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# CoCo Clipboard Magazine

THE NEWEST, MOST INDEPTH MAGAZINE FOR TANDY'S COLOR COMPUTER 2 & 3

## POWERGRAPH

Basic 09 Drawing Program by Randy Krippner



## GENEALOGY

Program by Ken Barber

## Basic Programming

Bill Bernico et. al.



*FROM THE DESK OF...*  
**Ted & Darlene Paul**

Happy New Year from all of us at CoCo Clipboard! For some of you this is your very first Clipboard and for others your second or third. For us it is a first of sorts. Through the hard work and kindness of Mr. Tom Hauptly at Marty's Rubber Stamp in St. Clair PA., Clipboard is now printed on a web press instead of a sheet fed press. The advantages are in cost and speed. The disadvantage is that we've had to drop the heavier and whiter 60 pound book paper we used in issues 1 and 2. Our primary concern in this was postage costs vs. page count. The 60 pound book paper gets heavy very quickly and after 32 pages the cost to mail your copy starts getting high. In order to increase the page count and not the mail cost we have gone with what you have now. We hope the messages (articles, programs etc.) and not the medium is what you like.

Speaking of mailing - growel, complain etc. You've noticed that we mail Clipboard via a third class permit from here in Fredonia. When we began to talk with the people at the Post Office the message we got was that 3rd class took about a week to go across the country. As many of you already know it takes longer than 7 days in some cases. Part of this is due to the sortings we have to do here. At this point in time the number of copies we distribute is spread pretty thin over the U.S., Canada and Puerto Rico. Therefore we can't give the Post Office nice tidy bundles for zip codes. Rather we sort and mail primarily by state. I am sure this holds things up. The remedy is simple, we need more subscriptions from YOUR zip code area! Tell your CoCo computing friends about Clipboard and have them subscribe! Also we will change one statement we make about the in home date for Clipboard however. Try as we might the magazines are not getting to you good folk the first week of the publication month. We've had delays, the Post Office has delays, the printer ... well you don't want to hear it all anyways, but suffice to say we will be in your mailbox A.S.A.P. every other month, hopefully no later than the 15th.

A very special THANK YOU to D.K. Lee of the Island CoCo Club. D.K. not only has helped support us

in the New York City and Long Island area but also showed up at the annual gathering of CoCo souls in Princeton New Jersey back in October. He thought Clipboard was going to have a booth at the show and had printed up 500 slingers for us to hand out. We didn't have a booth, but did manage to meet many of you in the lobby, the parking lot, at Denny's on Rt.1 and at the Red Roof Inn, it was great! I enjoy the drive from here in upstate New York down to Princeton and look forward to it next year. We also got to meet Paul Bornemann and his wife Kathy, and one of our writers, Jim DeStefano. We bought our CoCo 3 at the show, met Art Flexser, Bob Rosen, Dr. Larry Preble and lots of other folks. The only complaint that I have is that no one sponsors a show in or NEAR all those super CoCo users in Canada. Just for the heck of it, how many of our readers would be interested in a CoCo show, in the summer, in Niagara Falls, N.Y.? Yes a show in the Falls, with the roar of the Niagara, the history, the malls, the place where you can take the better half, the kids and let them have a good time and enjoy the vendors, conferences etc. associated with CoCo. For our Canadian neighbors home turf would be just over the "Rainbow" Bridge. Let me know what you think.

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And as for this issue we are announcing a contest. In conjunction with Bill Bernicos contest which was scheduled for the old Spectrogram (but is appearing in this issue of Clipboard) we are sponsoring a programming contest. The details are on page 26. Prizes have been donated by Tandy, Spectrum Projects, The Dunkirk Free Library, Bill Bernico and naturally by CoCo Clipboard. Be sure to see Bills' article.

Also of interest is Randy Krippners PowerGraph program, Rush Caley's database tutorial, Ken Barber's Genealogy offering and the rest of our writers usually great efforts. We know you'll enjoy them all.

Again our thanks for all of your support. Like any other magazine we depend on subscriptions (so pass the word) and advertising. Use your Clipboard coupons. If you buy something from an advertiser who doesn't use a coupon tell them you bought it - cause you saw it - in CoCo Clipboard!

And finally... A few announcements we are very proud to make. First - Rush Caley a long time CoCo supporter, vendor and author has recently accepted a position as a Systems Analyst with Boeing Aircraft in Seattle. So besides helping the folks at Boeing understand and use their computers better, he will continue providing excellent business oriented software to the the CoCo community and writing excellent no nonsense articles for Clipboard.

Second - Our machine language writer Kraig Brockschmidt has accepted a six month internship at MICROSOFT. That's right the people who have brought you Color Basic, Extended Basic, MS-DOS, and lots of other BASICS think enough of our Mr. Brockschmidt to let him earn and learn during his college years.

So much for the paid commercial announcements. We now return you to your magazine!

**CoCo**

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Jan. / Feb. 1988 Issue 3

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Please send check or money order for the correct amount. No C.O.D.'s.

Full refund after one issue. No refunds after two issues.

Your comments and suggestions are welcome. We reserve the right to edit and publish all letters received unless requested not to by the writer.

**CoCo Clipboard Magazine**

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# VIP Writer III

WORD PROCESSOR • SPELLING CHECKER • PRINT SPOOLER

*"...Nearly every feature and option possible to implement on the Color Computer. The design of the program is excellent; the programming is flawless." --The RAINBOW OCTOBER 1983*  
That's what they said about VIP Writer. Wait until they review VIP Writer III! We've added even more features and options to make the VIP Writer III the BEST word processor for the CoCo 3!

## SCREEN DISPLAY OPTIONS

VIP Writer III has a screen of 32, 40, 64 or 80 characters wide by 24 lines using the CoCo 3's hardware display with actual lower case letters. You can choose foreground and background colors from up to 64 different hues. Color can be turned ON or OFF for the best possible display using a color or monochrome monitor or TV set. VIP Writer III has a built in on-line context sensitive help facility which displays command usage in easy to read colored windows. VIP Writer III also runs at double clock speed!

## TEXT FILE STORAGE

There is a 48K text buffer and disk or cassette file linking allowing virtually unlimited text space. In addition, there is a 48K print spooler to allow you to print one document while editing another.

## EDITING FEATURES

VIP Writer III has a full featured screen editor which can be used to edit text with lines up to 240 characters long with or without automatic word wrap around. You can select type-over mode or insert mode. There is even an OOPS command to recall a cleared text buffer. Other editing features include: Type-ahead, typamatic key repeat and key beep for flawless text entry, end of line bell, full four way cursor control with scrolling, top of textfile, bottom of textfile, page up, page down, top of screen, bottom of screen, beginning of line, end of line, left one word, right one word, DELETE character, to beginning or end of line, word to the left or right, or entire line, INSERT character or line, LOCATE and/or CHANGE or DELETE single or multiple occurrence using wildcards, BLOCK copy, move or delete with up to TEN simultaneous block manipulations, TAB key and programmable tab stops, three PROGRAMMABLE FUNCTIONS to perform tasks such as auto column creation and disk file linking for continuous printing.

## TEXT FORMATTING

VIP Writer III automatically formats your text for you or allows you to format your text in any way you wish. You can change the top, bottom, left or right margin and page length. You can set your text flush left, center or flush right. You can turn right hand justification on or off. You can have headers, footers page numbers and TWO auxiliary lines which can appear on odd, even or all pages. You can also select the line on which they appear! You can even change the line spacing! All of these format parameters can be altered ANYWHERE within your text file.

## TEXT FILE COMPATIBILITY

VIP Writer III creates ASCII text files which are compatible with all other VIP Programs as well as other programs which use ASCII file format. You can use VIP Writer III to create BASIC, assembly, PASCAL or C files. VIP Writer III also allows you to save and load files using DISK or CASSETTE in the case of an emergency. You can even read disk directories, display free space on a disk and kill disk files.

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## PREVIEW PRINT WINDOW

The VIP Writer III features an EXCLUSIVE format window which allows you to preview your document BEFORE SENDING IT TO YOUR PRINTER! You are able to see margins, page breaks, orphan lines etc. This feature makes hyphenation a snap!

## PRINTING

VIP Writer III supports most any printer serial or parallel using the parallel interface described in Nov-Dec. '87 RAINBOW magazine, or an external serial to parallel interface, and gives you the ability to select baud rates from 110 to 9600. You are able to imbed printer control codes anywhere in your text file EVEN WITHIN JUSTIFIED TEXT! VIP Writer III also has twenty PROGRAMMABLE PRINTER SEQUENCES which allow you to easily control all of your printers capabilities such as underline, bold, italics, superscript and subscript using simple keystrokes. Additional printer features include: single sheet pause, print pause, word length and line lead selection.

## PRINT SPOOLING

VIP Writer III incorporates a built in print spooler which allows you to print one document WHILE you are editing another. You no longer have to wait until your printer is done printing before starting another job!

## DOCUMENTATION

VIP Writer III is supplied with a 125 page instruction manual which includes a tutorial, glossary of terms and a complete index. The manual is well written and includes many examples to aid in understanding and application.

## SPELLING CHECKER

VIP Writer III includes VIP Speller for NO ADDITIONAL COST! VIP Speller automatically checks text files for words to be corrected, marked for special attention or even added to the dictionary. You can even view the misspelled word in context! VIP Speller comes with a specially edited 50,000 word dictionary, and words can be added to or deleted from the dictionary or you can create one of your own.

## THE ORIGINAL VIP WRITER

VIP Writer is also available for CoCo 1 and 2 owners and has all the features found in the VIP Writer III including VIP Speller except for the following: The screen display is 32, 51, 64 or 85 columns by 21 or 24 rows. Colors other than green, black or white are not supported. Help is not presented in colored windows. Double clock speed is not supported. Parallel printer interface is not supported. Printer spooler is not available. Even so, the VIP Writer is a CoCo 1 or 2 owners best choice in word processors.

VIP Writer III	Disk	\$79.95
VIP Writer	Disk	\$69.95
VIP Speller	Disk	\$34.95

Please add \$3.00 for shipping and handling. COD orders add an additional \$2.00. Personal checks allow 3 weeks for delivery. All orders shipped the same day.

# Basic 09 Menu Maker

Bob van der Poel

As promised last issue, we're back with more BASIC09 goodies. This month we'll present a nifty little routine which prints menus. And if you examine the code you'll find ways to use OS-9 system calls to get valuable information about all kinds of things. But first, let's discuss how to use the program.

Just about any program I've ever written has at least one menu in it. And I usually find that I spend as much time designing nice menu layouts as I do coding the rest of the program. Clearly, this is NOT PRODUCTIVE. The solution lies in having a canned menu subroutine which can be used by many different programs. In BASIC09 this subroutine becomes a procedure which is called by a RUN statement. A typical call might be:

```
Title="Sample Menu"
Items="Quit program/List
records/Add record/Sort names"
Keys="QLAS"
RUN Menu (Choice, Title, Items,
Keys)
```

In this example "Choice" is a BYTE variable which contains the choice selected from the permitted options. In this case it will be equal to a value from 1 to 4. The string variable "Title" contains the text which is placed at the top of the menu. "Items" are the different choices which will be listed -- note that each item is separated from its brother by a "\". "Keys" is a validity string which contains the first letter of each item. Any keys pressed in MENU which are not in "Keys" will be ignored.

NOTE: You could also call Menu with constants as in the following example:

```
RUN Menu (Choice, "Sample Menu
II", "1. Make coffee/2. Order
software/3. Play games/4. Say hello
to family, "1234")
```

When Menu is called it will have to sort out the different menu items for the list, and display them in an overlay window centered on the current screen. Then it will display a highlight bar which can be moved by the mouse or joystick.

The menu choice is selected by pressing the mouse button when the highlight bar is positioned over the selection or by pressing the key corresponding to the user's choice. The choice is returned to the calling program after the window is removed from the screen.

You might be interested in the fact that the above list of parameters and specifications was developed before Menu was written.

So now we know what we want our program to do, let's have a look at the program listing.

The first thing Menu does is a GOSUB 120. This subroutine does a system call and finds the current echo setting (on or off). In order to keep our displays neat we must set the terminal echo to off. This could have been done with a "SYSCALL (tmode -echo)," but we want to restore everything the way we found it when Menu is done. The subroutine first gets the current echo setting and saves in in the variable ECHO. Then the echo value is turned off. When we leave Menu we'll call this routine again and restore the echo to the value now in ECHO.

The next loop parses the list of items to print. The length and starting position of each item is found and saved. At the same time we find the length of the longest item.

Before we can create a window for the menu we need to know a couple of other things: the current colors being used by the display and size of the screen we're working in. We use OS-9 system calls to get this information.

Now for some BASIC09 trickery. A loop reads 24 values from DATA statements and creates an overlay window. The magic is in the DATA statements: BASIC09 is the only language I know of which permits variables and expressions in DATA statements -- a very powerful option. The first set of DATA contains the values needed to create an overlay window. Note the use of the variables here:

$SWidth - MaxLeng / 2$  = the x-start position of the window,

$SHeight - (NItems + 4) / 2$  = the y-start position of the window,

$MaxLeng + 2$  = the horizontal width of the window,

$NItems + 4$  = the vertical height of the window,

Bcolor = the current background color,

Fcolor = the current foreground color.

The next set of values change the working area to achieve a one character border in the window. Next the background and foreground colors are set to opposite values used to create the window, the window is cleared to the new color and the cursor is turned off.

After displaying the title and the different choices we now have to wait for a selection to be made. Again we make generous use of OS-9 system calls via the SYSCALL procedure which comes with Level II BASIC09. The first SYSCALL gets the vertical coordinate of the joystick and the button status. If the vertical has changed since the last loop a GOSUB 110/100 redisplay a highlight bar over the current selection.

Next the keyboard is scanned for a keypress. We could have used INKEY() to get the same result, but we thought it would be nice to have the entire Menu routine as a self-contained procedure. Besides, we were having so much fun using SYSCALL we just couldn't help ourselves!



Continued  
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# Database Tutorial

Rush Caley

## PART I: THE NATURE OF THE BEAST

DBMS is not another 4 letter disease to strike fear amidst the populace! Beginning with this issue of "CoCo Clipboard", I will be writing an on-going series of articles dealing with perhaps the most misunderstood program genre available to Color Computer users. Database Management, or DBMS programs are not only intellectually misunderstood by some in the technical aspects of their use, but also "emotionally" misunderstood in relation to their "personality". Programs do have personalities, I'm told. You know- "friendly"; "unforgiving"; "hostile"; - and other such anthropomorphic attributes.

Unfortunately, Database Management programs usually strike cords of frustration or even fear in many everyday computer users. The CoCo world is not exempt. I know scores of people who will muddle through- handling information in a Jerrybuilt fashion - rather than take on a relational database program. It will be the purpose of my series of articles to shed some light on the subject, and show how useful and powerful a relational database program can be. Hopefully, some of the myth and mystery surrounding the subject will be cleared up, and those who have avoided these types of programs will take advantage of their power and versatility.

I will try, within the confines of the topic, to avoid being overly technical. For this series will be completely USER ORIENTED. i.e. written by a USER for USERS. We'll begin by exploring the nature of relational database. Through definitions, we will examine what it IS, what it IS NOT, and learn some vocabulary necessary to continue. I will explore the manner in which one prepares to set up a database, how it is actually done, and how information is manipulated. From the beginning concepts, to actual database design, to data entry, calculation and report procedures, I will attempt to provide a tutorial that can serve you in expanding your horizons to more sophisticated use for the CoCo.

6.

Finally, I want to emphasize that the applications to be described in this series will be directed to any CoCo owner who has 64K and 1 disk drive (2 drives definitely recommended). I will be talking straight RS DOS in a floppy disk environment. While all of this is certainly applicable to those with more memory, alternate DOS's, RAM disks, hard disks, and OS-9, it is my intention to provide information to the mainstream of CoCo users. Concepts such as LAN'S, Network File Servers, and Distributive Processing will not be examined here. Those with more frills can certainly adapt and expand these basic concepts to fit their situation; but it's the everyday guy with the average CoCo setup and some serious work to accomplish to whom I address these articles.

I could take up pages of this magazine in an attempt to give a definition of a DATABASE that might please all readers. But, for this series, I will define a DATABASE as a large file or group of files containing partitioned information about a number of individual items called RECORDS. Each RECORD in the DATABASE shares common relationships to the other RECORDS - although the exact data or information might be different. These shared relationships in the DATABASE are called FIELDS.

In your Phone Directory, your listing and all the other listings are the RECORDS. Name, Address, and Phone Number are the FIELDS that all listings share. In a checkbook, each check is an individual RECORD. Date, Payee, Expense Category, and Memo are the FIELDS shared by all checks.

Why so many CoCo users cringe at the use of database programs is not easy to understand. I would guess the size of the documentation and the strict nature of command structures to learn throw many people into a state of confusion and frustration. But understanding how the program works conceptually gives one a big edge to understanding the documentation. People use the process of database over and over in their everyday lives.

Below are some illustrations. I take extra time now to explain the workings of database so that when we progress to more complex examples, it will be a simple matter to follow.

Remember, that this is not a technical physical description, but rather, my own mental picture that helps me to understand how a database works. If a different picture works for you, by all means use it. The program that I will be using to model files and reports is the WORKBASE DATABASE MANAGER by WORKBASE DATA SYSTEMS of North Carolina. If a program you use has different commands and different capabilities, it does not matter for understanding the concept is the key to successful use of DBMS programs. Learning the actual ins and outs of your program's documentation is secondary.

Title	Channel	Time
1. Cosby	NBC	8:00
2. Charmings	ABC	8:30
3. Sledge Hammer	ABC	8:00
4. Evening	NBC	8:30
5. Tour of Duty	CBS	8:00
6. Movie	CBS	9:00

So someone asks you: "What time does 'Evening' come on?" You look down each record until you find the one called "Evening" in the title field. Then you look across to the time field and see it's at 8:30. What else is on then? You now look only at the time field for those that say 8:30. "Charmings is on ABC. And from inference, you can add that there is still 30 minutes left on "Tour of Duty".



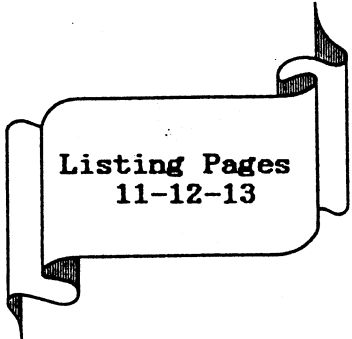
Continued  
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## van der Poel Cont.

This loop of checking the mouse and keyboard continues until a valid key or the mouse button is pressed. If you do not have a mouse or joystick connected you can simulate a mouse by pressing CTRL/@. Now the cursor keys will move the bar just as if a mouse were connected (use shift/cursor for faster movement); pressing the <F1> or <F2> keys is the same as pressing a mouse button.

Next issue: more handy subroutines which'll get you producing professional looking programs in no time flat. And don't forget to write with those suggestions and questions for future columns. My address is:

17435-57 Avenue  
Edmonton, Alberta  
Canada T6M 1E1



Listing Pages  
11-12-13

## Caley Cont.

Inv.	Comp.	Date	Amnt.	YTD Bal.
1234	XYZ	10/1	\$200	\$200
5678	WXY	10/3	\$150	\$500
6543	PQR	10/4	\$ 75	\$125
6601	XYZ	10/6	\$ 75	\$275
6678	STU	10/2	\$ 25	\$ 25

Which invoices are over \$100? Examine amount field to find that 1234 and 5678 qualify. Who has a balance under \$200? Examine YTD to find that PQR Co. and STU Co. qualify. What dates were charges by XYZ. Examine Company and date fields.

So you see, we all organize our information to the best of our ability whether its in our heads or on paper somewhere. It is a simple process using an X-Y axis.

Each RECORD in a Database has a "name" of some type. In a check-book its the check number. In Accounts receivable it's an account # assigned to a company. I visualize RECORDS on an "X" axis moving from top to bottom in a vertical fashion. FIELDS, on the other hand, would lie on the "Y" axis in a horizontal fashion. When you desire certain information, you

propose a question in a fashion that allows your mind to extract it in a logical manner. Let's look at our Invoices again. The Invoice #'s are the RECORD names on the "X" axis. The others comprise FIELDS on the "Y" axis.

Inv.	Comp.	Date	Amount	YTD Bal.
1234	XYZ	10/1	\$200	\$200
5678	WXY	10/3	\$150	\$500
6543	PQR	10/4	\$ 75	\$125
6601	XYZ	10/6	\$ 75	\$275
6678	STU	10/2	\$ 25	\$ 25

If I say "Let me see invoice 1234," I would see all 4 FIELDS for only #1234. If I say "Let me see date," I will see the date for all invoices. If I say let me see RECORDS who have a YTD Balance less than \$100," I would move down the "X" axis and across the "Y" axis to check balance FIELD. I would find that #6678 was the only RECORD with a YTD FIELD less than \$100.

So that's how a database works. It takes the records we have placed in it and when we ask it questions in the prescribed fashion, it will very rapidly move along the two axes to select the information we wish to get back. Why is a DBMS such a valuable tool? Well, it is very tedious entering all the information into a database. But the payoff is in what it can give back to you and how fast.

The human mind cannot look at a check register and sort 400 checks per month and give a report subtotaled by expense category sorted by GL account number very quickly. It would take days! Or, from a list of 200 clients, how fast could you tell your sales manager the name of all clients who have purchased more than \$X in the last 30 days who live in a specified range of zip codes? You see? A database program can answer questions like that and print the reports in a matter of minutes! So no matter if you are running a business or categorizing your antique collection, the CoCo can be an invaluable tool to assist you with organization of information and rapid retrieval of the data in the order and format chosen.

That now brings us to the task at hand: build a database from scratch, and design the accompanying calculation and report procedures. I have designed literally hundreds of database templates for myself and my clients. So it was very difficult for me to choose an example that might appeal to a majority of readers. A large majority of the work I have done has been in the area of accounting databases and related financial reports. While these are very necessary and widely used applications, I decided that plain financial data might not be as interesting to study. Consequently, I asked around for suggestions, and found one unlike any I had done previously.

I will outline the problem the way it was proposed to me; and beginning next issue, I will relate the manner in which the database and reports were designed to provide a reasonable solution to the problem. Hopefully, you readers might kick around a few ideas for a solution yourself. Then you can compare your solution with the concepts presented in the upcoming articles. For future database applications, suggestions from you are MOST welcome. Any application you have that might be an interesting challenge and of interest to readers, please submit to me at 8289 Banner Road S.E. Port Orchard, WA. 98366.

Here are excerpts from a letter in which a DBMS application was suggested to me: Names of the submitting person and company are not mentioned.

Rush: One of the databases I could use or have thought about is one which would do something with downtime at the plant where I work. During a day's work, we are to keep a simple log of down time that occurs so we can "justify" the efficiency achieved during a shift. It could have been machine trouble, lab delays, people problems, etc. We have no way of quantifying or qualifying any of this data. It is the relationship of the causes to the down time I need.

We know we have down time, but nobody has any idea of why. It's like a cave man wondering about thunder and lightning. "OOoh, Wow! Look at that Stella-lights and noise. I wonder how it gets here and why it only happens when it rains?" We stumble around wondering why do we always have downtime on this shift? Why do we always have down time when we run product X; sometimes with product Y; and never with product Z. That's because we don't track it, categorize it, or analyze it. Hope that explains the problem clearly.

Now accompanying this note were some log sheets with information with technical terms involving the information that is "given". It will be assumed that they know how many widgets should have been produced and how many were actually produced. The database I will design beginning next issue will attempt to solve this problem with one that will allow for a minimum input, but give back enough information to quantify and qualify the downtime problems. We'll begin by defining the data elements in the database and setting up the database field by field. Upon completion, we should be able to provide at least three different angles from which the down time data can be analyzed and action taken from the information provided.

I hope you will find this application as interesting as I do.

# NEW FROM ARK ROYAL!

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	Keyboard General: Bi-monthly newsletter yearly sub	\$15
	Barbarossa, Luftflotte, Battle Hymn (256K) available Tandy 1000	
	<b>New for the Tandy 1000:</b>	
	Gray Storm Rising: War in the North Atlantic	\$25
	Codes CC — Color Computer, all versions CC3 CoCo 3 only	
	D — Disk only (no D means program available tape or disk)	
	HR — High Resolution SG — Semigraphics ML — Machine Language	
	MLS — Machine Language Subroutines B — Basic	

## Write for free catalog!

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Canadians may order direct from: M & M Software, #203 818 Watson Cres., Dawson Creek, B.C. V1G 1N8. Write M & M Software for information.

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# Genealogy — Program

Ken Barber

Did you know that genealogy is the world's second most popular hobby? And with good reason, too! Learning about your roots touches the deepest parts of your soul. It's a part of your identity - how you came to be; and once you start, you will find it quite impossible to put completely away.

So how do you start? You start with yourself. Write down your full name, the way it appears on your birth certificate, and when and where you were born. Then record the same information (making sure to always use ladies' maiden names) for your parents, and their parents, and so on. The only catch here is finding all this information! Once you do, the accompanying program does a superb job of storing it and displaying it in ways that make sense.

The best source of family history are those who are still living. Ask your parents, your grandparents, elderly aunts, uncles whoever you have. If none of them are left, that's OK, because all that is in their obituaries, which you will usually find stored between the pages of the family Bible. In fact, old family Bibles are the next best source of information in an ancestor search. Up until about a generation ago, nearly everyone recorded the family births, deaths, and marriages there and they are rarely thrown away. If you still have elderly relatives living, ask to see their old Bibles. You'll be surprised how much is in there!

There are lots more resources you can use after this -- in fact, far more than there is room to write about here. There are obits and birth announcements in newspaper archives, baptism records in old churches, birth certificates in county courthouses, and census records. Beginners will need help with the latter and lots of it is available in two different places: local genealogy clubs, and genealogical libraries that the Mormons have set up in most of their "stake houses". The Mormons have excellent libraries and I have never received any pressure there to join their religion. Genealogy clubs have a

wider variety of resources, including people with know-how, than the Mormons do (the Mormons tend to concentrate on certain specific sources of information).

## USING THE PROGRAM

The version appearing here requires a 32K CoCo with Extended BASIC (see the end of this article for information on getting a 16K standard BASIC version). It will store six pieces of information on each of 128 people: name, date and place of birth, date and place of death, and date of marriage for a person, his or her spouse, and six generations of ancestors. The entire pedigree can be printed out on nine pages (that's how many it takes to do seven generations) of four-generation charts or a single four-generation chart can be printed for anyone in the database except the spouse of the original person. If you are married with no children yet, you can leave the original record (record #1) blank and then be able to store the pedigrees of both yourself and your spouse. You will notice that this program stores only direct ancestors and does not manage information on siblings, aunts/uncles, cousins, etc. To do that effectively requires some pretty sophisticated programming.

The main menu has four options: saving your work, editing data, viewing data on-screen, and printing charts. We will discuss the spreadsheet-like screen display first.

Except when you're viewing the last generation or the spouse of person #1, there will be three records visible with the top and bottom records being the father and mother of the person in the center. Think of your screen as a window that you can move with the arrow keys (here the program ignores all other keystrokes except BREAK). Moving the window "up" will put the top record in the middle with his parents above and below him, and moving it down will do the same for the bottom record. The left arrow will move the window "back" along the tree towards person #1, and will bring up the spouse of #1 when

#1 is in the center. (NOTE: only the down-arrow key will return to person #1 from his/her spouse's record). The right arrow escapes to the main menu.

The data input / edit screen will accept data for the person who was in the center when viewing the chart. To enter your mother's data after entering yours, for instance, you must return to the main menu, display the chart on-screen, select your mother's (empty) record with the down-arrow key, escape back to the main menu, and then choose again the input/edit data option. It will drive an experienced computerist nuts, but first-timers love it! You just can't get lost. When you select the "Create a new chart" option from the program's self-explanatory startup menu, you will be dropped into this screen for person number one. Again, you can leave this or any other record blank by returning to the main menu without entering data. If you're using a CoCo I or II, everything you type will end up in capital letters unless you press SHIFT-0 (zero) first (but you only have to do it once). Lower case letters will appear on-screen in reverse video.

You can save files on either tape or disk. The name you give the file when saving appears at the top of the printouts as a "chart number". If you have more than seven generations to store, you can do them in batches with the first one stored under the filename ONM/ with the next one being saved as TWO/, etc. Be careful to use capital letters when naming files, and if you use a slash or period without any extension (as above), the system will leave off the /DAT extension that it usually automatically appends. Saves can also be done in "printout:format". This is a one-way export function: it makes an exact copy of the printout in a disk file so you can do further editing, if you wish, with a word processor before printing. Files saved this way cannot be read back into the program as data.

The printing function has enough flexibility that it has its own menu. As mentioned above, you

can print all nine pages or only one page for anyone except the spouse of person #1. You can also send control codes to your printer to vary its character size or style and at the same time direct the program to make the printouts wider or narrower than the standard 80 characters per line (you can also do this before exporting a printout to a word processor). You'll need to understand a little bit about printer control codes to use this effectively. The control codes are sent immediately to the printer; no provision is made for recourse from mistyped code numbers, and the program does not remember the codes after they have been sent (but don't forget that the printer remembers until it's reset -- even after you've exited the program!). The program does, however, remain at the line length you set it for until you change it again.

Exit the program at any time (except NOT while it's accessing a disk!) by pressing BREAK. If you BREAK by accident, restart by typing CONT. CoCo I's and II's will still be in lower-case mode after quitting and your computer won't understand any commands you type in until you hit a shifted zero again.

#### ABOUT THE PROGRAM

It was originally written to run in a 16K standard BASIC computer and store on cassette tape back when 32K and disk drives were still luxuries for the rich. That original version is available from the author, whose address is in the program listing, for a \$10 donation plus a blank cassette, mailer, and return postage (or add \$5 and I'll pick up the tab on materials and handling). You can also get the same program you see here already on disk for the same deal along with better instructions and a sample pedigree of John Quincy Adams.

#### ABOUT THE AUTHOR

Ken Barber is self-employed as a computer consultant in the Portland, Oregon metropolitan area, where he resides with his two children.

```
50 DATA 0, 0, 2, 0, 0, 1, 0, 1,
2, 0, 1, 0, 1, 0, 2, 1, 0, 1, 1,
1, 2, -1, 0, 0: 'Loop counters
for add/multiply loops
90 PCLEAR1 : CLEAR 14336
100 DIM ARRAY$(128, 4), MARRIAGE
$(64), PRNT$(2), INDEX(2), LOOPS
(3), WHICH(2)
110 PAGEWIDTH=80: INDX(0)=1: LAB
EL$(0)="NAME": LAB$(1)="BORN
": LAB$(2)="B AT": LAB$(3)="D
IED": LAB$(4)="D AT"
200 CLS : PRINT "YOUR ANCESTO
RS V. 1.2.4", "COPYRIGHT (C) 19
85 BY KEN BARBER", "THIS PRO
DUCT IS DISTRIBUTED", "UNDER TH
E 'SHAREWARE' CONCEPT.", "PLEASE
FEEL FREE TO GIVE COPIES OF IT
TO AS MANY PEOPLE AS YOU"
210 PRINT"WISH! HOWEVER, THE AU
THOR NEEDSDONATIONS TO CONTINUE
```

```
MAKING IMPROVEMENTS TO THE SOF
TWARE. IF YOU LIKE THIS PROGRAM
, PLEASE SEND $10.00 TO KEN B
ARBER AT:
220 PRINT ,, " 5785 BRICKY
ARD RD.", " TILLAMOOK, OR
07141", " (PRESS ANY KEY TO
BEGIN)";
240 X$ = INKEY$ : IF X$ = "" THE
N 240 ELSE CLS : PRINT @ 288, "
1 CREATE A NEW CHART", " 2 L
OAD PREVIOUSLY SAVED CHART",,,,
, "COPYRIGHT (C)1985 BY KEN BARBE
R";
```

```
244 '*****
245 '* FILE LOADING ROUTINE *
246 '*****
250 GOSUB 2000: IF X$="1" THEN
500 ELSE CLS: PRINT @43, "LOAD F
ROM: ",,," 1 TAPE",,,, " 2 D
ISK"
260 GOSUB 2000 : DEVICE = VAL(X$
)*2-3 : IF DEV = -1 THEN PRINT,,
" POSITION TAPE AND PRESS PLAY"
,,,,,
270 INPUT " NAME OF FILE TO
LOAD ";FILE$: OPEN "I", #DEV
V, FILE$
280 IF EOF(DEV) THEN 290 ELSE I
NPUT #DEV, RECNUM : FOR FLD = 0
TO 4 : LINE INPUT #DEV, AR$(REC,
FLD) : NEXT FLD : LINE INPUT #D
EV, MA$(REC/2) : FOR FLD = 0 TO
4 : LINE INPUT #DEV, AR$(REC+1,
FLD) : NEXT FLD : GOTO 280
290 CLOSE #DEV
```

```
300 '*****
301 '* MAIN MENU ROUTINE *
302 '*****
305 CLS : PRINT TAB(11);"CHART #
":FILE$, TAB(10);"ANCESTORS OF"
, AR$(1, 0)
310 PRINT @128, "1 SAVE FILE ON
TAPE OR DISK",,"2 INPUT OR CO
RRECT DATA",,"3 DISPLAY CHART
ON SCREEN",,"4 PRINT CHARTS",,
,
320 X$ = INKEY$ : IF X$ < "1" OR
X$ > "4" THEN 320 ELSE ON VAL(X
$) GOTO 400, 500, 600, 700
```

```
400 '*****
401 '* SAVE FILE ROUTINE*
402 '*****
405 CLS : PRINT @44, "SAVE TO :
",," 1 TAPE",,,, " 2 DISK" :
GOSUB 2000 : DEV = VAL(X$)*2-3
410 CLS : PRINT @32, "1 NORMAL
SAVE",,"2 SAVE IN PRINTOUT FO
R MAT",,,, GOSUB 2000 : IF DEV =
-1 THEN PRINT"POSITION TAPE AND
PRESS RECORD",,,
420 INPUT " SAVE UNDER WHAT FI
LENAME ";FILE$: OPEN"O", #DEV
, FILE$ : IF X$ = "2" THEN 710 E
LSE FOR RECNUM = 0 TO 128 STEP 2
430 IF AR$(REC, 0) = "" AND AR$(
REC +1, 0) = "" THEN 450
440 PRINT #DEV, REC : X= REC : G
OSUB 2100 : PRINT #DEV, MA$(REC
/2) : X = X+1 : GOSUB 2100
450 NEXT REC : CLOSE #DEV : GOTO
300
```

```
500 '*****
501 '* EDIT A RECORD ROUTINE *
502 '*****
505 CLS : IF INDX(0) > 1 THEN IF
INDX(0) AND 1 THEN PRINT"#": IN
DX(0); "MOTHER OF", AR$(INDX(0)/
2, 0) ELSE PRINT"#": INDX(0); "F
ATHER OF", AR$(INDX(0)/2, 0) ELS
E IF INDX(0) THEN PRINT"#1 ON CH
ART" ELSE PRINT"SPOUSE OF", AR$(
1, 0)
510 FOR FLD = 0 TO 4 : X$ = AR$(
```

```
INDX(0), FLD) : PRINT @64 +FLD *
64, FLD +1; LAB$(FLD); : IF FLD
AND 1 THEN GOSUB 1600
520 PRINT X$ : NEXT FLD : PRINT
@384, " 6 MARR " : X$ = MA$(IND
X(0)/2) : GOSUB 1600 : PRINT X$
: PRINT @448, " 7 NO CHANGES (RE
TURN TO MENU)"
530 X$ = INKEY$ : IF X$ < "1" OR
X$ > "7" THEN 530 ELSE IF X$ =
"7" THEN 300 ELSE IF X$ = "6" TH
EN INPUT MA$(INDX(0)/2) ELSE LIN
E INPUT AR$(INDX(0), VAL(X$)-1)
540 GOTO 500
600 '*****
601 '* ONSCREEN RECORDS *
602 '* DISPLAY ROUTINE *
603 '*****
605 CLS : FOR RECS = 0 TO 2 : CU
RRNTRECD = INDX(0) : IF REC <>
1 THEN CUR = CUR *2+ REC /2
610 IF (INDX(0)=0 OR INDX(0)>63)
AND REC <> 1 THEN 640 : 'If onl
y one record to display...
615 'Print top or bottom record
routine:
620 PRINT AR$(CUR, 0) : PRINT @32
+ REC *192,; :FOR FLD = 1 TO 3 S
TEP 2: X$ = AR$(CUR, FLD) : GOSUB
1600: PRINT LAB$(FLD); X$, :NEX
T FLD: PRINT LAB$(2); AR$(CUR, 2
): IF REC =2 THEN 660 ELSE PRINT
@96+ REC *192, LAB$(4); AR$(CUR
, 4)
630 PRINT @128+ REC *192, "MARR
": X$ = MA$(CUR /2) : GOSUB 16
00 : PRINT X$ : 'Display date of
marriage
640 IF REC < 2 THEN PRINT @160+
REC *192, STRING$(32, 42); : 'Dr
aw a bar between records
650 NEXT REC : GOTO 670
660 PRINT LAB$(4); LEFT$(AR$(CUR
, 4), 28); : ' Display last line
on screen
670 'Wait for the operator to pr
ess an arrow key:
675 X$ = INKEY$ : IF X$ = "" THE
N 670 ELSE X = ASC(X$)
680 'If right-arrow then main me
nu; If up or down arrow then cha
nge index number to father's or
mother's record; if left arrow t
hen change index to child's numb
er:
685 IF X=0 THEN 300 ELSE IF X=8
THEN INDX(0) = INT(INDX(0)/2) EL
SE IF X<10 AND X<94 THEN 670 E
LSE IF INDX(0) > 63 THEN 600 ELS
E IF X=10 THEN INDX(0) = INDX(0)
*2+1 ELSE INDX(0) = INDX(0)*2
690 GOTO 600
700 '*****
701 '* PRINTER OPERATIONS MENU *
702 '*****
705 DEV = -2
710 CLS : PRINT,, " 1 CHANGE PRI
```

Listings  
Pages 13 & 30

```

PROCEDURE menu
0000
0001   (* This routine will print
001B   (* a menu in a window centered
0039   (* on the current device window.
0059   (* To make a selection, use
0074   (* the joystick/mouse to position
0095   (* the cursor over the appropriate
00B7   (* item and press the button to
00D6   (* make a selection =OR= press
00F4   (* the key corresponding to the
0113   (* valid keypresses.
0127
0128   (* This program is presented for the
014C   (* sole use of CoCo Clipboard Magazine
0173   (* readers. It cannot be used in any
0197   (* commercial application.
01B2
01B3   (* Copyright (c) 1987
01C8   (* Bob van der Poel
01DB   (* Call: run WMENU (choice, title,
01DC   items,keychoices)
0210
0211   (* Choice
023C   - the number of the item selected
0275   (* Title
02B0   - a title to be displayed at the
02DA   top of the menu
02DB   - the items for the menu.
02F5   Separate each with a '\',
02F6   KeyChoices
x,y,u: INTEGER - string of valid keypresses
031B   PARAM Choice:BYTE; Title,
0324   Items,KeyChoices:STRING[200]
0325   TYPE Register=cc,a,b,dp:BYTE;
0326   DIM Regs:Register
0326   DIM Echo,Fcolor,Bcolor,MousePack(32),
Temp,NItems,MaxLeng,Position(20),
Itemsize(20):BYTE
035C   DIM Key$:STRING[1]
0368   DIM T,Vert,SWidth,SHeight:INTEGER
037B
037C   (* get current echo setting
037D   (* and turn echo off.
0398
03AD   T=-1
03AE   GOSUB 120
03B6
03BA   (* determine the number of items
03BB   (* and the size of each one
03DB   MaxLeng=LEN(Title)
03F6   Temp=0
0400   NItems=1
0407   Position(NItems)=1
040E
0419   FOR T=1 TO LEN(Items)
041A   IF MID$(Items,T,1)="\ " THEN
042C   Itemsize(NItems)=Temp
043F   NItems=NItems+1
044B   Position(NItems)=T+1
0456   IF Temp>MaxLeng THEN
0465   MaxLeng=Temp
0472   ENDIF
047A   Temp=0
047C   ELSE
0483   Temp=Temp+1
0487   ENDIF
0492   NEXT T
0494   IF Temp>MaxLeng THEN
049F   Itemsize(NItems)=Temp
04AC   MaxLeng=Temp
04B8   ENDIF
04C0   MaxLeng=MaxLeng+2
04C2
04CD   (* create the window
04CE   Regs.a=1 \>(* get current colors
04CF   Regs.b=$96
04E3   RUN syscall($8D,Regs)
04E4   Fcolor=Regs.a
0504   Bcolor=Regs.b
0510   Regs.a=1 \>(* get screen size
051E
0529
0534
0535

```

```

0552 Regs.b=$26
055E RUN syscall($8D, Regs)
058C SWidth=Regs.x/2
057A SHeight=Regs.y/2
0588
0589
0599 READ Temp
059E PUT #1, Temp
05A7 NEXT T
05B2 (* code to set overlay window
05B3 (* with proper colors, cursor, etc.
05D0
05F3
05F4
0624
063E
063F
CwArea
0665
0686
06A7
06BE
06D7
06D8
06D9
06F9
06FA
070E
071F
0725
0730
0731
0732
0743
0747
0752
0759
075D
075E
076E
076F
0776
0778
0779
0795

0624 DATA $1B,$22,1,SWidth-MaxLeng/2,
063E SHEight-(NItems+4)/2 \(* OWset
063F DATA MaxLeng+2,NItems+4,Bcolor,Fcolor
0665 DATA $1B,$25,1,1,MaxLeng,NItems+2 \(*
0686 DATA $1B,$33,Bcolor \(* set background
06A7 DATA $1B,$32,Fcolor \(* set foreground
06BE DATA $0C \(* clear screen
06D7 DATA $05,$20 \(* cursor off
06D8
06D9 (* display the choices and title
06F9 PRINT USING "S"+STR$(MaxLeng)+",Title;
070E FOR T=1 TO MaxLeng
071F PRINT " ";
0725 NEXT T
0730
0731
0732 FOR T=1 TO NItems
0743 GOSUB 110
0747 NEXT T
0752 T=1
0759 GOSUB 100
075D
075E (* make a choice
076E
076F Choice=0
0776 REPEAT
0778
0779 (* first check the mouse for
0795 (* movmnet and button status

07B1 Regs.a=0
07B2 Regs.b=$89
07BD Regs.x=ADDR(MousePack)
07C9 Regs.y=0
07D7 RUN syscall($8D, Regs)
07E2
07F0
07F1
0805
0814
0828
ENDIF
083E
084B
084F
0857
085B
085D
085E
087A
0892
08A5
08A6
08AD
08C5
08D1
08DF
08FB
0906
0914
0922
0924
0925
0941
0942
094E
0963
0970
0972
097E
0980
0981
099B
09B9
09BA
09CE

Vert=MousePack(27)*256+MousePack(28)
Vert=Vert/(191/NItems)
IF Vert<1 THEN Vert=1 \ ENDFIF
IF Vert>NItems THEN Vert=NItems \
IF Vert<>T THEN
GOSUB 110
T=Vert
GOSUB 100
ENDIF
(* now check the keyboard...
(* this routine equals a
(* call to INKEY().
Key$=""
Regs.a=0 \(* key ready?
Regs.b=$01
RUN syscall($8D, Regs)
IF LAND(Regs.cc,1)=0 THEN \(* get key
Regs.y=1
Regs.x=ADDR(Key$)
RUN syscall($89, Regs)
ENDIF
(* if keypress, see if valid
IF Key$="" THEN
IF Key$>"a" AND Key$<"z" THEN
Key$=CHR$(ASC(Key$)-32)
ENDIF
Choice=SUBSTR(Key$,KeyChoices)
ENDIF
(* loop until mouse button
(* pressed or valid key press.
UNTIL MousePack(9)<>0 OR Choice<>0
IF Choice=0 THEN

```





# Product Reviews

Lee Parker and Ted Paul

## January Reviews

Now that the holiday crunch is over you can take that glow in the dark tie Aunt Bes gave you for Christmas, return it and buy some terrific software for your CoCo. We've done some quick reviews for this month to get as much information as possible into this issue.

\*\*\*\*\*

From: Spectrum Projects  
P.O. Box 264  
Howard Beach, NY 11414

512K Ram Upgrade - \$49.95 + \$3.00 s/h

Read the directions. OBEY the directions. This upgrade came with the chips mounted in anti-static foam. That's to keep them chips from being ruined. The board itself is well constructed and the instructions are clear. Needless to say I read the instructions, but promptly installed one of the chips in the wrong direction. Couldn't get my CoCo 3 to work. Put the chip in right - everything A-O.K.! Be sure those chips go in the right way. And if you've never installed chips into sockets don't be alarmed if things seem tight, that's the way it's designed. Rock the chips gently into the sockets and you'll be all set. You will have to cut leads on 2 capacitors on the mother board. They are not easy to get to and you should have a pair of cutting dykes to get to them.

Follow the directions, fire up your new 512K CoCo 3 and load in....

From: Spectrum Projects  
P.O. Box 264  
Howard Beach, NY 11414

RS-DOS Ram Disk - \$24.95 + \$3.00 s/h

So now that you've got a 512K CoCo 3 having a RAM Disk on-line is great fun. Spectrum Projects RS-DOS Ram disk has worked with every program I have tried with the exception of G.E. TERM and Mikeyterm. Obviously I haven't tried every program I own but the

ones I use the most - word processing and database management - work just great. I currently use CoCo Writer II (Moreton Bay) on my CoCo 3. CW II uses 3 programs - a disk manager, a high-res screen display formatter and the standard 32 column display. Each program is integrated and is called from disk. With Spectrums RAM Disk the loading and switching times are VERY fast. I also use TIMSMail and Timsutil to manage our mailing list. The Tims Series runs like a jack rabbit! Saving files with either of these programs using the RAM Disk is fast and simple and having 3 drives is great. The program lets you have as many as 5 drives on line (3 physical and 2 RAM) and you can configure the program to set up the drives on boot up. Easy to use and a bargain at the price.

From: Spectrum Projects  
P.O. Box 264  
Howard Beach, NY 11414

Fast Dupe 512 - \$19.95 + \$3.00 s/h

If you have a one drive CoCo 3 system you need this program. If you have a 2, 3, or 4 drive CoCo 3 system you need this program. Bob Rosen says he uses this program all the time at Spectrum Projects. It will handle 35 or 40 tracks, OS9 Level II disks, single side, double side and all you have to do is follow the directions on the screen. Very simply this program lets you make backup copies of your diskettes without ANY swapping - well just the one needed to pull the master copy out and the blank, unformatted disk in. That's right this program will format your disk for you and then write the back up! It has several status bars on the screen keeping you up to date on what is happening. Fast, simple and fun to watch FASTDUPE 512 is dynamite.

From: Spectrum Projects  
P.O. Box 264  
Howard Beach, NY 11414

Big Buffer - \$ 19.95 + \$3.00 s/h

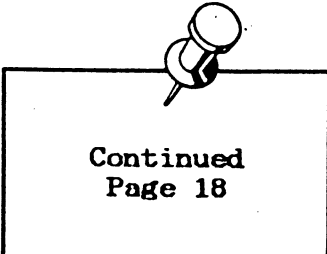
What would you say to a print buffer as big as 437K! Big Buffer from Spectrum projects works with almost any program that uses the

Basic Statement of Print #-2. It will work with many non-Basic programs but you will have to experiment. As with the other CoCo 3 items from Spectrum Projects Big Buffer is easy to use with simple directions and boy does it work well. I wrote a simple label generator program to printer return labels for the magazine. I needed 1500 labels and even at 9600 baud my Epson LX-80 printer and it's 2K buffer would be tied up a long time. I installed Big Buffer, ran my program, loaded in my labels and hit the "P" key and expected the CoCo to be tied up for a while. What would have taken a long time to send to the printer suddenly was taking just a few minutes before I got my blinking cursor back and I could go on to other things. At \$19.95 it's a deal and a half.

From: Dr. Preble's Programs  
6540 Outer Loop  
Louisville, KY 40228

Basic Freedom for CoCo 1,2,3 - \$24.95 + s&h

These are actually two programs. One for the CoCo 1 and 2 and the other for the CoCo 3. Each sells for \$24.95. Frankly as much as I like my CoCo the ability to do on screen editing during BASIC programming is a pain. This is the program that Tandy should have had in ROM. Instead Larry Preble & Co. have brought you editing Freedom. Including key repeat and lowercase interpretation, BASIC Freedom let's you zoom all over your screen making changes to line numbers, commands - whatever without all the finger gymnastics that Extended Basic puts you through. If you do a lot of BASIC programming this is a MUST buy item from the good Doctor.



Continued  
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# Powergraph— Basic 09 Drawing Program

Randy Krippner

This month we're going to explore the Coco 3's graphics capabilities with a Basic09 program called PowerGraph. PowerGraph requires a Coco 3 with 512K RAM, OS9 Level 2 and Basic09.

PowerGraph uses the Coco3's 320 X 192, 16 color graphics mode, so it's necessary to create a device window in the correct graphics mode, then start a Shell in the new window so we can work in it. It is also necessary to merge the font, pointer and pattern files from the SYS directory to the window.

We'll have OS9 do this for us automatically with a procedure file. To make a procedure file which will create the correct window, boot OS9 and type the following lines:

```
build graph.window <ENTER>
wcreate /w1 -s=8 0 0 40 24 2 0 0
<ENTER>
merge /d0/sys/stdfonts >/w1 <ENTER>
merge /d0/sys/stdptrs >/w1 <ENTER>
merge /d0/sys/stdpats_16 >/w1
<ENTER>
display 1b 3a c8 01 >/w1 <ENTER>
shell i=/w1& <ENTER>
```

<ENTER>

The character between "stdpats" and "16" is an underline, generated by holding down CTRL and then pressing "-". BUILD is an OS9 utility which is used to create short disk files. It opens a file on disk called "graph.window" and places everything you type into the file.

At the OS9: prompt, type GRAPH.WINDOW <ENTER> and OS9 will create the new window for you. If you get a "path name not found" error, one of the files required to build the new window and support the graphics mode is not on your system disk, or you made a typo when creating the GRAPH.WINDOW file. List GRAPH.WINDOW and make sure it is correct. If that was not the problem, then you probably deleted a required file. Just make

a backup copy of your original OS9 L2 distribution disk and use it. The original disk has all of the required files on it.

After the window is created, press CLEAR to jump into the new window.

Now start Basic09 and type in the program. Don't save each procedure individually. Instead, type:

```
save* PowerGraph <ENTER>
```

This will save all of the procedures into a file called PowerGraph. Even though they are stored in a single file, they are still individual procedures. This just makes it easier to save and load the program.

By the way, here's how you load LOAD Basic09 if you've never used it before. Place a backup copy of the Basic09/Config disk in drive 0 and type:

```
chx /d0/cmds <ENTER>
load basic09 <ENTER>
```

After the OS9: prompt appears, put your system disk back in drive 0 and type: chx /d0/cmds <ENTER>.

To start Basic09, type:  
basic09 #12K <ENTER>.

This tells OS9 to start Basic09 and reserve 12K RAM for work space. Don't reserve more. If you reserve too much memory, the save/load routines will not work.

When you wish to run the program, you must also load the GFX2, SYSCALL and INKEY modules from the Basic09/Config disk after loading Basic09.

Be careful when typing in the READMOUSE, SETMOUSE and DISK FUNCTIONS procedures. These procedures make System Calls to subroutines in OS9. If you make a typo in setting up the parameters before the system call is made, anything can happen.

PowerGraph is mouse-driven, but a joystick or mouse is not required. If you wish to use a

joystick or mouse, you must have Tandy's High Resolution Joystick Interface and have it connected properly.

If you do not have the interface, you can use OS9's "keyboard mouse". After running the program, just press CTRL/CLEAR. This toggles the keyboard mouse on and off. When the keyboard mouse is on, the arrow keys will move the pointer and either F1 or F2 can be used as the fire button. There is a trick to using the keyboard mouse. To move the pointer one pixel at a time, hold down SHIFT when pressing the arrow key, otherwise the pointer will move several pixels at a time.

Even if you use a mouse or joystick, you may wish to use the keyboard mouse to do fine work. It is difficult to finely control the pointer with a mouse or joystick.

To run the program, boot OS9. Create the graphics window by typing the name of the procedure file listed above. Jump into the new window by pressing CLEAR. Load Basic09, GFX2, INKEY and SYSCALL from your Basic09/Config disk. Start Basic09 as described above. Load PowerGraph. (You might make a procedure file that does most of this for you.)

Finally, at the Basic09 B: prompt, type:

```
run powergraph <ENTER>
```

Your screen will clear and the Function menu will appear. This menu permits you to select any of PowerGraph's drawing functions or sub-menus.

To select a function, move the pointer onto the desired function and click. What happens next depends on which function you selected. If you selected one of the drawing functions, you must move the pointer to GO and click again to actually use the function. If you selected one of the sub-menus, still other menus will appear on the screen.

Drawing functions remain in effect until you call the menu up again. If you select BOX, for



example, you can keep on drawing boxes until you want to switch functions. The menu is re-called by pressing any key on the keyboard.

The drawing functions are:

**Point:** Places a dot at the pointer location when clicked.

**Line:** Place pointer on start of line and click. Place pointer on end point of line and click again.

**Box:** Place pointer on corner of box and click. Move pointer to diagonally opposite corner and click again.

**Bar:** Same as box, but box is filled with current color or pattern. Use patterns only with BAR.

**Circle:** Click on center of circle. Move pointer directly left or right to edge of circle and click.

**Ellipse:** Click on center of ellipse. Imagine a box containing the ellipse. Move pointer to a corner of this imaginary box and click again.

**Fill:** Fills an area with the selected color.

**Clear:** Clears screen. Click on Clear, then on GO.

The other functions are:

**Color:** Brings up the Color Menu. To select a color, place pointer on the color and click. That color will be used for all draw/fill functions until color is changed again.

**Pattern:** Brings up the Pattern Menu. To select a pattern, click on the desired pattern. To turn patterns off, click on the top bar. Use patterns only with the BAR function!

**Palette:** Brings up the Palette menu. This routine will be added next time.

**Disk:** Lets you save or load your pictures. Enter 1 to save a picture, or 2 to load a picture. Enter any other number to abort the operation. (Press ENTER after selecting the option.) Then enter the file name of the picture and press ENTER. The picture will be saved or loaded.

**END:** Ends the program and returns to Basic09.

You'll note one other option

on the menu, the word OFF printed in darker letters than the other functions. This is the **logictoggle**. You can do some interesting special effects by selecting logic functions for drawing. Clicking on this function for drawing. Clicking on this function will toggle between OFF, AND, OR and XOR.

There are some quirks to the program, and a couple of bugs I found lurking in OS9.

You must always re-select your drawing function after using any of the other functions, such as logic, clear, color, etc.

The mouse button is sensitive. If you hold it down for more than a fraction of a second, it will be read as two clicks.

Pictures take up a LOT of space. You can only save about four or five pictures on a single sided disk. Pictures are saved as four individual files, each containing a quarter of your picture.

Using the pointer in the menu windows takes practice. If you try moving the pointer outside of the window area, the pointer will fail to respond until you move the

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pointing device back into the window.

There are two bugs. If you use patterns for FILL or other drawing operations, you'll quickly get a "Stack Overflow Error" and the program will crash. This doesn't happen when using BAR, however. So if you want to use patterns, select the pattern the select BAR. When you are done with BAR, make sure you turn the patterns off by clicking on the top bar in the Pattern Menu.

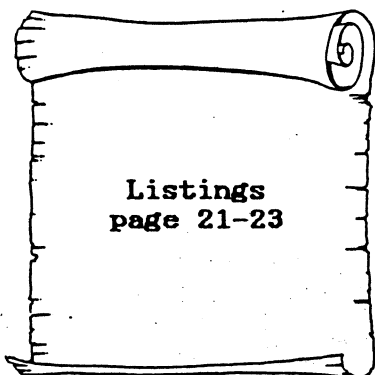
The other bug is related to the graphics mode PowerGraph is using. Very interesting things happen if you don't turn OS9's automatic scaling feature off before using the 320 graphics mode. Delete the RUN GFX ("scalesw", "OFF") line in the PowerGraph procedure and you'll see what I mean.

Finally, take a look at the SETPALETTE procedure. When the 16 color graphics mode is used, the palette only has 8 unique colors. Eight colors are duplicates. To get 16 unique colors, the palette must be modified. I added SETPALETTE to do this until the Palette Menu is added. If you can't wait you can get different colors by changing the numbers in the DATA statement in this procedure to generate any of the 64 colors the CoCo 3 can produce.

PowerGraph is certainly not complete. I hope the program sparks your creative juices and that you'll add your own enhancements to it. If you come up with an enhancement, send it in so we can share it with other readers.

Next time we'll add the Palette Menu and look at some of the technical details behind the program's operation.

Send your questions or comments to: Randy Krippner, 1014 W. Hwy. 114, Lot 29, Hilbert WI 54129. Please include a stamped, self addressed envelope for a reply.



## Prod. Reviews Cont.

From: Dr. Prebles Programs  
6540 Outer Loop  
Louisville, KY 40228

CoCo Braille - \$49.95 + s/h

What can you say about a program as complex as one which converts program files, word processing texts and data files into Braille virtually without error but misses the mark on getting printed. Well you can say a lot. State of the art Braille programs and Braille computer printers are expensive. There are several commercial Braille translation programs for the Apple and IBM series of Computers, and Braille printers are expensive and noisy. The one reason that Braille printers are expensive and noisy is because they must "emboss" the dots which form Braille letters, symbols and numbers into very stiff and heavy paper. The dots or bumps must survive piled on top of each other, between covers of a notebook, under books, just about anywhere you'd place normal text. Unfortunately according to the Braille specialist who reviewed the sample printout provided to us, the embossing available from the Brother HR series printer and the paper used were below standard for longevity and ease of reading by a sight impaired student. The Grade 2 (the more advanced version of Braille) was extremely accurate, the only drawback was the quality of the print out.

The question then becomes one of cost vs. quality. Another way of saying this is value. What value does a program like this have. First of all having a program of this magnitude available on the CoCo is remarkable. Small private schools or poorer school districts needing to stretch every available dollar could save a bundle with this program. Parents of sight impaired or blind students like every other mom and dad needing to make every dollar count, would also benefit from this program. And this is despite the lower quality of embossing offered by the printer required by the program. The high priced and high tech Braille only printer might produce a better reading text but it doesn't do anything else. At least the Brother printer can be used to knock off letters, program listings or spreadsheets. So the value in this program offering is its low cost. We feel that Dr. Preble has made a significant contribution in real world applications for the CoCo despite the drawbacks (minor in light of the program cost) of the Braille produced by the Brother printer.

From: Dr. Prebles Programs  
6540 Outer Loop  
Louisville, KY 40228

Mental Freedom - \$24.95 + s/h + Bio Feedback Monitor from Radio Shack.

I'll be frank with you - getting in touch with my inner being has never been something I ever thought much about. Having been through a lot of the upheaval of the late 60's and early 70's on college campuses and the experiments people did to get in touch with themselves I wanted no part of it. From my vantage point most of these people spent more time trying to make contact than they did in the classroom. Since I never got into that sort of thing and hadn't planned on it until I tried Mental Freedom in Princeton and met Larry Preble.

This is not a cheap investment if you have to go out and by the Bio Feedback Monitor from the Shack. \$12.00 or so for the monitor and another \$2.00 for the recommended alkaline battery and getting in touch with my inner self was getting in me more in touch with my wallet, but hey this program is FUN! Go ahead, load the program, hook up the Bio Feedback monitor and relax. The program tests your ability to stay calm, especially if your sweetie starts whispering sweet nothings in your ear, or your team scores the winning touchdown! Mental Freedom literally measures your ability to stay relaxed and to some degree helps you learn to control your emotional response. The program is highlighted by PMODE 3 graphics of a floating swami, rising pyramids, slimey snakes and digitized voice response. During the program the Bio monitor measures your emotional state and the program will note this causing pyramids to rise or fall depending on your ability to control your emotions. Watch out for the snake and calmly levitate out of the way. Give the Doctor a call for Mental Freedom, relax and get in touch with your funny bone.!

From: Spectrum Projects  
P.O. Box 264  
Howard Beach, NY 11414

Spectrum Projects Super Max III  
Interface Plus Software Package -  
\$39.95 + \$3.00 p/h

by Lee Parker

If you bought a CoCo 3 and already own CoCo Max 2 (by Colorware) and don't want to lay out the bucks for a new graphics editor for your 3, check out this package from Spectrum Projects.



Continued  
Page 38

# CoCo Clipboard Magazine

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great publication.

Mark Duval  
Medina, N.Y.

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Robert J. Sullivan

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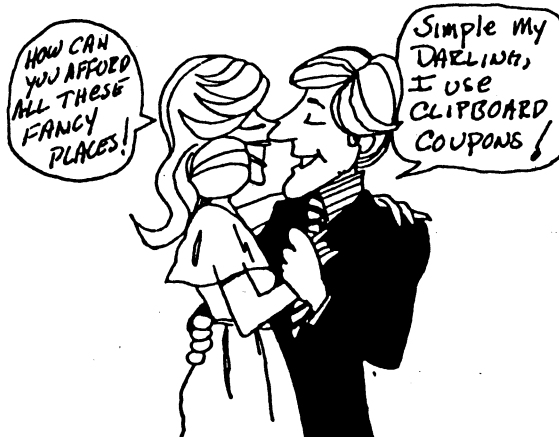
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```

PROCEDURE setmouse
SHELL "tmode -echo"
TYPE registers=cc,a,b,db:BYTE; x,y,u:INTEGER
DIM regs:registers
DIM callcode:BYTE
callcode=$8E
regs.a=0 \regs.b=$94 \regs.x=$0101 \regs.y=$FFFF
RUN syscall(callcode,regs)
regs.a=0 \regs.b=$89 \regs.x=$0101
RUN syscall(callcode,regs)
END
PROCEDURE readmouse
PARAM xcord,ycord:INTEGER
DIM callcode:BYTE
DIM key:STRING[1]
TYPE mse=jn1:STRING[7]; button:BYTE;
jn2:STRING[20]; xval,yval:INTEGER
: jn3:STRING[8]
DIM mouse:mse
TYPE registers=cc,a,b,dp:BYTE; x,y,u:INTEGER
DIM regs:registers
key=""
mouse.button=0
WHILE mouse.button=0 DO
callcode=$8D
regs.a=0 \regs.b=$89 \regs.y=0
regs.x=ADDR(mouse)
RUN inkey(key)
EXITIF key<>" THEN
ENDEXIT
RUN syscall(callcode,regs)
RUN gfx2("putgc",mouse.xval,mouse.yval)
RUN gfx2("setdptr",mouse.xval,mouse.yva 1)
ENDWHILE
IF key<>" THEN
xcord=650
ELSE
xcord=mouse.xval
ENDIF
ycord=mouse.yval
RUN gfx2("bell")
END
PROCEDURE drawpoint
DIM x,y:INTEGER
LOOP
RUN readmouse(x,y)
PROCEDURE drawcircle
DIM x1,y1,x2,y2:INTEGER
EXITIF x>640 THEN
ENDEXIT
RUN gfx2("point",x,y)
ENDLOOP
END
PROCEDURE drawline
DIM x1,y1,x2,y2:INTEGER
LOOP
RUN readmouse(x1,y1)
EXITIF x1>640 THEN
ENDEXIT
RUN gfx2("point",x1,y1)
RUN readmouse(x2,y2)
EXITIF x2>640 THEN
ENDEXIT
RUN gfx2("line",x1,y1,x2,y2)
ENDLOOP
END
PROCEDURE drawbox
DIM x1,y1,x2,y2:INTEGER
LOOP
RUN readmouse(x1,y1)
EXITIF x1>640 THEN
ENDEXIT
RUN gfx2("point",x1,y1)
RUN readmouse(x2,y2)
EXITIF x2>640 THEN
ENDEXIT
RUN gfx2("box",x1,y1,x2,y2)
ENDLOOP
END
PROCEDURE drawbar
DIM x1,y1,x2,y2:INTEGER
LOOP
RUN readmouse(x1,y1)
EXITIF x1>640 THEN
ENDEXIT
RUN gfx2("point",x1,y1)
RUN readmouse(x2,y2)
EXITIF x>640 THEN
ENDEXIT
RUN gfx2("bar",x1,y1,x2,y2)
ENDLOOP
END
PROCEDURE drawcircle
DIM x1,y1,x2,y2:INTEGER

```

```

LOOP
RUN readmouse(x1,y1)
EXITIF x1>640 THEN
ENDEXIT
RUN gfx2("point",x1,y1)
RUN readmouse(x2,y2)
EXITIF x2>640 THEN
ENDEXIT
RUN gfx2("circle",x1,y1,ABS(x1-x2))
ENDLOOP
END
PROCEDURE drawellipse
DIM x1,y1,x2,y2:INTEGER
LOOP
RUN readmouse(x1,y1)
EXITIF x1>640 THEN
ENDEXIT
RUN gfx2("point",x1,y1)
RUN readmouse(x2,y2)
EXITIF x2>640 THEN
ENDEXIT
RUN gfx2("ellipse",x1,y1,ABS(x1-x2),ABS(y1-y2))
ENDLOOP
END
PROCEDURE fillit
DIM x,y:INTEGER
LOOP
RUN readmouse(x,y)
EXITIF x>640 THEN
ENDEXIT
RUN gfx2("fill",x,y)
ENDLOOP
END
PROCEDURE PowerGraph
DIM lgc(4):STRING[3]
DIM lfunc,x,y,patt,function,colr,counte
r,location:INTEG ER
DIM ok,quit,done:BOOLEAN
DIM key:STRING[1]
DIM func(15):STRING[10]
patt=0 \lfunc=1
RUN setmouse
RUN gfx2("scalesw","off")
RUN gfx2("curoff")
RUN gfx2("defcol")
RUN gfx2("clear")

```

```

RUN setpalette
RUN gfx2("gcset",202,1)
done=FALSE
FOR counter=1 TO 15
READ func(counter)
NEXT counter
FOR counter=1 TO 4
READ lgc(counter)
NEXT counter
WHILE NOT(done) DO
function=0
GOSUB 100
IF patt=0 THEN
RUN gfx2("pattern",0,0)
ELSE
RUN gfx2("pattern",205,patt)
ENDIF
RUN gfx2("color",colr)
ON lfunc GOSUB 10,11,12,13
ON function GOSUB 1,2,3,4,5,6,7,8
ENDWHILE
RUN default
END
DATA "Point","Line","Box","Bar","Circle"
DATA "Ellipse","Fill","Clear","Color"
DATA "Pattern","","Palette","Disk"
DATA "","End"
DATA "OFF","AND","OR","XOR"
1 RUN drawpoint \ RETURN
2 RUN drawline \ RETURN
3 RUN drawbox \ RETURN
4 RUN drawbar \ RETURN
5 RUN drawcircle \ RETURN
6 RUN drawellipse \ RETURN
7 RUN fillit \ RETURN
8 RUN gfx2("clear") \ RETURN
10 RUN gfx2("logic","off") \ RETURN
11 RUN gfx2("logic","and") \ RETURN
12 RUN gfx2("logic","or") \ RETURN
13 RUN gfx2("logic","xor") \ RETURN
100 quit=FALSE
RUN gfx2("pattern",0,0)
RUN gfx2("logic","off")
RUN gfx2("owset",1,0,0,10,20,2,0)
RUN gfx2("box",5,5,75,155)
RUN gfx2("box",7,7,73,153)

```

```

RUN gfx2("owset",1,0,0,10,10,2,0)
RUN gfx2("curxy",0,0)
PRINT "END y/n?";
GET #1,key
IF key="y" OR key="Y" THEN
quit=TRUE
done=TRUE
ENDIF
RUN gfx2("owend")
ENDIF
IF location>15 THEN
quit=TRUE
ENDIF
IF location>0 AND location<9 THEN
function=location
ENDIF
ENDWHILE
RUN gfx2("owend")
IF location=13 THEN
GOSUB 600
ENDIF
RETURN
200 ok=TRUE
RUN gfx2("owset",1,0,0,10,19,2,0)
RUN gfx2("box",7,15,73,145)
RUN gfx2("box",5,12,75,147)
x=9 \y=17
FOR counter=0 TO 15
RUN gfx2("color",counter)
RUN gfx2("bar",x,y,x+63,y+8)
y=y+8
NEXT counter
WHILE ok DO
RUN readmouse(x,y)
IF y>16 AND y<145 THEN
ok=FALSE
ENDIF
ENDWHILE
colr=INT(y/8)-2
RUN gfx2("owend")
RETURN
300 RUN getpatt(patt,colr) \ RETURN
400 RETURN
500 RETURN
600 RUN diskfunctions \ RETURN
END

```

```

RUN gfx2("box",7,7,73,17)
RUN gfx2("box",7,7,73,19)
RUN gfx2("curxy",1,1)
RUN gfx2("boldsw","on")
PRINT "Function";
RUN gfx2("boldsw","off")
x=2 \y=3
FOR counter=1 TO 15
RUN gfx2("curxy",x,y)
PRINT func(counter)
y=y+1
NEXT counter
RUN gfx2("curxy",2,18)
PRINT "GO";
RUN gfx2("curxy",2,16)
RUN gfx2("boldsw","on")
PRINT lgc(lfunc);
RUN gfx2("boldsw","off")
quit=FALSE
WHILE NOT(quit) DO
RUN readmouse(x,y)
location=INT(y/8)-2
IF location=14 THEN
lfunc=lfunc+1
IF lfunc>4 THEN lfunc=1
ENDIF
RUN gfx2("curxy",2,16)
RUN gfx2("boldsw","on")
PRINT lgc(lfunc);
RUN gfx2("boldsw","off")
ENDIF
IF location=9 THEN
GOSUB 200
ENDIF
IF location=10 THEN
GOSUB 300
ENDIF
IF location=11 THEN
GOSUB 400
ENDIF
IF location=12 THEN
GOSUB 500
ENDIF
EXITIF location=13 THEN
ENDEXIT
IF location=15 THEN

```

```

PROCEDURE default
SHELL "tmode echo"
RUN gfx2("curon")
RUN gfx2("defcol")
RUN gfx2("color",2,0)
END
PROCEDURE diskfunctions
SHELL "tmode echo"
DIM tempfile,file:STRING[30]
DIM counter,path,function:INTEGER
TYPE registers=cc,a,b,dp:BYTE; x,y,u:INTEGER
DIM regs:registers
RUN gfx2("owset",1,0,0,30,10,2,0)
RUN gfx2("curon")
RUN gfx2("curxy",0,0)
PRINT "1 - save or 2 - load";
INPUT function
IF function<1 OR function>2 THEN
RUN gfx2("curoff")
RUN gfx2("owend")
SHELL "tmode -echo"
END
ENDIF
RUN gfx2("curxy",0,5)
PRINT "File name:";
INPUT tempfile
RUN gfx2("curoff")
RUN gfx2("owend")
ON function GOSUB 1,2
END
1 FOR counter=0 TO 3
file=tempfile+STR$(counter)
CREATE #path,file:WRITE
RUN gfx2("get",1,1,0,counter*48,319,48)
regs.a=1 \regs.b=$84 \regs.x=$0101 \regs.y=1
RUN syscall($8E,regs)
regs.a=path
RUN syscall($8A,regs)
regs.a=1 \regs.b=$84 \regs.x=$0101 \regs.y=0
RUN syscall($8E,regs)
RUN gfx2("killbuff",1,1)
CLOSE #path
NEXT counter
RUN gfx2("bell")
RETURN
2 FOR counter=0 TO 3
file=tempfile+STR$(counter)
OPEN #path,file:READ
RUN gfx2("get",1,1,0,counter*48,319,48)
regs.a=1 \regs.b=$84 \regs.x=$0101 \regs.y=1
RUN syscall($8E,regs)
regs.a=path
RUN syscall($89,regs)
RUN gfx2("put",1,1,0,counter*48)
regs.a=1 \regs.b=$84 \regs.x=$0101 \regs.y=0
RUN syscall($8E,regs)
RUN gfx2("killbuff",1,1)
CLOSE #path
NEXT counter
RUN gfx2("bell")
RETURN
PROCEDURE getpatt
PARAM patt,colr:INTEGER
DIM x,y,counter:INTEGER
DIM ok:BOOLEAN \ok=FALSE
RUN gfx2("owset",1,0,0,12,11,2,0)
RUN gfx2("box",23,7,87,81)
RUN gfx2("color",colr)
RUN gfx2("bar",24,8,88,16)
x=24 \y=17
FOR counter=1 TO 8
RUN gfx2("pattern",205,counter)
RUN gfx2("bar",x,y,x+64,y+8)
y=y+8
NEXT counter
WHILE NOT(ok) DO
RUN readmouse(x,y)
IF y>7 AND y<80 THEN
ok=TRUE
ENDIF
ENDWHILE
RUN gfx2("owend")
patt=INT(y/8)-1
END
PROCEDURE setpalette
DIM counter,colr:INTEGER
FOR counter=7 TO 15
READ colr
RUN gfx2("palette",counter,colr)
NEXT counter
DATA 6,24,34,42,47,36,3,27,23
DATA 23,24,34,35,39,42,15,27,38
END

```



# BASIC Programming Contest

Bill Bernico

**Editors Note:** As we mentioned in our "From the Desk Column" on page 2, CoCo Clipboard Magazine is announcing a Basic Programming contest! This contest is based on part on the following article by Bill Bernico.

This article was originally to have been in "Spectrogram Magazine". However with the demise of Spectrogram we have decided to pick up Bills column for this issue of Clipboard. We have also awarded a free subscription to the winners - George and Ellen Aftamonow.

We were so impressed with these CoCo 2 programs that we are announcing our own version of a programming contest. The general premise of the contest is based on a CoCo 3 version of Ellen's "MUSHAKE" program. We are looking for a program that uses the advanced hi-res graphics capability of the CoCo 3 and a DIFFERENT design to the program. For example we'd like to see not only the multiple colors available, but also something other than the grid pattern used by Ellen. Perhaps 8 concentric circles, or an octagon or four blocks of 16 squares (or circles or triangles). It's pretty wide open. Your program must still produce the same musical tones and have the play back feature the original did.

Entries will be judged here at Clipboard and by Bill Bernico. Entries must be submitted on cassette or disk and include a print out of the listings. Entries cannot be returned unless a S.A.S.E. and return postage is provided. Deadline for entries is June 1st 1988. Contest winners will be announced in our first anniversary issue in September. And we do have some prizes!

We will will have a first and second prize winner. Both winners will receive a free one year subscription to Clipboard - or an extension to their existing subscription. The first place winner will also receive an adjustable 80 column printer stand courtesy of the Dunkirk New York

Continued next page.

Well, the contest is over and the results are in! I'm happy to announce that we have a winner in the BASIC Programming Contest from Volume 2, Issue 2 of Spectrogram Magazine. Unfortunately, Spectrogram is no longer in business, however the prizes will be honored by CoCo Clipboard Magazine. The winning entry belongs to Andrew Bartels from Mesa, Arizona. He has titled our creation "ZOOM" and rightly so. ZOOM is an example of simple animation using the GET and PUT commands. Here's how Andrew describes its operation:

"All commands of Mr. Bernico's starting program are still existing in this program. However, I have added three new commands.

The first is enacted by pressing the "S" key. This allows one to select which frame he is editing on the grid screen. You can choose from one of 25 frames per screen. Use the arrow keys to move around the various frames. Press <ENTER> to select the frame to edit, and you will be returned to the grid screen to edit that frame. When you enter the select mode, the pixels on the grid screen are automatically put in the last frame you selected. Upon startup, this is the first frame.

The second addition is a save and load feature. To get to the save and load screen, press "D" at the grid screen. The frames are saved in a binary file that loads from 3584 to 9727, thus almost any picture can be loaded and edited.

The final addition utilizes the "A" key to animate the frames you have created. All 25 frames are shown, regardless of whether they have anything in them or not. This program is designed to take advantage of ON BRK GOTO and POKE 65497,0 when run on a CoCo 3, but will operate with only CoCo 2 commands if run on a CoCo 2. For the fastest and best operation, a CoCo 3 is recommended, but a minimum of 32K memory is required, as well as at least one disk drive.

I have a sample animation sequence for this program. If anyone would like to see it, send a disk and return postage to me.

Free Library and 3 software programs from a list of programs from Tandy, Bill Bernico, Spectrum projects and others. The second prize winner will have a choice of 2 programs from that list.

The decision of the judges is final.

P.S. Also awarded a prize in Bills contest is Mr. Andrew Bartels.

Your disk will be returned containing the sample animation."

If any of you have any questions regarding the program or the sample animation sequence, please contact Andrew Bartels, 1859 E. 8th Street, Mesa, AZ 85203-6649. My congratulations to Andrew for a well written program. Andrew will receive a one year subscription to CoCo Clipboard Magazine.

A prize also goes to George Aftamonow who submitted a nice game called "HOT&COLD". Coincidentally, George's wife, Ellen, submitted an entry of her own titled "MUSMAKE", winning her the prize of a year's subscription to CoCo Clipboard Magazine, also.

I'd like to thank all the Spectrogram readers who helped make this an exciting contest. I'd also like to announce that with the passing of Spectrogram Magazine, my

BASIC HELP column will continue in the pages of CoCo Clipboard Magazine. Please forward any of your BASIC questions to:

BILL BERNICO  
708 Michigan Ave.  
Sheboygan, WI 53081.

Listed in this issue are the winning entries.

```

10 'BASIC PROGRAMING CONTEST
20 'BY BILL BERNICO
30 'AND ANDREW B. BARTELS
40 '
50 PCLEAR8: CLEAR 500:H=132:V=101
:DIMA1(41),X(25),Y(25):PMODE3,5:
PCLS1:PMODE3,1:P1=PEEK(&HE000)*2
56+PEEK(&HE001):Q=0:W=0:IFP1=230
THEN POKE65497,0:ON !GOTO680
60 A$="BR3U4E2F2D2L4R4D2BR15
70 B$="BR3R3L3U6R3FDGL3R3FDGBR14
80 C$="BR3BUFR3L3HU4ER3BD6BR15
90 D$="BR3R3L3U6R3FD4GBR14
100 E$="BR3R4L4U3R3L3U3R4BD6BR15
110 F$="BR3U3R3L3U3R4BD6BR13

```

```

120 G$="BR3BUFR3U3L2BL2D2U4ER3BD
6BR15
130 H$="BR3U6D3R4U3D6BR13
140 I$="BR3R4L2U6L2R4BD6BR13
150 J$="BR3BUFR2EU5BD6BR14
160 K$="BR3U6D3RE3G3F3
170 N1$="BR5R3LU6G2BD4BR3
180 N2$="BR5NR4U2ER2EUHL2GBD5BR2
190 N3$="BR5BUFR2EUHLREUHL2GBD5B
R2
200 N4$="BR7U6G3R4BD3
210 N5$="BR5BUFR2EUHL2HU2R4BD6
220 N6$="BR5BUFR2EUHL2GDU4ER2FBD
5
230 N7$="BR6UE3U2L4D6D5BR3
240 N8$="BR5BRR2EUHL2GDFHUEHUER2
FDGFDBD
250 N9$="BR5BUFR2EU4HL2GDFR3BD3
260 CLS:PRINT@41,"function keys"
:POKE1073,32
270 PRINT@102,"y PAINTS SQUARE Y
ELLOW
280 PRINT@134,"r PAINTS SQUARE R
ED
290 PRINT@166,"b PAINTS SQUARE B
LUE
300 PRINT@198,"g PAINTS SQUARE G
REEN
310 PRINT@230,"n STARTS NEW GRID
320 PRINT@262,"e ENDS GRID PROGR
AM
321 PRINT@294,"a ANIMATES PICTUR
ES"
322 PRINT@326,"d ALLOWS DISK OPE
RATION"
323 PRINT@358,"s SELECTS FRAME T
O EDIT"
333 PRINT@422,"ARROW KEYS MOVE C
URSOR"
340 PRINT@486,"HIT ANY KEY YO BE
GIN"
350 FOR X=1510 TO 1529:POKEX,PEE
K(X)-64:NEXT
360 EXEC 44539:GOSUB370:GOTO500
370 PMODE3,1:PCLS:SCREEN1,0
380 DRAW"BM0,0R248D190L248U190
390 DRAW"BM22,8"+A$+B$+C$+D$+E$+
F$+G$+H$+I$+J$+K$
400 DRAW"BM2,23"+N1$
410 DRAW"BM2,43"+N2$
420 DRAW"BM2,63"+N3$
430 DRAW"BM2,83"+N4$
440 DRAW"BM2,103"+N5$
450 DRAW"BM2,123"+N6$
460 DRAW"BM2,143"+N7$
470 DRAW"BM2,163"+N8$
480 DRAW"BM2,183"+N9$
490 DRAW"BM0,10R248D20L248D20R24
8D20L248D20R248D20L248D20R248D20
L248D20R248BM16,0D190R22U190R21D
190R21U190R21D190R21U190R21D190
21U190R21D190R21U190R21D190":RET
URN
500 P=PPOINT(H,V):DRAW"BM=H;,=V;
C3R
510 L$=INKEY$:IF L$=""THEN 510
520 W$="BM=H;,=V;C"+STR$(P)+"R":
DRAW W$
530 IF L$=CHR$(10)THEN V=V+20
540 IF L$=CHR$(94)THEN V=V-20
550 IF L$=CHR$(9)THEN H=H+21
560 IF L$=CHR$(8)THEN H=H-21
570 IF L$="N"THENGOSUB 370
580 IF L$="E"THEN CLS:GOTO680
590 IF L$="Y"THEN LINE(H-8,V-10)
-(H+9,V+8),PRESET,BF:PAINT(H+2,V
+2),2,4
600 IF L$="B"THEN LINE(H-8,V-10)
-(H+9,V+8),PRESET,BF:PAINT(H+2,V
+2),3,4
610 IF L$="R"THEN PAINT(H+2,V+2)
,4,4
620 IF L$="G"THEN LINE(H-8,V-10)
-(H+9,V+8),PRESET,BF

```

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Stock Market portfolio for the color computer will keep track of all your current stock listings and keep a listing of stocks you have sold by the year, they were sold with all totals, profit and loss, and percentages. More than one person can use this program as long as the first three letters on both first and last name are not the same. The program is menu driven and will give you the option for either screen print or information to be printed on printer.

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Papariz Enterprises  
700 York St.  
Williamsburg, VA 23185  
Please allow 2-3 weeks for delivery  
Sorry no C.O.D.S  
VA residents add 4.5% sales tax.

```

621 IF L$="S" THEN 700
622 IFL$="A" THEN 820
623 IFL$="D" THEN 860
630 IF H>237 THEN H=27
640 IF H<27 THEN H=237
650 IF V>181 THEN V=21
660 IF V<21 THEN V=181
670 GOTO 500
680 CLS:IFP1=230 THEN POKE65496,0
690 END
700 GOSUB800:P MODE3,5:SCREEN1,0:
G=0:H=0
710 GET(G,H)-(G+43,H+35),A1,G:CO
LOR4,1:LINE(G,H)-(G+43,H+35),PSE
T,B:COLOR1,1:LINE(G,H)-(G+43,H+3
5),PSET,B:PUT(G,H)-(G+43,H+35),A
1,PSET
720 L$=INKEY$:IFL$="" THEN 710
730 IF L$=CHR$(94) AND H<>0 THEN
H=H-36 ELSE IF L$=CHR$(10) AND
H<140 THEN H=H+36
740 IF L$=CHR$(8) AND G<>0 THEN
G=G-44 ELSE IFL$=CHR$(9) AND G<1
70 THEN G=G+44
750 IFL$<>CHR$(13) THEN 710
760 GOSUB370:Q=G:W=H
770 A1=W:A2=Q:FOR Y=20 TO 180 ST
EP20:FOR X=27 TO 237 STEP 21
780 P MODE3,5:P=PPOINT(Q,W):Q=Q+4
:P MODE3,1:PAINT(X,Y),P,4:NEXT:W=
W+4:Q=A2:NEXT:Q=A2:W=A1
790 H=132:V=101:GOTO500
800 A1=W:A2=Q:FOR Y=20 TO 180 ST
EP20:FOR X=27 TO 237 STEP 21
810 P MODE3,1:P=PPOINT(X,Y):P MODE
3,5:SCREEN1,0:PSET(Q,W,P):PSET(Q
+2,W,P):PSET(Q,W+1,P):PSET(Q,W+2
,P):PSET(Q,W+3,P):PSET(Q+2,W+1,P
):PSET(Q+2,W+2,P):PSET(Q+2,W+3,P
):Q=Q+4:NEXT:W=W+4:Q=A2:NEXT:Q=A
2:W=A1:RETURN
820 P MODE3,1:SCREEN1,0:PCLS1
830 H1=106:V1=78:H2=H1+43:V2=V1+
35:COLOR4,1:LINE(H1-2,V1-1)-(H2+
2,V2+1),PSET,B:FOR Y=0 TO 170 S
TEP36:FOR X=0 TO 219 STEP 44
840 P MODE3,5:GET(X,Y)-(X+43,Y+35
),A1,G:P MODE3,1:SCREEN1,0:PUT(H1
,V1)-(H2,V2),A1,PSET:NEXT
850 H=132:V=101:GOSUB370:GOTO770
860 SCREEN0,0:CLS:PRINT"1) SAVE
GRAPHICS":PRINT"2) LOAD GRAPHICS
":PRINT"3) EXIT":INPUT"SELECTION
";W$
870 IFW$="1" THEN 880 ELSE IFW$="2"
THEN 910 ELSE IFW$="3" THEN H=132:V=
101:GOSUB370:GOTO500 ELSE 860
880 IFP1=230 THEN POKE65496,0
890 CLS:P MODE3,1:FORA1=1 TO 4:PC
OPY A1+4 TO A1:NEXT:VERIFYON:INP
UT"FILENAME";W$:SAVEM W$,3584,97
27,3584:IFP1=230 THEN POKE65497,0
900 GOSUB370:GOTO500
910 IFP1=230 THEN POKE65496,0
920 CLS:INPUT"LOAD FILENAME";W$:
LOADM W$:FORA1=1 TO 4:PCOPY A1 T
O A1+4:NEXT:P MODE3,5:SCREEN1,0:
G=0:H=0:IFP1=230 THEN POKE65497,0
930 GOTO710

```

Entries must be mailed to:

CoCo Clipboard Magazine  
CONTEST  
3742 U.S. 20, Box 3  
Fredonia, NY 14063

```

10 'BASIC PROGRAMMING CONTEST
20 'BILL BILL BERNICO
30 'AND GEORGE AFTAMONOW
40 '
50 CLEAR 500:H=132:V=101
60 A$="BR3U4E2F2D2L4R4D2BR15
70 B$="BR3R3L3U6R3FDGL3R3FDGBR14
80 C$="BR3BUFR3L3HU4ER3BD6BR15
90 D$="BR3R3L3U6R3FD4GBR14
100 E$="BR3R4L4U3R3L3U3R4BD6BR15
110 F$="BR3U3R3L3U3R4BD6BR13
120 G$="BR3BUFR3U3L2BL2D2U4ER3BD
6BR15
130 H$="BR3U6D3R4U3D6BR13
140 I$="BR3R4L2U6L2R4BD6BR13
150 J$="BR3BUFR2EU5BD6BR14
160 K$="BR3U6D3RE3G3F3
170 N1$="BR5R3LU6G2BD4BR3
180 N2$="BR5NR4U2ER2EUHL2GBD5BR2
190 N3$="BR5BUFR2EUHLREUHL2GBD5B
R2
200 N4$="BR7U6G3R4BD3
210 N5$="BR5BUFR2EUHL2HU2R4BD6
220 N6$="BR5BUFR2EUHL2GDU4ER2FBD
5
230 N7$="BR6UE3U2L4DBD5BR3
240 N8$="BR5BRR2EUHL2GDFHUEHUR2
FDGFDBD
250 N9$="BR5BUFR2EU4HL2GDFR3BD3
260 CLS:PRINT@41,"hot and cold":
POKE1072,32:POKE1068,32
262 PRINT@101,"BY GEORGE AFTAMON
OW":PRINT@134,"AND BILL BERNICO"
264 PRINT@192,"BENEATH ONE OF TH
E SQUARES LIES A TREASURE. TRY T
O FIND IT IN AS FEW MOVES AS POSS
IBLE. THE CLOSER YOU GET, THE HIG
HER THE PITCH."
266 PRINT@454,"HIT ANY KEY TO CO
NTINUE":FORQ=1TO50:NEXTQ:PRINT@4

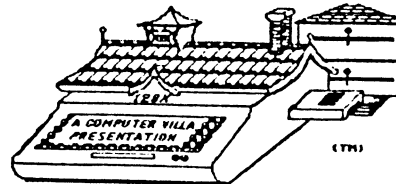
```

```

58,"ANY KEY";:FORQ=1TO50:NEXTQ:P
RINT@458,"ANY KEY";:FORQ=1TO50:N
EXTQ:PRINT@458,"ANY KEY";:FORQ=1
TO50:NEXTQ:PRINT@458,"ANY KEY";:
FORQ=1TO50:NEXTQ
267 PRINT@468,"ANY KEY";:FORQ=1T
O50:NEXTQ:PRINT@458,"ANY KEY";:F
ORQ=1TO50:NEXTQ:PRINT@458,"ANY K
EY";:FORQ=1TO50:NEXTQ:PRINT@458,
"ANY KEY";:FORQ=1TO50:NEXTQ:PRIN
T@458,"ANY KEY";:FORQ=1TO50
268 L$=INKEY$:IFL$="" THEN 266
269 CLS
270 PRINT@102,"y PAINTS SQUARE Y
ELLOW
280 PRINT@134,"r PAINTS SQUARE R
ED
290 PRINT@166,"b PAINTS SQUARE B
LUE
300 PRINT@198,"g PAINTS SQUARE G
REEN
320 PRINT@258,"PRESS ONE OF THE
ABOVE KEYS";
330 PRINT@321,"USE ARROW KEYS TO
MOVE CURSOR
340 PRINT@486,"HIT ANY KEY TO BE
GIN";

```

Listing Cont.  
Page 30



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# CoCo Club Corner

Ted Paul

THIS has been the column that's been too long in coming. Originally scheduled for Spectrogram Magazine, CoCo Club Corner is now a reality. Clipboard Magazine wants to be able to provide reliable listings of active and helpful CoCo clubs in the United States and Canada. We've listed a large number of clubs in this first edition of the magazine. While we had hoped for more detailed information on each group, time and space limitations have made this abbreviated format necessary. All of the BBS's and newsletters were verified as of 12/4/87 and should be in operation by the time you read this.

Naturally any endeavor of quality needs cooperation and input. To those clubs who have sent in the CoCo Club registration form we send our thanks. To those of you who have not, or have just started a club, we want and need your participation. To obtain a registration form for Clipboards CoCo Club Corner please send a stamped, self addressed envelope to:

CoCo Club Corner Registration  
c/o Ted Paul  
3742 U.S. 20, Box 3  
Fredonia, New York 14063

I will send out a registration form the day I receive your request.

I need to take just a little time at this point to explain what "Received and Verified" means in these articles. "Received" means that I've received a filled out registration form from a club. "Verified" means that I've contacted a person at that club and I've received a copy of a news letter, if offered, and made contact with a BBS if listed. It also means that in those conversations I've learned a lot about that CoCo club and the people involved.

What "Received and Verified" does not mean:

1. Neither I, nor CoCo Clipboard Magazine, it's writers, advertisers or publishers make or give any warranty implied or otherwise as to the suitability of services pro-

vided by the clubs listed in these articles. We cannot guarantee that any club will still be in existence or even at the same address by the time you read this article. We will hold the lead time between this desk and Clipboards print deadline in to the shortest possible. This will help to insure accurate and timely information.

2. We do not and cannot condone the piracy of software. However we can't control what takes place at a club meeting or what is on a BBS. I will remove a club from the magazines listing if I find software piracy supported by club activities, and it is my hope that this forum will not be used by some people to further their "swapping" habits. We all lose when piracy happens and there is no argument under Gods blue sky that justifies it. 'Nuff said.

## EAST COAST - U.S.A.

Club Name : Island CoCo Club  
Address : P.O. Box 901  
Bellmore, N.Y. 11710  
BBS Phone : none  
Newsletter: Out of Area Member  
\$15.00 1st. year.  
Renewl \$7.50  
Dues : Individual & Family  
Rates from \$35.00  
1st year

For those of you in the Metropolitan New York area our first East Coast CoCo Club in the spotlight is the Island CoCo Club. Club interests include graphics, OS-9, Telecommunications, games and adventures, ML programming and many others. Technical information and programming tips were in abundance in this newsletter. President D.K. Lee was also kind enough to post information on Clipboard on their BBS. So if you are a Clipboard reader in the greater NYC area or from just about anywhere else you'll find help and information at the "Island CoCo Club."

## Ohio Valley - U.S.A.

Club Name : The Color Computer  
Club, Inc.  
Address : P.O. Box 478  
Canfield, Ohio 44406  
BBS Phone : (216) 792-9745

Newsletter: Yes. Included with  
\$15.00 year membership  
fee.

Larry Cadman and his fellow CoCo cohorts in Canfield are running a pretty slick BBS, newsletter and club. The BBS runs smoothly and quickly and is on line 24 hours, 7 days at 7 bit, 300 baud. Their newsletter "C3 Crier" features news from Tandy, Club news, humor column and hints and tips. Club meetings are at the Hardees restaurant in Canfield - call the BBS for details.  
South - U.S.A.

Club Name : Color Computer Club of  
South Brevard  
Address : 644 Dianne Dr.  
Melbourne, Florida  
32935  
BBS Phone : none  
Newsletter: Monthly included with  
dues of \$1.00 a month  
or \$12.00 year

Meeting at the Eau Gallie Library, the Color Computer Club of South Brevard is typical of many smaller CoCo clubs around the country. They publish a small but neatly done newsletter with graphics, club news, member listings and upcoming events. Contact David Simmons at the above address for complete information and updates.

## Central - U.S.A.

Club Name : Glenside Color Computer  
Club of Illinois  
Address : 8 W. Stevenson Dr.  
Glendale Heights,  
Illinois 60139  
BBS Phone : (312) 307-1519  
7 days/24hours  
Newsletter: Yes  
Dues : \$10.00 (check for  
current rate)



Continued  
Page 30

# CoCo 'N Amateur Radio

Mike Dooley

In our last installment (in this continuing saga) we were looking at using the COCO to operate Packet Radio. We had just connected the COCO to the TNC (Terminal Node Controller), turned on the TNC, and a Sign On screen should have been displayed on the COCO's display.

If you didn't get the Sign On screen, what did you get? Nothing? Recheck the connectors and be sure they're wired properly. If you purchased your cable (instead of building) remember, pin 8 must be connected to pin 20 on the end connected to the Program Pak! Also, be sure everything is turned on.

If you got garbage on the screen, the most likely cause is different bit rates between the TNC and the COCO. Both should be 300 bits per second (or whatever you chose). Hopefully you now have the COCO talking to the TNC. Let's see what the TNC can tell us.

There are many options that can be changed in the TNC. To see a list type the following:

DISPLAY (CR)

CR means press the ENTER key on the COCO. A whole raft of things will scroll onto the screen. It is beyond the scope of this series to cover what each option means, but there are several we need to set before getting on the air.

First is the MYCALL option. At the 'Cmd:' prompt type:

MYCALL XX4YY (CR)

The XX4YY is your Amateur Call sign. To see if the TNC took the information type:

MYCALL (CR)

The TNC should respond with: 'MYCALL XX4YY' or whatever your call is. Next, we need to tell the TNC how many characters the lines on the screen of our COCO will hold (32). To do this type:

SCREENLN 32 (CR)

Again, to see if the TNC took this information type:

SCREENLN (CR)

The TNC should respond with: 'SCREENLN 32'.

Last, we need to set the length of the packet to be sent. The TNC comes set for a PACLEN of 128. Let's make it 80. Type:

PACLEN 80 (CR)

Did the TNC take this information? I'll let you find out yourself.

The only other connection required to operate Packet is between the TNC and radio. This connection will be different for various makes of radios. The primary connections are:

1) Audio out to the Mic input of the radio.

2) Audio in from the earphone jack of the radio (or some other audio source from the radio).

3) PTT (Push To Talk used to key the transmitter)

The various pin connections between the radio and TNC are different for different brands of radios. When hooking up to your radio, follow the instructions included with the TNC and/or advice of a fellow amateur who has done the same thing. If you need further help, call the manufacturer of the TNC! They should have the connection information you need and are usually glad to help.

I do have one word of warning. On some Handy Talkies the external speaker connection has a DC voltage on it. Connecting this DC voltage directly to the Audio in of the TNC won't necessarily injure the TNC, but it may injure the radio. My Yeasu FT208R now has a dead internal speaker because of my haste to get on packet.

Now, turn on your radio and tune it for 145.01 Mhz (FM). Adjust the volume so the DCD LED on the

front of the TNC is flickering. At the 'CMD:' prompt on the display type:

MONITOR ON (CR)

If there is Packet activity in your area, data should start filling the screen. If you really want to get involved, check with one of your Amateur radio friends about any local Bulliten Boards or Digipeaters you can access with Packet radio. Bulliten Boards and Digipeaters? Sounds like something for the next installment of this column...73's

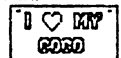


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## Clubs Cont.

I could do a whole column just on Glenside. President Ed Hathaway and Glenside have been the host club for the annual 'Fest gathering in Chicago each year, publish programs in conjunction with Howard Medical Computers, run demos at their local shopping center, run the BBS, publish a jam packed newsletter, etc. etc. Whether you live in the greater "Chicago-land" area or are from out of town the Glenside club does a terrific job.

Mid-West - U.S.A.

Club Name : Mid Iowa CoCo  
Address : 529 10th St.  
Des Moines, IA 50265  
BBS Phone : (515) 279-0086 23.5  
hours a day/ 7 days  
Newsletter: Yes - no price info  
available as of this  
writing.

People in Iowa are pretty lucky folk - especially those with Color Computers. Mid Iowa CoCo Club prints a nifty newsletter with spot color and loads of hints and tips. They also provide advertising, reviews of products and good solid information. The club meets at the West Des Moines Library on Grand Ave.

Well that's it for this CoCo Club Corner.

## Genealogy Listing Continued

```
+X$+" (No." + STR$(INDX(SIDE)
)+ "): RETURN
1100 *****
1101 '* PREPARE A BIRTHPLACE *
1102 *****
1105 IF INDX(SIDE) AND 1 THEN PR
$(SIDE)= " \ "
1110 PR$(SIDE)= PR$(SIDE)+ "at "
+AR$(CUR, 2) : IF INDX(SIDE) <I
NDX(0) *4 OR INDX(SIDE)> (INDX(0)
) *2+1) *2+1 THEN 1140
1120 SPACES= (PA-3)/2-1 -LEN(PR$
(1)) : IF SPACES <0 THEN SPACES
=0
1130 PR$(1)= PR$(1)+ STRING$(SPA
CES, 45) + "<"
1140 RETURN
1200 *****
1201 '* PREPARE A DATE OF DEATH
*
1202 *****
1205 IF NOT INDX(SIDE) AND 1 THE
N PR$(SIDE)= " / "
1210 X$= AR$(CUR, 3) : GOSUB 160
0 : PR$(SIDE)= PR$(SIDE) + "Died
" +X$ : IF SIDE=1 THEN 1240 ELSE
PR$(2)= PR$(2) + " (Cont. "
1220 IF PG=1 THEN PR$(2)= PR$(2)
+ "Page" + STR$(CUR-6) + ")" ELSE
PR$(2)= PR$(2) + "Chart # )"
1230 RETURN
1240 IF LO(3) = 0 THEN IF CUR= IN
DX(0) THEN PR$(1)= PR$(1) + " (Sa
me as #" ELSE 1270 ELSE RETURN
```

```
1250 IF PG <2 THEN PR$(1)= PR$(1)
) + " on chart # )" ELSE PR$(1)
= PR$(1)+ STR$(CUR) + " on page 1
)"
1260 RETURN
1270 PR$(1)= PR$(1) + " (Spouse
of #" + STR$(INDX(0)) + ")" : RETU
RN
1300 *****
1301 '* PREPARE PLACE OF DEATH;
*
1302 '* CALCULATE NEXT RECORD #
*
1303 '* FOR LEFT SIDE OF PAGE
*
1304 *****
1305 IF NOT INDX(SIDE) AND 1 THE
N PR$(SIDE)= " / "
1310 PR$(SIDE)= PR$(SIDE) + "at "
+ AR$(CUR, 4) : IF SIDE=1 THEN R
ETURN ELSE WH(1) =0
1320 READ LO(1), LO(2), LO(3) :
IF LO(1) <0 THEN INDX(1)= INDX(0)
)- 2* (INDX(0) AND 1) +1 : RETUR
N
1340 INDX(1)= INDX(0) : FOR Z =
1 TO 3 : IF Z > LO(3) THEN RETURN
ELSE INDX(1)= INDX(1) *2 +LO(Z)
1350 NEXT Z
1400 *****
1401 '* PREPARE DATE OF MARRIAGE
*
1402 *****
1405 IF INDX(SIDE) AND 1 THEN 15
00 ELSE X$= MA$(CUR/2)
1410 GOSUB 1600 : PR$(SIDE)= "/
Married " +X$ : RETURN
1500 *****
1501 '* CALCULATE NEXT RECORD #
*
1502 '* FOR RIGHT SIDE OF PAGE
*
1503 *****
1505 IF SIDE=2 AND INDX(SIDE) <
INDX(0) *8+7 THEN WH(2) =0 ELSE
WH(SIDE) =6
1510 INDX(SIDE)= INDX(SIDE) +1 :
RETURN
1600 *****
1601 '* INSERT SLASHES INTO DATE
S *
1602 *****
1605 X$= X$ + " "
1610 X$= LEFT$(X$, 2) + "/" + MID$
(X$, 3, 2) + "/" + MID$(X$, 5, 4)
: RETURN
2000 X$= INKEY$ : IF X$ <"1" OR
X$> "2" THEN 2000 ELSE RETURN :
'Get a menu choice routine
2100 FOR FLD = 0 TO 4 : PRINT #D
EV, AR$(X, FLD) : NEXT FLD : RET
URN : 'Save a field routine
```

## Contest Listing Continued

```
350 FORX=1510 TO 1520:POKE X,PEE
K(X)-64:NEXT
360 EXEC 44539
370 PMODE 3,1:PCLS:SCREEN 1,0
380 DRAW"BM0,0R248D190L248U190
390 DRAW"BM22,8" +A$+B$+C$+D$+E$+
F$+G$+H$+I$+J$+K$
400 DRAW"BM2,23"+N1$
410 DRAW"BM2,43"+N2$
```

```
420 DRAW"BM2,63"+N3$
430 DRAW"BM2,83"+N4$
440 DRAW"BM2,103"+N5$
450 DRAW"BM2,123"+N6$
460 DRAW"BM2,143"+N7$
470 DRAW"BM2,163"+N8$
480 DRAW"BM2,183"+N9$
482 XH=RND(10)*21+27
485 YV=RND(9)*20+1
490 DRAW"BM0,10R248D20L248D20R24
8D20L248D20R248D20L248D20R248D20
L248D20R248B16,0D190R22U190R21D
190R21U190R21D190R21U190R21D190R
21U190R21D190R21U190R21D190
500 DRAW"BM=H; ;=V;C3R
510 L$=INKEY$:IF L$=""THEN 510
520 DRAW"BM=H; ;=V;C1R
530 IF L$=CHR$(10)THEN V=V+20
540 IF L$=CHR$(94)THEN V=V-20
550 IF L$=CHR$(9)THEN H=H+21
560 IF L$=CHR$(8)THEN H=H-21
590 IF L$="Y"THEN LINE(H-8,V-10)
-(H+9,V+8),PRESET,BF:PAINT(H+2,V
+2),2,4
600 IF L$="B"THEN LINE(H-8,V-10)
-(H+9,V+8),PRESET,BF:PAINT(H+2,V
+2),3,4
610 IF L$="R"THEN PAINT(H+2,V+2)
,4,4
620 IF L$="G"THEN LINE(H-8,V-10)
-(H+9,V+8),PRESET,BF
630 IF H>237 THEN H=27
640 IF H<27 THEN H=237
650 IF V>181 THEN V=21
660 IF V<21 THEN V=181
665 IFL$="Y" ORL$="R" ORL$="B" O
RL$="G"THEN666ELSE500
666 SC=SC+1
670 IFV=V AND XH=H THEN800
700 IF (ABS(V-YV)<20 AND ABS(H-X
H)<20) THENSOUND255,10:GOTO500
710 IF (ABS(V-YV)<30 AND ABS(H-X
H)<20) THENSOUND200,10:GOTO500
720 IF (ABS(V-YV)<40 AND ABS(H-X
H)<40) THENSOUND100,10:GOTO500
730 IF (ABS(V-YV)<50 AND ABS(H-X
H)<50) THENSOUND50,10:GOTO500
740 SOUND1,10:GOTO500
800 CLSRND(8):PRINT@105,"YOU FOU
ND IT";:PRINT@170,"IN";SC:"MOVES
";:FORQ=1TO5:PLAY"T20003GEAGEAGE
A":NEXTQ
810 PRINT@359,"PLAY AGAIN? (Y/N)
";
820 L$=INKEY$:IFL$=""THEN820ELSE
IFL$="Y"THENSCL=0:GOTO370ELSECLS:
END
```

```
10 'BASIC PROGRAMMING CONTEST
20 'BY BILL BERNICO
30 'AND ELLEN AFTAMONOW
40 '
50 CLEAR 500:H=132:V=101
60 A$="BR3U4E2F2D2L4R4D2BR15
70 B$="BR3R3L3U6R3FDGL3R3FDGBR14
80 C$="BR3BUFR3L3HU4ER3BD6BR15
90 D$="BR3R3L3U6R3FD4GBR14
100 E$="BR3R4L4U3R3L3U3R4BD6BR15
110 F$="BR3U3R3L3U3R4BD6BR13
120 G$="BR3BUFR3U3L2BL2D2U4ER3BD
6BR15
130 H$="BR3U6D3R4U3D6BR13
140 I$="BR3R4L2U6L2R4BD6BR13
150 J$="BR3BUFR2RU5BD6BR14
160 K$="BR3U6D3RE3G3F3
170 N1$="BR5R3LU6G2BD4BR3
180 N2$="BR5NR4U2ER2EHL2GBD5BR2
190 N3$="BR5BUFR2EHLREUHL2GBD5B
R2
200 N4$="BR7U6G3R4BD3
210 N5$="BR5BUFR2EHL2HU2R4BD6
220 N6$="BR5BUFR2EHL2GDU4ER2FBD
5
230 N7$="BRGUE3U2L4DBD5BR3
```

```

240 N8$="BR5BRR2EUHL2GDFHUEHUER2
FDGFDBD
250 N9$="BR5BUFR2EU4HL2GDFR3BD3
260 CLS3:PRINT@131,"MUSIC MAKER"
::PRINT@199,"BY ELLEN AFTAMONOW"
::PRINT@268,"AND BILL BERNICO";:
FORAA=1TO10:PLAY"T150L15002EAO3E
AEA05EA":NEXT
270 CLS:PRINT:PRINT"CREATE A PAT
TERN AND LISTEN TO ITS SOUND. E
ACH SQUARE HAS ITS OWN NOTE. TH
E LENGTH IS THE COLOR. WHEN
YOU WANT TO HEAR THETUNE, PRESS
P.":PRINT@452,"PRESS ANY KEY TO
CONTINUE":EXEC44539
280 CLS:PRINT@41,"function keys"
:POKE1073,32
290 PRINT@102,"y PAINTS SQUARE Y
ELLOW
300 PRINT@134,"r PAINTS SQUARE R
ED
310 PRINT@166,"b PAINTS SQUARE B
LUE
320 PRINT@198,"g PAINTS SQUARE G
REEN
330 PRINT@262,"p PLAY YOUR SONG
340 PRINT@326,"ARROW KEYS MOVE C
URSOR
350 PRINT@486,"HIT ANY KEY TO BE
GIN";
360 FORX=1510 TO 1529:POKE X,PEE
K(X)-64:NEXT
370 EXEC 44539
380 PMODE 3,1:PCLS:SCREEN 1,0
390 DRAW"BM0,0R248D190L248U190
400 DRAW"BM22,8"+A$+B$+C$+D$+E$+
F$+G$+H$+I$+J$+K$
410 DRAW"BM2,23"+N1$
420 DRAW"BM2,43"+N2$
430 DRAW"BM2,63"+N3$
440 DRAW"BM2,83"+N4$
450 DRAW"BM2,103"+N5$

```

```

460 DRAW"BM2,123"+N6$
470 DRAW"BM2,143"+N7$
480 DRAW"BM2,163"+N8$
490 DRAW"BM2,183"+N9$
500 DRAW"BM0,10R248D20L248D20R24
8D20L248D20R248D20L248D20R248D20
L248D20R248BM16,0D190R22U190R21D
190R21U190R21D190R21U190R21D190
21U190R21D190R21U190R21D190
510 DRAW"BM=H; ,=V;C3R
520 L$=INKEY$:IF L$="" THEN 520
530 DRAW"BM=H; ,=V;C1R"
540 IF L$=CHR$(10) THEN V=V+20
550 IF L$=CHR$(9) THEN V=V-20
560 IF L$=CHR$(8) THEN H=H+21
570 IF L$=CHR$(7) THEN H=H-21
580 IF L$="P" THEN 750
590 IF L$="Y" THEN LINE(H-8,V-10)
-(H+9,V+8),PRESET,BF:PAINT(H+2,V
+2),2,4:LE$="2"
600 IF L$="B" THEN LINE(H-8,V-10)
-(H+9,V+8),PRESET,BF:PAINT(H+2,V
+2),3,4:LE$="4"
610 IF L$="R" THEN PAINT(H+2,V+2)
,4,4:LE$="6"
620 IF L$="G" THEN LINE(H-8,V-10)
-(H+9,V+8),PRESET,BF:LE$="8"
630 IF H>237 THEN H=27
640 IF H<27 THEN H=237
650 IF V>181 THEN V=21
660 IF V<21 THEN V=181
670 IFL$="R" OR L$="Y" OR L$="B"
OR L$="G" OR L$="P" THEN 680 ELS
E510
680 NH=INT((H-27)/20+1):NT=((V-2
0)+NH*2)
690 NZ$=STR$(NT):FORX=2TO LEN(NZ
$):NT$=NT$+MID$(NZ$,X,1):NEXT
700 IF LEN(NT$)<3 THEN NT$="0"+NT
$:GOTO700
710 CT=CT+1:IF CT>80 THEN 740ELSE
IFCT>40 THEN 730ELSE 720

```

```

720 S1$=S1$+NT$+LE$:NT$="":NZ$="
":GOTO510
730 S2$=S2$+NT$+LE$:NT$="":NZ$="
":GOTO510
740 S3$=S3$+NT$+LE$:NT$="":NZ$="
":GOTO510
750 FORX=1TO LEN(S1$) STEP4:EA=V
AL(MID$(S1$,X,3)):GA=VAL(MID$(S1
$,X+3,1)):SOUNDEA,GA:NEXTX:IFCT<
40 THEN 780
760 FORX=1TO LEN(S2$) STEP4:EA=V
AL(MID$(S2$,X,3)):GA=VAL(MID$(S2
$,X+3,1)):SOUNDEA,GA:NEXTX:IFCT<
0 THEN 780
770 FORX=1TO LEN(S3$) STEP4:EA=V
AL(MID$(S3$,X,3)):GA=VAL(MID$(S3
$,X+3,1)):SOUNDEA,GA:NEXTX
780 CLS4:PRINT@132,"1) PLAY SONG
AGAIN "":PRINT@164,"2) COMPOSE
NEW SONG "":PRINT@196,"3) END
":
790 EXEC44539:L$=INKEY$:IFVAL(L$
)>3 THEN 790
800 IFL$="1" THEN 750
810 IFL$="2" THEN S1$="":S2$="":S
3$="":CT=0:GOTO380
820 CLS:END

```

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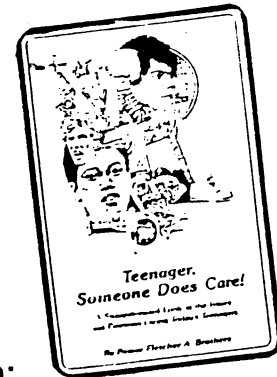
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# Self Correcting Forecasting

Jim DeStafeno

## Self Correcting FORECASTING

Sandra was saying to Younger, "We better get going; the bell's going to ring in a minute. Look at Rubin, he hasn't moved in ten minutes." They collected the note papers that were spread across the library table and put them in the project book she had made, and walked over to the table where Rubin was sitting. "Come on Rubin, it's time to go." There was no response. Sandra ran her fingers through his black curly hair. He looked up with a pained expression. "Come on Rubin, it's time to go." "Oh, hey you guys, I think I've found it." "Found what?" "You know, remember I said there should be some way to cause the formula to be self correcting? See here, pointing to the book he had been reading, he changes the value of an exponent to a constant that is calculation from the average error of the previous calculations. How are you guys do'en on a calculation formula?"

"Well it looks like the regression formula you found will solve for the answer we want, but it will take too long to get an answer by hand; we've got to put it on the computer. And..." Younger was interrupted by the bell. Sandra smiled at her thought, "Saved by the bell." She said, "Okay, lets go; we are going to meet at the math club tonight, right?"

Mr. Teachit had asked George to tell the club what he had found out about his assignment, the averaging of percentages. He was saying, "It just doesn't work, it's no good. I got to thinking about it, and a percentage is just a special kind of average. So the averaging of several percentages is the averaging of averages. It means nothing and doesn't even work.

Someone asked, "What do you mean it doesn't work?" "Well, if you have three different percentages, each being the result of the percentage calculation of four different numbers; for averaging of percentages to work, you would have to get the same percentage when you average the three percents as you get when you calculated the percent of the 12 numbers together. You

don't. Look I'll put it on the board." He did and sure enough he got two different answers.

George then asked Mr. Teachit, "Why did you ask me to look at this?" "Well, when people are trying to figure out a way to forecast, like Younger is, they tend toward averages and percentages. We had to see that they won't work together. That was good work on your part George." George beamed. Mr. Teachit then turned to Rubin, "I'm very interested to know if you came up with anything on self correcting formulas." "Yea, I think so. A guy by the name of", looking down at his notes, "Robert G. Brown, published by Holt, Rinehart and Winston of New York, has done a lot of work using exponents. I was just reading his Decision Rules For Inventory Management." "Exponents aye?" "Yea." "You've found the classic method. Brown is a little obtuse, but his detailed examples are very good. Do you think you can do something with it?" "Yes I do."

"Younger, how are you doing?" "Well Mr. Teachit, we are running into some complex stuff." "Oh?" "Yea, it seems that to get any kind of real accuracy with least squares analysis you really have to get into the solution of simultaneous linear equations." "That's true, I suggest that you look into the book Rubin found. Brown shows computer applications of the formula." "Okay!" Younger felt relieved. (On the side, it doesn't hurt to know a fellow by the name of Bob Laskin, either. He is hiding his light under a basket in South Jersey. He did more for me and math than all the teachers and professors I had, combined. A tip of my hat to Bob for his help.) Mr. Teachit continued, "Now who would like to show the group the reasoning behind to use of simultaneous linear equations?... Okay, let me help you."

After several false starts Younger and Sandra, or rather, Sandra and Younger came up with two programs. (They made quite a team, he was good at getting the idea of what was needed and she was better at writing the code to get the

computer to do what was wanted. She was also good at getting Younger to take her to the Friday night school dances.)

The object of the two programs is to save 35 periods of usage history to disk, recall it at a later date, add the newest usage, demand (Making 36 periods to base the calculations on) and delete the oldest from the list, and of course to calculate a forecast of future usage.

Due to limited space, we can only show Brown's formula:  $\text{Forecast} = a_1 + a_2t + a_3 \sin 30t + a_4 \cos 30t + a_5 \sin 60t + a_6 \cos 60t$ . The "DV" and "CV" tables in the program are used along with the entered demands to calculate the "a" values. However, if you really want to get into it, get a copy of the book Rubin referred to.

It is interesting to note that the values of the data are converted to a sine wave and the predictions are a result of extending the wave and determining the value of the wave at each of the points where it crosses the "next" period's intersecting line.

In addition, the shape of the wave is modified by the value of the error between the forecast for a given period and the actual demand for that period; self correcting. The method used also rounds off, smooths, the sharpness of the peaks and valleys. All very neat.

In everyday use there are a couple of points to remember. No formula will predict the demand for any given period perfectly. However over a period of time, a formula that is a good fit will be quite accurate; therefore give it four to six periods before you start adding to or subtracting from the forecast.

Since no formula is perfect you must maintain some safety stock. How much is "some"? Well, it seems logical that it should be a function of the greatest error that ever occurred in any one period, doesn't it? It is also a function of your willingness to be out of

stock for a while. Will an out of stock situation cause a great expense to the company or just a need to reshuffle things until the new supply arrives, or can you get a quick short shipment from the supplier?

How many periods worth of the forecast should be ordered at a time? The normal answer is one lead time worth. If it takes two periods to get the stuff, order two periods worth at a time. But if the period is short, the cost of ordering has to be taken into account. Oh my, it does get interesting doesn't it.

If there is enough interest, I expect we could get Younger and Sandra, Mr. Teachit and maybe even Mr. Figuarit would talk to the math club; all together they might do a good job for us. If you would like to see more along this line, or make any comment, please write to my new permanent address below.

Anyway, the point is, this is the method that is used by the "main frames" today. When Brown did it, he used an IBM 4101. It took about 3 minutes per part; using punch cards and magnetic tape. The CoCo in the fast mode requires about 20 seconds, and a modern main frame requires slightly more than 1 second; if the data is on hard disk.

The first program, "NEW-PT-N", New Part Number, is used to input and save 35 periods of history, demand. Note that the formula is designed to use 36 periods. The 36th is entered with the second program.

Brown also shows a calculation for 24 periods of history; again if there is interest write me. However, if the demand isn't too volatile and the part isn't too expensive, you can use 24 periods with this 36 period model. The program will allow you to enter any number of periods and it will repeat it in the proper sequence to fill the 36 periods. But remember, GIGO.

The second program is the one that will be used the most; "EXP-FC", Exponential Smoothing of a Forecasting Formula. The first program sets up the data the first time, but this second program is used every time the forecast is to be updated. This program recalls the demand history saved with "NEW-PT-N", adds the newest demand, calculates the forecast, allows the printing of a hard copy, deletes the oldest demand and resaves the updated history list to disk.

Both programs have step by step instructions included and tell the user what is happening during the wait times. While debugging the program Sandra had a lot more screen prints working then is needed to keep the user informed. She has defeated many of them, but

not deleted them; by using "\*" and "\*\*\*" to mark the place. Most are between lines 2000 and 3000. The generation of the "G" and "A" values are shown there.

The "H" values used in the line-group 3000 are used in the exponent modification. Those used are for slow smoothing. Brown shows another set to be used for fast smoothing. The complete formula includes the ability for it to sense the magnitude of the error and switch the fast and slow smoothing in and out, depending on the need, determined by the value of the error.

Bob Laskin has improved on these numbers, and the general accuracy of the formula as well, by developing a more complex "CV table".

Since Younger's printer works at 9600 baud, Sandra put in a POKE150,1 in line 4260. Change or delete it if your printer works at a different rate. She has removed the Hi-Speed Poke, but you can put it in if your machine can handle it.

What else? This program set is a good spine, but it would be better if the slow-fast smoothing was included, and in addition, it

should have safety stock quantity calculated and a total order quantity based on the forecast, safety stock and the part's lead time.

Also, a given part should be able to be deleted from the file, given period values should be able to be changed, and I guess half dozen more tricks.

Such a list gives one insight into why a professional inventory program consists of a hundred or so little programs to do all of these things. Must be quite a thing standing at the I/O gate with the programs playing in and the data flying out.


In the mean time, address your comments to CoCo Clipboard Magazine or RD#1, Box375 Wyoming, DE 19934.

```

0 '*** "EXP-FC", EXPONENTIAL
SMOOTHING IN FORECASTING.
CHATHAM HOUSE SOFTWARE
BY JIM DESTAFENO
RD#1, BOX375
WYOMING, DE 19934 ***
10 TROFF:CLS:CLEAR1000
20 DIM DV(36,6), CV(6,6), DA(54)
, FC(42), A$(12), B$(25):R=-2
30 '*** FSS="FC-DATA"
99 ' ***
100 '*** DV ***
110 '***
120 PRINT"LOADING DV VALUES ";
130 FOR X=1 TO 36:DV(X,1)=1:DV(X
,2)=X:NEXTX
140 A$(1)="0.500":A$(2)="0.866":
A$(3)="1.000":A$(4)="0.866":A$(5)
)="0.500":A$(6)="0.000":A$(7)=-
0.500":A$(8)=-0.866":A$(9)=-1.
000":A$(10)=-0.866":A$(11)=-0.
500":A$(12)=-0.000"
150 FOR X=1 TO 3:FOR Y=1 TO 12:C
=C+1:DV(C,3)=VAL(A$(Y)):NEXTY:NE
XTX:C=0
160 A$(1)="0.866":A$(2)="0.500":
A$(3)="0.000":A$(4)=-0.500":A$(
5)=-0.866":A$(6)=-1.000":A$(7)
)=-0.866":A$(8)=-0.500":A$(9)=-
0.000":A$(10)=-0.500":A$(11)=-0
.866":A$(12)=-1.000"
170 FOR X=1 TO 3:FOR Y=1 TO 12:C
=C+1:DV(C,4)=VAL(A$(Y)):NEXTY:NE
XTX:C=0
180 A$(1)=-0.866":A$(2)=-0.866":
A$(3)=-0.000":A$(4)=-0.866":A$(
5)=-0.866":A$(6)=-0.000":A$(7)
)=-0.866":A$(8)=-0.866":A$(9)=-0.
000":A$(10)=-0.866":A$(11)=-0.
866":A$(12)=-0.000"
190 FOR X=1 TO 3:FOR Y=1 TO 12:C
=C+1:DV(C,5)=VAL(A$(Y)):NEXTY:NE
XTX:C=0
200 A$(1)=-0.5":A$(2)=-0.5":A$(
3)=-1.0":A$(4)=-0.5":A$(5)=-0.
5":A$(6)=-1.0":A$(7)=-0.5":A$(8)
)=-0.5":A$(9)=-1.0":A$(10)=-0.
5":A$(11)=-0.5":A$(12)=-1.0"
210 FOR X=1 TO 3:FOR Y=1 TO 12:C
=C+1:DV(C,6)=VAL(A$(Y)):NEXTY:NE
XTX:C=0
299 '***
300 '*** CV DATA ***
310 '***
320 PRINT:PRINT"LOADING CV VALUE
S ";

```

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**FOR COCO 1.2.1.3**

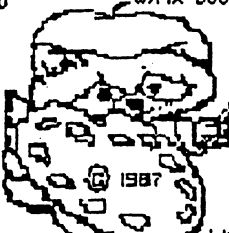
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```

330 CV(1,1)=0.124341:CV(2,1)=-0.
005220:CV(3,1)=-0.019480:CV(4,1)
=0.005220:CV(5,1)=-0.009041:CV(6
,1)=0.005220:CV(1,2)=-0.005220:C
V(2,2)=0.000282:CV(3,2)=0.001053
:CV(4,2)=-0.000282:CV(5,2)=0.000
489:CV(6,2)=-0.000282
340 CV(1,3)=-0.019480:CV(2,3)=0.
001053:CV(3,3)=0.059485:CV(4,3)=
-0.001053:CV(5,3)=0.001024:CV(6,
3)=-0.001053:CV(1,4)=0.005220:CV
(2,4)=-0.000282:CV(3,4)=-0.00105
3:CV(4,4)=0.005838:CV(5,4)=-0.00
0489:CV(6,4)=0.000282
350 CV(1,5)=-0.009041:CV(2,5)=0.
000489:CV(3,5)=0.001824:CV(4,5)=
-0.000489:CV(5,5)=0.056402:CV(6,
5)=-0.000489:CV(1,6)=0.005220:CV
(2,6)=-0.000282:CV(3,6)=-0.00105
3:CV(4,6)=0.000282:CV(5,6)=-0.00
0489:CV(6,6)=0.055838
360 FS$="FC-DATA/DAT"
399 '***
400 '*** SEARCH FOR, AND BRING I
N PROPER P/N'S "DA" AND "FC" HIS
TORY FROM DISK ***
410 '***
420 PRINT:PRINT:INPUT" ENTER P/N
TO BE UP-DATED: ";DP(1)
430 OPEN "D", #1, FS$, 125
440 FIELD #1, 5AS A$, 5AS B$, 5A
S C$, 5AS D$, 5AS E$, 5AS F$, 5A
S G$, 5AS H$, 5AS I$, 5AS J$, 5A
S K$, 5AS L$, 5AS M$, 5AS N$, 5A
S O$, 5AS P$, 5AS Q$, 5AS R$, 5A
S S$, 5AS T$, 5AS U$, 5AS V$, 5A
S W$, 5AS X$, 5AS Y$
450 R=R+3
460 IFR+2>LOF(1) THENPRINT:PRINT"
P/N HISTORY IS NOT ON THIS", " D
ISK; SEARCH FOR ANOTHER P/N? (
Y/N) ";:CLOSE#1:EXEC44539:I$=INK
EY$:IF I$<>"N" THENR=-2:GOTO420 EL
SE END
470 GET #1, R:IFCVN(A$)<>DP(1) TH
EN450 ELSE DP(2)=CVN(B$):DP(3)=C
VN(C$):DP(4)=CVN(D$):CLS:PRINT:P
RINT" UP-DATING; P/N - ";DP(1),"
CLASS - ";DP(2),"
DATE LAST UPDATE - ";DP(3)
480 DA(1)=CVN(E$):FC(1)=CVN(F$):
DA(2)=CVN(G$):FC(2)=CVN(H$):DA(3
)=CVN(I$):FC(3)=CVN(J$):DA(4)=CV
N(K$):FC(4)=CVN(L$):DA(5)=CVN(M$
):FC(5)=CVN(N$):DA(6)=CVN(O$):FC
(6)=CVN(P$):DA(7)=CVN(Q$):FC(7)=
CVN(R$):DA(8)=CVN(S$)
490 FC(8)=CVN(T$):DA(9)=CVN(U$):
FC(9)=CVN(V$):DA(10)=CVN(W$):FC(
10)=CVN(X$):DA(11)=CVN(Y$):R=R+1
:GET #1, R
500 '***

```

```

510 FC(11)=CVN(A$):DA(12)=CVN(B$
):FC(12)=CVN(C$):DA(13)=CVN(D$):
FC(13)=CVN(E$):DA(14)=CVN(F$):FC
(14)=CVN(G$):DA(15)=CVN(H$):FC(1
5)=CVN(I$):DA(16)=CVN(J$):FC(16)
=CVN(K$):DA(17)=CVN(L$):FC(17)=C
VN(M$):DA(18)=CVN(N$):FC(18)=CVN
(O$)
520 DA(19)=CVN(P$):FC(19)=CVN(Q$
):DA(20)=CVN(R$):FC(20)=CVN(S$):
DA(21)=CVN(T$):FC(21)=CVN(U$):DA
(22)=CVN(V$):FC(22)=CVN(W$):DA(2
3)=CVN(X$):FC(23)=CVN(Y$):R=R+1:
GET #1,R
530 '***
540 DA(24)=CVN(A$):FC(24)=CVN(B$
):DA(25)=CVN(C$):FC(25)=CVN(D$):
DA(26)=CVN(E$):FC(26)=CVN(F$):DA
(27)=CVN(G$):FC(27)=CVN(H$):DA(2
8)=CVN(I$):FC(28)=CVN(J$):DA(29)
=CVN(K$):FC(29)=CVN(L$):DA(30)=C
VN(M$):FC(30)=CVN(N$):DA(31)=CVN
(O$)
550 FC(31)=CVN(P$):DA(32)=CVN(Q$
):FC(32)=CVN(R$):DA(33)=CVN(S$):
FC(34)=CVN(T$):DA(34)=CVN(U$):FC
(35)=CVN(V$):DA(35)=CVN(W$):FC(3
5)=CVN(X$):FC(36)=CVN(Y$):CLOSE#
1
599 '***
600 '*** UPDATE ACTUAL DEMAND **
*
610 '***
620 PRINT:PRINT" DEMAND HISTORY;
PERIOD: ";:FOR X=33 TO 35:PRINTU
SING"###";X;:PRINT"=";:PRINTUSING
"#####";DA(X);:PRINT" ";:NEXT
630 PRINT:PRINT" NEWEST DEMAND U
P-DATE. (NOTE: ONLY ON
E PERIOD CAN BE DONE AT A TIM
E; OLDEST ";CHR$(34);"NEW";CHR$(
34);" PERIOD 1ST.)":PRINT:INP
UT" ENTER NEWEST DEMAND";DA(36)
640 PRINT:INPUT" ENTER DATE DEMA
ND OCCURED. (MM,YY, NUMERI
C AND PERIOD ONLY) ";DP(3)
1990 '***
2000 '*** BEGIN FC PROG. CALCULA
TE "G" VALUES ***
2010 '***
2020 FOR X=1 TO 6:A(X)=0:G(X)=0:
NEXTX:'*** CLEAR "A" &"G" VALUES
***
2030 '*** PRINT:PRINT"DV, G(1) =
";
2040 CLS:PRINT:PRINT" CALCULATIN
G FORECAST: "; " G VALUES ";
2050 A=1:FOR X=1 TO 36:G(1)=DV(X
,A)*DA(X)+G(1):NEXTX:'*** PRINTU
SING"#####.#####";G(1)
2060 '*** PRINT"DV, G(2) = ";
2070 A=2:FOR X=1 TO 36:G(2)=DV(X
,A)*DA(X)+G(2):NEXTX:'*** PRINTU

```

```

SING"#####.#####";G(2)
2080 '*** PRINT"DV, G(3) = ";
2090 A=3:FOR X=1 TO 36:G(3)=DV(X
,A)*DA(X)+G(3):NEXTX:'*** PRINTU
SING"#####.#####";G(3)
2100 '*** PRINT"DV, G(4) = ";
2110 A=4:FOR X=1 TO 36:G(4)=DV(X
,A)*DA(X)+G(4):NEXTX:'*** PRINTU
SING"#####.#####";G(4)
2120 '*** PRINT"DV, G(5) = ";
2130 A=5:FOR X=1 TO 36:G(5)=DV(X
,A)*DA(X)+G(5):NEXTX:'*** PRINTU
SING"#####.#####";G(5)
2140 '*** PRINT"DV, G(6) = ";
2150 A=6:FOR X=1 TO 36:G(6)=DV(X
,A)*DA(X)+G(6):NEXTX:'*** PRINTU
SING"#####.#####";G(6)
2190 '***
2200 '*** CALCULATE "A" VALUES *
**
2210 '***
2220 '*** PRINT:PRINT"CV, A(1) =
";
2230 PRINT:PRINT" A VALUES ";
2240 A=1:FOR X=1 TO 6:A(1)=CV(X,
A)*G(X)+A(1):NEXTX:'*** PRINTUSI
NG"#####.#####";A(1)
2250 '*** PRINT"CV, A(2) = ";
2260 A=2:FOR X=1 TO 6:A(2)=CV(X,
A)*G(X)+A(2):NEXTX:'*** PRINTUSI
NG"#####.#####";A(2)
2270 '*** PRINT"CV, A(3) = ";
2280 A=3:FOR X=1 TO 6:A(3)=CV(X,
A)*G(X)+A(3):NEXTX:'*** PRINTUSI
NG"#####.#####";A(3)
2290 '*** PRINT"CV, A(4) = ";
2300 A=4:FOR X=1 TO 6:A(4)=CV(X,
A)*G(X)+A(4):NEXTX:'*** PRINTUSI
NG"#####.#####";A(4)
2310 '*** PRINT"CV, A(5) = ";
2320 A=5:FOR X=1 TO 6:A(5)=CV(X,
A)*G(X)+A(5):NEXTX:'*** PRINTUSI
NG"#####.#####";A(5)
2330 '*** PRINT"CV, A(6) = ";
2340 A=6:FOR X=1 TO 6:A(6)=CV(X,
A)*G(X)+A(6):NEXTX:'*** PRINTUSI
NG"#####.#####";A(6)
2350 FC(1)=A(1)*DV(1,1)+A(2)*DV(
1,2)+A(3)*DV(1,3)+A(4)*DV(1,4)+

```



Listing Cont.  
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!!!NEW!!!

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DeStafeno Cont.

```
(5)*DV(1,5)+A(6)*DV(1,6):'*** PR
INT:PRINT" FC(1) = ";PRINTUSI
NG"#####.#####";FC(1)
2990 '***
3000 '*** CALCULATE "A" & "FC" V
ALUES FOR PERIODS 2 TO 37 ***
3010 '***
3020 H1=.03519:H2=.0003256:H3=.0
02104:H4=.03508:H5=.002851:H6=.0
3499:A=2:B=37:C=.866:D=.5
3030 PRINT:PRINT" FOR 36 HISTO
RY PERIODS ";
3040 FOR X=A TO B
3050 R1=DA(X-1)-FC(X-1):'*** ERR
OR CAL. ***
3060 A1(1)=A(1)+A(2)+(H1*R1)
3070 A1(2)=A(2)+(H2*R1)
3080 A1(3)=(C*A(3))-(D*A(4))+(H3
*R1)
3090 A1(4)=(D*A(3))+(C*A(4))+(H4
*R1)
3100 A1(5)=(D*A(5))-(C*A(6))+(H5
*R1)
3110 A1(6)=(C*A(5))+(D*A(6))+(H6
*R1)
3120 FC(X)=A1(1)+A1(2)+(A1(3)*D)
+(A1(4)*C)+(A1(5)*C)+(A1(6)*D):'
***PRINTFC(X)
3130 FOR Y=1 TO 6:A(Y)=A1(Y):NEX
TY:NEXTX
3990 '***
4000 '*** CALCULATE "FC" VALUES
FOR PERIODS 38 TO 42 ***
4010 '***
4020 PRINT:PRINT" FOR 5 ADDITI
ONAL FUTURE", " PERIODS";
4030 FOR X=38 TO 42
4040 A1(1)=A(1)+A(2)
4050 A1(2)=A(2)
4060 A1(3)=(C*A(3))-(D*A(4))
4070 A1(4)=(D*A(3))+(C*A(4))
4080 A1(5)=(D*A(5))-(C*A(6))
4090 A1(6)=(C*A(5))+(D*A(6))
4100 FC(X)=A1(1)+A1(2)+(A1(3)*D)
+(A1(4)*C)+(A1(5)*C)+(A1(6)*D):'
*** PRINTFC(X)
4110 FOR Y=1 TO 6:A(Y)=A1(Y):NEX
TY:NEXTX
4190 '***
4200 '*** SCREEN PRINT 6 PERIODS
OF FORECAST ***
4210 '***
4220 CLS:PRINT" FORECAST FROM TH
E LAST ENTERED ACTUAL DEMAND, D
ATED ";DP(3):PRINT
4230 FOR X=1 TO 6:PRINT" PLUS"X
"PERIOD(S) = ";PRINTUSING"###
#.##";FC(X+36):NEXTX
4290 '***
4300 '*** PRINT HARD COPY FORECA
ST ROUTINE ***
4310 '***
4320 PRINT:PRINT" IT IS STRONGLY
SUGGESTED THAT A HARD COPY OF
THIS FORECAST BE PRINTED SIN
CE THE FORECAST CAN NOT BE MAD
E AGAIN WITHOUT RE-ENTERING TH
E 36 PERIODS OF DATA.":EXEC44
539
4330 IFPT=1THEN4370 ELSE CLS:PRI
NT:PRINT" PRINT HARD COPY OF FOR
ECAST?", " (Y/N) ";:EXEC44539:K$=
INKEY$:IFK$="N"THEN5020
4340 PRINT:PRINT:PRINT" WHEN PRI
NTER IS READY PRESS", " <ENTER>";
4350 K$=INKEY$:IFK$=" "THEN4350
4360 POKE150,1:PRINT#-2,"FORECAS
T; PERIOD 1 IS FOR THE 1ST PERIO
D AFTER THE DATE SHOWN BELOW.":A
$=STRING$(12,32):PRINT#-2,"PERIO
```

```
D: 1";A$;"2";A$;"3";A$;"4";A$;"
5";A$;"6";CHR$(13);STRING$(80,45
);CHR$(13):PT=1
4370 PRINT#-2,DP(1);" = P/N, ";D
P(2);" = CLASS. ";DP(3);" = DATE
OF NEWEST DEMAND ENTERED"
4380 FOR X=1 TO 6:PRINT#-2,USING
"#####.##";FC(X+36);:NEXTX:
PRINT#-2,"":PRINT#-2,""
4990 '***
5000 '*** DELETE OLDEST PERIOD D
EMAND AND FORECAST, AND ADD NEW
ST PERIOD DEMAND AND FORECAST **
*
5010 '***
5020 PRINT:PRINT:PRINT" RE-ALINI
NG DEMAND AND FORECAST DATA AND
SAVING THE RESULT TO DISK."
5030 OPEN "D", #1, FS$, 125:R=R-
2:'*** SAVE DA AND FC TO DISK **
*
5040 FIELD #1, 5AS A$, 5AS B$, 5
AS C$, 5AS D$, 5AS E$, 5AS F$, 5
AS G$, 5AS H$, 5AS I$, 5AS J$, 5
AS K$, 5AS L$, 5AS M$, 5AS N$, 5
AS O$, 5AS P$, 5AS Q$, 5AS R$, 5
AS S$, 5AS T$, 5AS U$, 5AS V$, 5
AS W$, 5AS X$, 5AS Y$
5050 LSETA$=MKN$(DP(1)):LSETB$=M
KN$(DP(2)):LSETC$=MKN$(DP(3)):LS
ETD$=MKN$(DP(4)):LSETE$=MKN$(DA
(2)):LSETF$=MKN$(FC(2)):LSETG$=MKN
$(DA(3)):LSETH$=MKN$(FC(3)):LSE
TI$=MKN$(DA(4)):LSETJ$=MKN$(FC(4
)):LSETK$=MKN$(DA(5))
5060 LSETL$=MKN$(FC(5)):LSETM$=M
KN$(DA(6)):LSETN$=MKN$(FC(6)):LS
ETO$=MKN$(DA(7)):LSETP$=MKN$(FC(
7)):LSETQ$=MKN$(DA(8)):LSETR$=MKN
$(FC(8)):LSETS$=MKN$(DA(9)):LSE
TT$=MKN$(FC(9)):LSETU$=MKN$(DA(1
0)):LSETV$=MKN$(FC(10))
5070 LSETW$=MKN$(DA(11)):LSETX$=
MKN$(FC(11)):LSETY$=MKN$(DA(12))
:PUT #1, R
5080 '***
5090 LSETA$=MKN$(FC(12)):LSETB$=
MKN$(DA(13)):LSETC$=MKN$(FC(13))
:LSETD$=MKN$(DA(14)):LSETE$=MKN$
(FC(14)):LSETF$=MKN$(DA(15)):LSE
TG$=MKN$(FC(15)):LSETH$=MKN$(DA(
16)):LSETI$=MKN$(FC(16)):LSETJ$=
MKN$(DA(17)):LSETK$=MKN$(FC(17))
5100 LSETL$=MKN$(DA(18)):LSETM$=
MKN$(FC(18)):LSETN$=MKN$(DA(19))
:LSETO$=MKN$(FC(19)):LSETP$=MKN$
(DA(20)):LSETQ$=MKN$(FC(20)):LSE
TR$=MKN$(DA(21)):LSETS$=MKN$(FC(
21)):LSETT$=MKN$(DA(22)):LSETU$=
MKN$(FC(22)):LSETV$=MKN$(DA(23))
5110 LSETW$=MKN$(FC(23)):LSETX$=
MKN$(DA(24)):LSETY$=MKN$(FC(24))
:R=R+1:PUT #1, R
5120 '***
5130 LSETA$=MKN$(DA(25)):LSETB$=
MKN$(FC(25)):LSETC$=MKN$(DA(26))
:LSETD$=MKN$(FC(26)):LSETE$=MKN$
(DA(27)):LSETF$=MKN$(FC(27)):LSE
TG$=MKN$(DA(28)):LSETH$=MKN$(FC(
28)):LSETI$=MKN$(DA(29)):LSETJ$=
MKN$(FC(29)):LSETK$=MKN$(DA(30))
5140 LSETL$=MKN$(FC(30)):LSETM$=
MKN$(DA(31)):LSETN$=MKN$(FC(31))
:LSETO$=MKN$(DA(32)):LSETP$=MKN$
(FC(32)):LSETQ$=MKN$(DA(33)):LSE
TR$=MKN$(FC(33)):LSETS$=MKN$(DA(
34)):LSETT$=MKN$(FC(34)):LSETU$=
MKN$(DA(35)):LSETV$=MKN$(FC(35))
5150 LSETW$=MKN$(DA(36)):LSETX$=
MKN$(FC(36)):LSETY$=MKN$(FC(37))
:R=R+1:PUT #1, R:CLOSE#1:R=-2
5190 '***
5200 '*** CONTINUE W/ANOTHER P/N
FORECAST ***
```

```
5210 '***
5220 PRINT:PRINT" FORECAST ANOTH
ER PART? (Y/N) ":EXEC44539:I$=I
NKEY$:IFI$<>"N" THEN CLS:GOTO420
ELSE END
5990 SAVE
6000 STOP"EXP-FC
```

```
0 '*** "NEW-PT-N", NEW PART NUM
BER, BY:
CHATHAM HOUSE SOFTWARE,
JIM DESTAFENO
RD#1, BOX375
WYOMING, DE 19934 ***
10 TROFF:CLS:CLEAR1000
20 DIM DA(35), FC(36), B$(35):C=
36
30 FS$="FC-DATA"
99 ' ***
300 '*** INPUT NEW P/N DATA ***
310 '***
320 PRINT:INPUT" NEW P/N. (NUMER
IC ONLY) ";DP(1)
330 PRINT," CLASS. (NUMERIC O
NLY) ? ";:EXEC44539:K$=I
NKEY$:PRINTK$:IF CVN(MKN$(VAL(K$
)))=0 THEN330 ELSE DP(2)=VAL(K$)
340 PRINT:PRINT" <<< ALL CORREC
T ? (Y/N) >>>":EXEC44539:K$=INK
EY$:PRINTK$:IFK$="N"THEN300
999 ' ***
1000 '*** INPUT DATA FOR NEW P/N
***
1010 '***
1020 CLS:PRINT," " "DEMAND DATA I
NPUT INSTRUCTIONS:", " " " 36 PERI
ODS OF DATA ARE PREFER RED. IF
LESS THAN 36 ARE INPUT ED THE P
ROGRAM WILL GENERATE THE MISS
ING PERIODS BY REPEAT ING WHAT
HAS BEEN PUT IN. ANY LESS THE
N 24 PERIODS WILL REN",
```

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Schedule SE	Earned Income Cr
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```

1030 PRINT" DER THE FORECAST UNR
ELIABLE.",," INPUT THE OLDEST
DATA FIRST, INTO PERIOD 1; THR
U TO THE NEW EST, INTO PERIOD 3
5. PERIOD 36 WILL BE ENTERED LA
TER.":EXEC44539:CLS:PRINT,," (IF
YOU ARE USING LESS THAN 36 PER
IODS, DO NOT INPUT THE NE
1040 PRINT" EST PERIOD NOW.),,"
" TO TEMINATE INPUT, PRESS";CHR$(
34);"Q";CHR$(34);" (A";CHR
$(34);"0";CHR$(34);" DEMAND CAN
BE INPUTED BY PRESSING <ENTER
>.)",,,,,,EXEC44539:CLS:PRINT,,"
ENTER OLDEST DEMAND IN PERIOD:"
1050 FOR X=1 TO 35
1060 PRINTX;"- ";:LINEINPUT K$
1070 IF K$="" THEN K$="0"
1080 IF K$="Q" THEN2020
1090 IF K$="N" THEN X=X-1:GOTO10
60
1100 K=VAL(K$):B$(X)=STR$(K)
1110 PRINT"CORRECT ? (N) .....
...":PRINTUSING"#####";VAL(B$(
X))
1120 NEXTX
1130 IFX<36THEN2020
1140 FOR X=1 TO 35:DA(X)=VAL(B$(
X)):NEXTX:GOTO3020
1999 '***
2000 '*** CREAT PSEUDO DEMAND
HISTORY ***
2010 '***
2020 X=X-1:PRINT:PRINT" (IF YOU
ARE USING LESS THAN 36 PERIODS,
YOU SHOULD NOT HAVE ENTERED
THE NEWEST PERIOD.):":EXEC44539
2030 FOR Y=X TO 1 STEP-1
2040 C=C-1:IF C=0 THEN3020
2050 DA(C)=VAL(B$(Y))
2060 NEXT:GOTO2030
2999 '***
3000 '*** LAST CHANCE CHECK OF
DATA VALUES ***
3010 '***
3020 X=35:CLS:PRINT" LAST CHANCE
DATA CHECK:", " P/N - ";:DP(1):P
RINT" CLASS - ";:DP(2)
3040 FOR Y=1 TO 2
3050 '*** IFX=15THEN:GOSUB4100:C
LS:PRINTELSEIFX<11THEN:GOSUB4100:C
LS:PRINT:PRINT" LOADING DEMAND D
ATA ON DISK.":GOTO5010
3060 PRINTUSING"###";X;:PRINT="";
:PRINTUSING"#####";DA(X);:PRIN
T,,";X=X-1:IFX=14THEN:GOSUB3080
:CLS:PRINTELSEIFX<11THEN:GOSUB3080
:CLS:PRINT:PRINT" LOADING DEMAND
DATA ON DISK.":GOTO5020ELSENEXT
Y
3070 PRINTUSING"###";X;:PRINT="";
:PRINTUSING"#####";DA(X),:X=X-
1:GOTO3040
3080 PRINT:PRINT" <<< ALL CORRE
CT ? (Y/N) >>>":EXEC44539:K$=IN
KEY$:IFK$<>"N" THENRETURNELSERUN
4999 '***
5000 '*** LOAD DATA TO DISK ***
5010 '***
5020 OPEN "D", #1, FS$, 125
5030 IFI$="T" THENR=1ELSER=LOF(1)
+1
5040 FIELD #1, 5AS A$, 5AS B$, 5
AS C$, 5AS D$, 5AS E$, 5AS F$, 5
AS G$, 5AS H$, 5AS I$, 5AS J$, 5
AS K$, 5AS L$, 5AS M$, 5AS N$, 5
AS O$, 5AS P$, 5AS Q$, 5AS R$, 5
AS S$, 5AS T$, 5AS U$, 5AS V$, 5
AS W$, 5AS X$, 5AS Y$
5050 LSETA$=MKN$(DP(1)):LSETB$=M
KN$(DP(2)):LSETC$=MKN$(DP(3)):LS
ETD$=MKN$(DP(4)):LSETE$=MKN$(DA
1)):LSETF$=MKN$(FC(1)):LSETG$=MK

```

```

N$(DA(2)):LSETH$=MKN$(FC(2)):LSE
TI$=MKN$(DA(3)):LSETJ$=MKN$(FC(3
)):LSETK$=MKN$(DA(4))
5060 LSETL$=MKN$(FC(4)):LSETM$=M
KN$(DA(5)):LSETN$=MKN$(FC(5)):LS
ETO$=MKN$(DA(6)):LSETP$=MKN$(FC(
6)):LSETQ$=MKN$(DA(7)):LSETR$=MK
N$(FC(7)):LSETT$=MKN$(DA(8)):LSE
TT$=MKN$(FC(8)):LSETU$=MKN$(DA(9
)):LSETV$=MKN$(FC(9))
5070 LSETW$=MKN$(DA(10)):LSETX$=
MKN$(FC(10)):LSETY$=MKN$(DA(11))
:PUT #1, R
5080 '***
5090 LSETA$=MKN$(FC(11)):LSETB$=
MKN$(DA(12)):LSETC$=MKN$(FC(12))
:LSETD$=MKN$(DA(13)):LSETE$=MKN$(
FC(13)):LSETF$=MKN$(DA(14)):LSE
TG$=MKN$(FC(14)):LSETH$=MKN$(DA(
15)):LSETI$=MKN$(FC(15)):LSETJ$=
MKN$(DA(16)):LSETK$=MKN$(FC(16))
5100 LSETL$=MKN$(DA(17)):LSETM$=
MKN$(FC(17)):LSETN$=MKN$(DA(18))
:LSETO$=MKN$(FC(18)):LSETP$=MKN$(
DA(19)):LSETQ$=MKN$(FC(19)):LSE
TR$=MKN$(DA(20)):LSETS$=MKN$(FC(
20)):LSETT$=MKN$(DA(21)):LSETU$=
MKN$(FC(21)):LSETV$=MKN$(DA(22))
5110 LSETW$=MKN$(FC(22)):LSETX$=
MKN$(DA(23)):LSETY$=MKN$(FC(23))
:R=R+1:PUT #1, R
5120 '***
5130 LSETA$=MKN$(DA(24)):LSETB$=
MKN$(FC(24)):LSETC$=MKN$(DA(25))
:LSETD$=MKN$(FC(25)):LSETE$=MKN$(
DA(26)):LSETF$=MKN$(FC(26)):LSE
TG$=MKN$(DA(27)):LSETH$=MKN$(FC(

```

```

27)):LSETI$=MKN$(DA(28)):LSETJ$=
MKN$(FC(28)):LSETK$=MKN$(DA(29))
5140 LSETL$=MKN$(FC(29)):LSETM$=
MKN$(DA(30)):LSETN$=MKN$(FC(30))
:LSETO$=MKN$(DA(31)):LSETP$=MKN$(
FC(31)):LSETQ$=MKN$(DA(32)):LSE
TR$=MKN$(FC(32)):LSETS$=MKN$(DA(
33)):LSETT$=MKN$(FC(33)):LSETU$=
MKN$(DA(34)):LSETV$=MKN$(FC(34))
5150 LSETW$=MKN$(DA(35)):LSETX$=
MKN$(FC(35)):LSETY$=MKN$(FC(36))
:R=R+1:PUT #1, R:CLOSE#1
5160 '***
5190 '***
5200 '*** CONTINUE W/ANOTHER P/N
FORECAST ***
5210 '***
5220 PRINT:PRINT" INPUT DATA FOR
ANOTHER PART? (Y/N) ";:EXEC
44539:K$=INKEY$:IFK$<>"N" THEN C
LS:GOTO3020 ELSE END
5230 STOP
6000 SAVE"NEW-PT-N

```

## Prod. Reveals Cont.

The Hi-Res interface looks similar to the Tandy Hi-Res interface except for two labeled switches on the top of the box. With both switches flipped to the "Tandy Standard", the interface works the same as Tandy's. Flipped to "Other", the interface will work with CoCo Max III by Colorware.

The second part of this package - software - consists of a binary Hi-Res joystick interface driver, a driver demo, a CoCo Max II to CoCo 3 patch and a Max Edit patch.

The Hi-Res driver program requires some expertise in programming in BASIC or Assembly language. It will allow you to use the Hi-res interface for joystick control in your programs. As I am not a programmer, I'll have to take Color Ventures word on how well this program works. The demo program will show you how the driver works. Make a backup copy of the disk. <LOAD> "DOTS" and list the program. Delete line #29793 and #8309 before running. The line numbers are wrong. Neither are used to run the program.

After patching CoCo Max II, I had no problem using the Hi-Res interface (in the Tandy Mode) except for losing about a half inch on the right side of the screen. I would recommend that you buy this package if you already had CoCo Max II and wer not ready to upgrade.

The last patch will allow you to use Max Edit (by Derringer Software) with an x-pad or plain joystick on your CoCo 3. The software programs included with this special joystick work only on the CoCo 3.

## HGRX-DUMP \$13.95

The 1ST CoCo III screen dump that prints ALL PMODE/HSCREENs to Tandy & Epson printers. Menu baud rates double-size/reverse, and 16 print patterns. Print just PMODEs on a CoCo I or II! 100% ML, disk/tape.

## Sigmadisk \$14.95

Disk utility for all CoCos. Three directories, copy, backup, format, directory backup & editor, sector editor, gran table, 40/80 col. on CoCo III, more! 100% ML on disk. Supports 1-4 drives. A must!

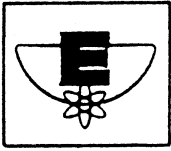
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IMPORTANT MEMO TO: ALL CLIPBOARD READERS  
FROM: Rush T. Caley, OWNER

Since I pay for this space, I can, for the most part, put anything here I choose. Now I'd rather put software ads here and hope to make some money on the outstanding software carried by this company. But I don't always get the response from the readers I might like. Since 1983, I have dedicated this company to be a service company for users who have an interest in business applications for the CoCo. I have grossly overestimated the number whom I thought might be attracted to this type of software. However, I plan NO change in my opinions or my policies. You've seen my ads, you can see my address and phone here. If you would like a catalog, a list of satisfied customers, or just want to chat about some of the software we offer, just let me know. However, I'm through with pitching the best practical application software in the market in expensive ads and mail campaigns.

I read in another publication that there's going to be a book about the CoCo and all the "movers and shakers" in the CoCo community. Now, I'd like to tell you about some people that will never be mentioned in that book. The programmers, users, retailers, writers, and so on. Little "flames" that flicker about in the dark past of CoCo history. And "new" people too.

A Programmer like Ben Stokes who possibly wrote the first combination Database, Spreadsheet, Text processor for any microcomputer. A programmer like Wayne Moodie whose imagination gave us MISAR—one of the most unusual in-memory database programs I've ever seen. He was the first I saw recognize the CoCo's "96K". Clever application programmers like Tad Pratt and Marty Fisher (FORMAKER); James Talcott (CALINDEX II); Ed Laidlaw (JARB Software). Early creative machine language hacks like Jerome Cigna (Teleform); Dean Rector (Wizard); John Erickson (Archivist and Deputy Inspector); Darren Croft (Puzzler). (Sorry, van der Poel, you'll be in "THE BOOK")

There were advanced business users even before my time. Guys like Cliff Hardesty and Bill Brown running sophisticated accounting and inventory control - first on tape - and then to disk drives. Hardesty unstrapped the CoCo's DOS and was running 512K RAM and FIFTEEN drives (15) before the 64K CoCo had even been released by Tandy. If you ask him, he'll tell you how. Guys like Steve Buckley who went from his basement to be the largest CoCo support in the Northwest for retail hardware and software. And there was Dr. Scott Norman who wrote about the CoCo and CoCo programs and KNEW what he was talking about. I was in his book.

I MISS all those people. But I still look in the shadows for people like that. And I still find them. New Blood - interested in practical applications. Guys like Randall Krippner, and Terry Simons crop up from time to time and get me excited about the CoCo all over again. Enthusiastic new users I've "met" like Paul Bornemann and Tony Rapson. They get so excited you'd think gold had just been discovered. Guys like Jim Destafeno who won't fudge on a review just to make brownie points. And of course, guys like Ted Paul who doesn't care about how many past publications supported the CoCo. He's here NOW. People like YOU - readers of this magazine.

I'm not going to be in "THE BOOK". But I'm here to stay. If I can help you out, let me know.

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Next month in CoCo Clipboard...

Rush Caley Continues his tutorial on Databases.

Wayne Day returns with more on CompuServe and a new release from Mike Ward.

Del Searles uncorks another prize PASCAL program.

Lots of reviews of lots of software including Tandy products such as Flight Sim II, Phantomgraph and others.

Update on the CoCo 3 Basic Programming Contest.

Letters, programs, articles, coupons, etc.

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