

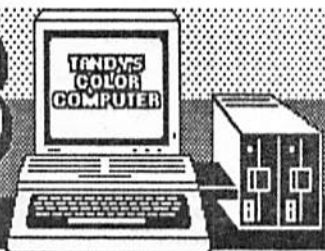
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CoCo~123



## GLENSIDE: THE OFFICIAL '89 RAINBOWFEST HOST CLUB

CoCo~123 Press Association

**MARCH NEWSLETTER:** With the Chicago Rainbowfest just around the corner, the time to start thinking 'fest' is **NOW!**

As the official Host Computer Club, there are a number of duties we are asked to perform. In the month/weeks leading up to fest, we are asked to distribute and put-up posters at local schools, Radio Shack stores, public libraries, etc. The sky us the limit as to where you could place a poster. In previous years members have been able to place posters at video stores, supermarkets, and hardware stores. During fest weekend, we are provided with a booth to assist Rainbow in selling their T-Shirts, Adventure Books and other misalliance items. Having a booth at Rainbowfest has proven to be very beneficial for our membership

rolls. Last year 25 new members joined the Glenside ranks during the '88 Rainbowfest! So, it is not hard to figure out the benefits of a 'free' booth in exchange for a little advance leg work on our behalf.

As with previous years, your help and support is critical to ensure a successful '89 Rainbowfest for Glenside. During the up-coming membership meeting (February 9th) we will be going over some of these responsibilities and the related work assignments.

With the dates of the '89 Chicago Rainbowfest being somewhat in conflict with our April membership meeting, the Board of Directors have agreed to do something very special. On either Saturday 8th or Sunday 9th, we are making arrangements to have a Rainbowfest 'kick-off' dinner. The actual time and date is up-in-the-air at this point, but we should have some additional information to pass along to you during the February meeting. In the mean time, here is what we have planned...

\* A full catered, sit down, family style dinner. This meal includes ALL THE TRIMMINGS (minus beverages). It will be held at the Glendale Country Club on the corner of Lake Street and Glen Ellyn Road in Bloomingdale, Illinois. We are looking at a 6:30 dinner bell with cocktails and socializing starting around 5:30 (there will be a cash bar available for your mixing pleasure). Every PAID-IN-FULL member along with your spouse is invited with the Club picking-up HALF of the meal cost. We anticipate the cost of each meal to be around \$13.00 (this includes the meal, tip, and taxes) total. So, you and your spouse can enjoy a full sit-down dinner for only \$13.00! We are limiting this half price offer just to PAID-IN-FULL members and their spouse. If you wish to bring a guest or your children, you will be responsible for the full cost (\$13.00) of their meal. Believe me, if the Club had the financial resources to be able to include other family members and/or guests, we would! This is the best we are able to do...See you all at the February meeting...Ed H.

**HAPPY  
VALENTINE'S DAY**

**NEXT MEETING OF  
THE GLENSIDE COLOR COMPUTER  
CLUB**

Thursday February 9, 1989 - 7:30pm  
GLENSIDE PUBLIC LIBRARY  
25W. Fullerton Avenue  
Glendale Heights, IL

**DIRECTIONS:** Glendale Heights is located between Glen Ellyn/Wheaton, IL and Bloomingdale, IL. Fullerton Ave. is West of Bloomingdale Road in Glendale Heights. The Library is about a half a mile down West Fullerton on the left side from Bloomingdale Road. The meetings are open to all Tandy Color Computer 1, 2 & 3 users and owners.

# CoCo~123

A Glenside Color Computer Club of Illinois publication since 1981

## GLENSIDE SOFTWARE SALE

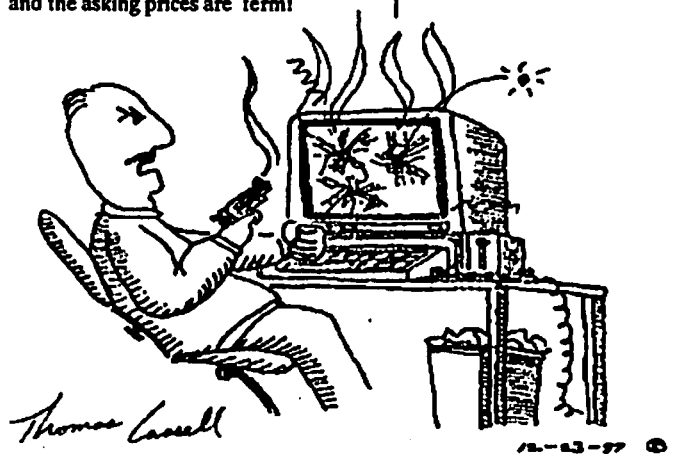
- \* MUSICA RAM DISK (CC3 Only)  
Speech Systems ..... \$5.00
- \* CoCo 3 MEMORY TEST  
Speech Systems ..... \$5.00
- \* HARDCOPY (for either DMP-200, 105,  
Geminix 10X or SG-10)  
Computize ..... \$10.00
- \* TERMTALK: DelSoftware ..... \$5.00
- \* REAL ESTATE INVESTMENT  
Petrocci Freelance ..... \$10.00
- \* ORDER ENTRY SYSTEM  
Mark Data ..... \$25.00
- \* CHECK LEDGER SYSTEM  
Computerware ..... \$15.00
- \* DISK COLORCOM/E  
Eigen Systems ..... \$10.00
- \* DATAPACK II: Cer-Comp ..... \$20.00
- \* DATAPACK II: Cer-Comp ..... \$20.00
- \* THE LAST WORD (OS-9) ..... \$20.00
- \* DATABANK MANAGER  
Computerware ..... \$10.00
- \* OTERM:  
New World Technologies \$15.00
- \* FLEX OPERATING SYSTEM  
Frank Hogg ..... \$30.00
- \* GRAPHICOM PART II  
Computerware ..... \$10.00
- \* DISK COLORCOM/E V2  
Eigen Systems ..... \$10.00
- \* COLORCOM/E ROM PAK V3  
Eigen Systems ..... \$5.00
- \* ELITE\*WORD (PbJ Ver) ..... \$25.00
- \* ELITE\*COMM (PbJ Ver) ..... \$10.00
- \* ELITE\*WORD (OS-9 L1) ..... \$25.00
- \* VIDTEX w/PERSONAL COLOR  
RADAR: CompuServe ..... \$2.00
- \* FORMAKER 1.0  
Challenger Software ..... \$10.00
- \* TRSCOPY (OS-9 L1) ..... \$10.00

\* Contact, Ed Hathaway for all above sale items at 462-0694. 'ALL' items are original and the asking prices are firm!

## The Case of the Switchblade Slasher Clues - Part 1 -

- > NORTH
- > FEED RATS
- > NORTH
- > NORTH
- > UNLIGHT FLASH
- > EAST
- > GET LADDER
- > WEST
- > LIGHT FLASH
- > SOUTH
- > PLACE LADDER
- > UP
- > NORTH
- > EAST
- > GET HANDCUFFS
- > WEST
- > WEST
- > GO PARTITION
- > HANDCUFF KILLER
- > NORTH
- > SHOW PHOTO

That concludes the CASE OF THE SWITCHBLADE SLASHER adventure game. Stay tuned to next months CoCo~123 for more adventure game clues.



USER FRIENDLY? LIKE HELL!

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## GLENSIDE COLOR COMPUTER CLUB of ILLINOIS

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Greg Pirtucha  
Tim Davis

Graphics & Design: SCSpublishing  
Staff Artist: Tom Cassell (c)

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## FEBRUARY MEETING

For the February meeting, Mike Knudsen will once again have the walls of the library Rock'n & Roll'n. Mike will be presenting his CoCo-Music talents the likes you have NEVER seen nor heard... Along with a wide range of Du-Wap and DixieLand Jazz music, you will experience first hand the skills of a programmer basking in the line-light of a home grown OS-9 music editor. Mike has blessed our meetings in the past with his CoCo-Music magic and it can be said that he has played to S.R.O. attendance. Good seats are rare when the master is at play!

For the March meeting, we are hoping to have George Henry give us a presentation on Ham Radio communication using the CoCo. George has been using his CoCo I for short wave computer communications for a number of years and his presentations have always been Top-Notch! Again, much like Mike's presentations, George also plays to S.R.O. attendance...

# INSIDE THE DISK

By: Ed Stevens

In this article we will look at what is to be found on a disk and how your files are organized for quick retrieval.

Most of the information in the following sections was taken originally from the RS-Dos manual but will be good (with minor changes) for all versions of Dos including A-Dos and others that use 40 track format.

This, to some, may be old news but should be of value to those just starting to explore their disk system or write their own disk programs.

You disk jockeys out there might want to read it too, there are a few bits and pieces picked up from Rainbow and many hours of experimentation that aren't in the manuals (though they will be known to those that have studied the rom disassembly).

Ok, here we go...

## DISK FORMAT

An unformatted disk can store about 213,000 bytes of data, when formatted (by the DSKINI command) some of those bytes are used by the computer for system controls bringing the total down to about 161,000. These remaining bytes are organized into 35 TRACKS (numbered 0-34), each containing 4608 bytes of data storage. Each track is broken down into 18 SECTORS (numbered 1-18). A sector contains 256 bytes for data storage.

For file storage, 9 sectors (1/2 track) are grouped together to form a GRANULE. The granule is the smallest amount of space that can be reserved (by basic) for a file. There are a total of 70 granules on a disk (35 tracks \* 2), but track 17 is occupied by the directory and is not counted. This brings the total amount of granules available for your files to 68 (numbered 0-67). Since the smallest possible file is one granule in length, the largest number of files that can be stored on a disk is 68.

## SYSTEM CONTROLS AND COPY PROTECTION

The total amount of bytes in a track is about 6,250, with 4608 bytes of data this gives you 1642 used by the system. The track uses about 166 of these for its controls. Each sector also has a set of controls, 82 bytes in addition to the 256 used for data. The sectors controls are interesting because they contain two bytes that hold the track and sector number. If you have a copy protected disk, it is likely that the sector number on one of the sectors has

been changed to a number that basic can't handle. Change sector number 18 to 19 and basic will not be able to read it because, to the system, there is no such thing as sector 19. This would stop the BACKUP command cold, and if the program was written to check for a sector 19 you couldn't just copy the files individually because there would be no sector 19 on the new disk. Unfortunately, you cannot access these control bytes through basic; you would need a fairly good knowledge of machine language and probably a disassembly of disk basic to do this yourself. If you want to copy protect your disks you would be better off buying an "anti-pirate" program (I've never used one but they probably use the same trick).

## THE DIRECTORY

The disk's file directory is, as mentioned before, stored on track 17, sectors 3-11. Each entry uses 32 bytes of which only 16 are used for file information, the remaining 16 are blank. The 16 bytes used are divided up as follows...

Bytes 0-7 contain the file name. If byte 0 contains a 0 then that entry has been deleted and can be written over. If byte 0 = 255 then that entry and all following entries have not yet been used.

Bytes 8-10 contain the file extension

Byte 11 is the file type; 0 for a basic program, 1 for a text file and 2 for a machine language program (3 is listed as a "text editor source file" but I have not seen that one used).

Byte 12 is the ASCII flag. If it is 0 then the file is in binary format, if it is 255 then the file is in ASCII (such as a text file).

Byte 13 contains the number of the first granule in the file.

Finally, bytes 14-15 equal the number of bytes in use in the last sector of the file in hexadecimal (to get the decimal number multiply byte 14 by 256 and add byte 15).

There is room for 8 entries on each directory sector. With 9 sectors reserved for the directory that gives you a possible 72 entries.

# INSIDE THE DISK...Continued

By: Ed Stevens

## THE GRANULE ALLOCATION TABLE (GAT)

The GAT is a one sector table located on track 17, sector 2 just before the directory. This is probably the most important sector on the disk, mainly, because it is the hardest to fix if damaged and, without it, none of your files can be used. It's function is to keep track of the location of all the parts of all the files on the disk and it works like this...

Each of the first 68 bytes of the sector corresponds to a granule (i.e. byte 15=granule 15), the remaining bytes are not used. In each directory entry, byte 13 shows the number of the first granule of the file, this is used as a pointer to the GAT. The computer goes to byte on the GAT that corresponds to the first granule and stores in that byte the location of the next granule in the file. From there it goes to the byte that corresponds to that next granule and stores the number of the next granule...etc. etc. until the last granule is reached. In the byte for the last granule, the computer stores the number of sectors in use in that last granule plus 192.

Example: When THSNTHAT/BAS is saved the computer first looks for a place to put it. It checks the GAT for available granules (the byte will contain 255 if the granule is free), once found, it saves the file to those granules, lets just say 34, 35 and 36. It then updates the directory, storing 34 in byte 13 (first granule), then it goes to byte 34 of the GAT where it stores a 35 (the next granule in the file). From there it goes to byte 35 and stores a 36 and finally jumps to byte 36. Here it stores the number of sectors used in the last granule (let's call it 5) plus 192 or a 197.

I say that the GAT is hardest to fix because it is the only place on the disk where this map of the granule used by the file is stored. Once the map is gone you only have the starting granule and this doesn't always help because files not always stored with all the granules lined up neatly. In a real save you might have the first granule on 34, the second on 5 and the third on 59. To fix the GAT, you would have to search the whole disk trying to figure out which granules held part of the file you were working on and which didn't.

## BITS AND PIECES

If you ever have to repair the GAT or the directory you might find the following useful.

The pattern in which the system searches for free space on the disk is a bit odd (or so it seems to me). It starts with

granule 34 and goes to 67 then it turns around and goes back to granule 32 where it searches backward from 32 to 0. Funny thing there is that it goes backward, not by granule but by track. It starts with granule 32 (track 16, sector 1) and goes to granule 33, then it jumps back to granule 30 (track 15, sector 1), goes forward to granule 31, jumps back to 28 and so on. Really messed me up the first time I repaired a GAT.

Want to find out loading information on a file, here's how. With a machine language file you can find the starting address and file length in the first five bytes of the first sector.

Byte 0 is 0 if the file is ml. Bytes 1-2 contain the file length (in hexadecimal). Bytes 3-4 are the starting address. The execution address is contained in another set of five bytes at the end of the file. Byte 0 (of the set) is 255, bytes 1-2 are 0 and the execution address is in bytes 3-4.

With a basic file the only data stored with the file is the file length (the start address and execution address are set by basic). In this case only 3 extra bytes head up the file. Byte 0 is 255 and bytes 1-2 hold the file length. The end of the file is marked by 3 bytes which contain 0.

It's a good idea to keep these ending sets of bytes in mind when looking at files directly because in some cases they are the only way to find the real end of the file without reading the file length and counting the bytes. When a file is written over by a shorter file, the extra bytes from the old file are not reset. Thus when you look at the new file you see the new file, the 5 (or 3) byte marker and then immediately after, the remains of the old file. If you don't look closely, the file can look a lot longer than it really is.

Well, now you know all I do about disk organization. If anyone can expand on this I would be very much interested in hearing from you.





# ONE TANDY CENTER

By Ed Hathaway

The following article was first released in the August '87 issue of CoCo~1,2,3. Because this issue came out in-around vacation time, I'm sure few had the chance to read it.

At the time we published this article, some of the information that was being written about was considered a rumor at best. Since that time, not only have these rumors come to be reality, but, first hand experience has proven them to be fact!

About a month or so ago I was talking with club member Ray Grundy. Ray is a CoCo user and a Ham Radio Operator and he informed me that Tandy/Radio Shack will be selling a Ham Radio at their retail outlets. Understandably, Ray was real excited about this news and I too shared in his zest. It was not until a few days latter that I realized that current and future Ham Operators just might replace us Color Computer owners!

Just think for a second the last time you opened the doors to your local RS store with a question about the CoCo. Can you remember the blank look in the sales person's eye as he shrugged his shoulders and tried to tap dance around your question. I know we all have heard the unofficial RS response to CoCo questions... "NEXT" ...or... "I DON'T HAVE THE TIME TO LEARN ABOUT THE COLOR COMPUTER". Now this is just the response with hardware questions. Software questions, well there is a completely different set of un-official answers.

Once RS stores start to sell Ham Radios and their related equipment, us Color Computer owners won't be alone when it comes to receiving blank looks. It will become our common bond with the Ham Operators. Our link to yet another source of frustrated friends. As veterans in the RS Shuffle, we could even conduct seminars on how to react to the dreaded 'shrugging shoulder syndrome'. I can see it now, a potential Ham Radio buyer enters a RS store, asks a few questions, buys the radio (because it is on sale) and tries to use it like a CB radio!

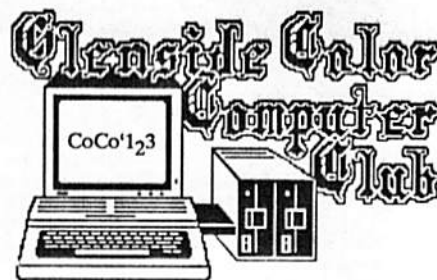
'AUH... BREAKER, BREAKER... AUH... HOW ABOUT A RADIO CHECK... AUH... ANYONE GOT TOUR EARS ON...'

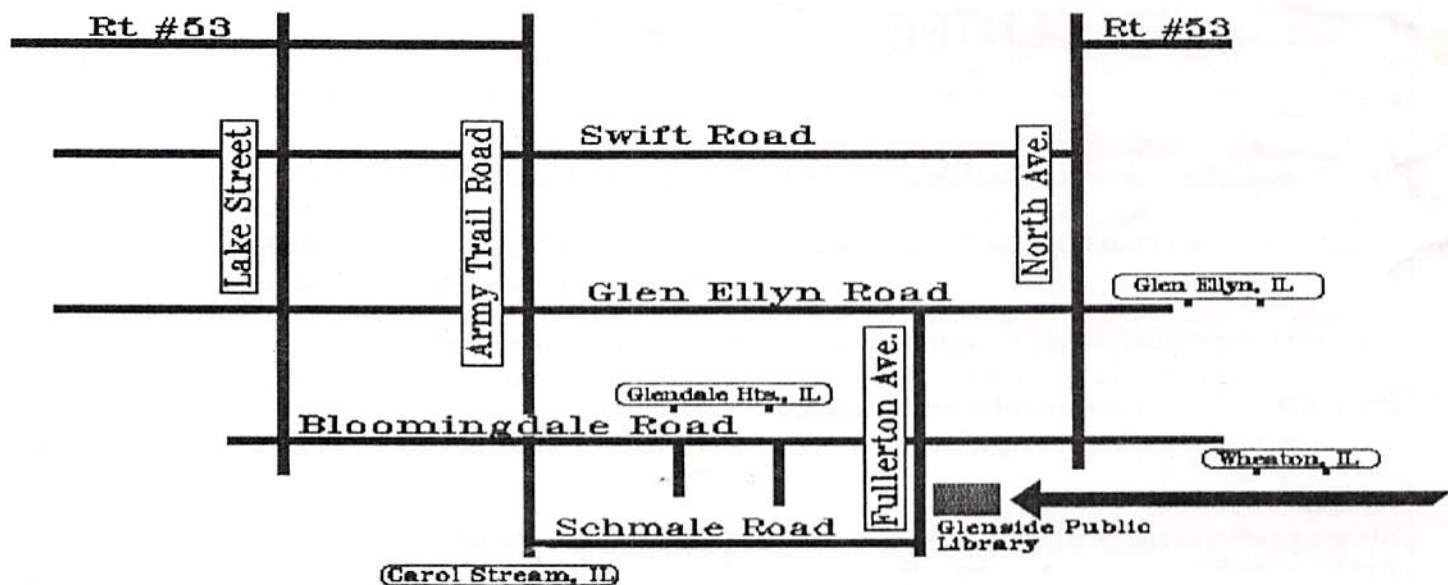
Can you image someone in South America trying to figure if this is some kind of secret code or just another gringo under the influence of fire water. If the task of

correctly plugging in a ROM cartage into a CoCo for a store demonstration is such a challenge, then you can well image how you will be introduced to all the Federal Rules & Regulations in operating a Ham Radio... "NEXT"!

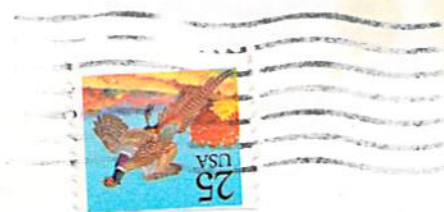
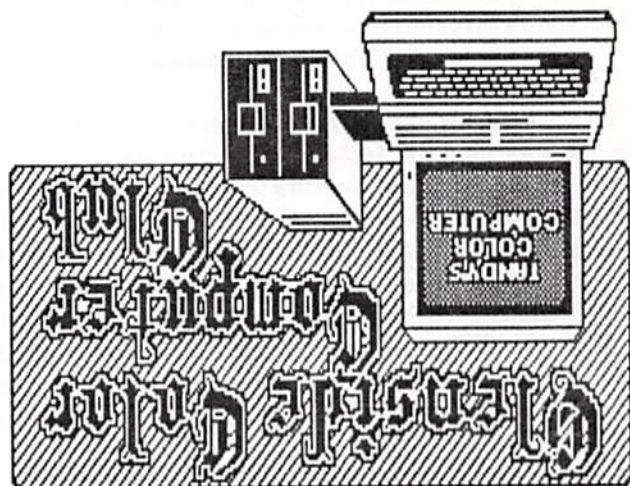
Since the cost of a Ham Radio and it's related equipment will almost equal that of a complete CoCo system, you have to wonder how much training the RS sales people will receive. Ham Radios can be compared in part to computers. You just can not buy the system, take it home, plug it in and use it as if it was just another electronic gismo. There are a number of guidelines YOU MUST FOLLOW before you can start to broadcast. There are tests you must take for all the different broadcast levels you wish to be on. The equipment requires a little more skill to connect then just plugging it into an outlet. And all the different questions and support you will need after you make the purchase won't be found in a general electronics retail store. I don't have enough fingers to count how many CoCo cassette jacks I found crossed wired by a RS sales person and NOW they are going to sell Ham Radios! Is the Ham Radio Community really ready for this? Just think of the disclaimer, the sales person can then shrug his shoulders, LEGALLY!

After being in the CoCo Community for a good number of years, some of the RS store reactions to my questions have become classic. Almost all came during the first year or two of ownership when help was really needed, but not found. It was not until the user group was formed that I realized that there was a whole different world out there ready to lend support. However, it took almost two years to find this world and I was persistent! I almost 'OD' on ROM cartage software! Now the same people will be selling Ham Radios! What will be next, 'Build your own Home Nuke Plant' or 'Space Shuttle Kits'?





John (Tony) Podraza  
119 Adobe Circle  
Carpentersville IL 60110



**Location**  
**Glenside Public Library**  
**Fullerton Ave.**  
**Glendale Hts. IL**  
**7:30 to 9:30pm**

**call: 462-0694**  
**for more information**

**Monthly meetings every SECOND THURSDAY**