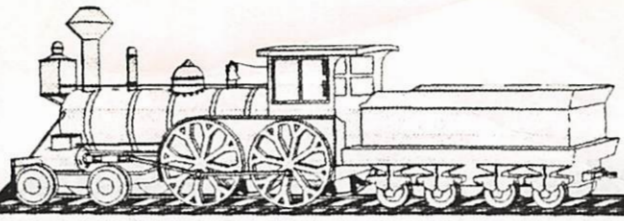
FEBRUARY 1994



The 6809 EXPRESS

OFFICIAL PUBLICATION
OF THE PENN-JERSEY
COLOR COMPUTER CLUB

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Minutes of the October Meeting

This is the secretary's report for the meeting held October 24, 1993. The meeting was called to order by Rick Hengeveld at 7:30pm. Clyde Gano was asked to read the treasurer's report. The report was accepted as read. There was nothing to report from the Library. The minutes were read by Al Wagner and accepted as read. Rick Hengeveld gave the BBS report. The new BBS has been on line 175 days and handled 300 E-mail messages. A brief question and answer session ensued on BBS access. Rick stated he would be writing an article for the EXPRESS to explain many of the questions in writing so the members could refer to them when attempting to logon to the BBS.

NEW BUSINESS

Richard Kravitz asked that the names of new members and visitors be published. It was pointed out to him that this was happening as part of the secretary's report. A report on the new visitor we had to the club will be found at the end of this report. Richard also mentioned that it was getting to be time for him to renew our meeting room and asked for preferences. The preferences expressed were for room 191 first and then room 113. It was confirmed that the next meeting will be held on November 26, 1993, the day after Thanksgiving. Peter Unks is on the hook for the demonstration, possibly an MM/1 word processor. Since this was to be the last meeting of the year where all the regular attendees would be in attendance, the question of the rate of the dues for next year and the election of officers was brought up. After a brief discussion, Mary Brown made a motion to carry the current board for another year. Steve Slagle seconded the motion which then carried unanimously. A discussion followed as to whether the dues were at an appropriate rate. It was decided that the current rate of $15.00 would remain. Clyde Gano made a motion to close the meeting and Mary Brown seconded it at shortly after 8:00pm.

A new visitor was with us for the meeting. His name is Paul VanOsten. He is from Quakertown and has interests in IBM style machines at work and a Mac at home. Discussing his experience at the meeting, he said his visit was most enjoyable and informative. He said he would be visiting again as job and other responsibilities permitted.

Alan J. Wagner, Sr.

These are the minutes of the October 28, 1994 meeting of the PJCCC.

Rick Hengeveld called the meeting to order at 8:00pm. Eric Rhyder read the treasurer's report. It was accepted as read. Al Wagner read the secretary's report. It, too, was accepted as read.

New Business

Rick mentioned that next month would be the month for nominating/electing the members to be the officers for the coming year. Eric said he could continue as the treasurer. Al indicated that he could continue as the secretary and librarian. Rick, however, indicated that he would not be available for the presidency. His job was making it more and more difficult to be regular at the meetings. He did say that he would consider the job of vice-president. As there were only five members in attendance, Rick suggested that further discussion be held off until next month when this would have to be discussed regardless of how many or few members showed up.

The question of the Christmas party came up as it does every year at this time. Richard Kravitz stated that he has secured the meeting room for that night. Rick added that even if there were only three of us to showup, there would be a gathering. Again, with the small showing, Rick suggested that further discussion wait until next month.

Rick called for any further business. With none forthcoming, Rick declared that there was no further business to discuss at this meeting and requested a motion to adjourn. Al Wagner so motioned and Eric Rhyder seconded the motion. The meeting was adjourned at 8:10pm.

Al Wagner,Sr., Secretary

A LETTER FROM CLYDE GANO

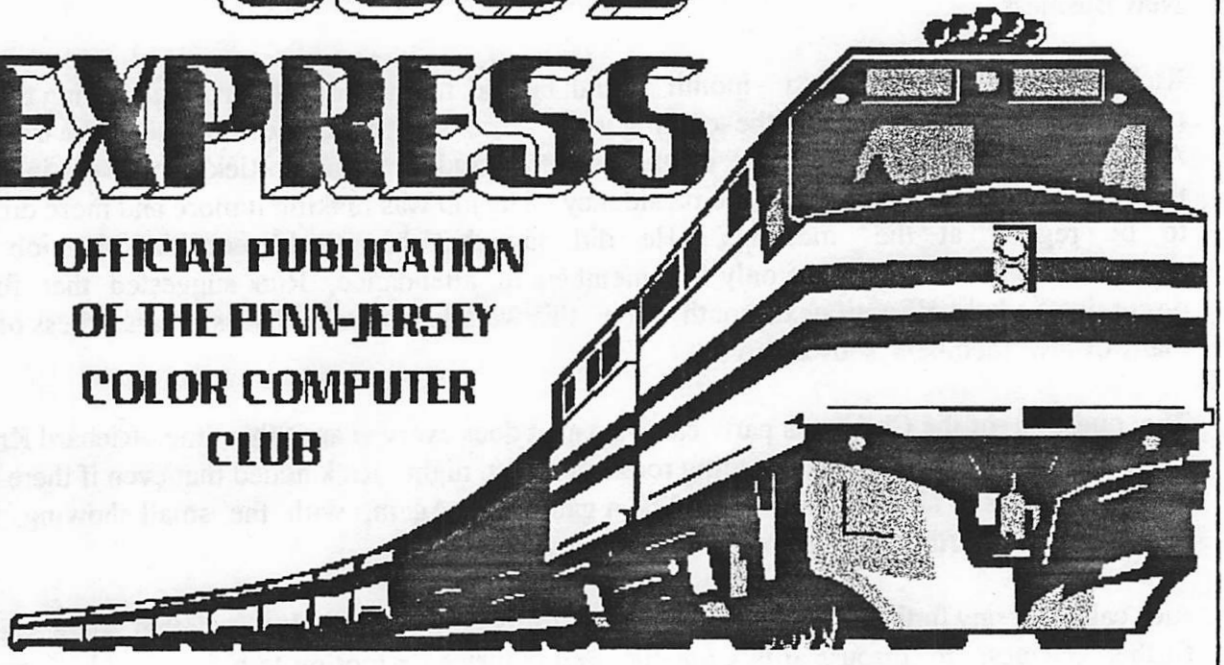
Dear CoCo Club Friends,

The memory of Friday, September 30, our last club meeting, will remain in my mind for a long time. Believe me, no one was ever more surprised or overwhelmed as I. I still shake my head in wonderment every time I reread my special copy of the 6809 EXPRESS.

When I remember that I even composed and mailed the postcard notices for my own party I feel as if I were somehow hoisted with my own petard. How can I begin to express how I feel and how can I thank you all for that memorable evening?

Beside Ruth and myself, there were 18 good friends at the meeting that night. There would have been more, but Rick Hengeveld had a prior commitment with the dice tables of Las Vegas. Rick was unable to enjoy with us the flawless performance of Master Magician and Newsletter Editor,

The 6809 EXPRESS



OFFICIAL PUBLICATION
OF THE PENN-JERSEY
COLOR COMPUTER
CLUB

JANUARY 1995

In this thrill packed issue:

Not one but *two* installments of
Al Wagner's Library Car!
A Letter from Clyde Gano!
Eric Rhyder Talks Money!

TALKING MS-DOS

RICK HENGEVELD

There are many different styles and types of MS-Dos systems out there. Here a little info on how to read all those ads!

Example :: 386 SX /33 2meg. 40HD VGA .39dp 1meg vid
1.2, 1.44 Mini Tower

Deciphering those specs. Translates to an IBM CLONE. A 80386 SX processor running at 33 MHZ clock speed with 2 megs of ram, a 40 Meg hard drive. VGA style graphics and a monitor with a dot pitch size of .39 driven by a graphics card with 1 meg of video memory. 1 (5 1/4) 1.2 meg floppy drive and a (3 1/2) 1.44 meg floppy. All encased in a mini tower case.

RAM: Today the bare minimum system ram is 2 megs! If you intend to multitask under windows you'll want at least 4 megs of ram!

Hard Drives: The days of considering a HD an option are gone. MS-DOS 5.0 operating system alone comes on 5 360K disks (packed). 40 megs is considered a minimum. When working with Ms-Dos you can't possibly have to much HD space!

When looking at HD specs note the disk access speeds, 28ms should be the slowest while something around 12ms would be considered a barnburner!

Look at the HD interface type. IDE is the most popular type. SCSI interfaces are found on the larger drives. RLL and MFM interfaces are pretty much obsolete, beware of any new system sporting these interfaces.

Graphics:

CGA 4 color graphics
EGA 16 Color
VGA 256 Color
SVGA 256 Color at higher Res. 1070 X 720

These video modes are governed by a graphics daughter board. These boards contain Ram chips for memory dedicated to video.
256K, 512K, 1 meg are the most common, again here more is better and the prices are comparable.

Monitors: VGA and SVGA monitors are usually defined by there dot pitch size. Since the display is made up of millions of tiny dots, the smaller the dot the higher the picture quality. .52 is an absolute minimum, .39 will give a very good display and .30 or less is considered excellent!

THE SECRETARY'S REPORT

ALAN J. WAGNER, SR.

This is the secretaries report for the meeting held on June 25, 1993. Rick Hengeveld called the meeting to order at 7:30PM and called for the treasurer's report. Clyde Gano reported that there had been no income or disbursements since March. The report was accepted without any comment or objection. Rick next called for the Librarian's report. Al Wagner stated he had nothing to report except an apology for not having an article for the EXPRESS. Rick also admitted to not having gotten his article prepared. Peter Unks stated he had a short article for the EXPRESS, but felt that he would save the club the postage and not send out the newsletter for a heading, a one paragraph article and the editor's statement that usually appears on the back cover. Rick next gave the Sysop's report on the BBS. He reported major changes in the BBS as the new computer and BBS software are now on line. The BBS no longer accepts 300 baud communications. 1200 is as low as it can accept. When signing on for the first time, you will be asked several questions that were not asked with the old system. Just answer them and you will be in as a new BBS member. This will give you limited access and time. Rick will review the application and if all is in order, then he will upgrade the status to regular member. Al Wagner has been made co-sysop. When signing on to the BBS for the first time it was recommended that all the color defaults be taken. To do this, simply select option number 8 (none) each time a color selection is requested.There are eleven different topics currently listed in the message base and a similar number in the file transfer section. As this makes the BBS somewhat more complex due to the number of options, it was decided that Rick is on the hook for next month's demo of the club's BBS. I am pleased to announce that we had two new potential members that checked out the club at this meeting. They were Luis Rodriquez and Steve Slagel. (My apologies if there is a misspelling in either of the names.) Both expressed great interest in the club. Luis has offered to give a demonstration of computer communication via packet radio. Luis is using an MS-DOS machine. Steve is just getting started with a Coco3. Old Business: Because of Rick's absence from the last meeting, Pete reported that there really had been no formal meeting so there was no old business to discuss.

New Business: Clyde brought a mailing list he had assembled from the old club membership lists. This is to aid us in making a special mailing of the 6809 EXPRESS to let the club's former and inactive members know of the change in the club lifting the restriction of the membership to Color Computer users only and to accept members with interests in any computer. This mailing is to be sent out early enough in September so as to be received two weeks before the September meeting. Pete would like to receive any articles for this special edition of the

6809 EXPRESS

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MAVERICK BBS

215-760-0456

President's Report

This month we will be discussing telecommunications at our PJCCC get together. Since we are operating a club BBS, it is to all members advantage to know how to connect to the system. Two Coco's will be in operation, one as a host or the BBS and the other as a calling system. If you own a modem equipped Coco, be sure to attend! The BBS is the fastest way to get answers to Coco related questions or to obtain new programs without leaving the comforts of home.

Clyde Gano reported some progress with his contacts of the Glenside Coco Club in Illinois. We will be exchanging newsletters and info with this club. In reading the first received issue of the Glenside newsletter we see that their club is quite a lot like ours and I feel a relationship with both user's groups can only be beneficial to all involved!

Also a reminder to all club officers, and these days that's almost everyone. (heheh) Try to have your reports and newsletter items uploaded to the system by the 10th of the month so our editor can have the 6809 put together in time each month.

Sysop Report

Maverick has logged over 640 calls to the system. Currently the message base is small due to a recent squeezeing of the message disk. Our message base has passed some 340 messages since being initialized. Also some 200+ programs have been passed through the system.

Rick Hengeveld - Sysop

IMPORTANT NEWS ABOUT

May 29 COCO CLUB MEETING

Richard Kravitz, our contact with the Northampton County Community College, just learned that our regular meeting room(s) at the college are being converted into lounge areas and will no longer be available to us.

The new room will be Room 190 in the College Center.

BUT ,the new room, like most of the school rooms, has no phone outlet and, realizing that we will need two outlets to properly demonstrate bulletin boards and modems at the next meeting, Richard investigated further and believes that there is a good chance that for this month's meeting construction might not have begun and if not, we can use them one more time.

If the old rooms are no longer available Al and Rick will come up with an other good idea for a program.

So, be aware of the problem, come to the meeting on May 29, and look for us first in the old room and if that is closed, use the map.

The Executive Committee

TREASURER'S REPORT

Statement date
4/27/92

Balance on hand 3/27/92		$219.55
Receipts:		
		0.00
Total receipts		$219.55
Disbursements:		
Bell of PA	ck. #265	$17.00
Clyde Gano (April stamps)	ck. #266	2.38
Total disbursed		$ 19.38
Balance on hand 4/27/92		$200.17

Clyde Gano,
Treasurer

Tech-tip POKE

To change to lower case from within a Basic program POKE 282,0. To change to all capitals, POKE 282,2. This works on Coco 1,2, & 3! It also works on the Coco 3's Hi-Res screens as well as the 32 column screens of all three Cocos.

record numbers in the order required for this search method and maybe some kind of notes as to where the breaks in the file are for the various sorts, i.e, where the end of the "A"s is. It should probably contain some kind of flag to denote if the index file has been updated since the last update of the main file. Maybe it would be better to include this in the main file as this file will be open whenever a sort is done and it would be open whenever an update is done. Above all, through all this we need to be considering error trapping.

■ Think about solutions to the above. You don't have to actually write code for the solutions. As a matter of fact, you don't even want to. Just write out in english the steps you think you'll need to get the job done. This is what the second step is all about. I'll leave you here. Have a good month and happy computing.

Due to the recent health problems of Peter Unks, I (Al Wagner) and Clyde Gano undertook to get out the 6809 Express. I would like to thank Clyde for his support both physical and the mental problem solving that made this issue possible. The experience has made me appreciate all the more the effort that Pete puts into our club news letter each month. I want to take this space to tell Pete we all wish him a speedy recovery and look forward to his more professional efforts at publishing The 6809 Express. I wish also to appologize for the lack of pictures. Please feel free to use the blank spaces for notes, scribbling, or any other purpose you think it deserves.

Tech-tip PEEK

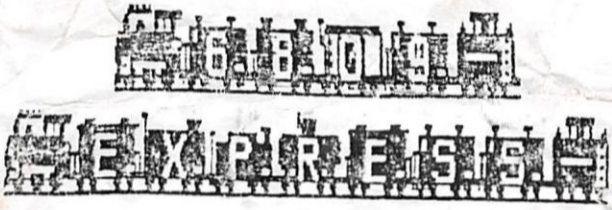
Did you ever wonder how to find out, from within a Basic program, if the arrow, ALT, CTRL, F1, and F2 keys have been pressed. One good way to do this is to PEEK at the keyboard rollover table. Though the table is larger than we will cover here, memory locations 341 through 344 contain the information we seek.

	191	247
341	ALT	up arrow
342	CTRL	down arrow
343	F1	left arrow
344	F2	right arrow

To check for the F1 key,

```
IF PEEK(343)=191 THEN 200
```

or something similar. This would mean that if the F1 key were pressed, the program would goto line 200 and continue execution there. You may find that you need to slow the keyboard response. If you do, experiment with a FOR/NEXT delay loop to find an apropriate delay.



The Official Publication of The

PENN-JERSEY COLOR COMPUTER CLUB

H. Peter Unks, Editor

FIRST CLASS MAIL

Downloading Instructions for McPAINT and *Color Sig*

This information was downloaded from CompuServe by Steve Pitino and made available to the 6809 EXPRESS. Steve will be donating the 14 of the 15 McPaint files he downloaded from CompuServe to the club library at this Thursday's meeting. Anyone not wishing to spend the two + hours on CompuServe to get this program should bring a disk to the meeting and copy it there.

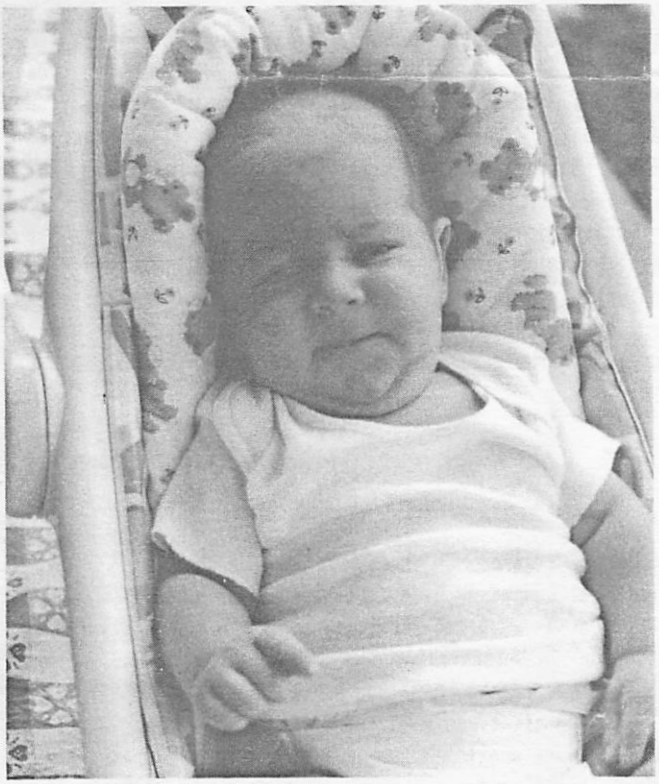
McPaint requires 64K and one disk drive. To download these files from $The Color Sig$ requires you to have a terminal program that supports either XMODEM or the CompuServe B protocol. If you don't have these, read no further.

McPaint is a graphics editor, written entirely in machine language by the Milliluk Partnership.

The Milliluk Partnership is the partnership between Greg Miller (forming the Mill) and Erik Gavriluk (giving the iluk). Milliluk's major purpose in life is to write quality public domain software for the CoCo community.

The Milliluk Partnership has accomplished it's first goal: writing a public-domain graphics editor for the CoCo. Even better, we're giving it away for FREE!

That's right! This program doesn't cost a dime, and it offers more power and features than anything on the market (including CoCo Max).



SCOOP-FIRST PHOTO OF ASSISTANT CLUB SECRETARY

The 6809 EXPRESS is proud to publish the first photo of David Castronuova, son of Sue and Tom Castronuova of Easton. Tom is PJ-CCC's secretary. Doesn't this make David an assistant Secretary? A title shared with his brother, Joey.

David was born at 1:30p.m. on May 6, 1985 at Easton Hospital and as you can see from the photo, he is doing just great. Thanks for the photo, Sue and Tom.

We have been writing PcPaint for over six months, and it's finally done. The results of our labors appears in the following files.

NOTE: All files except the /BAS files are BINARY! ! ! ! Save them to disk as either machine language programs or binary data files (if your terminal program supports this option).

To download McPaint, please follow the following instructions carefully:

Format a fresh, clean disk.

Now load a terminal program that supports XMODEM of the CompuServe B protocol and works with CIS (in Teleterm or Mickeyterm or VIDTEX will do).

Download the file "MCPAIN/BIN" and save it to your disk as "MCPAINT/BIN".

Download the file "MCICON/SYS" and save it under the name "MCICONS/SYS".

Download the file "EDICON/SYS" and save it as "EDICONS/SYS".

With this accomplished, you will have all the necessary files to use McPaint. You will also need to download the file "MCDOC/DOC" which is the documentation file. Download the file "PRTDOC/BAS" which will print out your manual for you.

In addition, you might want to download some fonts (retrieve the file "FNTDEM/BAS" ("FONTDEMO/BAS") to view what all of our fonts look like). FONTDEMO/BAS is a compressed graphics screen.

But wait, there's more! If you download now, we'll send a a set of Ginsu steak knives! Actually, we've made some demos to show you what McPaint is capable of doing.

At the present time you may download "GLSDEM/BIN". ("GLASDEMO/BIN") which shows an animated shatterring glass, and "STARS/BIN" which gives the allusion of travelling through space at high speed.

Downloading all of the files mentioned above will take more than an hour at 300 baud.

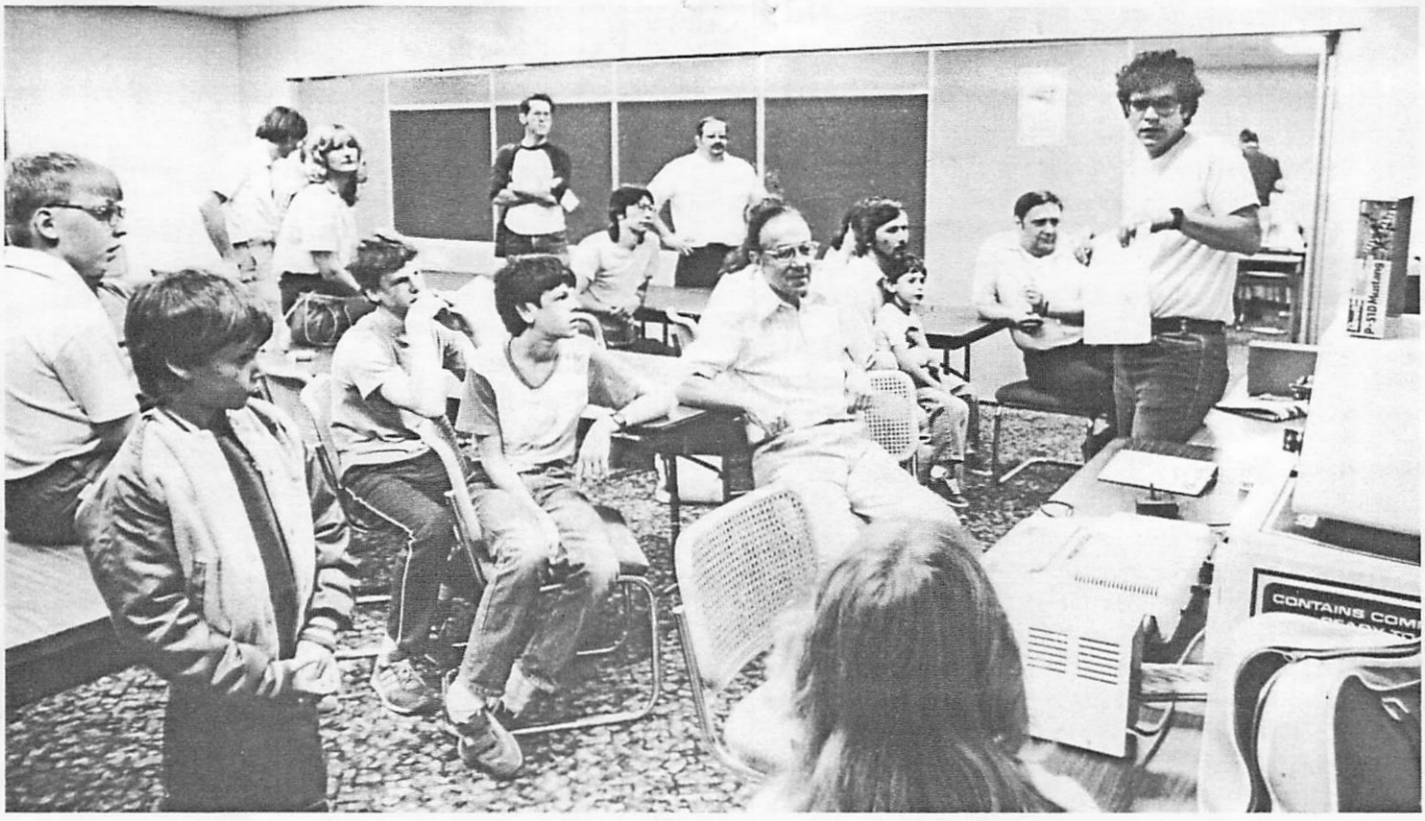
Considering the fact many of you will not want to wait this amount of time, you may receive a disk containing McPaint, all system files, all the current fonts, the

(Continued on page 5)

MUSIC IS FEATURED THIS THURSDAY AT PJ-CCC MEETING

"MUSIC" on the CoCo is the featured topic of the July meeting of Penn-Jersey Color Computer Club at Northampton County Community College (NCAAC). Tom Castronuova and Robert Zugates will present the program.

REMEMBER the meeting is this Thursday, July 25 at 7 p.m. Next month, the meetings again will be set up for the last Friday of the month.



Jerry Behler explains how to play the P-51 game owned by James Mangan at last meeting's GAME NIGHT.

MEETING MINUTES (Continued from page 2)

Behler Rainbowfest Committee Chairman, indicated that more information will be forthcoming indicating the Rainbow has not answered his last letter yet. He asked for members to volunteer to help indicating that last year the minimum table watch was 2 hrs and the people involved received free admission to the Rainbowfest and a T-Shirt. This would make it in your interest to help PJCCC present itself at the gala.

Jerry also had input on the Two SIG groups which he is involved in. The Pascal SIG group did a Rollodex card program which was given to the club library. He also has tractor-feed labels for the Rollodex. The next meeting for that SIG group will be Tuesday the July 2. The hardware SIG group made a Analog to digital connector. That SIG group is on hold till September because the attendance has fallen off somewhat. Jerry finally indicated the new BBS will be up shortly . Indication that SYSOP Jim Managan and Jerry will be holding up putting it on line until they have the format the way they want it.

That concluded Roni asked for club input on any other topic. Tom Castronuova had few notes of interest. Tom indicated that PJCCC hats will again be available at the next meeting cost of the hats will be $4.00 one size fits all-light blue in color-with the club logo and name on front. Tom indicated that the last time this offer was made all hats were sold out within the first 15 minutes of the meeting. See Tom Castronuova for more information or how to reserve your hat. Tom then mentioned new members for the night they are: David Buss of Whitehall, Michael Dennis of Allentown, and Larry Strawn of Easton. Finally Tom asked for volunteer for equipment and a speaker for the next meeting indicating in the positive for equipment were Jerry Behler and Clyde Gano TV SETS. Computer Roni Degarmo. Disk Tom Castronuova. Tom also volunteered to do a short presentation on next months topic of MUSIC as no one else volunteered to do same. Next meeting Tom will explain and demonstrate how to couple music into basic programs.

No other new topics were raised so motion to adjourn the meeting was made by Reinhold Radke and seconded by John Loper. The meeting was adjourned at 7:48 PM. The topic of the night-GAMES- was presented by Jerry Behler who demonstrated the P-51 program owned by member Jim Mangan.

Submitted by Tom Castronuova,
PJ-CCC Secretary

PERSONAL COMPUTING SHOW ON TWIN-COUNTY CABLE

Personal Computing Magazine's "Computer Corner" is shown six times a week on the Financial News Network which is carried on TWIN-COUNTY CABLE - channel 19 for those in the Allentown area who have the services of TWIN-COUNTY. The shows are on six times week, Mondays at 12:45 p.m. and 6:45 p.m. Tuesdays and Thursdays at 7:45 p.m. and Wednesdays and Fridays at 6:45 p.m.

NEXT MEETING IS

THURSDAY, JULY 25 - 7PM

Downloading Instructions for McPAINT

(Continued from page 3)

documentation file on disk, the Milliluk demos, plus a printed copy of the manual for $15. Send $15 to:

Starving programmers
C/O Erik Gavriluk
3104 Link Road #111
Lynchburg, Va. 24503

Leave any questions in message to "Milliluk" on this BBS.

Erik Gavriluk and Greg Miller
-----Authors of McPaint

5/23/85 Additional demo files added:

OLDENG/SET and FUTURE/SET are two character sets for McPaint. They must be saved to disk with the extension "/SET" or McPaint will not be able to find them!!!

McPaint system files
- <1> MCPAINT/BIN - the core program for MCPAINT (21K)
- <2> MCICONS/SYS - McPaint icons (6K)
- <3> EDICONS/SYS - Editor icons (3K)

Documentation files
- <4> MCDOC/DOC - Documentation for McPaint (25.5K)
- <5> PRINTDOC/BAS - Prints documentation to printer (1.5K)

Milliluk demos
- <6> GLASDEMO/BIN - Animated shattering glass (13.5K)
- <7> STARS/BIN - Travel through space at warp speeds (4.5k)

McPaint fonts
- <8> FONTDEMO/BAS - See what the fonts look like
- <10> OLDENG/SET - Old English letters
- <11> FUTURE/SET - Futuristic letters
- <12> SCRIPT/SET - Script letters
- <16> BOLD/SET - Bold Letters

McPaint support programs
- <13> CHRED/BIN - McPaint character set editor
- <14> CHRED/DOC - Documentation for CHRED/BIN
- <15> CHREDDOC/BAS - Prints documentation to printer

WELCOME TO THREE NEW MEMBERS

PJ-CCC welcomes three new members who signed up at the June meeting. They are David Buss, 27 Packer Ave., Whitehall; Michael Dennis, 2473 30th Street, Allentown; and Larry Strawn of 844 Ferry Street, Easton. We hope that the club members can learn from them and they in turn share their knowledge with the current membership.

REMEMBER -
THIS THURSDAY IS
JULY MEETING NIGHT

ORDER YOUR PJ-CCC HATS TODAY!!!!!

Club Secretary Tom Castronuova, has ordered more club hats from the silk screen printer since the last order of a dozen hats were sold within 15 minutes at the meeting. The hats are light blue with black printing of the club logo. There have adjustable bands in the back so -one size fits all. So put your reservations (see coupon) in the mail or bring it to the meeting this Thursday to give to Tom along with your $4.00 for each hat. At the last RainbowFest, Jerry Behler, presented Lonnie Falk, publisher of RAINBOW Magazine with a PJ-CCC hat.

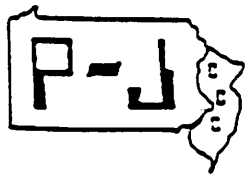
PENN-JERSEY COLOR COMPUTER HATS ORDER FORM

I wish to place my name on the waiting list of the people to be included in the next shipment of PJCCC Hats.

Name _____

Address _____

City, State _____



Member yes or no_____ I would like to order____ Hats
Please Mail or give this form to : Thomas Castronuova

Cost for hats is $4.00

COPY ME

BITS AND BYTES:
The Inside Story About Personal Computers

bob albrecht

Computers work with *information.* In real life, information is *coded* in many ways: English, mathematics, Greek, stock market ticker-tape symbols, Morse code, the jargon of CB radio, Braille, the picture code of Chinese and Japanese writing . . . thousands more.

Deep down inside, computers use a very simple code, called *binary*, to represent information. Binary is very simple; it uses only two symbols, 0 and 1. The symbols, 0 and 1, are called *binary digits.* The term *bit* is commonly used as an abbreviation for binary digit.

A *bit* is a *binary digit.*
A bit can be 0 or 1.

A bit can be represented by a light. A light can be OFF or ON. We will use OFF to represent zero (0) and ON to represent one(1).

Light OFF ○ represents 0.

Light ON ● represents 1.

A bit can also be represented by a two-position switch. A switch can be OFF or ON. We will use OFF to represent zero (0) and ON to represent one (1).

Switch OFF represents 0.

Switch ON represents 1.

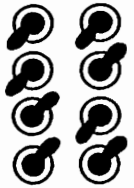
Here is a table summarizing what we have said about bits, lights and switches.

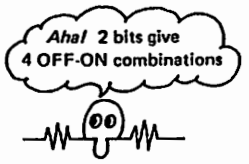
BIT	LIGHT	SWITCH	OFF or ON
0	○		OFF
1	●		ON

Copyright 1985 by DragonQuest, 94026-7627.

COPY ME

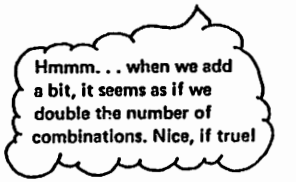
A single bit can represent only two things. Let's see what we can do with two bits, lights or switches by using all possible OFF-ON combinations of the two things.

BITS	LIGHTS	SWITCHES
00	○ ○	
01	○ ●	
10	● ○	
11	● ●	



That was encouraging. Let's add another bit.

BITS	LIGHTS	SWITCHES
000	○ ○ ○	
001	○ ○ ●	
010	○ ● ○	
011	○ ● ●	
100	● ○ ○	
101	● ○ ●	
110	● ● ○	
111	● ● ●	



Copyright 1985 by DragonQuest, 94026-7627.

Woman talk at the party held in December

"OUR FLOPPY DISKS"

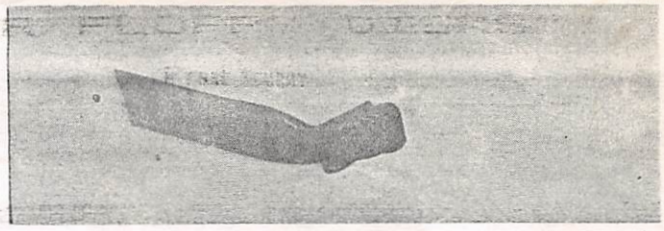
Continued from page 3

a hot-air corn popper, I started to pop corn. At this time the hot air from the popper was blowing all over FLAPPY. Then followed by the hot, dry, itchy pop-corn itself. Soon, FLAPPY was completely covered by a bowl-full of pop-corn. Surely FLAPPY took a real beating this time. Taking FLAPPY out of the bowl, I rinsed it in cold water, wiped it with Kleenex and then inserted in in the jacket. Surely, I thought to myself, that FLAPPY was now a dead disk. But again giving it the same check-up, it still DIR'ed and loaded OK. WOW!!! Just how tough is FLAPPY. How much more abuse can it take?

TEST 5: Having stood up under heat, I decided to test FLAPPY's edurance of cold. Taking FLAPPY out of its jacket, I put it in a Zip-lock bag, half-filled with water, zipped it shut and placed the bad in the freezer compartment of my beer fridge. I left this overnight. The next afternoon, I took the bag out of the fridge, and saw that poor FLAPPY was really stiff in the frozen confines of the ice. It could not even flex its usual self. So I thawed out FLAPPY under the hot water spigot and after FLAPPY was flexible and warm again I wiped it dry with Kleenex and gave it another check-up. DIR'ed both sides, loaded both sides, and amazingly still NO I/O error. What must I do to ruin FLAPPY.

At this point in time I decided that enough was enough. I am retiring FLAPPY so that I can show and exhibit FLAPPY to the world that a floppy disk can survive and was capable to withstanding all kinds of extreme torture and punishment. Also I want to show all that FLAPPY can very easily be converted to a flippy-floppy. Any further testing in the future will be done with another disk.

This article does not intend to encourage others to disregard the usual precautions when holding their disk, and that even thought a floppy disk can actually stand up to such harsh handling, one should refrain from doing so. I just want to point out that if some of the above things happen to a disk, don't push the panic button. Also those who desire can very easily convert their floppies to flippies.



Charles Ross's "re-inker"

MAKE YOUR OWN RE-INKER

by Charles Ross

I recently completed a course in Basic and found that I used my Radio Shack DMPVII printer for several hours a day. This printer did the job for me except that the ribbon had to be replaced three times during the fifteen weeks of the course.

On checking around I found ribbons for quite a few printers cost around $3.50. My ribbons were approximately $9.95 at Radio Shack. I started to analyze my ribbon problem:

1. - Perhaps the ribbons were old and dried out
2. - Perhaps they were too short

Either way the cost could be cut if I could find a way to restore the ribbon. I tried about six different inks without too much luck and finally used an oil-based multigraph ink. That did a good job.

An ink applicator was made by glueing a piece of felt on a piece of metal. Originally I thought I would put the metal in place permanently but found this was not necessar.

The inking process is as follows: The applicator was dipped in the ink and then held against the ribbon on the right side of the printer. A program with short input lines was LLIST(ed) and the as the printer worked, the ribbon absorbed the ink from the felt pad. This inking operation was found repeated three or four times until the ribbon was coated with ink. I found I got best results by doing this as the last operation of the day so the ribbon could absorb the ink for twelve hours or more. The first two or three programs printed smudged the paper the I started to get fairly clean copy. The trick is to coat the ribbon with as thin a coat of ink as possible.

As far as I can see, there is no damage to the printer even after a heavy coat of ink was applied. I estimate the cost of inking including the smudged paper is 1/2 cent per inking OR LESS.

A cheap applicator can be a small brush with a 1/2 inch bristle width.

I intend to use the present ribbon until it shreds.

EDITORS' NOTE: Anyone interested in this inker, see Charles at a meeting and he will explain how to make an applicator.

LIBRARY DONATION

Thanks to Larry Strawn for his contribution of the rompak "MEGABUG" to the Penn-Jersey Color Computer Club Library. See complete listing of what's in the club library elsewhere in this newsletter.

"OUR FLOPPY DISKS"

A real toughy

By Jim Mangan

The following is an unbelievable saga of "FLAPPY," a 5 1/4" floppy disk which was put through a number of tests or trials deemed hazardous to the well-being of disks.

A few days ago I was told by my nephew Tim Foley, who works at Lehigh University Computer Center about some tests they did on floppy disks. The test was to determine how much abuse a floppy disk could take before it crashed. Being of a curious nature, I decided to run my own test. Thereupon I randomly selected from a stack of disks containing many different brands, a disk with the following information on it.

WABASH
Data Tech 1D
Soft Sector
SS/DD
Uninitialized
48TPI 35/40 Tracks
Reorder #: M23A

Let the tests begin!! First I backed up my favorite Jolly Roger disk unto the disk I was going to experiment with. Before beginning I want to point out that the test disk will be referred to as "FLAPPY" from here on in. I tested FLAPPY to make sure that it worked properly. It loaded in a machine language program alright, so now I was ready to start.

Cutting a slit on the edge of the jacket that is held when inserting a disk into a drive, I removed FLAPPY from the jacket using a Kleenex to protect it. I was now looking at FLAPPY which is a brown circular flexible piece of plastic with a large hole in the center and a much smaller hole just off the large one. Before I began the actual tests I had in mind, I re-inserted FLAPPY into the jacket so that the unformatted side could be accessed. I DSKINI(0)'d this side OK and then backed up as I did previously. No checking out both sides by doing DIR's and loading, I discovered that both sides were accessible. EUREKA!!! FLAPPY was now a flippy-floppy without having to cut extra notches and holes in the jacket. The one side was permanently write protected as no notch was ever cut. So now here was a way to back-up a disk unto itself - or how to make a flippy out of a floppy. I think that this was a neat and unique by-product discovery of what I originally intended to do.

TEST 1: Taking FLAPPY out if its jacket, I delibaretly used my fingers. I then rubbed FLAPPY between the palms of my hands. This is supposed to be a NO-NO as instructions on the disk envelope tell you not to even touch FLAPPY. I put FLAPPY back in its jacket and checked both sides for DIR and loading. Results, OK, no I/O errors. See FLAPPY isn't as fragile and sensitive as most everyone thinks.

TEST 2: Again taking FLAPPY out if its jacket, I took it to the bathroom where I washed it with Ivory soap and then rinsed it under the spigot. I then wiped it dry with Kleenex and again tested it out. DIR and Load, OK, No I/O errors. FLAPPY was now the cleanest flippy floppy in the CoCo DEN.

TEST 3: I wrote radially on the bare surfaces of FLAPPY, using a Cross Pen and Pencil set. Using the pen I wrote across FLAPPY from track 0 to 35, and did the same 180 degrees apart and then the same on the other side. Then taking the the pencil I repeated all the above at 90 degrees from where I wrote with the pen. Mind you, this was on the bare plastic surfaces of the actual disk. I did this to make sure that all tracks were written upon at every 90 degrees. I then wiped off the surfaces with a Kleenex and inserted FLAPPY into the jacket and checked it over. STILL good DIR's and loads. NO I/O's. So FLAPPy seems to have a tough skin also, as it seemed resistant to scratching.

TEST 4: Putting FLAPPY into a bowl, which I placed under

Continued on page 4

1986 MEETING AGENDA SET

The Executive Committee of PJ-CCC has set up the following tentative agenda for 1986.

JANUARY	- HOME MANAGEMENT
FEBRUARY	- SPREADSHEET
MARCH	- CARE & FEEDING of your COCO
APRIL	- METHODS to your MODEMS
MAY	- BASIC
JUNE	- HAM & COCO
JULY	- CLUB PICNIC (Sunday, July 27)???
AUGUST	- PRINTERS
SEPTEMBER	- WORD PROCESSING
OCTOBER	- LEARNING is FUN (Education) & Nominations
NOVEMBER	- PASCAL & OS-9, Election of Officers
DECEMBER	- POTPURRI (Anything goes)

The next meeting of the PENN-JERSEY Color Computer Club will be held this FRIDAY, JANUARY 31 at 7 p.m. at NCACC.

President Roni DeGarmo will give a short presention on how to use Radio Shack's "DESKMATE" software for the COCO.

See you there and those who have not renewed their membership for 1986, bring the application which is in this issue of 6809 EXPRESS to the meeting Friday and your dues for $12. Don't forget to fill out the information and make all necessary changes on it if you have gotten more equipment during 1985.

Make your check out for $12.00 to PENN-JERSEY Color Computer Club and give it to Tom Castronuova, new treasurer, at the meeting. You only have to February 1, 1986 to renew and then you will be dropped from the membership list and NO MORE 6809 EXPRESS.

Your dues provides for the printing and mailing of the newsletter and other club functions.

```
for(x=0;x<=1000;++x){multiple; statements; for the loop;  to execute; }
```

Notice the braces. These allow for multiple statements to be included in the "for" loop. Everything from the opening brace to the closing brace is part of the loop. This is similar to the braces that open and close the "main" function. Braces are used many places in C programs to mark the boundaries of a block of statements. In most cases, the entire block can be viewed as one complex statement. The individual statements within the block still execute as individual statements, but to statements outside the block that call that block, it looks like one statement. Keep this in mind as we will be seeing this again in several discussions in the future. Those of you who may have some knowledge of C may call my attention to the fact that the "for" statement can have one other statement besides itself in a loop simply by leaving off the semicolon after the "for's" parentheses. This is true and in keeping with what was said in the above paragraph about blocks. The braces and everything between them is viewed by the "for" statement as the one statement that is allowed after the "for" statement itself. It is not a bad idea to get in the habit of including the braces around the statements in a loop, even if technically they are not needed. They are permitted in every case and are far less likely to be forgotten in the cases where they are needed if they are always used as a matter of habit. Two more important points before we continue. In the variable changing portion of the "for" statement, the increment, decrement, or whatever formula is used, the operation is ALWAYS done AFTER the loop has been executed and BEFORE the comparison to determine if another pass through the loop is needed. Therefore, it does NOT matter if ++x or x++ is used. The increment will take place after the execution of the loop and before the comparison. The second point is that any or all of the portions of the parenthetical statement can be omitted. For example: "for(;;);" is a valid loop! Since there is no counter variable initialized, no comparison, and no changes to the nonexistent variable, this loop goes on forever! Usually such statements have a block of statements included in the loop and somewhere in that block there is a conditional statement containing a "break;" or an "exit;" statement to exit the loop. In addition to an infinite loop, leaving out just the initialization portion of the "for" statement allows one to use as a counter a variable set to some number by calculations, keyboard entry, or such before the "for" statement was encountered. We will cover this in more detail as the circumstances arise. Let's take a look at one possible way our program could appear using a "for" loop.

```
#include <stdio.h>
/*print Fahrenheit-Celsius table*/
main()
{
int fahr;
for (fahr = 0; fahr <= 300; fahr = fahr + 20)
printf("%3d %6.1f\n", fahr, (5.0/9.0)*(fahr-32));
}
```

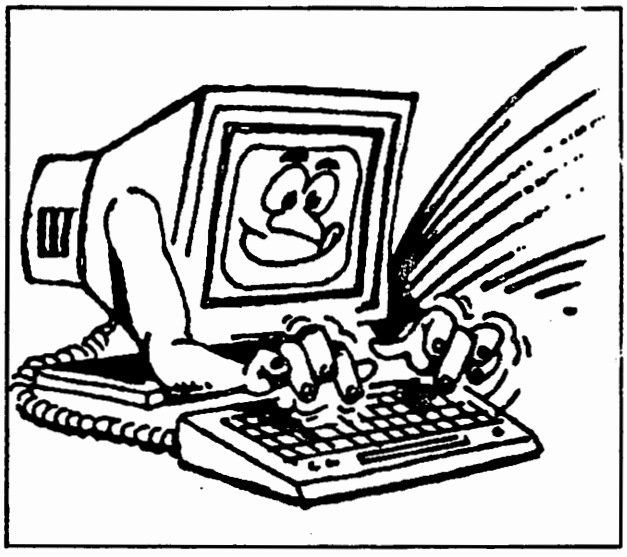
Wow! Did that shorten things up! Let's dissect this new listing a bit. First, we've eliminated the variables celsius, upper, lower, and step. Only fahr remains and this we have returned to an integer. Upper, lower, and step now appear in the "for" statement as constants. (Maybe not a good idea. More on this shortly.) Where the variable celsius had been used to hold the results of the conversion calculation, the formula itself now appears in the "printf" statement. This illustrates a general rule.

Any where one could use the value of a variable, one can use an expression of the same type. An expression here meaning a formula or calculation. Even functions returning an appropriate type could be used in such a context.

About two paragraphs back, I said that it might not be a good idea to have used constants in the "for" statement. We have already seen how a variable could be used in this situation, but variables have a way of becoming hard to find in a program. Tracking where they may be changed may be even harder. If what we need is really a constant that we can find and change easily, a symbolic constant may be in order. We have already used one preprocessor command, that is, "#include". This allowed us to include the standard I/O header file as if it were part of our program without our having to type it physically into our file. The next command for the preprocessor we will look at is "#define". "#define" allows us to create symbolic constants. Rewriting our program using this technique could make it look like this.

```
#include <stdio.h>
#define LOWER 0
/* lower limit of table */
#define UPPER 300
/* upper limit */
#define STEP  20
/* step size */
/* print Fahrenheit-Celsius table */
main()
{
int fahr;
for (fahr = LOWER; fahr <= UPPER; fahr =
fahr + STEP)
printf("%3d %6.1\n", fahr, (5.0/9.0)*(fahr-32));

{
```



LOWER, UPPER, and STEP are not variables. They are constants. Each place in the program where one of them appears, the appropriate value is inserted in place of the symbol when the preprocessor prepares the program for the compiler. Because they are symbolic constants, it would be an error to attempt to declare them anywhere but in the "#define" command lines. Two advantages for using symbolic constants are 1) appearing at the beginning of the program, they are easy to find if changes are needed and 2) a numerical constant buried in a program is not always clear about why it is there. UPPER is far more clear as to its function than the number 300. The same can be said for LOWER and STEP.

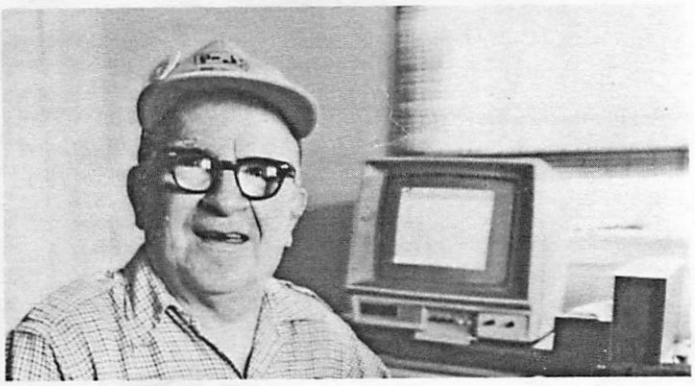
This concludes our discussion of temperatures for now. If there are any questions about programming in C (BASIC, Pascal, or etc.) leave me a message on the club's BBS. I'm usually up there on weekend mornings. I will answer you either on the BBS, if you need your answer quickly, or in the Library Car if the question is such that the group would benefit from the answer and you are not in a big hurry for the answer. Until next time. Happy computing!

6809 EXPRESS

The Official Publication of the

PENN-JERSEY COLOR COMPUTER CLUB

VOLUME 4 NUMBER 3 MARCH 1986



COCO DEN SYSOP JIM MANGAN

SYSOP IS LOOKING FOR DATABASE MATERIAL

PJ-CCC Sysop James Mangan is interested in developing a new idea for the club's Bulletin Board. He wants to make up 7 disk, one for each day of the week. Each disk would contan database and download material. Now he is looking for help from club members to set up this program.

Jim wants to have any ASCII basci programs developed by club mebers or any PUBLIC DOMAIN ASCII programs which could be used for the database section or for downloading from CoCo Den.

He is also interested in old newsletter articles which might be of interest.Jim hopes that this will encourage more participation in using the BBS and more of a variety of items on the BBS. He will gladly replace a disk should anybody drop off any item. More on this topic will be discussed at the March 21 meeting of Penn-Jersey Color Computer Club.

MOUSEKEEPING

By Jim Mangan

For those of you who have "COCOMAX" or "DESKMATE", the Color Mouse for the CoCo is far superior to the conventional X-Y controller. Also creating color computer graphics is much simpler and faster with the Color Mouse. I have used the Color Mouse extensively with the above mentioned program and am delighted as to its easy operational capabilities. But with such extensive usage, a few problems have arisen.

One of the most IMPORTANT things to remember is using the proper surface upon which the mouse is moved about. Place a sheet of paper between the flat surface and the Color Mouse to prevent marring the flat surface as the principal contact POINT between the two is a heavy steel ball. The ideal surface for the Color Mouse is one which enables the steel ball to "ROLL" rather than "SLIDE" or "GLIDE". There are "MOUSE-PADS" on the market but as of now I do not know where to get one, so if anyone knows where I can obtain a MOUSE-PAD I would appreciate it that I am informed as to where I could get one. Also never touch the steel ball or let it come in contact with foreign substances as inaccurate results or damages to the Color Mouse may occur. If the steel ball comes in contact with any liquid or oily fingers wipe it clean with a clean, lint-free cloth. If you continue to experience inaccuracies or problems, check with a qualified Radio Shack service technician, or try the following which I did.

Just recently, while using the Mouse with CoCoMax, I started to experience a lot of difficulties in moving the cursor to where I wanted to move it. The problem became so bad that I was unable to continue the project I was working

Continued on page 3

NEXT MEETING THIS FRIDAY, MARCH 21

The next meeting of PJ-CCC will be held THIS FRIDAY, March 21 at 7 p.m. The meeting was moved up one week due to the Easter holidays next week-end.

Presenting the topic of "The Care and Feeding of your CoCo" will be members of the Hardware Special Interest Group (SIG). Topic discussed will be how to take care of your computer, modem, disk drive, printer and your software. The what to do and what not to do with your system.

Also, the position of club secretary is open due to the resignation of Sally Lanshe, who was elected in November. Anyone interested in the position should see President Roni DeGarmo at the meeting. The duties of the secretary will be explained by Roni.

President DeGarmo is also looking for someone to present the topic on BASIC at the May meeting. If you're interested in Basic and know a little bit about it, volunteer to present the program. It doesn't have to be a fancy program just some basic simple facts on how basic operates, etc. Again see Roni at the meeting this Friday, March 21, at 7 p.m.

MEETING MINUTES OF FEBRUARY 28, 1986

The February meeting of the PENN-JERSEY COLOR COMPUTER CLUB was opened at 7:26 PM by the Club Vice-President Jerry Behler

UNDER OLD BUSINESS Jerry asked if there were any corrections to the meeting minutes as published in the February Express. There were Three corrections. FIRST was the spelling of new member Nevin Keller's name correct as printed. SECOND the picture in the article of the BADGE A MINIT by Jim Mangan did not match the one which was cited in the article because the Editor had misplaced the on which was submitted by the author. THIRD The published price for the Radio Shack Modem was published at $89.00 the correct price should have been $89.95. With no more correction to February Express. Motion to except the meeting minutes as published with the above corrections was made and second. Voice vote carried and minutes were excepted.

Next Jerry asked for a report on the club treasury by Club Treasure. Tom Castronuova proceeded to give the report on the status of the Club Treasury. Tom noted that according to the club constitution it is required to know the clubs net assets he proceed to give the report and asked the club librarian to fix a value of the library which could be liquidated by auction if required. UNDER NEW BUSINESS Jerry indicated that according to club constitution that if members do not renew by FEB 1th they may be dropped from membership list.

President Roni Degarmo then in attendance at the meeting resumed her duties at he podium. She indicated that by prior arrangement with the College that next month meetings has been moved to March 21th. because of the Good friday holiday. Jerry Behler indicated that the hardware SIG and Pascal SIG attendance was down and that if attendance does not go up he may cancel SIGS. See Jerry for more information. BBS SYSOP Jim Mangan donated a real time clock and The ColorRama BBS to The Club. Bill Jones did indicate a willingness to start up a board closer to New Jersey so that those people may use a bbs without long distance phone bills. Tom Roginski asked about having a committee look into incorporating the club so that the club may take advantage of that status for club donations and to reduce liability on club officers. Also Tom gave a report on Rainbow-Fest California. Tom is the owner and operator of Owl Ware indicated that the number of people whom went to to the fair was 6500. The number was low because of heavy rains and flooding which hampered attendance at the fest. Tom indicated however he had a chance to pick up bargains and did meet people. Publicity Report was then given by Nelson Russell. Nelson indicated that flyers for a new newsletter are available for subscription at a cost see nelson for more information. Member Larry Gable had a program which was not copy protected that would make a disk jacket with the programs on that disk. He then put a copy in the library. Business concluded motion to adjourn was made and second. Voice vote approved meeting ended at 8:05PM. Onto the topic of the the night Spreadsheets presentation by Richard Kravits

END OF MEETING MINUTES AS RECORDED BY TOM CASTRONUOVA TREASURER.

PERSONALIZED PJ-CCC BUTTONS AVAILABLE

Penn-Jersey CCC Sysop, Jim Mangan has offered to make up personalized buttons, using his CoCoMax program for any member for the cost of $1 each button. Most of the $1 will be for the benefit of Penn-Jersey Color Computer Club.

The button features the PJ-CCC logo and will have your name on it. Use it as a name tag button at the club meetings or anywhere else you might need a name tag. You keep the button.

The color of the buttons can be red, green, blue or black, regular or inverse with trace outline (as Clyde's sample button).

If you are interested leave a note to Jim Mangan on his BBS (215) 866-1805 and let him know what color and type you want and he'll make them up and it will be available at the next meeting. The buttons are very nice and you help the club out with extra funds. You may also leave your name with any officer at the March 21st meeting.

NEXT MEETING IS THIS FRIDAY, MARCH 21

6809 EXPRESS
PENN-JERSEY COLOR COMPUTER CLUB

The "6809 EXPRESS" is the official monthly publication of the PENN-JERSEY COLOR COMPUTER CLUB. The club is based in the greater Lehigh Valley area of Northeastern Pennsylvania including sections of Northwest New Jersey. Any club or non-profit organization may reprint any part of the newsletter as long as credit is given. PJCCC will gladly exchange newsletters with any other computer club. For any written correspondence send your request to EDITOR, 6809 EXPRESS, Penn-Jersey Color Computer Club, P.O. Box 2742, Lehigh Valley, Pa. 18001.

President	-	Roni DeGarmo
Vice Pres.	-	Jerry Behler
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Bulletin Bd.	-	Jim Mangan
West Coast Correspondent	-	Tony Cappellini

PJCCC assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of any information contained in this newsletter.

HEY OUT THERE ! ! !

The 6809 EXPESS newsletter can only be as good as its membership allows it to be. So that means YOU, dear member. Let's have more articles submitted by more members. Let's spread all that COCO knowledge that is floating around in the minds of the entire PJ-CCC membership. Your editor, Reinhold Radke who is already doing an excellent job CANNOT DO EVERYTHING by himself. The primary editorial function is to gather, put together and publish what would be of interest to the readers of said publication. So in putting together the EXPRESS, Reinhold must depend upon the membership with an occasional article by an outsider or a speech by a guest speaker at a PJ-CCC meeting. In no way should the editor write everything himself which is an impossible task to impose upon him. So come on members, give him a break. If you can talk about a subject, certainly you can write about it. The dissemination of the written word can be a powerful thing and if the membership pooled their knowledge of the COCO world then the entire membership would have gained tremendously. Like the memo pads we had at work said -" WRITE IT! DON'T SAY IT"-.

So now maybe YOU might want to write and article - GOOD! LETS GET STARTED. First thing to remember is that we are not all literary geniuses in either reading or writing. Next, pick a subject which is relatively easy. If you receive any software or and become enthusiastic or excited in using it then YOU'RE a prime candidate for writing an article for the EXPRESS. Learn all you can about the program or hardware and make mental notes or better yet jot down all items you think would be pertinent to the subject matter. After you have gained a good working knowledge of the subject you want to write about, set yourself down in front of CoCo and load in your favorite word processor and start typing. Don't worry about syntax, form or spelling, that can be word-processed later. At this point your main objective should be substance. So start writing down all the notes and memos you previously made. Then try to expand on each item you put down. Keep reading over and over what you have written and you will find that new ideas pop into your head as you read. Write these new ideas down at the appropriate place. If you type 2 or 3 screenfulls, save it to tape or disk. DON'T try to write and article all at once. Stop what you are doing and load in the saved material a few days later and read what you have saved. You will be amazed at all the new ideas that can run through your head. So start inserting these ideas where they belong. Pretty soon your article will grow larger and larger. Once you have typed in everything you want to say, you now can start checking for spelling and syntax and even while you are in the process of editing, still more ideas will come to you.

After you have completed your article the ideal method of submission is to save it in ASCII form on tape or disk and send it to Reinhold who I am sure will certainly be happy to hear from YOU and publish your article.

So come on out there, let your fingers do the talking, and start sending those articles to your editor. Just to point out how a thing can grwo, those first editions of RAINBOW were only a few sheets and no look at RAINBOW today. It is the WRITTEN WORD that made it so.

In closing I want to point out that Reinhold had nothing to do in any way of my writing the above article.

SEAMUS
COCO DEN SYSOP
PJ-CCC BBS

HILLCREST SHOP
QUICK PRINTING CENTER

For the best in PRINTING
PARTY SUPPLIES
BALLOONS
INVITATIONS
MAGAZINES
N.J. LOTTERY TICKETS
see Nelson Russell at

THE END OF FLOPPY DISKS?????

Several electronic companies are working on new kinds of EEPROMs (electrically erasable, programmable read-only memory) chips that retain information even when power is turned off. When used in a computer they could eliminate the need for disk drives since the current types of EEPROMs can only hold about 1 K of data and the new types of EEPROMs, using new manufacturing techniques, squeezes more more on a chip by working in areas as small as a few atoms. The new chips can be produced economically and contain from 64K to 256K od data.

Companies like Advanced Micro Devices, Intel and Seeq Technology are already working on the chip according to publiched information.

But Maxell is said to be able to soon demonstrate a new computer disk that uses a new kind of recording to make the disk more dense and therefor able to hold more data.

The new disk uses perpendicular recording - magnetic particles are perpendicular to the substrate (or gelatin which bonds the particles to the disk) instead of the horizontal way they are on the present disks.

The advantage is much greater density and the new disks are said to be able to hold a whopping eight megabytes of data. At present there are no perpendicular disk drives announced by manufacturers. So what does Maxell know we don't?

NEXT MEETING

THIS FRIDAY,

MARCH 21

COCO MEMORY MAP

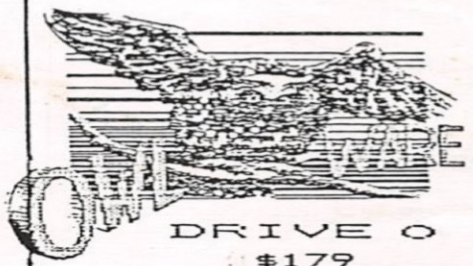
The following was downloaded from COMPUSERVE, in the COCO SIG section.

Address	Device
FF00-FF3F	Internal PIA's
FF40-FF5F	R/S 1793 disk controller (&ghost)
FF50-FF5F	R/S hard disk
FF60-FF63	R/S X-Pad
FF64-FF67	
FF68-FF6B	R/S RS-232 Pak, PBJ 2-SP Port #1
FF6C-FF6F	R/S Modem M1/M2, PBJ 2-SP Port #2
FF6E-FF6F	SS Realtime Clock
FF70-FF73	SS Stereo Pak
FF74-FF77	SS SC-01 Voice
FF76-FF79	R/S 80 Column
FF78-FF7B	SS EARS
FF7A-FF7B	Orchestra 90
FF7C	PBJ C-C Bus slot select
FF7D-FF7E	R/S Speech Sound Pak, (C-C bus ghost)
FF7F	R/S Multi-pak slot select, (C-C bus ghost)
FF80-FF83	
FF80-FFBF	Real Talker ghost
FF84-FF87	
FF88-FF8B	
FF8C-FF8F	
FF90-FF93	PBJ PC-Pak Parallel, Coco Max
FF94-FF97	PBJ PC-Pak Realtime Clock, Coco Max
FF98-FF9B	PBJ Word Pak, (Coco Max ghost)
FF9C-FF9F	PBJ Word Pak, (Coco Max ghost)
FFA0-FFA3	
FFA4-FFA7	
FFA8-FFAB	
FFAC-FFAF	
FFAF	DSL 128K
FFB0-FFB3	(Coco Max ghost)
FFB4-FFB7	(Coco Max ghost)
FFB8-FFBB	(Coco Max ghost)
FFBC-FFBF	(Coco Max ghost)
FFC0-FFDF	SAM chip, Banker 256
FFE0-FFF1	Reserved by Motorola
FFF2-FFFF	Interrupt vectors

R/S= Radio Shack
PBJ= PBJ, Inc.
SS= Speech Systems, Inc.

Please let me know of any other commercially available Coco devices
so I can add them to this list (Easyplex 70000,130).

Manufacturers are STRONGLY encouraged to conserve the limited I/O space.
Addresses should be fully decoded to eliminate "ghost" addresses, which can cause unnecessary conflicts between devices.



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