

THE 6809 EXPRESS

OFFICIAL PUBLICATION
OF THE PENN-JERSEY
COLOR COMPUTER CLUB
SEPTEMBER-OCTOBER
1993

COME ON BACK!

Rick Hengeveld, President

Yes! I've taken a mind readers course! Right now your thinking "The 6809 Express?? Why are they sending me this?"

Well it's simple. Many of our former members left the PJCCC because they were no longer operating a Coco. Since that time many people kept computing, just not on the venerable Coco. As time passed even the most stalwart members started to switch over to more advanced systems. This of course created a problem for the PJCCC. After all not too many people are buying Coco's anymore.

So a change has been made! Now the PJCCC supports more than just Coco. Dos, Apple and any other systems you may be operating now are supported by the PJCCC. This mixing and melding of different computer systems has proven to make for very interesting meetings. For instance Coco users were impressed by a demonstration of CD-ROM, while Dos users are perplexed with OS9's multitasking in such a limited memory area. We provide something for all.

So if you've been away for awhile, we'd like to see you back with us, even if it's just to stop in and renew some old acquaintances. We're still meeting the last Friday of the month at the Northampton Area Community College at 7:00 Pm.

Our meeting room has changed to Room 109 in the main hall. Hope to see you at the next PJCCC meeting.

I'm writing this report just after returning from the June PJCCC meeting. It was very good to see some new faces at this meeting! I hope we'll be seeing them again. Rich Kravitz informed the membership that he has once again taken care of our meeting place by securing our reservations at the college. Rich goes above the call of duty since he has paid the costs out of his own funds! Thanks, Rich! Eric Ryder gave an intense demo of encyclopedias on CD-ROM. It was interesting to see the Coco users, who by the way still far outnumber the DOS users watch the demo with great interest. The mixing of differing systems in one users group has proven to be a viable option for this club.

Once again the subject of computers and packet radio was raised. We're working on getting a Coco user in to demo his system to the membership. Keep your eyes peeled for this demo and don't miss it as I think you'll find it one of the most amazing presentations you'll ever see.



Bring A Friend!

NEXT MEETING
OCTOBER 29th at 7pm
NCC ROOM 105

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ALAN J. WAGNER, SR.



DIVES INTO C!

Here it is the end of another month, my vacation having gone past, and several weekends to boot and I still don't have an article to finish up the program I/we have been working on for almost two years now. I must admit I've lost interest in it. It is a real chore to get myself working on it and when I do, I can't keep my train of thought. If any of the members really want/need the program finished, I will try. If there is no further interest, I will move on to other things that are more in tune with our newly defined and broader base. My apologies to those I may have disappointed, but as I said above, I will complete the program if interest is expressed.

Since the new club arrangement is to embrace as many computer types as possible, continuing to teach only OS9 (even though it is the greatest operating system for any computer and OS-9000 is available for x86 computers) is short sighted. Since I needed to look for something that applies to almost all computers equally, I have decided to discuss the language "C" for awhile. I do not have any grandiose ideas of creating a complete tutorial on "C", but I do wish to expose you to another language other than BASIC. I also will not try to write any large unfinishable programs. Each installment that contains a program will be complete unto itself. OS9 has been accused of being a system of utilities. It will be seen that "C" is a language of small utilities that are strung together to create larger programs.

In our discussions, we will cover the "C" language itself and some of the standard library functions. We will discuss K&R "C" as well as ANSI"C". I will be using five



books as source for my material. The first two are "The C Programming Language", by Brian W. Kernighan and Dennis M. Ritchie, both first and second editions. This is the K&R referred to earlier. Mr. Ritchie was the inventor and the first to implement the language. The first edition was for many years the standard to which all "C" language implementations were written. The second edition is an update to reflect the standard created by The American National Standards Institute, hereafter referred to as ANSI C. The C compiler written for the Coco by Microware is written to the old K&R standard. There are a few new "front ends" for the compiler that allows it to accept ANSI style programming. Since these front ends are either PD or shareware, I can supply these as needed. Newer C compilers for other computers are more or less ANSI compatible. We will be using the ANSI standard for the most part to be as portable from computer to computer as possible. Realize that at times you may have to modify some of the code to get it to compile on your machine. Since I cannot know every compiler, I must leave this up to you. I will help where I can and will point possible areas of conflict if I am aware of them.

The other three books are "C a Reference Manual" third edition, by Samuel P. Harbison and Guy L. Steele, Jr., published by Prentice Hall; "Teach Yourself C" by Herbert Schildt, published by Osborne McGraw Hill; and the C compiler manual that came with the Microware compiler for the Radio Shack Color Computer. If you endeavor to acquire these books be warned on two of them. The original K&R is out of print and no longer available through normal channels. There are two books out with the title "Teach Yourself C". They are by different authors and different publishers. I cannot say anything about the other book as I have no personal knowledge of its contents. I have read or am in the process of reading these books cover to cover. My opinion is that they are all good references and tutorials with the exception of the compiler manual which states that it was never meant to be a tutorial and directs one immediately to K&R and other books.

Come with me as we explore one of the most universal languages implemented on a wide variety of computers from my Coco to mainframes. Thanks to the ANSI standard, we can now write programs that will work on them all. As wide spread as BASIC is, it was never standardized. As a result, even though BASIC is similar on many computers, it is almost never close enough to run a program written on one computer, say a Coco, on a different machine, say a MacIntosh. But a C program written to ANSI standards can be moved as long as an ANSI compiler is available for the target machine.

For those of you who have the Microware C compiler for the Coco, I have a couple of programs that claim to make the compiler ANSI compatible. I've only tried a few things with these programs installed, but so far I've been able to compile ANSI code successfully.



The first order of business is to learn how to get YOUR compiler to function. Each computer's C compiler works just a little different. I will give the commands for the Microware compiler as an example, but its up to you to figure out your own compiler.

The classic first program is to get the computer to print "Hello, world." on the screen. The program is deceptively short. I say this as even though the program is short it demonstrates several important points. The first is how to get your compiler to run. It takes just as much effort to make this program compile as it would for a longer program.

The program is as follows:

```
#include <stdio.h>

main ()
{
    printf("Hello,World!");
}
```

That's it! Please note however the punctuation. In C it is important that the correct marks be used. The indentation is for human benefit and does not affect the program in any way. If you get a preprocessor error concerning the include statement, try substituting double quotes for the angle brackets shown. This punctuation means different things to different compilers. Make note of what works on your compiler and see if you can determine why. If you can, then make the same substitution where appropriate throughout this series. The programs presented will be those that run on my system, but may require some modification as that mentioned above to run on yours.

Note also if you will, the curly braces. These need to be there as they tell C where blocks of code begin and end.

Now comes the hard part. You have to figure out how to get your compiler to operate on it. For my compiler, I would create the above program in a text processor and save it in ASCII format as a file name with the extension "c", as in "world.c". Next I would call the compiler with the command "ccl world.c". At this point I sit back and watch the compiler work. My compiler will be sending a series of prompts to the screen just to let me know how the process is going. First the program is subjected to a preprocessor. This creates what an MS-DOS person would call a batch file. This file in turn calls the various parts of the compiling operation in sequence. The preprocessor also does things like substitutions, adding library functions and several other operations as well. We will discuss them in detail in a later session.



Next the compiler itself starts to work. The compiler for the Coco is a two pass compiler. That means I see prompts indicating pass1 and pass2. This was done under the older level 1 system to save on precious memory space. (We only had 64k and thought it a lot of memory in those days). Here is where one usually gets the bad news. Though you can make mistakes that will be flagged in the preprocessor, the most common place for errors to be reported is the actual compiler passes. One word of caution. If you make just one error in the beginning of a program, the compiler can get out of sync with the program and begin a laundry list of errors. Don't panic! Find the first place where an error was reported, correct that error, and then try to recompile the program. Chances are many of the errors will evaporate.

Next comes the optimizer on my system. This device attempts to make the code as efficient as possible. There may be times that you don't want the optimizer fooling around with your code. There are ways around it, but more on that later.

Next comes the assembler. What has happened up to this point is that the routines have taken your C code and transformed it into assembly code. If you stopped the compiling before the assembler began its job and looked at the last file the compiler created, you would find code that looked like the assembly language code you've seen in magazines. The assembler takes this code and transforms it into machine language.

The last operation is the linker. This takes the machine code and adds certain information that is needed for you machine to execute the code and then stores the final executable file in your execution directory. On my system, the name of the executable file is the same as the original without the extension, but this can be changed with a command line option.

Any or all of this may be slightly different on your system depending on how your compiler operates, but all of it will be in there somewhere, whether it is obvious or not. As mentioned before, there are commands that can be issued to the compiler that will change the compiling operation. These can be quite useful depending on what you are doing. Those are for a more advanced discussion. For now just see if you can get your compiler to compile the above program. If it does, all you should have to do is call the final product just as you would any other executable file and the words "Hello, World!" should appear on your screen.

Have fun. Next time I'll get into a little about what each line of our program means.

TALKING MS-DOS

RICK HENGEVELD

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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.

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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

newsletter no later than the middle of August. Pete also encouraged all to think about writing an article. A suggestion was made that perhaps a review of a favorite piece of software or perhaps a piece of software that is the least favorite would be a good place to start.

Richard Kravits mentioned that we would have to renew our lease on the meeting room before the September meeting and should not print the September issue until it was certain which room we would have for this meeting. At this point the new business seemed to slip into a random access style of conversation. The meeting was closed by Rick at 8:27PM. A very impressive demonstration of CD-ROM followed given by Eric Rhyder. He spent most of the time showing us around a copy of the 1991 Grolier Encyclopedia. Besides the expected text, there were pictures of photographic quality, music, and even short movie sequences of historical events with both sound and animation. Clyde commented that his dedication to the Coco just may be slipping after seeing demonstrations such as this.



THE MAVERICK BBS

Rick Hengeveld, Sysop

Wow! Where to start! OK here's the deal, Maverick's BBS has been reborn! The old system which was run on the clubs 512K Coco has been retired. The new system runs on an MS-DOS machine and sports 40 megs of storage. That's a far cry from the 600K of storage we had on the old system. There are many added features to this system, such as E-Mail, 2400 baud operation, multiple subs and, thankfully, a lot less sysop work to keep the system in operating condition. So sign on and explore the system. There's a lot there to do and see!

THE LAST WORD

H. PETER UNKS, EDITOR

This issue represents a departure from the normal issue of THE 6809 EXPRESS. This is assuming that "normal" is a word that applies to this, the official publication of The Penn-Jersey Color Computer Club.

It was put together with the help of several kinds of computers using at least three operating systems. These would involve MS-DOS, RSDOS, and OS9/68000 as run on IBM compatibles, Color Computers, and the MM/1. And this issue will be *printed*, not *copied*.

I hope you like this idea. I do. I believe it reflects the new spirit of the club in a very practical way. If you don't agree, let me know. I'll do it this way anyhow, but you will have the satisfaction of letting your feelings be known.

Having one club concerning itself with a variety of computers and operating systems has turned out to be

more fun than anyone imagined at the outset. There is some insight to be gained from every system out there. There is great camaraderie in the membership of the club. It is one of the finest groups of people I have ever been associated with. Make no mistake. It's the people who make PJCCC worth belonging to.

Since the recent demise of THE RAINBOW I have subscribed to a number of publications which seem to fill the void. Subscriptions to these publications vary in price from around \$15 to \$25 per year. All of them are worthwhile.

THE WORLD of 68' MICROS is \$23 per year. This magazine publishes every six weeks. It supports the CoCo, disk basic, 6809/OS9, and OS9/68000. Send a check to FARNA Systems PB, P.O. Box 321, Warner Robbins, GA 31099-0321 Phone (912) 328-7859.

(more)

UPTIME is \$15 per year from JWT Enterprises, 5755 Lockwood Blvd., Youngstown, OH 44512. No programs here, but lots of useful information on CoCo support, 6809/OS9, OS9/68000, and RSDOS.

The "NO NAME MAGAZINE" from Dirt Cheap Computer Stuff Company, 1368 Old Highway 50 East, Union MO 63084 is \$24 annually. Here we have support for CoCo, OS9, and OS9/68000 with emphasis on the later.

THE "INTERNATIONAL" OS9 UNDERGROUND magazine is dedicated to OS9 and OS9/68000. Subscribers get discounts on software and hardware from participating vendors. Send \$18 to FAT CAT PUBLICATIONS, 4650 Cahuenga Blvd. Ste #7, Toluca Lake, CA 91602.

Finally, you can't go wrong by joining MID-IOWA AND COUNTRY COCO. For \$16 you get a monthly disk magazine which often prints out to 50 pages or more! This is CoCo stuff complete with color graphics. This is a great source of orphanware and loads of information. Send a check to Terry Simons, Editor/Treasurer, 1328 48th St., Des Moines, IA 50311.

There are more, but those mentioned are the ones I have seen. I subscribe. I like getting mail, especially this kind of thing.

There is still a great deal of interest in the CoCo and there is a surprising amount of new software available.

Some nifty OS9/68000 (OSK) is available as well. Running under both versions of OS9 is a program called "InfoXpress". It will automatically logon to a bbs, download your messages which you review and reply to offline. Next session it uploads your replies.

"Write-right" is a wysiwyg word processor for the MM/1. It is mouse driven and has other bells and whistles.

I will have more on these and other goodies in a forthcoming issue.

Sample issues of the publications mentioned will be brought to the meeting on the 29th of October. You may peruse them at the meeting.

See you then!

GET ONLINE WITH THE MAVERICK
BBS! DIAL 215-760-0456

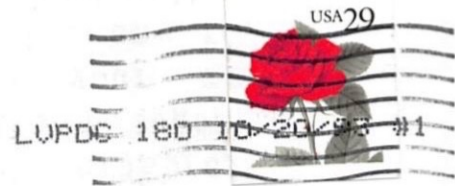
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H. Peter Unks, Editor



Clyde Gano

FIRST CLASS MAIL

