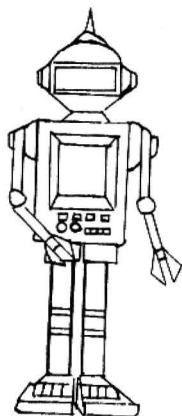


Color Computer News

May / June 1981



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Color Computer News
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REMARKS

I wanted to call this section REMark but the Heath Company took that years ago, so I guess we'll go with REMarks unless someone can come up with something better.

Since this issue is the premier I thought I'd tell you all about why this newsletter is being written, myself, and REMarkable Software. Let's go in reverse order.

REMarkable Software started long ago as a custom programming company primarily aimed at business. The problem that hardware manufacturers seem to produce less than exceptional software and don't usually have the facilities to customize their software for their customers. About spring of 1980 I was forced to change attitudes about a machine I had been opposed to since it's inception. I discovered that the TRS-80 Model I wasn't all that bad a computer, so I bought one and REMarkable Software entered the world of personal computing.

Recently Tandy introduced 2 new computers, the Model III and the Color Computer, and we decided to support the users of these new machines to help the new computer owners over the difficult times. The Color Computer was chosen for two basic reasons, first because I am particularly excited about the 6809 MPU and second because the Model III is an updated version of the Model I and as such is well supported by magazines such as The Alternate Source, 80 Microcomputing, 80-US and Chicatrug News. Don't get me wrong, we are not just a "beginners" newsletter, as far as the Color Computer is concerned we are all beginners.

As far as plans for this newsletter we are at this point very open to suggestions. We want your articles and comments, you have to support CCN in order for CCN to support you. Please forgive any rough spots. Any new venture starts out slow. I personally wrote much of this issue so send in your articles and programs to share with other CC owners. It took me a long time before I ever wrote an article for a computer magazine, I've published other magazines (Ham Radio related), but never felt that I had anything unusual enough for a computer magazine. At this point in the CC's life we all know something that another needs to know. Software reviews, unusual uses and explanations of the things you have learned. Don't worry about grammar or being perfect, that's what we have editors for.

We have also implemented another pet project of mine. That is a real user's group for the Color Computer. Here's how it works. We are collecting original programs from CC owners and putting several of them on one cassette for distribution to other CC owners on a cost basis. There will be anywhere from 1 to 100 programs on each cassette and CCN subscribers may order them for \$7.95, at that price only one really good program makes the whole cassette worth while. Anyone contributing a program will receive a copy of the cassette where it appears. All programs appearing in CCN will be available by this method unless the contributing author requests otherwise. The other part of the User's group is that we can supply you with names of other people in your area so that you may form a local user's group. Just send a self addressed stamped envelope and a list of zip codes in your area. If you do not wish to be included in this project, send us a letter stating so. Also we occasionally make our subscriber list available to responsible Color Computer vendors if you don't wish to be included so state so in a letter to us.

There are three software reviews in this issue. A good one, one is fair, and the last is poor. We certainly hope that you have seen so that we may publish your review and warn the other readers about the bad ones and support the companies producing the good stuff. There is a lot of trash out there right now, let us learn from your mistakes.

I read a lot of magazines during the course of a month and you probably share my feeling about the large volume of ads in the mags. I read them first but some of the mags seem to have more ads than articles. We are in a good position. Because we are a dedicated newsletter we will attract fewer ads but all of them will relate directly to you, the Color Computer owners. Remember that your \$9.00 a year just covers the cost of printing and postage, the advertisers pay the authors of articles and pay the salaries of our people. We will try to keep the ratio of articles to ads to about 4-1 (4 pages of article to 1 page of ad copy). We have informed potential advertisers that we reserve the right to refuse ad copy from companies that do not fulfill their claims or that we receive complaints about. Let us know how our advertisers deal with you and Color Computer companies advertising in other magazines.

Beginning next month we will have another regular feature. We have recruited a technical advisor who will answer your questions. To use this service send your questions to

the attention of Tech Advisor. The most interesting questions will be printed in CCN. If you wish a personal reply, include an SASE and we'll get back to you as soon as possible.

I guess all that's left to talk about is myself. My name is Bill Sias and I'm the principal owner of REMarkable Software. I intend to write the Editorial and Assembly Language Programming sections of this newsletter. My primary function at REMarkable Software is writing business software, so there are a lot of times when I'm not here. If you would like to talk please make your calls after 5:00 EST and you can be fairly sure that I will answer the phone or at least be available. If you order anything from us by phone please call at the same times so that I can speak to you. That's enough for now. Enjoy this first issue and please return the survey so that we can provide you with what you want.

Bill

LETTERS

Here is \$9.00 for the first year of Color Computer News. What are you looking for in the way of articles?

Mel Evans
Ann Arbor, MI

* Mel, I think the answer to your question is best answered by Richard Batt.

Dear Sirs:

Enclosed is a check for \$9.00 for a subscription to "The Color Computer News" as mentioned in the New Products section of 80 Microcomputing, April '81 issue. I have just purchased a Color Computer and want to find out as much as possible about it - both programs to run and internal construction (hardware and software).

Richard Batt
Buffalo, NY

* In addition to what Richard mentioned, I would like to add software and add-on hardware reviews, unusual applications and most anything else. How about writing an article about what you wanted to know before you got your CC and have found out since.

Dear Sirs,

Enclosed please find a check for \$9.00 for a one year subscription to Color Computer News. If you have other material related to the CC please let me know.

David Bodnar
Pittsburgh, PA

* A smile began to grow across the merchant's face as he rubbed his pudgy palms together. "Well", he said, "let me tell you about it."

I've sent a copy of our catalog to David. At this point we are developing and accepting Color Computer software for possible publication and resale. Like many retail operations, we also sell products produced by other companies. We have, however, made it a policy not to mention this end of the business in the magazine other than our advertising and addressing specific questions. We refuse to become what Radio Shack's Newsletter is.

To whom it may concern,

I'm very glad to see that someone else besides myself thinks of the Color Computer as something other than a toy. It is clear to me that your company will pioneer the software market for the Color Computer. (Just from reading the short letter sent into 80 Microcomputing.) Therefore, I wish to order a subscription to your Color Computer News. Enclosed you will find a money order for \$9.00. I am looking forward to my first copy.

Thank you very much for your time.

Cordially Yours
Calvin E. Cock III

* Calvin, you're right, we don't think of the Color Computer as a toy and anyone that does had better take a closer look. For one thing, the 6809 is a much more powerful chip than any other 8 bit chip on the market and benchtests have shown it to be more powerful than many of the 16 bit chips. Tandy stated from the start that it wasn't a business machine, they had better look

at our catalog. Thank you very much for the great complement about being pioneers, we're trying.

Dear Sirs,

I saw the article in the "New Products" section of April 1981 edition of 80 Microcomputing announcing your inauguration of the "Color Computer News". Enclosed is a check for \$9.00. Please initiate my subscription for one year. I have had a Color Computer for 4 months, and have added Enhanced color Basic and expanded the memory to 32K bytes. The only two problems I have encountered to date with my Color Computer are the lack of a disk operating system and a paucity of available software. I hope that Color Computer News will help alleviate these problems by unifying color computer users, and making the vendors aware of the new market.

Thank you very much for filling a much needed void.

Sincerely,
David Dacus
New Mexico

* I think David has stated our purpose more clearly than I could have. I have been thinking about offering a Users group service. We are in a prime position to let you know about other Color Computer owners in your area. The way it could work would be to send us a self addressed stamped envelope and a list of zip codes in your area and we will send back a list of names and addresses that fall in those zip codes. If you don't want to be included in this send us a letter and inform us of your desire not to be included. I also agree with the complaint about disks.

Dear Sirs

Please send me a one year subscription to "Color Computer News" for the Radio Shack Color Computer.

I read about you in the April edition of 80 Microcomputing. I have a 4K Color Computer and am using it as a terminal and as entertainment for my family. I hope to be able to transfer files to and from a time sharing computer in the future.

Sincerely,
William Miller
Boise, ID

* How many others of you have an application other than programming and game playing?

Dear Sirs,

Enclosed find \$2.00 to try out your Color Computer News. I don't want to get it if it isn't what I want. I saw your ad in 80 Microcomputing. I was disappointed in that mag (80 Microcomputing). Nothing on Color Computers and we got a one year subscription. I wish I'd only got one issue now.

Randy Martin

* I don't think that you can really blame 80 Microcomputing for their lack of coverage of the Color Computer. A magazine can only publish articles sent in by readers and the majority of their readers have Model 1s. I think you have to look at it from the other side of the coin also, you as readers have to accept some responsibility to educate other readers and to share your discoveries. Color Computer News will only be as good as you make it. If we aren't what you are looking for you have the ability and responsibility to make it what you want. I firmly believe in this fact: Readers totally control magazines, editorial policy, articles published. If you don't like what's happening then WRITE. Don't give the excuse that you haven't learned enough about it yet, if you've purchased a program lately then you have a review, if you've written a program that's an article in itself.

FAST BASIC GRAPHICS

When I first brought my Color Computer home I was disappointed in the graphics functions. It would seem that a computer whose major selling point is high resolution color graphics would support high resolution color graphics. It has since turned out that it will, see the article by Tom Rosenbaum in this issue, but Tandy certainly hasn't helped much. In fact they claim that it won't (I love it when an expert says that something is definitely not true and turns out that it is). Be that as it may let's look at low resolution high speed color graphics.

I should clarify that I am referring to the 8K or Level I ROM and not to Enhanced Basic. If you have been writing many programs using SET and RESET for graphics you must be aware by now that these commands do not allow enough speed for real-time graphics. The alternative is to use the graphic characters built into the machine. Fire up your computer and type in the following one liner!

```
10 FOR X=128 TO 225: PRINT CHR48X9;; NEXT
```

What you see are the building blocks for fast graphics. What you see are the building blocks for fast graphics. Refer to table 1 and we'll continue. Using Table 1 we can construct anything that SET and RESET can. To do so pick a color, determine which pixels are to be SET and add the color's number to the numbers referring to the pixels you need to be set. The resulting number can be printed as a CHR\$(pronounced character string). Try this:

```
10 CH$=CHR$(248)
20 BL$=CHR(32); REM A SPACE
30 FOR X=0 TO 500 STEP 33
40 PRINT@X,CH4;; PRINT@X,BL$;
50 NEXT X
```

Fast? O.K. next, using a copy of the video work sheet in the back of your manual construct a table showing all of the building blocks for future use. Done? Good. Now we can build entire figures using the same technique described earlier. For example, GR\$=CHR\$(248)+CHR\$(240),..... For characters that are more than one block high add CHR\$(11) in the proper places and don't forget to build some blank characters to erase your graphics as you move your characters around the screen and to CLEAR enough string space to hold the figures you are building.

If your program uses more than a few of these characters you will notice that it takes some time to build all of these figures. We can resolve this also by making the strings a part of the program they are used in.

Model I owners will recognize that we are about to do some string packing. In order to wrk this bit of magic we need to locate and understand two pointers in Basic' scatchpad and to understand how strings are stored in memory. The pointers are: Start of variable storage and End of variable storage. The pointer for start of variable storage is located at 27 and 28 decimal and the pointer for End of variable storage is at 31 and 32. To calculate either of these use the formula:

```
LOCATION=PEEK(ADDR1)*256+PEEK(ADDR2)
```

Therefore Start of variable storage is at $PEEK(27) * 256 + PEEK(28)$ and End of variable storage is at $PEEK(31) * 256 + PEEK(32)$. The location that these formulas return will depend on the size of the program in memory and the amount of string spaced CLEARed.

Strings are stored in memory as: the ASCII value of the first letter then the ASCII value of the second letter plus 128 then the length of the string and the next two bytes are the actual address where the string is contained in memory. Therefore to locate AA\$ we need to search for three consecutive memory locations that contain: 65, 193 and since the example will be fifteen characters long, 15. 65 is the ASCII value of A, 193 is 65 plus 128 and 15 is the length of our string. Type in these lines:

```
10 AA$="....."
1000 LS=PEEK(27)*256+PEEK(28)
1010 HS=PEEK(31)*256+PEEK(32)
```

This creates the dummy string we will use and locates the low and high addresses of variable storage. Run it and type PRINT LS,HS to see where variable are stored now. These numbers will change as we add more to our program. Now add:

```
1020 FOR SL=LS TO HS
1030 IF PEEK(SL)=65 AND PEEK(SL+1)=193 AND PEEK(SL+2)=15 THE VL=SL+4 ELSE NEXT SL
1040 LC=PEEK(VL)*256+PEEK(VL+1)
```

EPL	Branch if the result of the last operation caused a positive result
BRA	Branch Always, Branch no matter what the result of the last operation was
BRN	Never branch, another NOP
BSR	Branch to a subroutine
BVC	Branch if V flag is clear
BVS	Branch if V flag is set
JMP	causes program execution to continue at the specified address
JSR	causes a jump to a subroutine
RTS	causes a return from a subroutine

Most of these motion instructions are conditional and are used in decision making instruction, controlling the flow of program execution based on conditions specified.

The test group of instructions perform operations such as BIT which compares a register with a memory location and sets the Flags as necessary, CMP compare a register with a memory location and sets flags based on whether the register is higher, lower or equal to the memory location, TST is essentially the same as BIT. Many of the Branch instructions perform their own tests and are, in my opinion, much more reliable and easier to work with.

The logical group of instructions require some knowledge of Boolean Algebra and it is beyond the scope of this article to impart such knowledge. If you aren't sure of your abilities in this area, drop me a line and I'll either answer your question directly or recommend some books. The logical instructions supported by the 6809 are: AND, OR, EOR (exclusive OR), COMPLEMENT, LSL (Logical Shift Left) and LSR (Logical Shift Right). We will explain these instructions when the need to use them arrives. In the meantime, I strongly recommend that you brush up on logical operations.

The Remaining instructions consist of a few more rotates such as ROL and ROR. Both of these rotate with the Carry flag as part of the rotate. ROL rotates all of the bits left and the Carry flag becomes the new least significant bit while ROR rotates right with the Carry flag becoming the new most significant bit. The next four instructions have to do with the stacks. PUSH takes the contents of the register(s) specified and PUSHes them onto the stack. The source form of this instruction is PSH and the name of the stack that you want to push it/them to. PSHS A,D,X would push the contents of the A,B and X registers on the S stack. PSHU X,Y would push X and Y onto the U stack. The purpose for "stacking" registers is to save the contents for future use while freeing up the register to do something else. The opposite of PSH is PULL and it works exactly the opposite of PSH. Any good 6809 Assembler will allow assigning register(s) labels. We could assign the registers A,B,X and Y to the label MAIN by issuing the Assembler instruction: MAIN REG A,B,X,Y. We'll talk about labels when we get into programming.

All that's left are the interrupt instructions. We'll save those for later also as they are better understood after much of this gets clearer.

We have two books now about the 6809. One is THE MC6809 COOKBOOK by Carl Warren and the other is 6809 ASSEMBLY LANGUAGE PROGRAMMING by Lance Leventhal. Both of these have good and bad points. Cookbook is good if you want an overview and ALP is good if you are ready for something a little heavier. Cookbook spends a lot of time reviewing Motorola's 6809D4 evaluation board and even more talking about VTL-09 which is a tiny Basic available for 6809. I'm not very interested in either one. ALP goes into a lot of examples and is in my opinion the better of the two books. Both are good but neither is enough in themselves. For that matter neither is this article. The MC6809 Cookbook retails for \$6.96 and 6809 Assembly Language Programming is \$16.95. 6809 Assembly Language programming is at least \$10.00 better.

Until next time if you have any questions or think that something isn't clear enough let me know. Next time we'll start programming and I strongly recommend that you obtain an Assembler or at least a monitor program. How about writing a monitor in Basic and sending it in so others can use it?

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to
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Color Computer News



Are you tired of searching the latest magazine for articles about your new Color Computer? When was the last time you saw a great sounding program listing only to discover that it's for the Model I and it's too complex to translate? Do you feel that you are all alone in a sea of Z-80's? On finding an ad for a Color

Computer program did you mail your hard earned cash only to receive a turkey because the magazine the ad appeared in doesn't review Color Computer Software? If you have any of these symptoms you're suffering from Color Computer Blues!

But take heart there is a cure!

It's COLOR COMPUTER NEWS.

The monthly magazine for Color Computer owners and only Color Computer owners. CCN contains the full range of essential elements for relief of CC Blues. Ingredients include: comments to the ROMS, games, program listings, product reviews, and general interest articles on such goodies as games, personal finances, a Kid's page and other subjects.

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Color Invaders By Spectral Associates
141 Harvard
Tacoma, WA 98466

Color Invaders is a copy of the arcade game "Invaders" and is a good rendition of the original in many details. If you're not an "arcade freak", the object of the game is to kill all of the moon monsters before they can reach the earth. The monsters are arranged in 8 columns of 6 and advance toward the bottom of the screen in a zig-zag pattern, all the way across the screen before moving down a row. In addition there is a mystery invader, which looks more like a flying saucer on both versions, which moves more rapidly than the rest of the invaders. A hit on this one give you extra points.

Spectral's version is very much the same with the exception of an additional feature. The new feature is a "shield" or a short blue line that can be used to block the invader's blasts. The shield is a good thought but the thing moves so fast that it takes more concentration to control it than it does to fight the creatures without it. The sound created by Spectral's invaders is as annoying as the arcade version's. It ranges in tone from a love-sick cricket to a demented toad. The arcade version is just as bad, if not worse.

Apple Invaders is another version of this arcade game and I compared the two versions almost side by side. In reality there was about a two hour gap between viewing each version. In my opinion Spectral's version won in all ways but one. Spectral's graphics are equal with the Apple version but the playability* is much better. The Apple version uses joysticks and Apple joysticks are well known to be extremely slow. This is a definite handicap in a game like this one. Spectral's version uses the arrow keys to move your turret and the space bar to fire the cannon, a much better choice in my opinion. The shield mentioned earlier is controlled by the 1 and 2 keys. Apple invaders did win in the sound department. The author of the Apple version apparently decided against using the static sounds of the arcade game.

Spectral's Color Invaders is a well-thought out version of the popular arcade game and is probably the best Color Computer game out now for arcade freaks and other good people.

Frog Race
By B.E. Erickson

In the course of seeking out software for resale I came across some odd occurrences. One of the techniques I use is to sit down at the computer with either a stack of magazines or some other source of ads. Recently I was doing this with the Radio Shack sourcebook and since I was looking for Color Computer software I came upon an ad for a game called Frog Race by B.E. Erickson. The listing said that it was for Color Computer and that he would sell this one for \$3.00 as an example of the other things he had written. I sent him my \$3.00 and a letter requesting dealer information. The response was quick but it came from the Software Stockpile* and included the dealer information I had requested and a cassette marked Frog Race. After "doing" the mail I attempted to load the game into my Color Computer and it traveled from one end of the tape to the other and never found it. Fearing that I had inadvertently received a blank tape, I listened to it and heard the unmistakable sounds of Model I Level II Basic. Being a software vendor I'm aware that it is possible to ship a customer the wrong version of a program so I loaded the game into my Model I so that I could at least see how the game fared. My five year old son, Aaron, is the official game tester and the test is this: the game is loaded and the instructions are read to him and we then time how long it takes for him to lose interest. He placed his bet on the number of the frog he wanted to race and the screen cleared. A square was drawn on the screen and several numbers appeared within it. After a short delay the screen started a rapid clear and redraw sequence with the numbers in new positions. The game ended when one of the numbers reached the edge of the screen. Total elapsed time was 27 seconds. Aaron had already left the room. I asked him if he wanted to play another game, he didn't. In order to be fair I played the game, I was impressed with Aaron's stamina.

The game is a real turkey and I'm fairly well convinced that the Color Computer version is just a translation of the same thing, since Erickson had versions for the Pet as well.

The Software Stockpile
9437 Ironwood
Des Plaines, IL 60016