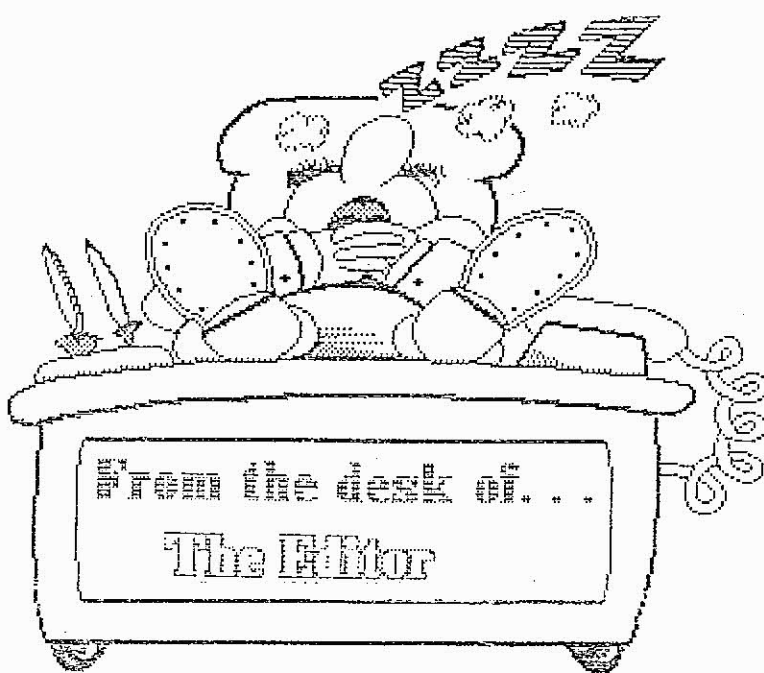
- I'm 15 years old, I have a CoCo 2-64k, CoCo 3-512k, FD-501 drive 0 & 1, FD-502 drive 0, DMP-106 & DMP-132 printer. I enjoy using the CoCo, and would like a pen-pal of any age. I will answer all letters.

*Thomas Sinclair*

*Rt. 1 Box 471-A*

*Gold Hill NC. 28071*

If you would like to have your name & address printed in the computer pen-pals section, send in your name & address, along with a few short sentences telling about your CoCo system, and we will print it in a future issue. As long as we have your CoCo configuration, it will be printed along with your name/address.



The month of August is not only just a plain ordinary month with hazy, hot and humid weather each day, but it also has a meaning in the CoCo world - it is the birthday of the Color Computer. Ten years ago this month Tandy Corporation introduced the first TRS-80 Color Computer. Radio Shack started sales of the CoCo 1 in September of 1980. They sold a 4K RAM CoCo 1 for \$399. Its good to know that our computer (whether its a CoCo 1, 2, or 3) has been lasting a good, strong decade, and has not become obsolete. Radio Shack still has the CoCo 3s on the shelves, there are still many software & hardware companies that are keeping good support, and there are even two other vendors that has come out with a new type of CoCo - the MultiMedia I and the TC-9 Tomcat; both computers look to be the doorway to the future for all of us.

You most likely noticed that we have another new logo on the front cover of this issue. The logo that we used for the June issue was temporary, and besides I didn't think it was very appropriate for a computer magazine - it was too Pac-man like! The logo we have now does take up more space on the front cover, but I think it's more "original" than the others that we've used in the past.

In the last couple of staff meetings we've had for TRS-80 Computing (this is where we discuss possible new changes for the magazine), we've been thinking of starting another small publication that would go along with your subscription to TRS-80 Computing. It would be a 3-6 page newsletter with product reviews, hints & tips, and "sneak previews" to new software packages that will soon be released on the CoCo market. The price and the name is still undetermined, yet it looks as though it will be an extra \$2-5 if you want it along with your subscription. It will be bi-monthly, and will be published during the months TRS-80 Computing is not (January, March, etc.). Those who are currently subscribing to this magazine will not have to pay the extra fee to get the new publication until their subscription runs out. The first issue is scheduled to come out this November.

I am very happy with the amount of reader response we've gotten for the survey that was placed in last month's issue. It really helps out a lot on making the changes in the magazine's quality based on your opinions. One of the changes made was doublesiding the pages and printing on a large 11x17 size paper. It cuts down our costs and makes TRS-80 Computing look more like a magazine.

If you didn't get a chance to fill out last month's survey, then please do so. We will be printing a new survey in the October issue. Until then, keep on CoCoing!!

*- Joe Aherm*

THE NEW COCOS PART II  
THIS MONTH:

**MM/I**

**INTERACTIVE MEDIA SYSTEMS  
KENNETH-LEIGH ENTERPRISES**



As most of everyone in the CoCo community already knows, two computers have been (or are going to be) released, which is something we've all been waiting for. It is the TC-9 Tomcat from Frank Hogg Laboratory and the MultiMedia I from Kenneth-Leigh Enterprises (Interactive Media Systems). Both machines are the CoCo 4 that Tandy should've come out with. In the June issue I explained to you all of the powerful features of the TC-9 Tomcat. This month I'm going to give you the details on the brand new Multi-Media I (MM/I) from Kenneth-Leigh Enterprises (KLE), and how you can keep yourself updated on this new computer.

The MM/I is a fast (15Mhz) computer whose sleek PC-style case makes it a logical choice for the office and for home entertainment. An optional 101-key PC compatible keyboard and RGB-analog monitor gives you a full system. You can expand by adding optional boards -- without the cumbersome MultiPak interface. Free software (over \$1000 worth) comes with the MM/I - a text editor, window interface, games, IBM PC File Manager, BASIC, C compiler and more.

The basic system includes case, power supply, operating system, cables, and one CPU board. The CPU contains everything you need to start off right away. It features: Signetics 68070 CPU (Motorola 68000 compatible) running at 15MHz, graphics resolution from 320x200 to 720x480 (interlaced) with intermediate modes, from 16 to 256 colors on-screen (depending on resolution mode), two serial ports for your mouse, joystick or printer (one is even factory-configurable for a MIDI musical keyboard), 101-keys PC keyboard port, RGB-Analog output for your CM-8 or Magnavox monitor, Direct Memory Access (DMA) floppy disk controller, a 3.5" 1.4 megabyte drive, one megabyte of RAM and an optional daughterboard which expands the palette to 16 million colors!! (Wow, now that's a lot of colors huh?)

The MM/I is also much faster than many of the the popular personal computers of today, because of its over 1000 dhrystones of power. And, it will never be out of date, because of its optional 32-bit bus that lets you expand your system to the best new technology.

Fortunately, when Kenneth-Leigh Enterprises and Interactive Media Systems created the MM/I, they made it so it's CoCo compatible too. They call it the OS/Gateway. It works by unplugging your Multipak and inserting the OS/Gateway to connect the CoCo to the MM/I. Your OS-9 CoCo and the MM/I will use the same monitor, giving you access to two powerful environments at once. Run OS-9 games like Flight Simulator  $\mathbb{W}$  and Koronis Rift  $\mathbb{W}$  even while using the MM/I -- just touch a button to move back and forth between computers -- no need to throw away the CoCo or buy another 6809-based computer!

The MM/I personal computer system (with case, floppy drive, ready to go) is being sold for \$779. Interactive Media Systems is taking orders for the MM/I now, and are planning to start shipping the computers by the middle of September.

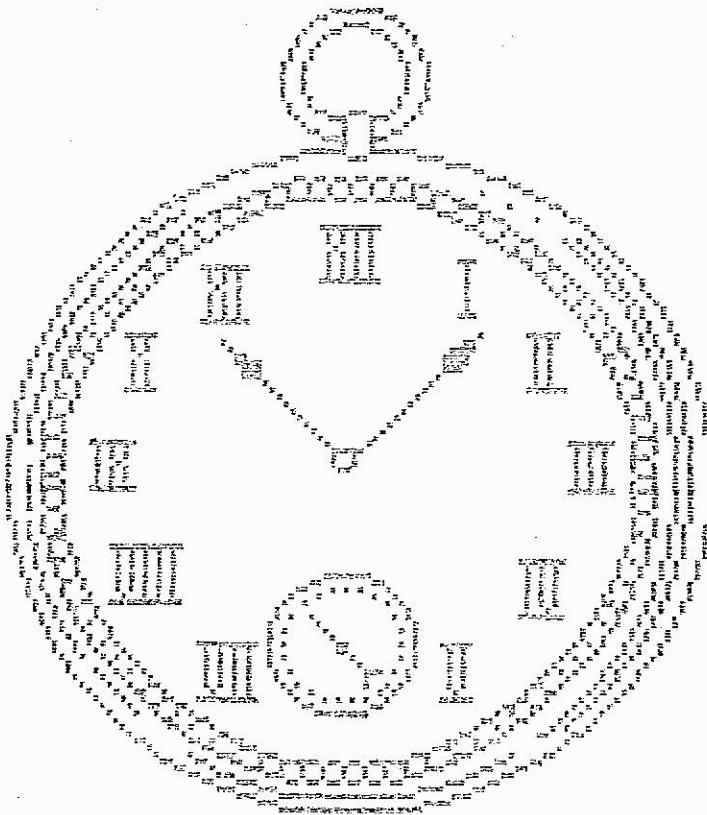
In order to keep yourself updated on this new step to the color computer revolution, you can subscribe to their quarterly newsletter, The Insider for \$9.95. Their first issue was scheduled to appear on July 1st; but they're delayed about a month on getting the newsletter out.

For further information you can write to Interactive Media Systems at 238 Catawba Ave., Davidson, NC. 28036, or call at 1-800-866-9084.

If there is any more news on either the MM/I or TC-9 Tomcat, I will keep you updated in this column.

MM  
ONE

# THE PROGRAMMER



THE PROGRAMMER

AUGUST '90

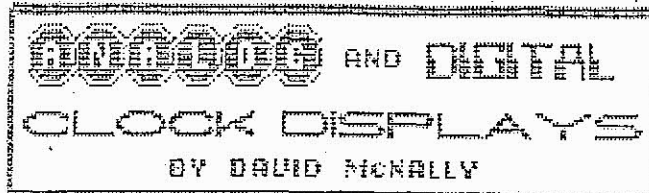
THIS MONTH...

1. Analog & Digital Clock Display..6

LET COCO KEEP THE TIME FOR YOU!

2. The CoCo Record Keeper ..... 8

STORE FINANCIAL RECORDS WITH THIS PROGRAM


  
**ANALOG AND DIGITAL**  
**CLOCK DISPLAYS**  
 BY DAVID McNALLY

Did you know that the CoCo can keep perfect time? The following program will prove it for you. Key in the listing, save it, and type RUN. In order to set the clock with a digital watch, enter in the hour and minute (pressing <ENTER> after each key-in.) When the seconds on your digital watch reaches 36, hit <ENTER>. This is because it takes 24 seconds to draw the screen.

Example RUN:

Ex. 1: Your watch says 5:48:18  
 hour-? 5 <ENTER>  
 minute-? 49 Press <ENTER> when the 18 is  
 a 36.

Ex. 2: Your watch reads 2:10:38  
 hour-? 2 <ENTER>  
 minute-? 12 Press <ENTER> when your  
 watch reads 2:11:36

THE LISTING: CLOCKDIS

```

5 REM *****
10 REM*      CLOCK PROGRAM      *
15 REM*      BY DAVID McNALLY   *
17 REM*      COPYRIGHT 1990     *
20 REM*      BY TRS-80 COMPUTING *
22 REM*****
23 REM LINE 25 PREVENTS
    OVERPRINTING OF HPRINT
    CHARACTERS.
24 REM CLEARS POSITION WITH A
    SPACE BEFORE PRINTING
    NEW CHARACTER.
25 POKE &HF015,18:POKE &HF016,18
30 V=57.29577951
35 A=90:W=1
40 JJ=1
45 CLS
50 PRINT"STARTING HOUR-";:INPUT
  S
55 IF S<1 OR S>12 THEN 45
60 PRINT"STARTING MIN.-";:INPUT
  S2
65 IF S2<0 OR S2>59 THEN 45
70 S3=ABS(360-(S*30)):S4=ABS(360
  -(S2*6))
75 S3=S3/W:S4=S4/W:IF S3=0 AND S
  4=0 THEN W=W+1
80 HSCREEN 2:PALETTE 0,0:HCLS0:G
  OSUB 185:GOSUB 265
95 TIMER=0
145 IF S>12 THEN S=1
150 IF S4/72=INT(S4/72) THEN S3=
  S3-6:HLINE(128,96)-(X1,Y1),PRESE
  T:HLINE(128,96)-(X2,Y2),PRESET
155 S$="":S2$=""
160 IF S2<10 THEN S2$="0"+STR$(S
  2) ELSE S2$=STR$(S2)
165 IF S<10 THEN S$="0"+STR$(S)
  ELSE S$=STR$(S)
170 GOSUB 245
175 IF S2=0 THEN HPRINT(30,12),S
  $+" ":"+00" ELSE HPRINT(30,12),S$
  +":" +S2$
180 HLINE(128,96)-(X1,Y1),PRESET
  :GOTO 95
185 REM DRAW MINUTE MARKERS
190 FOR T2=1 TO 2
195 FOR T=0 TO 360 STEP 6
200 O=(62+T2)*COS((A+T)/V)+128
202 P=(-62+T2)*SIN((A+T)/V)+96:H
  SET(O,P):NEXT T,T2
205 REM DRAW 5 MINUTE MARKERS
210 FOR T2=1 TO 6:FOR T=0 TO 360
  STEP 30:O=(63-T2)*COS((A+T)/V)+
  128:P=(-63+T2)*SIN((A+T)/V)+96:H
  SET(O,P):NEXT T,T2
215 SOUND 100,1
220 IF S2<10 THEN S2$="0"+STR$(S
  2) ELSE S2$=STR$(S2)
225 IF S<10 THEN S$="0"+STR$(S)

```



```

90 S3=S3-INT(S2/12)*6
95 X1=55*COS((A+S4)/V)+128:Y1=-5
5*SIN((A+S4)/V)+96
96 X2=29*COS((A+S3)/V)+128:Y2=-2
9*SIN((A+S3)/V)+96
100 HLINE(128,96)-(X1,Y1),PSET:H
LINE(128,96)-(X2,Y2),PSET
105 REM CHECK FOR ONE MINUTE
110 IF JJ=2 THEN IF TIMER>=3480
THEN TIMER=0:GOSUB 130 ELSE IF J
J=2 THEN GOTO 110
115 IF JJ=2 THEN GOTO 110
120 IF TIMER>=3600 THEN TIMER=0:
GOSUB 130
125 GOTO 105
130 S4=S4-6
135 IF JJ=1 THEN JJ=2 ELSE IF JJ
=2 THEN JJ=1
140 S2=S2+1:IF S2>59 THEN S2=00:
S=S+1

```

```

ELSE S#=STR$(S)
230 GOSUB 245
235 IF S2=0 THEN HPRINT(30,12),S
$+" "+"00" ELSE HPRINT(30,12),S$
+" ":"+S2$
240 RETURN
245 FOR M=1 TO LEN(S$):IF MID$(S
$,M,1)=" " THEN NEXT ELSE U#=U#+
MID$(S$,M,1):NEXT:S#=U$
250 U#=""
255 FOR G=1 TO LEN(S2$):IF MID$(
S2$,G,1)=" " THEN NEXT ELSE U#=U
$+MID$(S2$,G,1):NEXT:S2#=U$:U#=""
260 RETURN
265 HPRINT(15,3),"12"
270 HPRINT(20,4),"1"
275 HPRINT(23,7),"2"
280 HPRINT(25,12),"3"
285 HPRINT(23,16),"4"
290 HPRINT(20,19),"5"
295 HPRINT(15,20),"06"
300 HPRINT(11,19),"7"
305 HPRINT(6,12),"9"
310 HPRINT(8,16),"8"
315 HPRINT(7,7),"10"
320 HPRINT(10,4),"11"
325 TIMER=0:RETURN

```

END OF PROGRAM

### FOR SALE

1-TRS-80 COLOR COMPUTER 2--Includes both factory manuals,RF converter and all connection cables including Cassette. Also included FREE is a book of BASIC computer games especially written for the COCO.

\$95.00

1-Speech & Sound Pak with Manual

\$35.00

1-COCOMAX II program from Computerware. Includes ALL manuals and inserts including Hi-Res Joystick interface. Factory disk only used ONCE to make a copy!

\$40.00

1-Demon Attack Program Pak

\$8.00

All equipment is in showroom condition. To order or inquire write to address below. Go ahead it will be worth it for these deals!

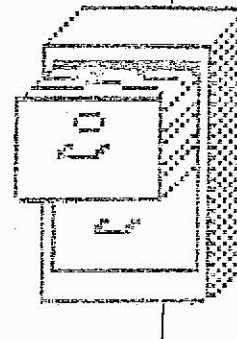
Make all checks payable to Richard Heiser

Richard Heiser, P.O. Box 576, Nutting Lake, MA. 01865

THE COCO RECORD KEEPER

by Anton P. Milardovic

The CoCo Record Keeper is a very simple record keeping program for the Color Computer. With it you can add records, open new accounts, close old ones, and keep running totals of all income/expenses in each account. The program is fairly straight forward, and simple to use. With some minor modifications, it can be updated to be a major accounting system! Notice also that it uses DSKI\$ to find which data files have been made by the program (the extension of the data files is BOO).



THE LISTING: RCRDKEEP

```
1 ' COPYRIGHT (C) 1990
2 ' BY TRS-80 COMPUTING MAGAZINE
10 '*****
20 '* THE COMPU-RECORD KEEPER *
30 '* *
40 '* CREATED BY: MILARDOVIC *
50 '* ANTON *
60 '* PETER *
70 '* *
80 '* TUESDAY JUNE 16, 1987 *
90 '*****
100 CLEAR500
110 D$="BR5D15R7E3U9H3L7BR10"
120 E$="BR5D15NR10U8NR7U7R10"
130 L$="BR5D15R10BU15"
140 N$="BR5ND15M+10,15U15"
150 O$="BR8G3D9F3R4E3U9H3L4BR7"
160 P$="BR5ND15R7F3D2G3L7BR10BUS"
170 R$="BR5ND15R7F3D2G3L7R3F7BU15"
180 S$="BR12NF3L4G3D1F3R4F3D2G3L4H3BU12BR10"
190 T$="BR5R10L5ND15R5"
200 U$="BR5D12F3R4E3U12"
210 Y$="BR5M+5,8ND7M+5,-8"
220 PMODE4,1:PCLS:SCREEN1,1
230 CIRCLE(15,15),10,1,.75,.25
240 LINE(25,15)-(10,70),PSET
250 CIRCLE(50,25),30,1,.45,.55,.99
260 LINE(80,23)-(59,75),PSET
270 CIRCLE(109,27),30,1,.45,.55,.99
280 LINE(130,28)-(66,180),PSET
0,224,0,37,241,57
370 CLEAR000:DIMTH$(20),TH(20):F
ORX=1TO255STEP12:SOUNDX,1:NEXT:F
L$="ACCOUNT1"
380 CLS:PRINT THE COCO RECO
RD KEEPER":PRINT
390 PRINT 1 - INSERT RECORDS"
," 2 - ADD UP SPECIFIC"," 3
- ADD UP ALL RECORDS"," 4 - RU
NNING TOTAL OF ALL"," 5 - DELE
TE ALL RECORDS"," 6 - CHANGE D
EFAULT FILE"," 7 - MAKE A NEW
FILE"," 8 - EXIT RECORD KEEPER
"
400 PRINT:PRINTTAB(11)"YOUR CHOI
CE":PRINT0495,"(C) 1987 MAP INC"
;:POKE1535,110
410 EXEC44539:A=VAL(INKEY$):IFA<
10RA>8THEN410ELSEONA GOTO430,550
,690,780,770,860,900
420 CLS:END
430 CLS:PRINT INSERT RECOR
DS";TAB(23)FL$:PRINT
440 INPUT"DATE (MMM DD)";DT$:INP
UT"EXPENSE ITEM";EX$:INPUT"AMOUN
T #";AM
450 OPEN"I",#1,FL$+".BOO":OPEN"O
",#2,"Y1988"
460 IFEQF(1) THEN500
470 INPUT#1,A#,B#,C
480 WRITE#2,A#,B#,C
490 GOTO460
500 WRITE#2,DT$,EX$,AM
510 CLOSE
520 KILLFL$+".BOO":RENAME"Y1988.
```

```

290 CIRCLE(100,95),40,1,.5,.55,.
82
300 LINE(61,90)-(41,139),PSET
310 LINE(52,105)-(100,105),PSET
320 CIRCLE(93,125),40,1,.53,.8,.
23
330 LINE(99,145)-(81,145),PSET
340 DRAW"BM130,150"+P$+R$+O$+U$+
D$+L$+Y$
350 DRAW"BM-115,+20"+P$+R$+E$+S$
+E$+N$+T$+S$
360 CLEAR200,32745:FORL=32746TO3
2766:READV:POKEL,V:NEXT:EXEC3274
6:DATA26,126,190,128,0,183,255,2
22,166,128,183,255,223,167,31,14
"
610 IFEOF(1) THEN670
620 INPUT#1,DA$,EP$,AM
630 IFBS=1THENIF INSTR(EP$,EX$)=0
THEN610ELSE650
640 IFEP$<>EX$ THEN610
650 IFBS=1THENPRINTUSING" % %
% % $###.##";DA$;EP$
;AM:TL=TL+AM ELSEPRINTUSING"
% % $###.##";DA$;AM:TL
=TL+AM
660 FORX=1TO100:NEXT:GOTO610
670 CLOSE:BS=0:PRINT:PRINT"TOTAL
COST: ";:PRINTUSING"$###,###.##"
;TL
680 POKE41805,0:EXEC44539:GOTO3B
0
690 TL=0:CLS:PRINT" ADD ALL RE
CORDS";TAB(23)FL$:PRINT:PRINT"
DATE ITEM AMOUNT":PR
INT:POKE41805,128
700 CO=0:OPEN"I",#1,FL$+".BOO"
710 IFEOF(1) THEN750ELSECO=CO+1
720 INPUT#1,DA$,EP$,AM
730 PRINTUSING" % % %
% $###.##";DA$;EP$;AM:TL=TL+
AM
740 IFCO/10=INT(CO/10)THENEXEC44
539:GOTO710ELSEFORX=1TO100:NEXT:
GOTO710
750 CLOSE:PRINT:PRINT"
TOTAL: ";:PRINTUSING"$###,###.
##";TL
760 POKE41805,0:EXEC44539:GOTO3B
0
770 CLS:INPUT"SURE";A$:IFA$="Y"O
RA$="YES"THENKILLFL$+".BOO":FL$=
"ERASED.":GOTO860ELSEGOTO380
780 CLS:PRINTTAB(2)"RUNNING TOTA
L OF ALL EXPENSES":PRINTTAB(23)F
L$:PRINT"COMPUTING..." :OPEN"I",#
DAT"TOFL$+".BOO"
530 PRINT:PRINT"THIS RECORD HAS
BEEN ADDED ..."
540 EXEC44539:GOTO380
550 TL=0:CLS:PRINT" SEARCH FOR
EXPENSE";TAB(23)FL$:PRINT
560 INPUT"WHICH EXPENSE";EX$
570 ILEFT$(EX$,1)="*"THENEX$=RI
GHT$(EX$,LEN(EX$)-1):BS=1
580 PRINT:PRINT"SEARCHING..."
590 OPEN"I",#1,FL$+".BOO"
600 CLS:PRINTTAB(7)"SEARCH FOR E
XPENSE":PRINT:PRINT"SEARCH FOR:
";:IFBS=1THENPRINT"*";EX$:PRINT:
POKE41805,128ELSEPRINTEX$:PRINT:
POKE41805,128
1,FL$+".BOO":CN=1:INPUT#1,D$,E$,
AM:TH$(1)=E$:TH(1)=AM
790 IFEOF(1) THEN830
800 INPUT#1,DA$,EP$,AM:FORZ=1TOC
N:IFTH$(Z)=EP$THENTH(Z)=TH(Z)+AM
:GOTO820
810 NEXTZ:CN=CN+1:TH$(CN)=EP$:TH
(CN)=AM
820 GOTO790
830 CLOSE:PRINTa64,"COMPUTATION
DONE..." :SOUND200,30:PRINTa64,"
NO. ITEM TOTAL"
840 PRINT:FORZ=1TOCN:PRINTUSING"
##. % % $###,###.##"
;Z;TH$(Z);TH(Z):TT=TT+TH(Z):NEXT
:PRINT:PRINT"TOTAL EXPENSES:",:P
RINTUSING"$###,###.##";TT
850 EXEC44539:TT=0:FORZ=1TOCN:TH
$(Z)="":TH(Z)=0:NEXT:GOTO380
860 CLS:PRINT:PRINT"PRESENT DEFA
ULT NAME IS ";FL$:PRINT"CHOICES
ARE":PRINT
870 FORX=3TO10:DSKI$0,17,X,A$,B$
:A$=A$+LEFT$(B$,127):FORY=0TO7:N
$=MID$(A$,Y*32+1,8):E$=MID$(A$,Y
*32+9,3):IFE$="BOO"ANDLEFT$(N$,1
)<>CHR$(0)ANDN$<>FL$THENPRINT"
";N$,
880 IFA$=STRING$(255,255)THEN890
ELSENEXTY,X
890 PRINT:PRINT:INPUT"NOTHING TO
STAY THE SAME, ELSE INPUT A NE
W DEFAULT";D$:IF(D$=""ORLEN(D$)>
8)ANDFL$="ERASED."THEN860ELSEIFD
$=""ORLEN(D$)>8THEN380ELSEFL$=D$
:GOTO380
900 CLS:PRINT:PRINT:LINEINPUT"NA
ME FOR DIRECTORY=>";N$:IFLEN(N$)
>8ORN$=""THEN380
910 OPEN"O",#1,N$+".BOO":CLOSE:G
OTO380

```

END OF PROGRAM

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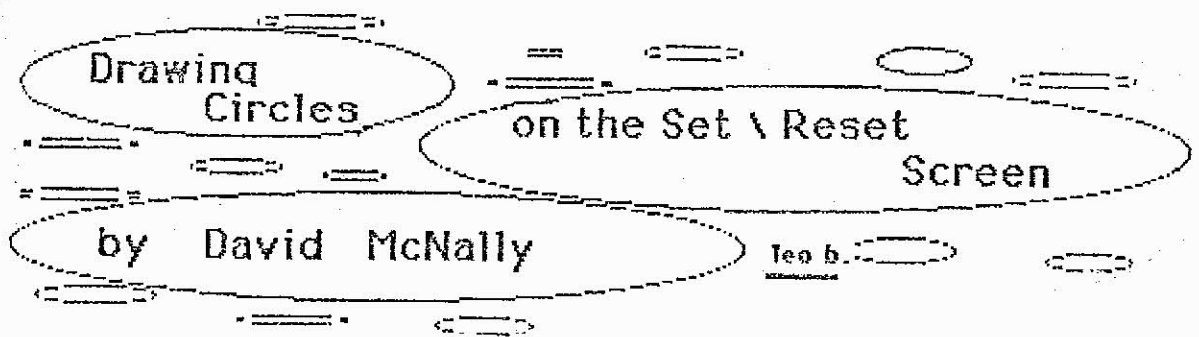
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The use of COS and SIN is very easy. The formula  $R * \cos(A)$ , where R is the radius and A is the angle, will give us the exact X coordinate of a point on the circle. To get the Y coordinate, we use  $-R * \sin(A)$ , where again R is the radius and A is the angle. For an example, say we had a circle with a radius of twenty (20) and we put 90 degrees in place of A. We then have:

```
X=20*COS(90):Y=-20*SIN(A)
```

Now we have the exact X and Y coordinate of the point on the circle directly on the 90 degree angle, but we still have a little problem. The computer does not use degrees. Instead it uses radians, so we must divide the degrees by 57.29577951 to convert it. Now our equation looks like this:

```
V=57.29577951:X=20*COS(90/V):Y=-20*SIN(90/V)
```

Now there is just one last thing to do and that is to be able to position the circle where we want it on the screen. This can be easily done by first finding the X and Y position on the screen that you wish to place the circle, and then add it to the equation. Let's say we want to center the circle on the SET/RESET screen. The coordinates for the center of the screen is (32,16). Now we add these numbers to the equation to get:

```
V=57.29577951:X=20*COS(90/V)+32:Y=-20*SIN(90/V)+16
```

Notice that the 32 is the X coordinate, so we add it with the part of the equation that will hold the X value. The 16 is the Y coordinate, so we add it to the part of the equation that will hold the Y value.

To get the X and Y coordinates of the entire circle, use a FOR...NEXT loop to keep changing the value of the degree between 0 and 360 degrees. The program to do so would look something like this:

```
V=57.29577951:FOR T=0 TO 360:X=20*COS(T/V)+32:Y=-20*SIN(T/V)+16:SET(X,Y,2):NEXT T
```

If you wanted to make an ellipse, you would make the radius in the equation that holds X, larger to get a long ellipse or smaller to get a tall ellipse. (See listing)

CONTINUED ON NEXT PAGE

Now let's look at the program. Line 10 sets up the conversion of degrees to radians. Lines 15-25 allows you to enter the radius of the circle. If the radius of the width is the same as the height, you will get a complete circle (line 30 subtracts three from the height to make the circle appear more round, but it is not needed if you are using a hi-res screen. See fig. A). If you make the height bigger than the width, you get a tall, skinny ellipse (see fig. B). If you make the height smaller, you get a long, thin ellipse (see fig. C). Line 45 sets the loop to go

RADIUS OF WIDTH: 12.5  
RADIUS OF HEIGHT: 12.5

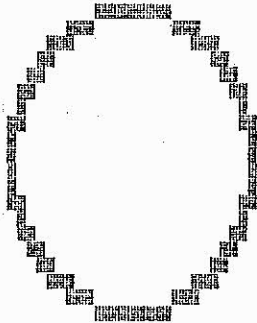


FIGURE A

RADIUS OF WIDTH: 6.5  
RADIUS OF HEIGHT: 12.5



FIGURE B

RADIUS OF WIDTH: 12.5  
RADIUS OF HEIGHT: 6.5

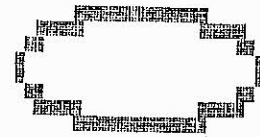


FIGURE C

around the circle 360 degrees. Line 50 sets the center of the circle to the center of the screen. You can change these numbers to anywhere on the screen. Line 55 does the computations. Notice that to the computer, 90 degrees is the top of the circle. Lines 60-65 check to see if the circle runs off the screen, and if so, keep the computer from giving you an error.

Please note that this method can be used on any graphics screen, but is not really needed in higher graphics modes because of the CIRCLE command.

#### THE LISTING: DRAWCIRC

```

2 REM BY DAVID McNALLY
3 REM COPYRIGHT 1990
4 REM BY TRS-80 COMPUTING
5 CLS
10 V=57.29577951
15 PRINT"INPUT RADIUS OF WIDTH";
:INPUT A
20 IF A<0 THEN CLS:GOTO 15
25 PRINT"INPUT RADIUS OF HEIGHT";
:INPUT A2
30 A2=A2-3
35 IF A2<0 THEN CLS:GOTO 25
40 CLS0
45 FOR T=0 TO 360
50 X=32:Y=16
55 X1=A*COS((90+T)/V)+X:Y1=-A2*S
IN((90+T)/V)+Y
60 IF X1<0 OR X1>64 THEN NEXT T
ELSE GOTO 65
65 IF Y1<0 OR Y1>31 THEN NEXT T
ELSE SET(X1,Y1,1)
70 NEXT T
75 GOTO 75

```

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## Programming Puzzle

Assume you were writing a program that draws out a pie chart. The computer asks you what % of the chart you want colored in. The computer then converts the % to degrees in order to find out how many degrees of the circle to color in. Write a program that will convert the percentage to degrees.

Example RUN:

What percent? 50

50% of the circle is 180 degrees

What percent? 2

2% of the circle is 7.2 degrees

What percent? 100

100% of the circle is 360 degrees

## Answer to Programming Puzzle (June Issue)

To pick a random number from a range, use this formula:

$$R = (\text{INT}(\text{RND}(Z - Y + 1) + Y) - .5)$$

Let Z = the highest number in the range

Let Y = " " lowest " "

Therefore the answer is:

$$\text{PRINT}(\text{INT}(\text{RND}(130 - 121 + 1) + 121) - .5)$$

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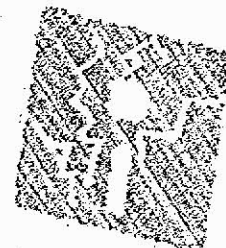
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# DSKI\$ and DSKO\$ CRACKING INTO A DISK THROUGH THE BACK DOOR



by Anton P. Milardovic

Was there ever a time when you got an adventure game, and wanted to know what made it tick? But after you load it, you find that it has been LIST protected (can't be listed)? Have you ever just wanted to see what files look like when they're saved on a disk? Fortunately, Radio Shack Disk Extended Color BASIC allows for things like that.

There are two commands which will be introduced in this article - DSKI\$ and DSKO\$. The first one, DSKI\$ stands for DiSK Input, and the the second, DiSK Output.

The syntax of (how to use) DSKI\$ is as follows:

```
DSKI$ drive,track,sector,string1,string2
```

Where: drive is the disk drive number (0 - 3);  
 track is the disk's track number (0 - 34);  
 sector is the sector number (1 - 18);  
 string1 is the first string for storage;  
 string2 is the second string for storage.

Let's give it a shot. Place a disk into the disk drive. Type: CLEAR 1000 <ENTER>. That will ensure enough space to read in a sector. Now type DSKI\$0,17,3,A\$,B\$ <ENTER> and watch what happens. The disk spins for a while and you get 'OK'. Now type PRINT A\$;B\$ <ENTER>.

What did you get? If you have files on that disk, you would get the first eight entries. Notice that in some cases you will get the last 7 characters of an erased file. There are eight characters, but the first one has been changed to a CHR\$(0), which tells the computer that the file has been erased.

In short, what you just did was read the 3rd granule of track 17 from the disk in drive #0, and stored its contents in A\$ and B\$.

Why two variables at the end, you ask? If you print the length of both strings (PRINT LEN(A\$);LEN(B\$) <ENTER>), you will see that both numbers come to 128. All sectors are 256 bytes long. Since the maximum length of a string is 255, the computer conveniently splits the sector into two equal pieces.

So, now that you know that a disk has 35 tracks labeled 0 through 34, and each track has 18 sectors, why not write a program to show you the contents of the entire disk? Type in the following program:

```
10 CLEAR 1000
20 FOR T=0 TO 34
30 FOR S=1 TO 18
40 DSKI$0,T,S,A$,B$
50 PRINT"TRACK:";T,"SECTOR:";S,A$;B$
60 NEXT S
70 NEXT T
```

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Now place a disk with a couple of programs on it into the disk drive, and RUN the program. Pretty neat, eh? You may want to save this program as DISKVIEW.BAS for later use.

Using DSKO\$ is the same, except that instead of inputting things, you are outputting them. Meaning that you are writing to the disk, so be careful!! The syntax of DSKI\$ is as follows:

```
DSKO$ drive,track,sector,string1,string2
```

Where: drive is the disk drive number (0 - 3);  
track is the disk's track number (0 - 34);  
sector is the sector number (1 - 18);  
string1 is the first string to write;  
string2 is the second string to write.

Both strings have to be 128 characters long. If your string is shorter than 128 characters the computer will add a string of CHR\$(0)s to make up the length. If a string is longer, it will chop off the extra characters.

Using this knowledge, we can re-format an old disk. Please note that this program will only work for disks which were already formatted, not new disks. This will also only work if the disk has no errors on it (bad tracks or sectors), because all it does is print strings of CHR\$(255)s to all the sectors, signifying that they're all empty. Type in the following, and save it as REFORMAT.BAS.

```
10 CLEAR 1000
20 A$=STRING$(128,255)
30 FOR T=0 TO 34
40 FOR S=1 TO 18
50 DSKO$0,T,S,A$,A$
60 NEXT S
70 NEXT T
```

Now place a disk you want reformatted into the disk drive and RUN the program. You will find that it's quite a bit faster than the DSKINI command. That is only because the disk does not have to be broken up into tracks and sectors, all this program has to do is erase them.

#### An Example of How to Put DSKI\$ to Good Use

So now that we've gone through all that you're probably thinking, yeah, so what's the point? What good are these commands to us? For those of you who are thinking that, here's a quick example.

This program is similar to the one in the back of the disk drive manual, on page 131. This one lists all the files, except for the erased ones. Type it in, put a disk in the drive, and RUN it. (Don't type the stuff after the "!" - that is just for reference.)

CONTINUED ON NEXT PAGE

Program listing - DIRSHOW

Step-by-step explanation  
of important steps

```

10 CLS:PRINT"WORKING..."
20 CLEAR 2000:DIM F$(64),E$(64)      ! Make sure there's enough
30 Z=1                                room to read sectors
40 FOR X=3 TO 10
50 DSKEI#0,17,X,A$,B$              ! Read in sectors of
60 A#=A#+LEFT$(B$,120)             the disk directory
70 FOR Y=0 TO 7
80 F$(Z)=MID$(A$,Y*32+1,8)         ! Isolate program name
90 E$(Z)=MID$(A$,Y*32+9,3)        ! Isolate extension
100 F=ASC(LEFT$(F$(Z),1))
110 IF F=255 THEN 140 ELSEIF F=0   ! If first character is a
    THEN 130                       CHR$(255), there are no
120 Z=Z+1                           more entries. CHR$(0)
130 NEXT Y,X                       indicates erased file.
140 CLS:PRINT"  LIST OF FILES 0
N THIS DISK":PRINT
150 FOR A=1 TO Z-1
160 PRINTUSING"##.Z      %/% % "   ! Print out the list of
;A;F$(A);E$(A);              files on the disk.
170 NEXT A

```

Hopefully, you got some results from running the program. If you didn't, make sure the disk in the drive has some programs on it. If it still doesn't work, check your listing for errors.

This program comes in very handy if you are writing a utility program where you have to load files from a disk. Using a simple subroutine, you can check for the program on the disk, and warn the user if it's not there. (Like some of the commercially available software for the CoCo, such as CoCoMax II & III, Lyra, McPaint, etc. Most of these will even show you the files you have to choose from.)

And, that's your assignment for the next issue. Write a simple routine which will:

1. Let the user input a filename and extension to search for
2. Search the disk and let the user know if it's there.

If you have gone through Chapter 11 of the disk manual and thoroughly understand it, try adding the following:

3. Tell the user if the file is a BASIC program, data file or a machine language program
4. Tell the user if the file was saved in ASCII or binary
5. The number of granules in the file.

(HINT: For #5 you need the FILE ALLOCATION TABLE on track 17 sector 2)

I'll have both programs for you in the next issue. Until then, get ready to head back to school! I'll be starting university, so it's panic time! But, worry not, my fellow CoConuts, the MAPster will be back in October with a frightful topic, just in time for Hallowe'en!

Happy CoCoing!

---

Questions or comments about this article can be sent directly to the author at 94 Sunrise Place, Kitchener, Ontario, Canada, N2B 3S9. Please be sure to include your full name & address for a prompt reply.

---

# A BIBLE ADVENTURE



Attention all Bible readers! There is a new program out in the CoCo market for all those who are studying the Christian religion, and looking for an adventure program to play around with on their spare time. It is entitled, "A Bible Adventure", and is being sold by Sebastian LaSpada.

A Bible Adventure is a 32k non-graphic adventure program based on 2 passages in the Bible. It was written in BASIC, and was put together on an adventure game outline program that appeared in a past issue of another CoCo magazine.

The program (along with 5 others consisting of 3 Bible quizzes and 2 smaller adventures, Journey to the Promised Land and Bible Scriptures) comes on a neatly labeled 5 1/4" disk. The filenames of all 6 programs (I'm only reviewing one of them) are on the disk label, so this saves you from getting a DIRectory after popping the disk into your disk drive. There are no specific loading instructions in the instruction booklet, so you have to kind of know the syntax of the LOAD command before you "load" the program into memory. It's no big deal if you know a little about Disk BASIC, but if you're a complete novice, then this is a disadvantage right here.

After RUNing the program (you gotta have that RUN command down pat too!), you'll get a colorful title screen and a short little tune (using SOUND commands) to accompany it. The main program starts off by summarizing the commands to use while going on your adventure (not explained in the instruction booklet), and your goals for playing the game. The only fault here is that it doesn't give you a complete list of the verb commands you'll be using, instead you have to stop the program and LIST certain line numbers (the novice says, "Now how do I do that?").

Each text screen in the adventure is "livened up" with some sort of low-resolution pattern with random colors and a beep or two when you go onto another screen. The 32 character text is separated with a colorful line that goes across the screen rather than the famous asterisks and dashes (\* and -) that is seen in most text adventures.

The game play is smooth and quick, there is no big long pause between each "room". The only delay there really is in the whole program is for 9 seconds before the start of the game; while the computer sets up the variables. You can get help in every scene - a tip-off on what to watch out for and what you should do if you're really stuck. Another thing that I found good in the preparation of the program is the objects scattered about (such as a sword or a candle) are not in the same places all the time. Except for about 3 or 4 of them, most of the very "useful" objects are in different spots in each game play; therefore this makes it more of a challenge in finding them. From what you have read above, I think already you can draw a conclusion that A Bible Adventure is not an easy adventure to win. There are a total of 58 locations before you reach your final destination (the room carved from rock). About half of the locations have their own mystery to it - which must be solved before you can go any further. Luckily Mr. LaSpada included a save/load option so you won't be kept up all night trying to beat it.

The instruction manual, "Important Information and Instructions for Your Educational Programs", is a small 13 page booklet printed on yellow heavy-bond type paper. Everything is well organized, each program is outlined with any information that you would need to know before using it. As I stated before, the only error is there is no loading instructions for any of the programs.

Overall, as far as making a purchase of the program, I would say go ahead, buy it! Considering the time and effort put into the program, and the good quality of it, it'll be well worth the money you're paying for.

(SEBASTIAN LASPADA, 531 MAIN STREET, DUNKIRK, NY. 14048; \$10 FOR ALL 6 BIBLE PROGRAMS + \$1.00 IF YOU WANT THE CLUES AND THE MAP OF LOCATIONS)

- Joe Ahern

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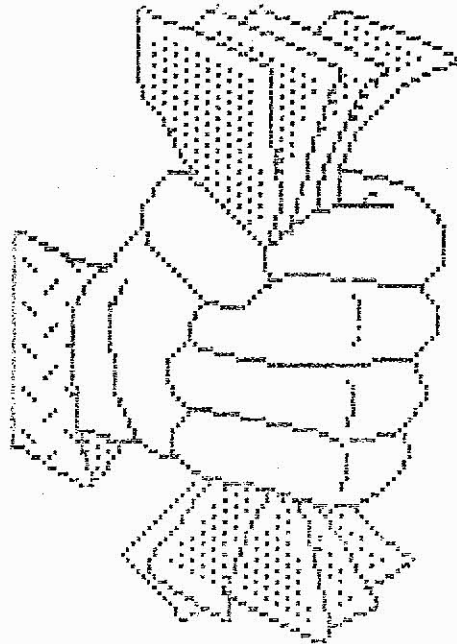
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Spending Your Money On

CoCo Business Software

Below I have compiled a list of the popular business/finance software that is currently available for the Tandy Color Computer 2 and 3. These products have not been actually reviewed by our staff, although I've included what each program features, what software company you can purchase it from, and the current list price. I hope that this will come into good use for those looking for some sort of database to set up for their home or small business.

1. VIP DATABASE III- An easy to create database, this is the latest version of the VIP DATABASE series. It is essentially the same program that runs on the CoCo 1 and 2. A few enhancements have been made to this CoCo 3 version: faster clock speed, 80-column display, a print spooler, more memory and in-memory sorting. VIP Database III provides all the capability of a good database program: sorting, screen and print formatting, and multi-key search capability with relational operators. VIP Database III also has a built-in mailmerge and a Math package which performs arithmetic operations and updates data contained in the database fields. Essentially, VIP Database III is the best database for the CoCo 3.  
P R I C E: \$69.95 MICROCOM SOFTWARE

2. VIP CALC III- Another great program of the VIP Library, VIP CALC III is a full-featured spreadsheet program for the CoCo 3. It allows a large worksheet with up to 512 columns by 1024 rows. In addition, VIP Calc III has up to 16 windows which allows you to compare and contrast results of changes. One of the most noticeable enhancements of this version is the use of the CoCo 3's built-in high-resolution displays. You can also set colors for the foreground, background, cursor and highlights. VIP Calc III also comes with a working sample of a spreadsheet to balance your checkbook. The program allows you to create ledgers, projections, statistical & financial budgets and reports by combining spreadsheet data with VIP Writer documents.  
P R I C E: \$69.95 MICROCOM SOFTWARE

3. COCO-ACCOUNTANT 3- A menu-driven accounting program for the CoCo 3. All you have to do is set up a list of your accounts and start entering your transactions. Some of the things CoCo Accountant will do for you is: list total transactions by account for any month or the whole year, list and total transactions by month, with income, expense and cash flow summaries, print a spreadsheet showing activity by account and month for the whole year, and has quick & easy checkbook reconciliation.  
P R I C E: \$39.95 FEDERAL HILL SOFTWARE  
64k CoCo 2 version: \$34.95

4. SUPRFILE III- A powerful, user-friendly, multi-purpose database. It can be used for mailing lists, labels, a checkbook manager, shopping lists, personal items inventory, etc. The program features: add, delete, search, sort, print labels & reports.  
P R I C E: \$29.95 GIMMESOFT  
MS/DOS version: \$39.95

5. DATA FORM III- A database manager program written in BASIC for the CoCo 3. It allows a maximum of 17 fields per file and up to 249 spaces for each field. It creates new database programs from the information you supply, i.e., the names of the fields and their lengths. This new program is then stored on a blank disk, along with the information you later enter in to it. You can enter up to 1000 characters for each record in the file. The program has a print option, in which it will print the names of the fields as well as your input data on the printout. Data Form III is very user-friendly.  
P R I C E: \$19.95 E.Z. FRIENDLY SOFTWARE

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See MAP Super Disk Filer review in the TRS-80 Computing April 90 Issue



# THE SHELL

The bi-monthly column  
devoted to OS-9 Level 2 users

Why Bother  
With OS-9?

by Bob van der Poel

If you are a devoted Disk Extended Color BASIC (DECB) user, you probably wonder what the fuss about OS-9 is all about. Sure, you hear things about input/output redirection, command lines, program parameters, and lots of other things which don't mean all that much (you think) to anyone but a dedicated OS-9 user. Actually, most things which apply to OS-9 also apply to most other Disk Operating Systems (even your good old DECB), but in most cases OS-9 does it a lot better. It is not a matter of "being able to do things with OS-9", rather it is a matter of doing things more easily. Most of the things we will discuss in this article you can do with any system--but once you discover OS-9 they become easy to do. A good analogy might be that you can do most things a computer can do with a pencil and paper . . . but who would want to?

Because the input and output of most programs running under OS-9 can be redirected to different devices (a device could be a printer, a modem, your TV screen, a disk file, etc.) or to another program. It is easy to use small programs to do a variety of different functions. A simple example is the OS-9 program "dir". Like the DECB command "DIR", this program lists the contents of a directory to the screen. But what if we want the directory listed to the printer? Under DECB we need to do an easily forgotten POKE before doing the command; and listing the directory to a file requires the purchase of a special utility program. Under OS-9, things become much easier. The command "dir >/p" will list the directory to your printer; "dir >myfile" will list it to a file called "myfile".

But let's get away from the simple examples we see all too often and examine some real examples of I/O redirection. A number of the programs I will refer to do not come with the Level II package from Tandy. However, most of the programs are available either from commercial sources, the OS-9 User's Group Public Domain Library, or on various electronic sources (CIS, DELPHI, local BBSs, etc.). Most also assume the use of SHELL+, an enhanced version of the OS-9 program SHELL which adds wildcarding and many other features.

Case 1: I had a large assembly language program with the source code consisting of over 10,000 lines spread over 12 different files. I needed to know which files contained the variable "bignum". Using the program GREP all I did was:

```
grep bignum *.a <enter>.
```

In the above command SHELL expanded the "\*.a" to all the filenames ending with ".a". This included "vars.a", "main.a", etc. As far as GREP was concerned the command typed was:

```
grep bignum vars.a main.a <enter>.
```

Grep is a pattern matching program. It assumes that vars.a, etc. are disk files. It opens each file specified and reads them line by

line. Each line is checked for the word "bignum" . . . if found, the line is printed. If we want a hardcopy of the results it is easy enough to type:

```
grep bignum *.a >/p <enter>.
```

Case 2: I had a text file (downloaded from a BBS) which I wanted to list to my printer. The file had not been paginated, and I wanted to use both sides of my fan-fold printer paper. Problem? Nope . . . it's just a matter of having the right tool-kit. Here is the command line I used:

```
list stuff ! page ! both >/p
```

In this case the file was "stuff"; "page" is a program which paginates text; and "both" is a program which buffers output so that both sides of paper can be used. The standard OS-9 command "list" causes the file to be printed. But in this case, it is not listed to the screen or printer. Instead, the "!" in the command line sends the output of the program "list" to the standard input of the program "page". In OS9-speak this is called a "pipe". Read about pipes in the OS-9 manuals and learn to use them--they are a very powerful part of OS-9. All that "page" does is count lines and pass them on to its output. After every 60 lines it also outputs 6 extra blank lines. What happens to the output of "page"? Well, it too is sent down a pipe to another program called "both". This program also counts lines. It sends the first 66 lines (one page) to its output; the next 66 lines it saves in a temporary disk file; the next 66 lines are output, and so on until the end of the file is reached. When the end of file is reached, the operator is prompted to turn over the paper; then the text in the temporary file is output (printed on the flip side of the paper). And where does "both" send its output? Since output has been redirected with ">/p" it is sent to the printer.

Case 3: A customer called me one Sunday afternoon with a problem. He needed to get a series of form letters out in the mail that weekend. The names were kept in a data-base program. His plan was to have the data-base program spit the names out into a text file and then use the mail-merge option of VPRINT (a text formatting program) to do the mailing. The only problem was that the data-base program right-padded all the names with spaces, and the version of VPRINT he was using did not have a trim or unpad function. We finally managed to work out a method using a text editor. But after he hung up it occurred to me that the following little Basic09 program would have done the job much more quickly:

```
PROCEDURE unpad
DIM a$:STRING[300]
WHILE NOT(EOF(#0)) DO
READ #0,a$
PRINT #1,TRIM$(a$)
ENDWHILE
```

This is an excellent example of a program known, in OS9-speak, as a filter. Note that the program does nothing about files--it neither opens a file, closes a file or worries in any way about the nature of



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