



CoCo Nutz!

Volume 1, Issue 2, July 8, 2005

In This Issue:

Editorials:

- ▶ Why the CoCo? Why Now? - By Mary Kramer

Features:

- ▶ A Little History - By Robert Gault
- ▶ An Interview With The "CoCo Cat" - By Mary Kramer
- ▶ Common CoCo Abbreviations

Programs:

- ▶ "Mystify" - By Diego Barizo
- ▶ "Wipe Out" - By Richard Kelly

Reviews:

- ▶ "Flippy" - By Richard Kelly

One Liners:

- ▶ "MATHDRIL.BAS" - By Rodney & Joe Hamilton
- ▶ "JUGGLE.BAS" - By Rodney Hamilton
- ▶ "SCANNER.BAS" - By Rodney Hamilton

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Why the CoCo? Why Now?

Written by Mary Kramer

Some of you do not know why it is that I wanted to get started with a CoCo. Well, to me it's a legacy handed down to me by my father. It is the only way I can truly get closer to him. My dad passed away when I was only 15, and all he left behind were his computers. He was crazy about them. There was a special kind of computer called the TRS-80 Color Computer. I didn't understand it for a long time. After ten years, my uncle handed me a box with about 500 floppy disks in it and said, "Here kid, it's all I got left of your dad."

So I figured it was time for me to begin the process of finding out who dad was and why these computers were so special to him. Wow! All those disks! What to do? After receiving all the equipment I needed to run the disks, I began to see what was so special about this computer. My brother thinks I am stepping back into the dark ages. I feel when I am programming that I am accomplishing something, and man everything I do on it, I DID. Me! I did it! Not only that, but I am beginning to see that some of the most talented computer programmers that I have met started out this way. The CoCo invokes a sense of community; a project to tinker with that never dies and a feeling that I accomplished something. I am still learning, but man this is turning out to be a great ride.

(Continued on next page...)

One Liner - "MATHDRIL.BAS"

This one-liner program is a simple math drill that provides a random mix of addition, subtraction, multiplication and a random mix of addition, subtraction, multiplication and ALL answers will be whole numbers, including divisions. The program continues as long as you keep answering. To quit, press ENTER instead of an answer and your session score will be printed. □

MATHDRIL.BAS
Authors: Rodney & Joe Hamilton

```
4 A=RND(4):X=RND(12):Y=RND(12):C
(1)=X+Y:C(2)=X-Y:C(3)=X*Y:C(4)=X
:Z(0)=X:Z(1)=X*Y:PRINTZ(A/4);MID
$("+ - */",A,1);Y"= ";:INPUTB$:IFB
$<>" "THENN=N+1:IFC(A)=VAL(B$)THE
NPRINT"RIGHT":R=R+1:GOTO4ELSEPRI
NT"WRONG, IT WAS"C(A):GOTO4ELSEP
RINTR"OUT OF"N"CORRECT"
```

Why the CoCo? Why Now?

(Continued from previous page.)

Who Is My Dad?

So now let me tell you what I do know of my dad. He was apparently very active in tinkering with this machine. He loved to be part of the clubs and knew most of the people who ran the clubs fairly well. I have learned that he once went up to Kentucky to visit Rick and write articles for his CFDM magazine. He knew a lot of people, but I haven't found any of those people yet. But on his disks are lots of names from people he has traded programs with.

He loved to surf and be near the ocean. He lived in Florida for quite some time and frequented the beach often. He also lived in Georgia but it was shortly after he moved there that he was killed. He lived by candlelight and only used electricity for his computers. He mainly lived on bologna and Dr. Pepper as well. He worked at a wastewater treatment plant where he was designing a computer security system for the company. He had lots of college degrees; too many to list. He loved to go to school and learn as much as he could about computers.

He and my mom divorced when I was ten and she won complete parental rights over my brother and I. I was supposed to get to see him again when I was 18, but that day never came. My grandma says he used to celebrate our birthdays by himself, carried around a picture of my mother in his wallet, and never really dated again after they divorced. It's sad really. At least he had his CoCo and all the wonderful people he met to keep him company. □

One Liner - "JUGGLE.BAS"

This one-liner program demonstrates a simple multi-frame animation of a Lissajous pattern that resembles balls being juggled. The "PLAY" commands are used to synchronize the frame switches to the screen's vertical refresh to avoid "flicker jump" artifacts. □

JUGGLE.BAS

By Rodney Hamilton

```
7 IFI THENFORI=1TO8:PMODE0,I:PLA
Y"1":SCREEN1,1:FORJ=0TO29:NEXTJ,
I:GOTO7ELSEPCLEAR8:C=71/4068:FOR
I=1TO8:PMODE0,I:PCLS:SCREEN1,1:F
ORJ=I*5TO364STEP40:X=128+100*COS
(J*C):Y=96-64*SIN(J*C*2):CIRCLE(
X,Y),19:PAINT(X,Y):NEXTJ,I:PLAY"
T16L16V0":GOTO7
```

A Little History

Written By Robert Gault

The Color Computer (affectionately known as a CoCo and formerly sold by Tandy) has got to be the most underrated computer ever made. It was based on the Motorola MC6809E. The circuit used for the original CoCo 1 was, almost part for part, shown in the Motorola spec sheet for the SN74LS783 - MC6883, a synchronous address multiplexer (called by CoCoists a SAM.) The third major chip in the CoCo was the MC6847 Color Video Display Generator.



*The Color Computer 3 By SockMaster
(Used by Permission)*

The CoCo 1 was an 8/16 bit computer running at 0.89/1.78 MHz. The text screen was 32 letters by 16 lines in uppercase. Graphics resolution was 256x192x2 although owners quickly found that color artifacting produced by the composite video output could increase the color count by one or two orders of

magnitude. Memory was limited to 32K ROM plus 64K RAM. With the CoCo 3, the final version made by Tandy, the support chips were enhanced to produce a base unit with 128K RAM, 80x25 character text, 640x192x4 or 320x192x16 graphics, and RGB video output. The CoCo1 did have one graphics capability that the CoCo3 lacks, Semigraphics.

The above description hardly does the CoCo justice. With its simple single circuit board hardware and ease of programming at the assembly language level, it became the prime hobbyist computer. Many of these hobbyists started selling their hardware and software efforts and perhaps as many as ten magazines were either dedicated to the computer or strongly supported it. The most influential magazine was "The Rainbow", 1982-1993, published by Lawrence C. Falk (Falsoft Inc.) Lonnie even started an annual convention (CoCoFest) where owners and third party supporters could gather to hear lectures, buy hardware and software, and generally have a great time over a weekend.

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A Little History

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Even though the CoCo has been out of production for many years, interest in the unit is still strong with a discussion list, `listserv@pucc.princeton.edu`, a news group which echoes the list, `bit.listserv.coco`, and many dedicated web pages. You can subscribe to the list by including in a message body one of the following:

- `subscribe COCO your name`
- `(unsubscribe COCO)`

Many of the things above could be said about other computers of the day, but the CoCo was unique in that Tandy collaborated with Microware to bring to the CoCo the OS-9 operating system. OS-9 is a realtime multitasking operating system with many similarities to Unix. Two versions, Level I and Level II were available. Level II supported the full hardware capabilities of the CoCo3: up to 2 MB RAM, 16 windows running simultaneously, multiple drives including SCSI hard drives. A GUI point and click desk top (MultiVue), an advanced Basic (Basic09), and versions of C and PASCAL ran under OS-9.

While running applications under OS-9, the CoCo could compete with any other computer until the advent of the Internet with its intensive use of graphics. The CoCo did not have the memory, speed, or video power to handle 256 color or higher graphics in real time.

Editor's Note:

You can find more information about the CoCo on Robert's site, including other articles he has published. He also has software for sale. He has one of the best sites I have seen thus far. Thanks Robert! □

http://home.att.net/~robert.gault/Coco/CoCo_main.htm

"Mystify"

Written by Diego Barizo

This program was inspired by the screensaver, 'Mystify,' that comes with Windows. It draws a series of lines following a random pattern in different colors, and let's you control some of the ways the lines behave. H1, H2, V1, V2 are the line coordinates. X1, X2, Y1, Y2 control the speed at which the line moves, and since both ends move in different directions, which way the line moves. D is the acceleration for the line movement (controlled with the up and down arrows.) Line 70 is where it's decided if any change is going to be made in speed or color. □

One-Liner - "SCANNER.BAS"

This 1-liner lets you move the display screen to anywhere in the COCO's 64K memory space. To use this program with the DRAGON's keyboard matrix layout, just change both occurrences of &HF7 to &HDF.

"1" Selects the text screen.
"2" Selects PMODE 0 graphics.
"3" Selects PMODE 2 graphics.
"4" Selects PMODE 4 graphics.
UP-ARROW Scrolls upward.
DN-ARROW Scrolls downward. □

SCANNER.BAS
By Rodney Hamilton

```
1 A$=INKEY$:A=A-(PEEK(&H155)=&HF7)+(PEEK(&H156)=&HF7)AND&H7F:IFA$<"1"ORA$>"4"THENIFM<2THENB=1:FORI=&HFFC6 TO&HFFD2 STEP2:POKEI+SGN(A ANDB),0:B=B+B:NEXT:GOTO1ELSEPOKE&HBA,A+A:SCREEN1,1:GOTO1ELSEM=VAL(A$):IFM=1THENSREEN0:GOTO1ELSEPMODEM+M-4:GOTO1
```

```
0 ON BRK GOTO 1450
10 HSCREEN 2
20 HCLS 8
25 D=4
30 H1=RND(100)+100:H2=RND(100)+100
40 V1=RND(100)+100:V2=RND(100)+100
45 X1=(RND(10)-5)/4:X2=(RND(10)-5)/4:Y1=X2:Y2=X1
50 HLINE(H1,V1)-(H2,V2),PSET
60 H1=H1+X1:H2=H2+X2:V1=V1+Y1:V2=V2+Y2
70 ON RND(20) GOSUB 1000,1100,1200,1300,1400
80 IF H1>319 THEN H1=319:X1=-X1
90 IF H1<0 THEN H1=0:X1=-X1
100 IF H2>319 THEN H2=319:X2=-X2
110 IF H2<0 THEN H2=0:X2=-X2
120 IF V1>191 THEN V1=191:Y1=-Y1
130 IF V1<0 THEN V1=0:Y1=-Y1
140 IF V2>191 THEN V2=191:Y2=-Y2
150 IF V2<0 THEN V2=0:Y2=-Y2
160 A$=INKEY$:IF A$="" THEN 50
170 IF A$="^" THEN D=D-.5:IF D<.5 THEN D=.5:SOUND 1,1
180 IF A$=" " THEN HCLS RND(8)
190 IF A$>="1" AND A$<="9" THEN PALETTE VAL(A$),RND(64)-1
200 IF A$="0" THEN PALETTE CMP
210 IF ASC(A$)=10 THEN D=D+.5
999 GOTO 50
1000 X1=X1+(RND(10)-5)/D
1010 RETURN
1100 X2=X2+(RND(10)-5)/D
1110 RETURN
1200 Y1=Y1+(RND(10)-5)/D
1210 RETURN
1300 Y2=Y2+(RND(10)-5)/D
1310 RETURN
1400 HCOLOR RND(9)-1
1410 RETURN
1450 POKE 65496,0:PALETTE CMP:END
1500 REM * USE THE NUMBERS 1 TO 9 TO CHANGE COLORS, 0 TO GO BACK TO THE DEFAULT
1505 REM * PALETTE
1507 REM * THE SPACE KEY CLEARS THE SCREEN, AND THE UP AND DOWN ARROWS CHANGE
1510 REM * THE WAY THE LINES "MOVE"
```

A Moment With Lonnie Falk

Written By Mary Kramer

Most of you remember the days of a popular publication named "The Rainbow", and its creator Lonnie Falk. This time I decided to sit down with Mr. Falk and talk about his life now and his life then. Lonnie is now the mayor of Prospect, Kentucky where he has lived with his wife and beloved dog Graycee since the 1970's. He has two grown daughters and four wonderful grandchildren. When I asked him about life since his Rainbow days he simply replied, "Interesting". It sure has been, he had quite a bit of bragging rights as to his accomplishments as Mayor for Prospect, Kentucky. Here is what he had to say;

CoCo Nutz: Where do you live now?

Falk: Prospect, KY., where I have lived since the late 1970s.

CoCo Nutz: Do you have a family and children?

Falk: I have two daughters, both "grown" and parents, themselves, of the four most adorable kids you ever met. My wife and me also have a beloved dog, Graycee.

CoCo Nutz: Do you have any nicknames?

Falk: Well, my real name is Lawrence, so Lonnie is a nickname.



Lonnie Falk - "The Rainbow" Years

CoCo Nutz: What is your current job or occupation?

Falk: I have no job. I am a volunteer mayor for the City of Prospect.

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Lonnie Falk

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CoCo Nutz: How has life been since your CoCo and Rainbow days?

Falk: Interesting.

CoCo Nutz: How did you come up with the name for the magazine?

Falk: I was posting a message on the (there was only one in those days) CompuServe bulletin board about plans to collect information about the Color Computer and start a newsletter and as I was going along typing the message out (on a 4K CoCo) I just came up with "The Rainbow" and that's what it was. I guess I saved \$100,000 by not hiring some PR firm to research the market and come up with a catchy name.

CoCo Nutz: What was your first issue like?

Falk: The first issue was two pieces of paper, which I photocopied at the local drug store and stapled together.

CoCo Nutz: How many did you sell or distribute?

Falk: It was a big issue. I made 25 copies and then had to go back to the drug store and "print up" 10 more.

CoCo Nutz: What was your favorite issue for "The Rainbow"?

Falk: Hands down the First Anniversary Issue. That's when The Rainbow graduated from being a newsletter - OK, a rather large and comprehensive newsletter - into a slick magazine with a color cover, typeset pages and everything. It was a defining moment not only for the publication and the company, but for the CoCo because it took the ever-growing Community to a different level altogether, as a major consumer product with a defined base.

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Lonnie Falk

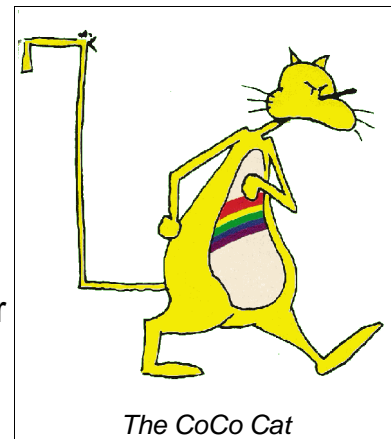
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CoCo Nutz: Please tell me more about Rainbow on Tape.

Falk: A guy called me one Saturday morning when the office was still in the basement of my house. He and his son had been up all night, typing in shifts, to copy a program we published to predict winners of NFL football games. A friend from the early days of The Rainbow had written the program, John Waclo, but I tried to help them debug it over the phone. It became rather obvious early on the problem was a typo somewhere in the data statements, which were a bear to find. I decided then, because our programs were getting longer and longer, we had to find a way to deliver these programs for those who didn't want to type them in. That's how Rainbow on Tape (and, later, Rainbow on Disk) was born. But we also developed the RainbowCheck program which could "verify" what was typed in directly from the magazine because we didn't want to "force" people to buy something else in order to get the programs.

CoCo Nutz: Tell me more about this mascot, the CoCo Cat, please.

Falk: CoCo Cat (which is copyrighted and whose image is a registered trademark) was, of course, our mascot and, in many ways, a symbol of the fun you could have with a Color Computer. CoCo Cat was always a big draw at our RainbowFests.



CoCo Nutz: Who invented it, and who usually wore it, etc?

Falk: One of our artists, I believe it was Jerry McKiernan, drew a cartoon for one of the issues with this cat in it, doing some cartoon-like thing, probably to illustrate an article in that particular issue. I thought it would be fun to have a regular feature about the "doings" of the cat, which I named CoCo Cat. People liked CoCo Cat, so we decided to incorporate him into the RainbowFests. We found a company that made mascots for sports teams and it debuted at a RainbowFest in New Jersey. An instant hit. ►

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Lonnie Falk

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Falk: The thing we didn't realize was that those team mascot outfits were usually worn outside so it was really hot inside the costume. We rigged a fan - no one ever said we weren't innovative - but the person who lived in the Cat usually could still only put up with about 30 minutes at a time and would emerge from a session soaking wet with sweat. No one every accused me of running a sweatshop, though.

CoCo Nutz: What ever happened to the CoCo Cat costume?

Falk: I have the CoCo Cat costume around here, somewhere. We offered it for sale when we were selling the back issues of the magazines, but no one wanted to buy it.

Now, before anyone asks: I don't know where it is, exactly. Ed Ellers, who many may remember as our resident geek and the author of our Q-and-A column "Earth to Ed," was the person who got all the back issues together and so on. He packed up a few things when we moved out of the building and, effectively, closed Falsoft (which, in its last incarnation, was a rather successful but small job printing company with presses in-house) and got them transported to the basement.

Ed worked for me, in the end personally as a "consultant," until he tragically passed away from throat cancer two years ago at the age of 41. Finding which box he put CoCo Cat's costume in would be a pretty massive chore. Despite being hidden away in the basement, though, you might say CoCo Cat lives on in part through Frosty the Snowman - the costume we use for our Light Up Prospect event the day after Thanksgiving when we open the Holiday Season.

CoCo Nutz: "The Rainbow" was a big success. Do you miss it?

Falk: I miss the people and the creativity involved in producing the issues, the coming up with new ideas and the like. It was always fun, for instance, to brainstorm what the anniversary issue "gift" we would include in the magazine would be or what a cover would look like. But, Omar Khayyam wrote "the moving finger writes, and having writ moves on . . ."

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Lonnie Falk

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CoCo Nutz: Some people want to know how to get back issues of "The Rainbow?"

Falk: You can't get them from me. We sold about everything we had through a web site I set up several years ago when we were actually closing the office down and had nowhere to store them. But there is good news on this front. Michael Harwood at michael@musicheadproductions.org and I have just agreed on a licensing scheme which will allow him to reproduce and sell disk-based copies of the magazines. Those "issues" will contain every word of the original magazines and all the images. I am glad we were able to put this together.

CoCo Nutz: What is your fondest memory of the CoCo?

Falk: The people who were involved in the CoCo Community. From the earliest ones who were encouraging as I was beginning to realize that this might be something rather significant to the tens of thousands of folks I met over the years in everything from business meetings to RainbowFests.

CoCo Nutz: Why was the CoCo so special?

Falk: The easy, and very true, answer is that it was special because of the people involved. From the "star" programmers to the everyday enthusiasts like your father, the Color Computer bound a lot of people all over the world together and that binding transcended the mere interest in a piece of technology. Just as an example, the Color Computer "fests" in Australia were usually held at campsites where there was as much typical "family fun" as there was computer stuff. The CoCo was a part of the family. ►

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Have an idea, criticism, or submission?

Check out the CoCo Nutz forum!

<http://mannequin.invigorated.org/forums/viewforum.php?f=1>



Lonnie Falk

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Falk: Consider that hundreds of thousand of people learned to program in BASIC because they bought one of those little machines. Some of those people are writing the most sophisticated programs you'll find on the market today in all sorts of crazy languages, but they got their start with "Learning Color Basic," which came packed in every box. Heck, I sat on the floor of a spare bedroom three nights running going through that book, working every example.

Remember that three large publishing companies had monthly magazines exclusively devoted to the Color Computer. While the other two never approached The Rainbow in size or circulation - despite what they claimed - that support was unmatched by any other system. If you add all the other newsletters, program subscription services and the like, it was probably the most vibrant and enthusiastic group of its time.

CoCo Nutz: Who were some people that greatly influenced you in those days?

Falk: I have always avoided answering questions like that because I leave people out and if the list were comprehensive, you'd probably have to increase the storage space on your web server.

The people who read this, though, owe a huge debt of thanks to Barry Thompson, who was the Color Computer line manager for Radio Shack and Tandy Corp. It was his vision which brought the Color Computer to be as a viable product and sustained it with upgrades and innovative ideas all those years. There was a CoCo IV. The trouble was Tandy CEO John Roach, by then, was enamored with the idea of being the most important player in the MS-DOS world and wouldn't let him build it. Based on a lot of things I see today, and the low entry cost of the Color Computer (which was always a plus) if Roach had merely let Thompson innovate in the later years as he did in the earlier ones, there would probably be a Color Computer today with a thriving niche market. Niche, as in several hundred thousand owners.

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Lonnie Falk

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CoCo Nutz: Are you still active in the CoCo community?

Falk: No. I lurk on a couple of bulletin boards from time to time.

CoCo Nutz: What do you miss most about the days of the CoCo?

Falk: Talking with and meeting the people from all over the world, literally, who were bound together by their interest in the Color Computer.

CoCo Nutz: Do you still have any CoCo stuff?

Falk: There is stuff all over, including the box in which my first Color Computer came in.

CoCo Nutz: There are still CoCofests going on today. When was the last one you attended?

Falk: The last one would have been the last RainbowFest we sponsored, which I believe was in Chicago. I'm not sure of the date. I've been asked to attend some of the fests which have been put on by other groups, but it has just never worked out with my schedule.

CoCo Nutz: What are some of your modern day achievements that you are proud of?

Falk: I am very proud of what we've been able to accomplish with the City of Prospect. I am in my third term as mayor and we have, I think, been able to manage growth without surrendering to commercialism. We recently grew to become a Third Class City (out of six classes), which makes us one of the 30 or so largest in Kentucky. We're reduced taxes twice since I have been in office and still increased our budget and our emergency reserves tenfold. ►

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Lonnie Falk

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Falk: We have the only city-owned library/reading center in the county; have started three very successful community celebrations (including our Fourth of July which features the largest fireworks display in the area's suburbs each year); have virtually no crime and are considered far and away "the" place to live in the Louisville area. It may come as no surprise to anyone we also have some rather attractive and creative city publications, including the only four-color monthly newsletter in Kentucky.



Lonnie Falk - Present

I'm also a member of the board of directors of the second-largest bank in Kentucky, Republic Bank and Trust Co., which will become the largest sometime this year. I've served a couple of terms as president of the county's league of cities and am a member of a legislative committee for the Kentucky League as well.

CoCo Nutz: Do you still keep up with technology and how do you apply it?

Falk: You have to remember, Falsoft partnered with Microsoft and Aldus to beta-test the first versions of Windows and PageMaker long before they were ready for commercial use and that The Rainbow and PCM were among the first, if not the first, magazines to generate film direct from a computer and in our own shop. It is fun to remember those days, when Microsoft would make changes in the pre-release versions of Windows (sometimes as often as weekly at that stage) and we'd set our modem to download them overnight because it took all night. But that's when we thought 300 baud was the (CoCo) Cat's meow.

Today we're using a mail list program to notify residents of important events in the city via email and also provide documents such as the city newsletter, minutes of the city council meetings, agendas, and the text of ordinances and so on to them as soon as they are available. About a third of the residents get them today. ►

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Lonnie Falk

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Falk: I still do some (free) beta-testing for a number of software companies, the names of which I cannot disclose.

I have an extensive collection of digital photographs of four absolutely gorgeous grandchildren.

CoCo Nutz: Regrets?

Falk: It was a wonderful, fun-filled and rewarding run. To paraphrase Dr. Seuss, "Oh the places I went, the people I met."

The only regret is that Tandy never, as a corporation, really appreciated the potential of the Color Computer. Along with Barry Thompson, the other champion of the CoCo in Ft. Worth was Jon Shirley, who was the vice president of the computer division early on. Jon, of course, left Tandy to work for some little startup in Redmond called Microsoft and, the truth be known, it was his business acumen that made Microsoft what it is today as much as, and maybe even more than, Bill Gates' ideas.

I have always believed that had Shirley stayed with Tandy (which, given the financial potential, he would have been foolish to do and Jon was never anyone's fool by a long shot) Thompson would have had the freedom to innovate and push the Color Computer line to the end of being a player even today. You would not have had the Color Computer as a "third" system to Wintel and Apple, but when you look at products like the Playstation, Xbox and so on, you realize Barry Thompson was heading the CoCo in that direction 15 years before they were even thought about. When you read the predictions that the next generation of game consoles will move toward more computing functions, you wonder where the Color Computer could have been. It had those computing functions and game-playing abilities years and years ago.

Editor's Note: The name CoCo Cat is Copyright © Falsoft, Inc. and Lawrence C. Falk 1985-2006. The image of CoCo Cat is a ® registered trademark of Falsoft, Inc., and Lawrence C. Falk and is used by permission. □

"Flippy"

Game author: Rodger Smith

Publisher: T&D Software, Issue #52

Runs in PMODE 4 screen on any 32K+ CoCo

Review by Richard Kelly

Introduction: If you're looking for a super-fancy CoCo variation of the game "Avalanche", and "Bubble Buster" and "Datafall" don't quite fit the bill (or aren't quite different enough), this game might be just what you're looking for. This was one of my favorites as a kid. As a matter of fact, it's great for kids, because it's easy to learn, its control is simple to use, and the game itself isn't too hard. You simply catch the falling balls on top of your nose. If one ball falls below your nose, you can still catch it by hitting the Red Button and using your feet to punch the ball upwards, thus you get a second try at catching it.

Graphics: A+. Even CoCo 3 fanatics - who bash the older CoCos for their limited amount of color - might like the graphics in this one. The fact that the game only has four colors in all actually seems to help the graphics here. The title character himself is only composed of two colors - black and white - and he simply wouldn't look better ... or even as good ... if he was designed any other way.



Also worth mentioning is the size of the characters in the game. They're *big*. How many games in *any* day and age have characters this size? Not many, and I think that makes Flippy kind of special in a way.

The game makes clever use of the CoCo's color so that it actually tricks you into thinking it has more colors on the screen at one time than there actually are. The fact that it doesn't - and that you really don't mind - makes it clear just how good the graphics truly are.

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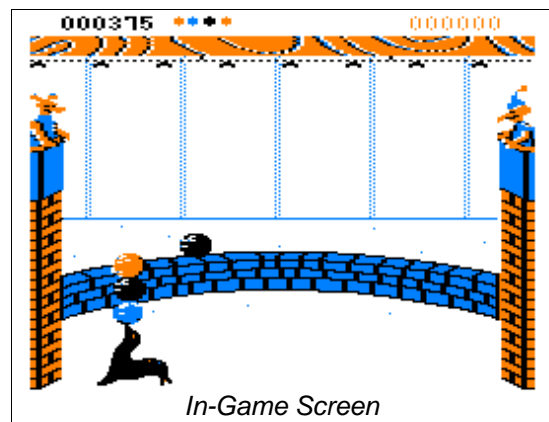
"Flippy"

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Animation: A+. The animation is put together in a very limited, very simplistic kind of manner, yet it comes off as extremely fancy. When Flippy moves, he basically alternates from the first image to the second and back again. When he catches a ball on top of his nose, his image doesn't change at all. There's just balls stacked right above the image of his nose.

As far as the guys on the top corners of the screen, they only move when they turn to get another ball, and then when they hold the ball upwards to have the thing picked up on the mobile belt above their heads. These guys don't even blink a single time, and yet, it would be overkill in the animation department if they did.

The mobile belt from above has the hooks moving left and right. The "chain" above is composed of alternating black and white pixels. When the hooks they carry don't move, and Flippy is punching the balls off of the screen, the chain still moves, and the author leaves it up to the player to decide what direction the chains are moving.



That sounds like an animation mistake to you, I'm sure, but you'd be surprised how effective this moment of animation is.

The author knew just the right amount of frames to use for the animation in each and every place. Not too many, not too few. Everything all around fits perfectly.

Sound: A+. The CoCo pulls off playing Ice-Cream-Truck melodies quite well, and that's why the music in this game works so well. It's perfect for a circus-oriented game like this. The sound effects sound quite the way they should - cartoonish enough to fit this game's atmosphere, yet life-like enough to be consistent with the all-around high quality you see when the game is in action.

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"Flippy"

(Continued from previous page.)

Game Engine: A+. The game has extremely smooth action. Yet, even when the mobile belt is moving, the seal is moving around, and all seven balls are moving at one time, the game doesn't slow down in the least, despite how large all of these images are. This is one incredible game engine here. If you had it displayed in an arcade monitor, covered up the keyboard, and installed a high-quality joystick, it'd be tough to convince anyone they weren't playing a genuine arcade game here. Rodger Smith always shines in the game engine department, and nothing he's created proves that fact better than this game.

Gameplay: C-. It took me over a decade to find this game's only setback. The game has a lot of charm, and there's nothing the game has that I dislike. Rather, it's something that the game *lacks* that keeps this game from hitting a bulls-eye. The first ten years I had it, I'd play it for a while, and then I'd be wanting to play something else, not knowing why. Eventually, I discovered the game's only fallback, and it's a major one.

Sure, the game's easy to learn, easy to play, and great for kids. But the rounds of the game don't vary at all in appearance in any ways, and nothing ever happens to give the gameplay any sort of variance. The balls never look any different, the look of the stage in this circus never changes, and the behavior of the characters on the top corners of the screen is always the same. Even a minor little Challenge Stage at the end of each round would help this game; maybe after catching all those balls, you'll see Flippy holding the stack over his nose while facing a moving basket, and you get bonus points for each ball you successfully bat off your head and into this basket. A patchy idea, but you get the picture. And since the game lacks any variance like this, it's almost as if the game concept wasn't quite through the completion stage before the program was done and released to the software magazine.

(Continued on next page.)

"Flippy"

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Overall: B-. Flippy would be better overall if it simply had more depth ... If you did more than just catch balls on top of your nose. It would make the entertainment value higher; it wouldn't be so easy to get bored with. Granted, it's easy to learn, and easy to play, but by my analysis of it, it seems more like a graphics demo with some gameplay added ... rather than a complete game. In fact, maybe that's what Flippy actually was - a graphics demonstration. Maybe it started out as a graphics demo or code experimentation, and then the author just added a little gameplay to it and had it published. It would explain the characters' lack of personality and lack of variation in the gameplay. Still, everything else is done quite well. Extremely well, in fact. This is one game that's aged well, even next to the most sophisticated, modern games out there today. And for a game with a lower graphics resolution than the original Nintendo, and only a four-color graphics screen, that's saying quite a heap. □

Common Coco Abbreviations

ASM	Assembly Language
CPU	Central Processing Unit
EOF	End Of File
GIME	Graphics, Interrupts, and Memory Enhancements
HLA	High Level Assembly (For Win32 or Linux)
LSI	Large Scale Integration
PWM	Post Width Modulation
RAM	Random Access Memory
ROM	Read Only Memory
VDG	Video Display Generator

"Wipe Out"

Written By Richard Kelly

I've seen many programmers out there try their hand at randomly placing dots on the screen, and keep doing so until the screen is filled up with dots, completely covering up the image. There's usually a fallback to writing such a routine, though. The way many programmers design it, the coordinate of each "dot" is stored in an array, and the placement of each dot's coordinate is random.

Here's the fallback I've often seen - When the program has picked up the coordinates of most of the screen, the computer keeps randomly picking the same coordinates it's picked before, and keeps making this mistake countless times. Meanwhile, you're sitting back, waiting for the program to finish randomly choosing the remaining coordinates that - if you can see - the program still can't.

"There's got to be a better way to do this," you're probably thinking. As a matter of fact, there is. It just takes a little bit more memory. The trick is to use **two** arrays instead of one. Let's say you have a list of things you want to throw into a bag. You pick each item on the list at random. When you pick an item though, you cut out the name of the last thing on the list, and paste it over the name of the item you just picked.

The program below works pretty much the same way. When the coordinate of a dot is picked, the final coordinate in the array is pasted onto where the chosen coordinate was located. The total amount of coordinates the program can pick at random is then reduced by One. The process is repeated until all coordinates in the array are selected.

The following program is designed to run on any CoCo with 16K or more. If you have a CoCo 3 or CoCo 3H, you'll have to have the program in 32-column mode for the program to work. This is done by entering the command `WIDTH 32`.

(Continued on next page.)

"Wipe Out"

(Continued from previous page.)

Line 130 is actually not necessary. The code doesn't really care what numbers are stored in the array; it just copies and pastes its contents into the appropriate places. As the code comments say, the line is there simply to "clean up" the array as it works, since its contents are no longer used in the code once they're selected and stored in Array B.

The code takes between 90 to 120 seconds (a.k.a. 1 1/2 to 2 minutes) to generate all the random coordinates on a CoCo 2. I sacrificed the speed of the program for the sake of making it easier to read and understand. Any experienced programmer should find it easy to optimize. With proper modification, this routine can be used for graphics demonstrations as well.

Note: To decrease the waiting time for generating the random coordinates, you might want to delete Line 130 since it isn't necessary to have it to run the program properly. It will take about 15 seconds less time to process the coordinates this way. □

Have a program or other
submission?

Email us!

coconutznewsletter@yahoo.com

```
10 DIM A(511)' COORDINATES TO PICK FROM.
20 DIM B(511)' COORDINATES TO DRAW TO THE SCREEN.
30 T=512: T2=T-1' "T" IS THE TOTAL NUMBER OF COORDINATES TO PICK FROM. "T2" IS PRE-CALCULATED TO REDUCE THE AMOUNT OF TIME IT TAKES TO PICK ALL COORDINATES.
40 PRINT"WORKING ...": TIMER=0' OPTIONAL COMMAND LINE
50 FOR X=0 TO T2: A(X)=X: NEXT' STORE EVERY COORDINATE IN ITS OWN PLACE IN THE ARRAY.
60 ' LINES 70 THROUGH 100 SELECT ALL COORDINATES BY RANDOM.
70 T3=T' THIS WILL BE THE TOTAL NUMBER OF COORDINATES THE CODE WILL HAVE TO CHOOSE FROM.
80 FOR X=1 TO T
90 Z=RND(T3)-1' HERE'S WHERE THE RANDOM COORDINATE IS PICKED.
100 B(X-1)=A(Z)' STORE THE CHOSEN COORDINATE IN THE SECOND ARRAY.
110 T3=T3-1' SUBTRACT THE TOTAL AMOUNT OF AVAILABLE COORDINATES BY 1.
120 A(Z)=A(T3)' PASTE THE LAST COORDINATE IN THE ARRAY ON TOP OF WHERE THE CHOSEN COORDINATE WAS BEFORE.
130 A(T3)=0' MARK THE LAST COORDINATE AS ZERO TO "CLEAN UP" THE ARRAY.
140 NEXT
150 TI=TIMER:TI=TI/16:PRINT"NUMBER OF SECONDS TAKEN TO PICK COORDINATES: ";TI:PRINT:PRINT"PRESS ANY KEY";' OPTIONAL COMMAND LINE
160 IF INKEY$="" THEN 160' OPTIONAL COMMAND LINE
170 ' LINES 180 THROUGH 220 DRAW THE "DOTS" ON THE SCREEN THROUGH ARRAY B(X).
180 FOR X=0 TO 511
190 TIMER=0' USED FOR SPEED CONTROL.
200 POKE 1024+B(X),128' DRAW THE CORRESPONDING "DOT" ON TO THE SCREEN.
210 IF TIMER=0 THEN 210' KEEPS THE PROGRAM DRAWING THE DOTS THE SAME SPEED ON ALL COCOS, EVEN THE COCO 3H.
220 NEXT
230 CLS 0
```