C.C.O.G. COLOR COMPUTER OWNERS GROUP

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PRESIDENTS COMMENTS:

It's almost June and Summer is in full swing this last week. My vacation is over and I will be back to work the same day as the meeting. We have had to change our meeting night to the fourth Tuesday for the time being. The VFW got a paying customer for the Hall for all Tuesdays of the month. So we will be meeting down in the FOXHOLE for a while. It's possible that we could even be bumped out of this arrangement, so we will continue to explore other options for our meeting place.

Rainbowfest is over and we have a couple of articles by members who attended. I was just a week out of surgery and was unable to attend. I really wanted to be there. It really looks like it will be up to the local clubs to "KEEP THE ADVENTURE GOING!". We will have to provide support for each other and try to encourage people to support the vendors that are still loyal to us.

The rest of this year will really be a challange for CCOG. It is up to each member to do his part for the club to continue being the useful entity that it has been for over 10 years now.

This month we will be hearing more about RAINBOWFEST from the members that attended. And we will take a little time to discuss various printers and how to get the most out of them with the COCO.

The theme in the June issue of RAINBOW is PROGRAMMING. Let's have a good discussion this month on just how we can build a meeting around this theme.

I would also like to take this opportunity to encourage more members to get involved with the BBS. This is a great way for us to keep in contact with each other between meetings. It is also an excellant way for you to get technical assistance from some very knowledgable people.

Bernie

COLOR COMPUTER OWNERS GROUP

This newsletter is a periodic publication of the COLOR COMPUTER OWNERS GROUP

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C.C.O.G. Minutes for April 16, 1991 By Marcine Glowicki

The meeting was called to order at 7:20 by president Bernie Patton. These were 21 people in attendance with 1 new face. Bernie introduced the officers and gave a short history of C.C.O.G.

The minutes for the last meeting, March, were approved.

A treasurer's report was not given but we are still in the black after paying all postage fee's that Bernie submitted. An additional \$5 will be needed for this month's mailing. Bernie sent a "LAST NOTICE" to all clubs receiving our newsletters. If they have not reciprocated then they will be cut from the list.

New Business--Bernie was informed by the VFW that our Tuesday meeting date will not be available any longer. Another group will be taking over the whole upper floor. The options available are the 2nd and 4th Tuesday's and Friday's. Friday was quickly voted down. Bernie and Bob had conflicts with the 2nd Tuesday and since they are officers the membership decided to put a motion on the floor for the 4th Tuesday. This was seconded and passed.

Robert Gault is accepting money for subscriptions for RAINBOW on disk and the magazine. Because of his busy schedule he did not have a demonstration this month. Bob also suggested that you check the April RAINBOW 'Letters to the Editor' section. There is a show in Lansing, April 21st. (See RAINBOW for further info.)

Jim had a great demonstration on using the plug and power pack. He gave many ideas for its use.

Gus announced that the Livonia Radio Shack has great prices on COCO software. Many prices were unbelievable. It was not known if these prices are the same at all Radio Shack's.

Bernie continued the evening theme by demonstrating music.

Next month's topic will be discussion of RAINBOWFEST, rumors etc., as well as printers.

Remember the next meeting will be Tuesday, May 28, 1991. The date has changed.

\$12 was collected for the VFW.

There have been a spate of messages on our BBS recently of personalizing (configuring) an OS-9 system disk. Tom Napolitano and have discussed the various things needed to make system disks and I don't want to repeat previous columns; so just so me refreshers. If you don't have two disk drives, you might as well bite the bullet and get a second drive. Yes, you can run OS-9 (even Level II) without a second drive but let me assure you that you won't like it!

In the July 1990 issue, BEGINNER'S CORNER discussed making an OS-S system disk (but assumed two drives.) In December 1989, making a BasicOS system disk was discussed for both single and dual drive systems. If you don't have back issues, contact our president. How you ask, do you do to make a system disk with a single disk drive? A facetious answer immediately comes to mind as explatives surely come to yours. Will those disk swaps never end?! There are ways to improve the performance of any program that copies information from or writes to a disk. Consider how OS-9 works. You ask the system to run a program, ex. COPY. The system checks to see if COPY is in memory; if not then the current command directory is checked. One way or another the program will be loaded into memory.

The system also checks the language the program is written in; machine language, BasicO9, Pascal. When necessary, language interpreters are also loaded into memory. Then the system checks how much data space the program needs. The program MUST request memory if it is going to have any. You can also request memory for the program from SHELL. This is done by adding #xxK to the "run" command, ex. COPY # 48K How does this relate to our problem? Any program that reads/writes the disk can only use the number of data bytes requested from the system. Say that information on the disk is 1000 bytes. If the reading program requested one byte of data space, then 1000 disk passes would be required. For single drive copies, 1000 disk swaps would be needed. Is some light coming through? If the program requests 1K of data memory, then only one disk pass (swap) will be needed. How much memory should you ask for, as much as you can get without the out of memory error. Supose you want to use the above technique with CONFIG.

CONFIG is probably the easiest way for beginners to make a custom system disk in either Level I or II. Unfortunately CONFIG places a call to COPY without offering the user a way of requesting larger data spaces. (It may be that CONFIG automatically asks for the maximum space available but there is no documentation on this.) Remember I said that the OS-9 system checks all programs before running them to see how much data space they need? We can assure the efficiency of CONFIG by changing the defaults for COPY. In OS-9 Level II the most you can request for COPY is 48K; that will serve as our example. We will need to change bytes \$OB and \$OC in COPY. These bytes indicate the permanent storage size (data space) needed by COPY. It is easy to do this with MODPATCH; one of the OS-9 Level II commands. You will need to BUILD or EDIT the following short script file; we'll call it Copy.patch.

- * Copy.patch- modifies COPY for 48K permanent storage
- * (1)ink to copy 1 copy
- * (c)hange byte # from # to #
- * change from 4K to 48K c b 10 bc
- * (v)erify module v

Page 4 BEGINNER'S CORNER by Robert Gault continued Once you have created the above file, type MODPATCH copy.patch Modpatch will run changing the permanent storage allocated to COPY and verifying the module. You probably won't want a permanent copy of the new module but if you do, just SAVE it. Each time you use CONFIG, run the modpatch file first. The results should be impressive. There is a second approach which will be even more impressive if you have 512K of memory. Get one of the RAM disk programs from our club library or BBS and use the ram disk (/r0) as an intermediary in CONFIGing a system. method will be to use a 35 track ram disk and have CONFIG configure the ram disk. Then format a new disk /d0 and BACKUP #56K /r0 /d0

If you want, you can stop CONFIG before any commands are transfered, backup a new disk without commands, and then use /r0 to copy or dsave selected commands to the new disk. I will not give much in the way of detail on this second method for they will be dependent on the version of ram disk you obtain. One requirement is that the ram disk simulate a true disk and not a directory, ie. you must be able to format it.

One point on OS-9.

The power of this system derives from its flexibility, but that also adds to its complexity. If you ever want to advance past the point of rank begginer, you must try to understand what you are doing and not memorize. There are several books available on OS-9 for beginners but if you follow these books blindly without question, your situation is hopeless. Even in the simplest examples, ask why the author chose his route. If I say to use BACKUP with #56K that does not mean you ask for 56K of data space with all programs or even with BACKUP. Command modifiers are use to optimize performance and should be tailored to your situation.

EXPERT'S CORNER by Robert Gault

While I was at the Chicago Rainbowfest 1991, I spent some time talking to Art Flexer about his ADOS 3 and Extended ADOS. Of course I tried to pump him for as much information as possible with out seeming to do so. point that came up was how he handled his FAST and SLOW commands. you change the clock speed of the Coco, all the timing loops in the ROM code are affected. That is why disk and tape I/O, the SOUND and PLAY commands, and printing are problematic at fast clock speed. While OS-9 has a byte in system RAM that contains a fast/slow flag, RSDOS has nothing. I was curious to know if Art had assigned a RAM variable to the speed or whether he just made assumptions. This was important to me, as in my own version of DOS, I had changed the clock speed to fast each time a disk was accessed. Not knowing the previous setting, I just left the clock at fast speed. That is not what is called "friendly" code. said he did not use a flag but tested the clock speed. Immediately my ears perked up because I had not thought of a way to do that. "Well", said Art, "I just check the horizontal interrupt with a timing loop." Amazing, how could I have been so blind! Art did not give any more information but that was all I needed. The result below is a short lesson in assembly language and a useful utility. Of course the best use can be obtained by incorporating part of the code into your own assembly The code is written in MAS format but you can easily convert it to EDTASM+ format by adding line numbers and giving names to the local branches.

| | NAM | "CLOCK TE | STER" |
|--------|----------------|----------------|-------------------------------|
| PRINT | EQU | \$B99C | print string |
| DECMAL | EQU | \$BDCC | print decimal value of reg.D |
| | ORG | \$7000 | - |
| START | ORCC | #\$50 | Turn off interrupts to CPU |
| | CLRB | | load B with zero |
| | LDA | \$FF01 | get HOR int. value |
| | PSHS | À | save value |
| | ORA | #1 | turn on; %0000001 |
| | ANDA | #\$7F | and clear flag; %01111111 |
| | CLR | \$FF00 | clear HOR interrupt |
| | STA | \$FF01 | set HOR int. |
| A@ | LDA | \$FF01 | read " " |
| | \mathtt{BPL} | A@ | loop if no flag |
| | ANDA | #\$7F | " flag |
| | CLR | \$FF 00 | clear int. |
| | STA | \$FF01 | set HOR int. |
| a@ | LDA | \$FF01 | and start timing |
| | BMI | B@ | got a flag? |
| | INCB | | then increase count |
| | BRA | a@ | try again |
| B@ | PULS | Α | recover original value |
| | STA | \$FF01 | restore it |
| | LDA | \$FFOO | clear interrupt |
| | ANDCC | #\$AF | turn on interrupts |
| | CMPB | #5 | test the clock speed |
| | BHI | C@ | |
| | LEAX | SLOW-1, PCH | R point to message |
| D@ | JMP | PRINT | send a message; exit to Basic |
| C@ | LEAX | FAST-1,PCF | R point to message |
| | BRA | D@ | |
| SLOW | | | CK SPEED" |
| | FDB | \$0D00 | |
| FAST | FCC | "FAST CLO | CK SPEED" |
| | FDB | \$0D00 | |
| | END | START | |

Have you noticed that Pres. George Bush is now joining the rest of us who enjoy computers? He now wants to become "computer literate". This was indicated by an article in the Detroit News on 4/29/91. He stated "I would like to report to you that I intend to undertake and fulfill that commitment". The article concluded "Press Secretary Marlin Fitzwater declined to identify the type of machine Bush has had installed for training in his hideaway office off the Oval Office." Whatever computer he is using, may it be as user-friendly as our COCO models have been to us.

I'm sure we will be hearing about the recent Chicago RAINBOWfest at the next CCOG meeting. Club member Karl Sefcik indicated that the "Rainbow" magazine no longer will appear on newsstands in the future according to what he heard at this fest. So the future looks a bit hazy at this time for the COCO user of this magazine unless the COCO4 type of computers take over. Time will tell!

Another interesting news article in the Detroit Free Press on 4/7/91, page 6H, recommended that electric surge suppressors are a must for today's homes since they can avoid damage to electronic circuitry. It was an enlightening news article. I assume this type of event is very likely during lightning conditions. I have one attached to my COCO which I purchased at Radio Shack. Is your computer protected for this situation? It looks like computers keep on moving forward.

Another article in the Detroit News on 4/21/91, by Betty DeRamus, indicated that AT&T will within one year introduce it's Smart Phone. It stated that at the push of a button you can automatically pay the electric bill, or order Pizza, or see on it's screen what's on sale at your department store. Other competing companies, including Japanese companies, are expected to introduce similar phones. So you can see from that what is in the future. Also a so-called "palmtop" computer is now available, about the size of a pocket calculator, which can transfer data or short programs one might write to a larger computer if desired much like the so-called "laptop" computers do. Maybe someone in the COCO community will one day determine how to interface such a small computer with the COCO3 or a future "COCO4" type of computer.

Since the wave of the future for the COCO hobbyist is in the world of OS9 software, I have been trying to become more educated with that system. In this regard I have received good support from CCOG club members. Now is the time to go in this direction since a lot of this kind of software is on sale at various Radio Shack stores. Recently I obtained a Radio Shack monitor for my COCO3 which was on sale for a much lower price. What a difference in that display compared to the past TV display I used. Now I can see the 80 column display very clearly which was very difficult to read on the TV display. You may want to get one of these while they are still on sale at Radio Shack if you don't already have one.

Membership is now open in the VFW to veterans of the Persian Gulf War. Their initial membership at the Livonia VFW Post 3941 is free. So if any of you have contact with such persons, let them know they are eligible now to join the VFW.

A reminder especially for new members of the CCOG, the VFW uses your money donations from our club in it's many charitable activities especially concerning unfortunate hospitalized veterans. It's all going

for a good cause. The Livonia VFW also collects used books and magazines to give hospitalized veterans. So if any of you want to contribute such, which you would otherwise discard, give them to the VFW bartender to make some unfortunate veterans happy. Also we owe some thanks to the VFW bartender because he volunteers his time to open the VFW Post for us and serve us drinks. He gets nothing for providing us this service so let him know you appreciate his efforts for us whenever you can.

IMPRESSIONS OF COCOFEST CHICAGO 1991 by Robert Gault

Is it the last Fest? Not much was said one way or another. Certainly the turnout was down for both attendees and exhibitors. The exhibition area had room left for more booths and lecture halls did not have people spilling out into the corridors as in past years. Some big names were not present such as Danosoft, Disto, and Rulaford Research.

I talked with Tony DiStefano of Disto and asked why he was not an exhibitor. He hedged on his answer but the gist was that he was selling out his Coco stock and looking for greener pastures. When pumped for specifics (IBM, Mac, Amiga, etc.) Tony broadly refered to the "Coco 4s" and said he might be back "next year." High cost was widely rumored to be the main reason for the poor exhibitor turnout. Speaking of the "Coco 4s", there does not seem to be much progress in this area. Delmar is the only group that can ship on demand. Delmar has a 68000 CPU wedded to an XT backplane. Points of interest are SVGA graphics and lack of SCSI support. IDE drive support is claimed to be coming. Frank Hogg is in production but solidly back ordered into the second production run. Rainbow does have a TC70 unit and is planning a full evaluation. Of special interest is Frank's statement to have contracted Tomcat units towards the reconstruction of Kuwait. IMS is still awaiting FCC approval of the MM1. Paul Ward seemed to be very defensive about the appearance of vaporware. So far his marketing tactics have not stimulated consumer confidence. Paul claimed to have business and educational contracts in line for the MM1. Based on what I have seen so far, I would not want to buy any of the units based on their value/cost ratio. There is promise / Two items of interest were offered by Burke and Burke. One sure fire hit was an interface and OS-9 software to support the Logitech hand This is a black and white unit which scans about a three inch wide band. While the demo unit was not working, I saw enough to know that I may well buy it when the ad hits Rainbow. The second item was OS-9 software to import CYRUS the Tandy chess ROM pack into the OS-9 environment. This was working and is an impressive piece of programming. Does it play good chess? Speaking as a chess player, I'd say no. You will need a dedicated unit to even come close to tournament level play. The prize for the best deal of the show was split between Cocopro, Microcom, and Tandy. Cocopro had a box of Coco3 ROM packs 2/\$5. Microcom seemed to be unloading as much stock as possible at discount prices; stocked 512K board - \$59. Tandy had 128K Coco3s at \$79, OS-9 LevelII at \$9, and most other software at \$4.95. At \$9 OS-9 LevelII is a steal, but why would anyone want to buy it at this late date? It seems that from 20 to 47% of OS-9 LevelII in user hands is pirated. 80,000 units were made and 100,000 to 150,000 users are estimated. This is a

IMPRESSIONS OF COCOFEST CHICAGO 1991 by Robert Gault continued Page 8

very sad commentary made even more so by the admission of a prominent OS-9er that he was using a pirated copy. Oh yes, so why was OS-9 LevelII selling? Why just so people could get the documentation!

Info obtained at the Fest:

2 million Coco owners

100-150,000 OS-9 LevelII users

100,000 OS-K (86K 9000) owners

35,000 Rainbow subscribers

OS-9 used by:

- 1) Brunswick bowling alleys
- 2) Delco electronics
- 3) Fermi nuclear labs
- 4) Fiero car systems
- 5) Genisys prototyping
- 6) heart monitors
- 7) Jaguar break systems
- 8) Kodak disk cameras
- 9) Phoenix airport
- 10) NASA shuttle systems and full mockup simulator
- 11) Swedish naval escort vessel
- 12) US mail post office systems
- 13) Unisys

Kevin Darling announced at the OS-9 users forum that the OS-9 users group has been disbanded. There is no chance of it starting again unless the users themselves do it at the "grass roots" level. A LevelII revision is finished and in litigation; date for release unkown. Windows for the OS-68K "Coco4s" almost finished. It will be bundled with the MM1 and possibly the TC- 70.

Near misses in the life of the Coco:

- 1) Fugitsu FM1, a dual 6809 OS-9 machine, did not get FCC approval and the unit eventually stopped selling in Japan. Tandy could have adopted it for the Coco 1.
- 2) OS-9/BasicO9 could have been the software for the Cocol. Microware was several months slow in meeting a deadline and Microsoft got the bid.

Lets take a break from our ongoing subject for the past two months. disk management, and look at a program useful in daily life, a calendar and appointment program that could prove useful especially if you do not run "Deskmate" or multivu. It will produce a calendar of any month you chose and allow you to move a cursor between dates, months and years as if you had your own time machine! At any date you can insert an event for later reminder and recall, or you can check for events you've previously inserted at any date. You can also specify an event to be recurring at specific times each year, each month or with a variety of schedules. There are a lot of options, so lets look at some.

First off, to start the month program, as with other os9 programs, type the word: month. Month will recognize whether it is being invoked under os9 level 1 or level 2 and will adjust itself accordingly. will be presented with a display showing the current month's calendar with a cursor highlighting the current date. You did set the correct date when you booted up os9, didn't you? If not, then the program will show the default os9 date. If you are familiar with the "tsed" text editor, then you will feel right at home with month. You can move the cursor around to various dates in the displayed month by using the h, l, These key assignments seem a little odd, until you try k and j keys. them and realize that they sit under your right hand on the keyboard. If you are one of the 10% of the world who is left handed, well you may just have to adjust to it, or obtain the source code and c compiler and fix it to your liking.

If at any time while month is running you forget the commands, typing H will display a rather detailed help message. One of the first things to try is the L command, which will print a graphical display of the phase of the moon for the day. Notice that in this case and in other commands, if we say L we really mean upper case L. Nothing else will work. Get a feel for moving around the calendar, and selecting different There are several ways to select another date. Typing / will allow you to type a date in the usual month/day/year format. When you type enter, the program will take you to that date. Try it with your birthday, to see what day of the week you were born on. Another way is to type m, or y and use the cursor keys to select another month or year. Enter d to again place the cursor in the calendar. Notice that when you move past the ends of the year menu bar, the years will scroll by.

Month will help you keep track of important events and happenings. To enter an event, place the cursor on the start date and type P. You will drop down into another menu below the calendar. You can use the cursor keys to move back and forth on the menu bar to select the date area. Once in the date area, use the space bar to advance the date or the backspace key to reverse the date. You can do this to the day, the month or the year. If you want the event to be repeated over some schedule, move the cursor to the part of the menu bar that you want to select and then type enter. This way you could select an event to be repeated every third Sunday of every month, if you so desire. Next use the tab key to move the cursor down to the "time" and "duration" areas of the menu and again use the space bar and backspace to adjust the times

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you want to enter. Move down one more area and type in a title for the event. Finally, you may either select or cancel what you have input. If you accept the data, it will be written to a file to be called up the next time you boot up and run month.

Once you have input your events, you may display them by using some of the other commands. Typing A will highlight all the days in the currently displayed month that have at least one event associated with them. It is easy then to move the cursor to that date and type S to scan all the events for that day. Type B to see a summary of the events of the day, or type E to review all the events in the entire data base.

Realize that most of this will not make sense until you actually are running the program and can see what I mean. The best thing to do is to get the program, run it and play with it. Try out all the commands you see on the help menu and just run wild.

RAINBOWFEST REPORT by Karl Sefcik

Here some of us are at Rainbowfest '91. Friday night had no seminars scheduled, and it was a good time to look around and see what everyone had. Tandy, (Tandy who?), had a huge area with many Coco 3's, daisy wheel printers, software, and other accessories for sale (no blue light) but a Coco 3 could've been had on Friday night for \$79.00 (128 K). By Saturday, the price was down to \$59!

Burke and Burke, Cocopro, Delphi, Eversoft Games, Granite Computer Systems, Microcom, N MSA Computer Group, Rainbow Magazine, Second City Software, SpectroSystems, Sundog Systems, Supersoft, T&D Software, besides the 3 manufacturers, (FHL, IMS, and Delmar), also had booths there.

Lots of interest and concern at the Fest! Attendance seemed good, (I was bumping into people on the sales floor till 30 minutes before close on Sunday). The breakfast was sold out, Chris Burke was the Key Note speaker, "It's up to us!" was the theme of Chris's speech, (and so many others). Marty Goodman's consultations were good, (a surprise guest for Marty was Steve Bjork), usually it's Steve that fills in for Marty, BUT while the 2 were together, Steve told Marty about the game he made (Marty's Revenge) that was actually a nightmare of a Rainbowfest where EVERYBODY had a problem for Marty to solve. The pace of the game kept getting faster and faster, with problem after problem in a PAC-MAN type of game. And Marty might end up missing a seminar because he was answering so many questions, so Steve would fill in for Marty, (dragging out longer and longer). But this is the game, and Marty was flattered !!! Also, Marty found out (somewhere else) that he had the distinct honor of having a new species of Lice named after him. (he told us this when he started to talk).

All the manufacturers are doing well, IMS has had their machine evaluated by the FCC, BUT they are waiting on the paperwork to be done to

make it official! That's the way Paul Ward wants it! They had their system running with various programs, and they were offering thei: extended kit package for under a thousand dollars (show special). It was hooked up to a CM8 monitor, they say that all the external hardware pieces we bought for the Coco would work just fine with the MM/1! At the F-H-L booth, it was sure good to see the TC-9 up and running, (they had discovered a missing trace (out of 1500) from the GIME to the Memory) The TC-70 was there and running also, it uses the same processo: (Signetics 68070), and video display generator (Signetics SCC66470) that the MM/1 uses. The TC-70 is has been shipping for a year now (of all places, Kuwait has ordered 2 for some applications on dealing with the Hussain candles.....the oil well fires). Peripheral Technology / Delmar has a Super VGA option for their machine now, it also can display 256 colors at once. They had new demos running on it, some almost looked like analog video, (television). Ed Gresick (from Delmar) said that because the 68K software may not be there yet, (they would still love to sell their machine), their MS-DOS option will let their customers use that software now, which is readily available and works, with possible upgrades to OS-9/68K in the future. And for the Coco Community, they have a 6809 option (with GIME & RSDOS) that will run OS-9 and Color Basic software. They also have a CPM option for all those public domain programs! There are even rumors of a level above S-VGA (SUPER-DUPER-VGA?) that would have 2,000 lines of resolution and up to 400 to 500 colors on the screen at once. More options for their users! Now for my observations; of all the machines, it may not be fair to say one's better than the other. This was one of my mistakes, looking at the hardware, and trying to descide which is better.

After my visit to the Fest in Chicago, it looks like all the manufacturers have their own strategies for penetrating different areas of the market, just enough, so that the new machines are tied in with something already existing. This would create a need for software in those existing applications, made to run under OS-9/68K, and the more they can plan and build their user base, the more "potential" customers a software developer would be serving, and the lower the price of the software when it gets to you and me (hopefully).

OS-68K programs are going to be quite large and complicated, (Tony DiStefano was there somewhere), he was porting GIF graphics to the MM/1. Paul Ward was saying a digitized picture on an MM1 occupies 800K (for starters). That alone is 6.25t imes larger than the normal 128K of the Coco 3's total memory! I'm done editorializing!

All three companies will sell to anybody, industry has been their best customer, because limited software, or the people to develop software can be delt with better by industry now. But they want to draw upon the color computer market too.

Frank Hogg Labs wants to stay involved with the Coco community with the TC-9 being on the K-BUS, upgradable!

IMS wants to keep those of us who own and use the Coco from leaving

the OS-9 world also, with their harware interface to the Coco 3!

Delmar has a 6809 option, PLUS the MS-DOS and CPM options, to draw upon a larger group!

They all have MIDI capability, and they were running demos, or maybe some of that was Mike Knudsen (Ultimuse) with all his demos!

The main concern was about the future, Cray Augsburg & Lonnie Falk both said they were stopping newstand distribution of the Rainbow so the money can be put into the magazine, they said the newstands were costing them \$75,000 annually. If you don't have a subscription now, let someone in the club or on the BBS know, we can get you a subscription card out of our copies!!!! And there are many more changes coming, A change in monthly themes and layout, maybe!

Now the Fest is over, the theme still is WE CAN KEEP THE ADVENTURE GOING, by getting involved! Rainbow expects 2-3 years if nothing happens! But, that hardly seems likely. The Coco 4 makers keep coming up with new ideas, Rainbow's new strategies, new products and software, new subscribers, whoever thought this could come from a game computer? This is an exciting time to be in the Coco Community.

IT'S UP TO US!!!!!!

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