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AUSTRALIAN

RAINBOW

May, 1985

No.47

CoCoConf '85



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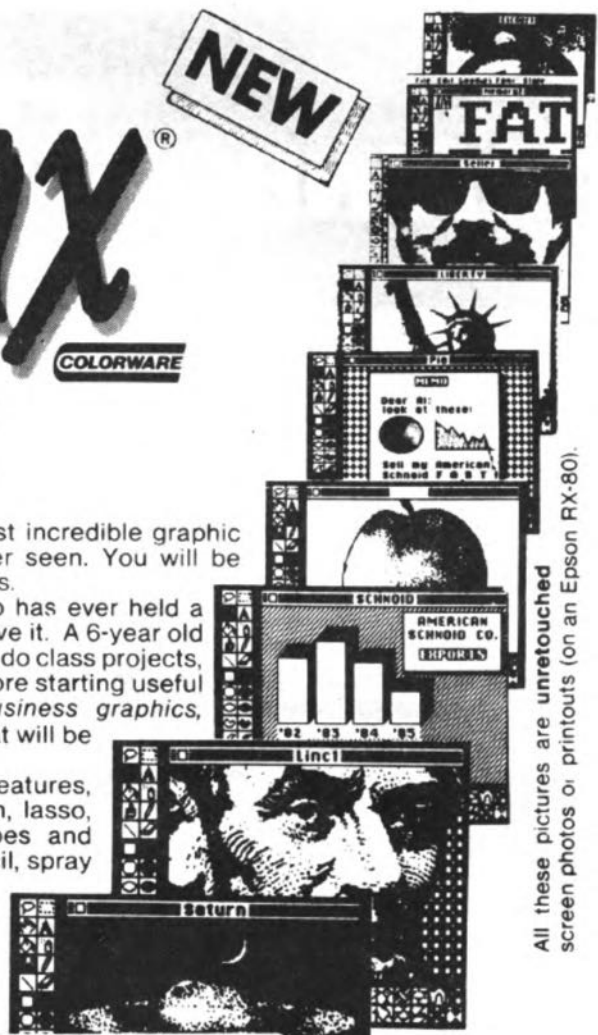
Who is CoCo Max for? Anyone who has ever held a pencil for fun, school or business will love it. A 6-year old will have fun doodling, a 15-year-old will do class projects, and adults will play with it for hours before starting useful applications (illustrations, artwork, business graphics,

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Just point and click to activate CoCo Max's powerful features, including: mirror images, rubber banding, edge tracing, zoom, lasso, sixteen colors, thirty patterns, thirty-two paint brush shapes and textures, undo, rubber stamping, icons, pull down menus, pencil, spray can, eraser, toolbox, and so on, and so on...

The Hi-Res Input Pack is the key to CoCo Max's unmatched power. It gives you direct access to the 49,152 pixels on your screen. That's **12 times** the regular joystick input. It looks like a ROM pack, and plugs into your CoCo or Multipak. Your regular joystick, mouse, or Koala Pad simply plugs into the Hi-Res Pack. Whether you are an artist or an accountant, even if you are the "I can't draw" type, you will be amazed by what you can do with CoCo Max.

**AMAZING!!
AMAZING!!
AMAZING!!**



All these pictures are unretouched screen photos or printouts (on an Epson RX-80).

- Price Includes:
- Cocomax disk
 - HI-RES Input Pack
 - Detailed Manual.

SYSTEM REQUIRED:

- Any 64K COCO.
 - A standard Joystick, Mouse or Koala Pad.
- Disk System: a Multipak or 'Y Adaptor' is needed to plug the disk pack and the HI-RES pack.

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 Disk users need Y Adaptor or Multipak.

AUSTRALIAN

RAINBOW

CoCoConf	P 4
Letters	P 6
Education Page	P 8
SYNONYMS	Bob Horne P 8
Using Your Computer to Develop Classroom Material	Michael Plog Ph. D. P 11
The VALUE of COMPARISON SHOPPING	Steve Blyn P 12
Reviews	P 14
CARDIO	Rene St. Jacques P 17
COMPUTER CUPID	T. Gray P 22
We Mean Business	P 26
LABELS	P 26
HI RES RACER	James W. Wood P 30
CoCoLink	P 32
Connlink	Wayne Day P 33
RUN FOR YOUR LIFE	Michael Repasy P 36
GET IT TOGETHER WITH DISK MERGE	Paul Grani P 40
CASSETTE MERGE	John D. Boyle P 41
AUTO LOAD	Jeffrey Dwight P 42
Cooking With CoCo Part VII ...	Colin J. Stearman P 44
OS9 Hints and Tips	Dale Puckett P 48
OS9 FILECOPY	Gerry Schechter P 52
..... SUBSCRIPTION FORM	P 53
Martha Says	Martha Gritwhistle P 55

lower case = article only
UPPER CASE = PROGRAM + ARTICLE

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All programmes in this issue of AUSTRALIAN RAINBOW are available on Rainbow on Tape. The contents of this magazine is COPYRIGHT. Magazine owners may maintain a copy of each programme plus two back ups, but may not provide others with copies of this magazine.
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What can I say? Brilliant?
Amazing? Well worth the money?

All these cliches come to
mind when I look at CoCoMax,
but do not adequately describe
either the program, or one's
feelings as it is run.

CoCoMax was rushed to us this month by the Australian
Distributors - ComputerWare For Micros and we think that
it is so important, we have published reviews of it in
both Rainbow and CoCo.

As Geoff Tolputt said, most of us bought our CoCos
because we thought that CoCo would do the job we required
of it. But as we get along a bit, we discover detractors
showing us "their" computer and "all" it can do. Then
along comes OS9 or Flex or Pooyan or Graphicom or CoCoMax
and we realise the detractors are feeding us so much
poppy-cock.

Because it doesn't really matter much really, whether its
a low K MS DOS machine, a fancy Apple or some Taiwanese
copy, CoCo can do the job that each of these does - and
then some!

CoCo MAX is here!

particularly in the shops! The shops weren't expecting the
beaut prices that you were offered! Tandy have asked that
you take your magazine with you when you shop for the
items mentioned in the ad - this should overcome any
problems you have in the future.

The price rise mentioned last month has happened, and is
savage - but still not as savage as what will happen to my
bank balance when I pay the yanks! The price will have to
be monitored still, and any additional changes will have
to be allowed for. Money management is the horrible part
of this business!

Finally, we apologize to Rainbow readers for not
including the appropriate instructions to go with the OS8
chips distributed last month - they were in CoCo, but
missed in Rainbow. We have reprinted the appropriate
section this month.



Last month's ad for Tandy caused some confusion -

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Last month Annette wrote about accommodation on the Gold Coast. As you will have to finally decide about the Conference THIS MONTH, I thought I'd talk first about transport to the Gold Coast.

The coast is serviced by a variety of transport modes. The cheapest seems to be VIP coaches out of Sydney. You get what you pay for!

A range of other coach companies also service the coast, including Skennars, Pioneer, Greyhound and McCaffertys.

If you are traveling any distance on the cheap, the comfortable way to go is by train. (Surprised?) Although these days, travel by train is considered slow, don't be surprised to find your friend on the coach arriving after you arrive on the train.

Trains are comfortable because they offer the possibility of stretching one's legs, getting a cup of coffee when you

Saturday Night.

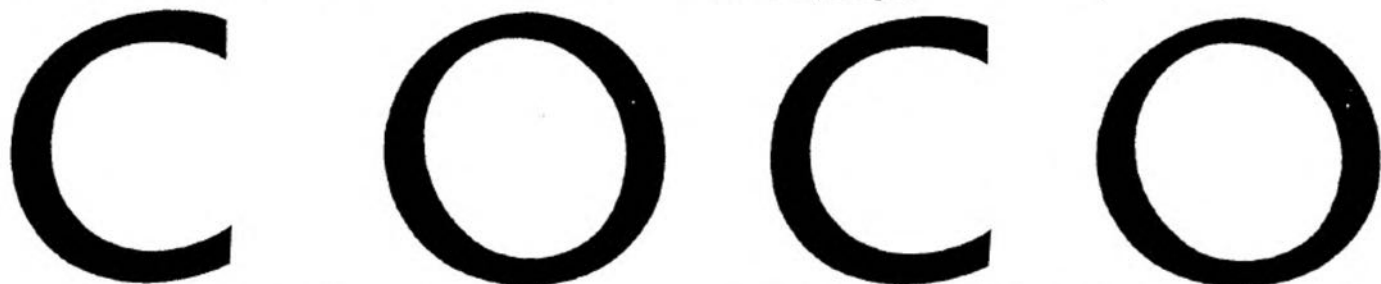
Saturday night will be a semi-formal meal, at which the Greg Wilson award will be presented, along with the prizes for the games competition.

The prizes are:

- * a disk drive and dos, to be donated by Software Spectrum.
- * a 128K upgrade, or an amber screen monitor from Blaxland Computer Services.
- * a Tandy Speech / Sound pack, donated by Bayne and Trembath.

Sunday.

A relaxed day to spend with the merchants and their software. Operate CoCoMax, Graphicom, or hundreds of other software packages.



want it, and providing a less worrying environment than the road in which to travel.

The train from Sydney, and all points south comes only as far as Murwillumbah. Here you get the Greyhound bus that meets the train. An hour later, you are in Surfers Paradise.

Trains from the north take you only as far as Brisbane, due to a ridiculous decision some years ago to do away with the railway to the Gold Coast. Now they are rebuilding it! So from the north, it is necessary to get a bus from the Greyhound terminal in South Brisbane.

The airlines offer some excellent package deals.

I was of the impression that East West was the cheapest, but Mike Turk managed to find a cheaper way with Ansett. The main principle it seems, is NOT to pay full fare!

Tutorials.

These take place on the Saturday, and include:

1. BASIC TRICKS (Advanced Basic) Tino Delbourgo
 2. 128K & OS9 Bob Thompson
 3. Hardware modifications Brian Dougan
 4. MS DOS Paul Humphries
 5. Interfacing / Forth John Poxon
 6. MC 10 Mike Turk, Martin Wells, Scott Howison
 7. Basic BASIC Graham Morphet
- (until I can get some other sucker to do it!)

Don't forget - with your ticket, you also gain entry to the Computer Expo, and you can chose to visit that on the Saturday, in place of one of the Tutorials.

Other Tutorials may be added or deleted by this time next month, but one thing is for sure, if you get involved on one or two of them, you'll get top instruction, available nowhere else!

And then there are the games. How well can you score? Pit your skills against the other thrillseekers in an effort to become the highest scorer of the day!

We'll be picking a game, probably well known, and testing you against all comers. Who knows - you might even win a prize!

If we have some applications for CoCoConnection working by then, you'll get the opportunity to program the thing to do your task! (Gulp!)

And finally, I'm sure that some of you will want to follow up with your tutors of the previous day, matters which arise from his lecture.

Ticket sales cease strictly on 28th May, although you can continue to pay them off after that date. Many have indicated that they are coming. Most have not paid. Do it now, I must have evidence of your real intent to come. You will not be let in on the day, if you turn up casually.

In setting this conference up, we were a little vague about some of the things we would be doing, and how we would go about doing them. This was to leave us the greatest latitude possible. I'm sorry that this caused confusion, the next one will be better!

Two things that come under the above heading relate to families and to dealers. Most of the dealers should know by now that we are only charging the same rate for you as for delegates. If you need us to supply additional equipment to your own, we will have to hire it, and you will have to pay us for that.

Our intent for families is that they should all come if each will benefit from being here. To this end, we are going to be open minded to any proposal you want to put regarding payment for the extra people. The rule here is to talk to me NOW about this.

Some information just to hand suggests that we should have several different merchants coming to CoCoConf. One is a bookseller, who has every book available for CoCo, and the other is our new advertiser Centurion, who supplies hardware and software essentially for the MS Dos machines.

Finally, and I almost left him off the list of reasons for coming to CoCoConf, we understand that Lonnie Falk from American Rainbow is still intending to be here.

He sits at the crossroads of all that happens in the American Color Computer world, and therefore has a rare perspective to give. He will be talking on Saturday

night, and you'll have an opportunity to talk with him afterwards.

(He is looking to learn from us too! A recent letter from American Rainbow asked about OSB, and whether Tandy Australia supported it! I'm hopeful that I may be able to interest him in a little deal I've got going in Sydney. You see there's this bridge)

Next month there will be a map to show delegates where to come. By then it will be too late to register. Register NOW!

Register NOW!

Register NOW!

COME TO CoCoConf. Come and meet the gang!

C O C O N F

COCOCONF 15 - 16 JUNE, 1985

- * TUTORIALS
- * FREE ticket to the Computer Expo
- * See and operate the latest in Hard and Software.
- * Pick up a bargain.
- * Catch up on old friends.

PROGRAM

SAT:

- 9.00 AM Welcome!
- 9.30 AM Tutorials. Choice of 4, or head off to the Computer Expo.
- 11.00 AM Morning Tea.
- 11.30 AM Return to Tutorials.
- 12.30 PM Lunch.

9.00 AM Rotary Hall
Lawson St
Southport. Qld.

- 2.00 PM Tutorials. Choice of 4, or head off to the computer Expo.
- 3.30 PM Afternoon Tea.
- 4.00 PM Return to Tutorials.
- 5.00 PM Break to prepare for Dinner.
- 8.00 PM Dinner (Venue to be announced).

SUN:

- 10.00 AM Spend today with the Software Agents. Try out the new Programs, or join in the games contests.

COCOCONF

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..... PC.....



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I enclose part price \$ 9.95

and will pay the rest off before CoCoConf.

Please bill my Mastercard / Visa / Bankcard NO

Please find Cash / M.O. / Cheque enclosed. Signed.....

LETTERS

Dear Graham,

Is there a chess program available in any of the back issues of your magazine?

The Morse tape I received from you will load OK but won't run. My machine is 16K ECB and there was nothing on the tape to say it wasn't applicable to this. It gives me an EM error on line 30, do you have any suggestions?

Eunice Baxter
Willetton, WA.

Dear Eunice,

Almost by definition, Chess programs are complex, and therefore tend not to be available except through the shops.

Tandy have just released a ROM program called "Sirus Chess", which has the look of being a real challenge - I'll let you know when I get to see more of it. (Personally, I prefer the old Tandy Chess, I can occasionally beat it!)

I can't advise specifically re your tape problems because you didn't tell me which tape you are talking about, but in general, you need to know that the programs to be found on CoCoOz and Rainbow on Tape reflect the contents of the appropriate magazine.

The program to which you refer would seem to be too big for your computer, however, if it is a program which does not use the graphics screens, then you could type in PCLEAR1, and see if the program will work then.

PCLEAR1 clears the memory normally reserved for hi-res graphics in CoCo, and makes that extra memory available for "normal" programs.

Your local Meet Contact can explain these things more fully.

Graham.

Dear Graham,

I'm currently doing a school project on a comparison between Seventel and CoCo Link, eg what it is, it's uses, what you can get from it, etc.

Gavin Unsworth
Brassall. QLD.

Dear Gavin,

Seventel and Vipac (the latest Telecon information service), both use the English Prestel system of data transference.

Prestel uses the 1200/75 BPS mode and has a dedicated set of protocols, different to those used in existing data transfer systems. It follows that you need a modification to your modem / terminal program to work the system successfully. Such a modification is in preparation for the CoCo at present, by one of our usual suppliers, who wants to remain anonymous until he can get the thing working!

The information services such as Seventel and Vipac are beaut because it is possible to obtain a breadth of updated information on a variety of subjects from them.

Vipac accesses other data bases in turn, so it can give you information on a heap of subjects, especially school related ones. It should be possible soon, to undertake most of your assignment research by computer through Viatel.

Balanced against this, CoCoLink is obviously smaller, and it's subject matter is more specialised.

CoCoLink is in place to service the owner of a CoCo, MiCo, T100 or T1000.

CoCoLink supplies specific help in the form of programing help, advice from other users, and (we hope) soon, programs to down load - some free, some to be charged for.

Because we have readers with a diverse range of interests, we provide space for those who would like to use CoCoLink as a repository for information on subjects of specific interest to them - and hence you will find information on steam trains and steam train museums on CoCoLink. Soon, the Ham Radio operators will also get a section.

So you can see that CoCoLink holds very specific information, whereas Viatel and Seventel tend to have a huge volume of general information.

Graham.

Dear Graham,

I would like to see more programs on engineering graphics, inventory control, production forecasting and quality control.

I realise I'm talking about a personal computer, but the way people are creating programs and up dating machines in Australian Rainbow, who knows.

John Wylie
Narre Warren. VIC.

Dear John,

Hope you enjoyed the PERT feature in RAINBOW last month.

Graham.

Dear Graham,

Your statement that you would be including OSB chips with the April issue of AUSTRALIAN RAINBOW sent to subscribers made me wonder what the catch would be.

Being a sceptic, I felt that nobody in business these days would be interested in apparently giving something away for nothing.

Then in the March issue I read that you had the chips and that we could all expect to receive them this month.

I wouldn't have a clue what OSB is supposed to do but I, like most of us computer buffs, can't resist something new to play with and was looking forward to getting the April issue of AUSTRALIAN RAINBOW particularly for that reason.

Well I received my copy in the post yesterday (1st of April) and surprise, surprise, no OSB chip. To say I was disappointed would be an understatement. I was devastated.

I read the magazine from cover to cover and enjoyed it as I always have done but there was not one mention of the elusive OSB chips.

I even considered that you and Australia Post had conspired to play an April fool joke on all of us but then realised that in conspiracy one would need a more reliable partner than A.P. (only joking - honest).

Graham, please tell us what has happened to OSB and perhaps even what it really is.

Thank you for continuing this great magazine since Greg's untimely death and I will continue

my support by way of subscription.

It's a pity, though, that you can't put all color computer relevant topics in the one magazine.

Very best regards,
Rhett Jenkinson,
Tullamarine, VIC.

Dear Rhett,

As I said in my editorial this month, I apologise that we left out the appropriate section dealing with OSB.

CoCo magazine has had a section on OSB since inception, so it would be impossible to repeat all that has been said there about OSB. None the less, if you understand that OSB has the ability to teach you about some of the less known facets of your computer then you have it in a nut shell.

Claims made for OSB so far include that it can access other computer's memories by integrated internal micro wave; that it therefore has virtual memory, because you can usually use ANY spare memory in any computer anywhere; and, ... well some of the others tend not to be believable, unless you've seen, or have faith, so I'll stop there!

I hope you are able to reverse the Loof Lirpa circuit.

Graham.

Dear Graham,

I think you're doing a great job and I hope for all our sakes you can keep it up. The pressure must get a bit tiring.

I too would like to see all the CoCo material in the one magazine (including the OS9 material from Rainbow that the OS9 Group more or less distributes). I don't see that the Model 100 etc has anything in common with CoCo, any more than the models 1/2/3/4 etc do. I suppose the MC10 is a sort of half-brother even though it doesn't interest me personally.

Peter Edwards
Mitchan. VIC.

Dear Peter,

A lot of folk are yet to realise that the programs in the MiCo section run with little or no change in CoCo.

In fact a lot of the folk with low K CoCo's have complained that there are no programs for them anymore. Well there are usually six to eight programs each month in MiCo that will suit them fine - and that is in addition to the programs in CoCo!

The reason the magazines are separate is financial - I'm happy to pay the yanks for their efforts - but I don't see why I should pay them for our (meaning Australian), efforts as well. The price difference between the magazines reflects the real cost of buying their product.

I would like to point out though, that our original plan was to have around eight programs per issue in CoCo. Last month we ran to NINETEEN! This month looks like it will be around sixteen - so we think you don't lose too much!

Graham.

Dear Graham,
Hi! How are you all? I'm just a new subscriber to your magazine. I have a TRS 80 16K ECB. In the Dec/Jan issue there was a game called 'Junkfood'. I typed in the four listings and saved them on tape. Then when I went to play the game, I typed in RUN and instead of running it printed up FC error in 9, so I checked to make sure I hadn't made a mistake and it was all right. This type of thing happens a bit to my programs and I was wondering if you could help me prevent this happening to me.
David Prohl
Sth Morang. VIC.

Dear David,
This is the type of problem best dealt with by your local user group. It is very difficult to try to help you from here. It would appear however that you have not typed in your listing absolutely per the listing in Rainbow.
Graham.

Dear Graham,
I am an enthusiastic computer operator and was wondering and hoping you could help me. I have just started to purchase Australian Rainbow and Australian CoCo magazines from my local Tandy dealer, and as they have just started to sell the magazines they do not have any back issues. I was wondering if there was any articles or programs for robots or robotics as I wish to connect my Tandy Armatran to my 16K ECB. If there are any in the back issues, or if any of the readers could help me out I'd be grateful. Could you tell if there are any books or programs about these subjects.
You are doing a good job so keep it up!
Martin Thomas
Moranbak. QLD.

Dear Martin,
Suggest you consider
CoCoConnection for your Armatran!
Graham.

Dear Graham,
I have a 16K ECB model 2 Tandy computer and have been subscribing to Rainbow for not quite a year. I have learnt a great deal from this magazine. However I would like to ask you to print a program to guard against copying by LIST, LLIST, CSAVE, RUN. Also how to merge two or more listings.
J. Fletcher
Biggera Waters. QLD.

Dear J,
There are several commercial programs which should meet your requirements. Contact Software Spectrum in Adelaide for further details.

A merge program was printed in Rainbow, I think in early '84, and merge routines are also available on the more advanced disk operating systems when you get that far!
Graham.

Dear Graham,
Could you please tell what's involved in running a User Group, as I have wanted to be in one for a while, but live too far away from one to get to it. I am only 15 and can't get to a youth group by myself, so you can see what my problem is.
Also could you please advise me which is the better buy for it's price, the Software Spectrum disk drive package which are advertised in the March issue of Rainbow (double sided drives), or the Tandy drives which are \$100 dearer.
Dean Hamman
Armadale. WA.

Dear Dean,
Being a meet contact means in the first instance, telling me that you want to be one! We put your name on the back of the magazine, and, if you want to, you also contact your local Tandy stores, and let them know that you are around, and that you can get help if they have customers with problems they can't answer.

Keep a list of the people who call you and keep in touch. Sooner or later, it will become logical that you get together for a meeting.

Neither Rainbow magazine nor myself personally expects anything of you. You involve yourself to the level you can handle. The idea is just that you are there as a contact for folk in your area, when they experience problems.

You will find that you won't know the answer to many of the questions you are asked, but don't worry. As a user, and especially as a contact, you have access to all the other contacts, and they WILL help you find the answer.

In fact, the Perth group is an excellent group for you to contact as resource people. I am yet to find anything about CoCo that they don't know!

The Tandy Drives have the advantage that they are backed by a huge company that will support you. The Software Spectrum drives are available, better, provide almost 75% more storage, and, as you point out, are cheaper! (SS have also demonstrated their willingness to support their product.) It's a hard decision kid, but I think you can handle it!
Graham.

Dear Graham,
VIP Calc
My problem appeared in the Dec/Jan Rainbow. I am still hopeful that someone will have a satisfactory solution. The error doesn't always occur. Since I wrote, Peter Turner (Adelaide Micro Users) spent some time on it for me and found a solution which works even if it is a cumbersome overkill. Special thanks to Peter.
The solution was to change from default "SINGLE" (8 digit) to "DOUBLE" (16 digit) precision. Why this should be necessary for dollars and cents (two decimal places) is a mystery to us. In that mode it is SLOW especially when loading or printing. (definitely a 'now the lawn while you wait' job). Fortunately one can use "SINGLE" and "Manual

calculation until absolutely necessary. If the occasional error has not occurred, printing can be done on "SINGLE" too.
I'll write to the author Kevin Herrboldt c/- Softcorp and see what he can come up with. I'll let you know.

JUNK FOOD
I typed the four data listings for this machine language game, loaded and successfully ran the first three, however the fourth would not run. It gave me FC error in 10.
The first parameter of x appears consistent with the other 3 listings so I suspect the second one '15988'. Is there an error there?
Allan Thompson
O'Malloran Hill. SA.

Dear Allan,
I don't understand why my JUNK FOOD runs, and yet some others are experiencing difficulties. We obviously need to review this program and report.

As for VIP, you have more patience with it than I!

Graham.

Dear Graham,
To let you know my personal opinion of your magazine Rainbow. The covers are a little more original and have a bit more pizzazz than before. You have a lot more Tutorials and Utility programs for 32K and up than before. But I think you've forgotten someone ... the small guy. You said you've changed your policies, well that policy was a mistake to change. The reason why Rainbow was set up in the first place was for the little guy just starting with a 16K CoCo. It's one thing saying everybody has moved up and on to better things, but you should still put a bit more in it for us. There are still people buying CoCo's and would like to know a bit more about them and have a few programs.
Michael Eaton

Dear Michael,
Like most things in life, very little in the computer world remains static. Rainbow source material comes from America and we input sufficient advanced Australian material to make it more relevant to the local user.

But the average reader of Rainbow has been buying the magazine for two years. I doubt that he wants to see the same things he saw last year. In fact, he has grown, and his needs are constantly changing. Rainbow attempts to service that growth, whether I like it or not - I happen to think its the right decision! If we don't stimulate you, you'll go to sleep!

But we have recognised the needs of the new user - they are dealt with very adequately in Australian CoCo. As I have said elsewhere, the MiCo section alone has up to eight programs a month which apply to the small K CoCo. Then there are the rest of the programs, many of which will run in your computer.
Graham.

EDUCATION PAGE

The Tandy "Education Source Book" is finally at the printers. With a bit of luck, it should be available in early May from your Tandy shop.

Also due this month is the T1000. The more we see of this computer, the more we have come to recognise its value to the Educator. However more of that next month - the computer we thought we were getting this month didn't materialise, as soon as we get hold of one for an hour or so, we'll let you know!

Tandy has written to every school in Australia, offering some generous savings on computers. If your school has not received the letter, let Tandy know. Schools in Qld get an additional bonus, because they are on contract.

The N.S.W. Education contract is out, and I don't mind telling you that the first reading worried us. I was concerned because although CoCo is capable of virtually all that the contract requires of a computer, I wasn't sure just how serious Tandy was about winning!

Well all fears in that regard are gone! The Tandy people are talking turkey like we've never seen before, even to the point of adjusting the computer's specifications to make it fit the contract more precisely!

All of this has real benefits for all of us, because one of the likely modifications will be a connection for monitors.

Monitors are a worthwhile investment for CoCo, where you are using the computer for more than games.

Of course, you don't have to wait for Tandy; monitor mods have been around for some time, and we've been looking at three.

Paris Radio's monitor mod is designed for folk who have some knowledge of electronics, or who can at least solder!

Rainbow Bit's monitor mod is one that even I can install, because all that is required is that you take a

The Listing:

```
1 REM*****
2 REM*      SYNONYMS      *
3 REM*      BY BOB HORNE  *
4 REM*      IPSWICH, Q'LD *
5 REM*****
10 CLS: CLEAR500,32700
20 FORA=32701 TO 32735: READA$: POKE
A, VAL("&H"+A$): NEXTA
30 N=112: DIMW$(N), AN$(N), A(N): M
I=0: HI=0: Q=0: P$="L6401AFBAP3": FO
RA=1 TO N: READW$(A), AN$(A): NEXTA
40 DEFUSR0=32701
50 CLS: K=460: LS$="synonyms
      ":GOSUB930
60 FORA=428 TO 108 STEP-32: PRINT@A,
LS$: PRINT@A+32, STRING$(8,32): PLA
Y*AG*: NEXTA
70 K=458: LS$="by
```

```
      ":GOSUB930
80 FORA=426 TO 172 STEP-32: PRINT@A,
LS$: PRINT@A+32, STRING$(2,32): PLA
Y*AG*: NEXTA
90 K=461: LS$="bob
      ":GOSUB930
100 FORA=429 TO 175 STEP-32: PRINT@A
,LS$: PRINT@A+32, STRING$(3,32): PL
AY*AG*: NEXTA
110 K=465: LS$="horne
      ":
GOSUB930
120 FORA=433 TO 179 STEP-32: PRINT@A
,LS$: PRINT@A+32, STRING$(5,32): PL
AY*AG*: NEXTA
130 GOSUB760: FORA=1 TO 50: X=USR0(0
): PLAY*AG*: NEXTA
140 GOTO260
150 NA=1
160 LS=INSTR(AN$,"/"): IF LS=0 TH
```

```
EN A$(NA)=AN$: GOTO180
170 A$(NA)=LEFT$(AN$,LS-1): AN$=R
IGHT$(AN$,LEN(AN$)-LS): NA=NA+1: G
OTO160
180 SL=0
190 FORC=3 TO 1 STEP-1
200 Z$=RND(C)
210 IF Z$=1 AND SL=0 THEN SL=1: CA
=C
220 T$=A$(C): A$(C)=A$(Z$): A$(Z$)
=T$
230 NEXTC
240 WR$="" : FORA=1 TO LEN(WO$(Z)): X
$=MID$(WO$(Z),A,1): X$=CHR$(ASC(X
$)+32): WR$=WR$+X$: NEXTA
250 RETURN
260 A=RND(-TIMER)
270 CLS0: FORA=66 TO 93: PRINT@A, CHR
$(16*RND(6)+159): NEXTA: FORA=98T
```

chip out, insert a double adapter, then replace the chip.

And Blaxland Computer Centre's monitor mod is for those who either have a monitor with sound, or who require that facility. Their mod is also easy to fix in, but the instructions need to be followed to the letter. If you feel uncertain about your interpretation of their instructions, call them before you switch on the power!

As to monitors, Tandy will probably have one in time; however, we are very pleased with the Yangen amber screen monitor we purchased from Blaxland Computer Services. We use a computer with reverse video installed, and this provides a very acceptable picture. This monitor looks especially good with Graphics II or CoCoMax.

It turns out, that a new advertiser, Centurion in Qld, also supplies this monitor. They also have a green screen version, and a Color monitor for around \$600.

New education software is available from Tandy, for use with CoCo. Included is ROBOT BASIC, an authoring Basic which has been specifically requested by the N.S.W. Education Dept; GRAPHICS ANIMATOR, available in Junior and Commercial versions; KIDS ON KEYS and KIDWRITER, both from Spinacker Software. These programs are designed for children who are just starting to use a computer and seem to do the job well. We will review these programs as soon as possible.

I want to thank Bob Horne for the program that follows. Bob uses CoCos in the classroom daily with this and other programs, and we feel honoured that he has decided to share this program with us.

```

0290STEP32:PRINT@A,CHR$(16*RND(6
)+159);:PRINT@A+27,CHR$(16*RND(6
)+159);:NEXTA:FORA=322T0349:PRIN
T@A,CHR$(16*RND(6)+159);:NEXTA
280 PRINT@108,"synonyms";
290 PRINT@227,"DO YOU WANT INSTR
UCTIONS?";
300 PRINT@297,"TYPE 'Y' OR 'N'";
310 IN$=INKEY$:A=USR0(0):PLAY"L6
403AG":IF IN$="" THEN310 ELSE IF
IN$="Y" THENGOSUB780 ELSE IF IN
$="N" THEN320 ELSE310
320 CLS3:FORA=1T03:EP$(A)="" :NEX
TA:FORX=1T03:FORY=1T011:EP$(X)=E
P$(X)+CHR$(128+RND(127)):NEXTY,X
330 CLS4:G1$=CHR$(159):G2$=STRIN
G$(3,159)
350 CLS0
360 FORA=1T010:PRINT@RND(383),CH
R$(146);:NEXTA
370 PRINT@384,;:FORA=1T032:Z=RND
(10)
380 IF Z<=4 THENPRINTCHR$(128);
390 IF Z>4THENPRINTCHR$(191);
400 NEXTA
410 FORA=5T030STEP5:PRINT@A+351,
CHR$(PEEK(1407+A));:NEXTA
420 FORA=1T032:PRINT@A+415,CHR$(
PEEK(1407+A));:NEXTA
430 PRINT@448,STRING$(32,191);:P
RINT@480,STRING$(31,191);:POKE15
35,191:PRINT@482,"HITS";HI;:PRIN
T@500,"MISSES";MI;
440 FORA=386T0412STEP13:PRINT@A,
G1$;:NEXTA:FORA=417T0443STEP13:P
RINT@A,G2$;:NEXTA
450 PRINT@35,"1";:PRINT@47,"2";:
PRINT@60,"3";
460 FORT=1T020
470 Z=RND(N):IF A(Z)=1 THEN470 E
LSE A(Z)=1:ANS=ANS(Z)
480 GOSUB150
490 FORA=65T065+LEN(A$(1)):PRINT
@A,CHR$(195);:NEXTA:PRINT@64,CHR
$(207);:PRINT@A-1,CHR$(207);:PRI
NT@97,A$(1);:FORA=129T0129+LEN(A
$(1))-1:PRINT@A,CHR$(204);:NEXTA
500 Z1=79-INT(LEN(A$(2))/2+.5):F
ORA=Z1 TO Z1+LEN(A$(2))+1:PRINT@
A,CHR$(195);:NEXTA:PRINT@Z1,CHR$(
207);:PRINT@A-1,CHR$(207);:PRIN
T@Z1+33,A$(2);:FORA=Z1+65 TO Z1+
LEN(A$(2))+64:PRINT@A,CHR$(204);
:NEXTA
510 Z1=94-LEN(A$(3)):FORA=Z1 TO
Z1+LEN(A$(3))+1:PRINT@A,CHR$(195
);:NEXTA:PRINT@Z1,CHR$(207);:PRI
NT@A-1,CHR$(207);:PRINT@Z1+33,A$

```

```

(3);:FORA=Z1+65 TO Z1+LEN(A$(3))
+64:PRINT@A,CHR$(204);:NEXTA
520 Z2=464-INT(LEN(W0$(2))/2+.5)
530 FORA=1T05:PRINT@Z2,WR$;:PLAY
"L4003AG":PRINT@Z2,W0$(2);:PLAY"
AG":NEXTA
540 IN$=INKEY$
550 IN$=INKEY$:IF IN$="" THEN550
560 IF IN$(">")"1" AND IN$(">")"2" AND
IN$(">")"3" THEN550
570 IF IN$="1" THEN C1=1:FORA=13
78T01186STEP-32:POKEA,255:PLAY"L
25503AB":NEXTA:FORA=1378T01186ST
EP-32:POKEA,128:NEXTA
580 IF IN$="2" THENC1=2:FORA=139
1T01199STEP-32:POKEA,255:PLAY"L2
5503AB":NEXTA:FORA=1391T01199STE
P-32:POKEA,128:NEXTA
590 IF IN$="3" THEN C1=3:FORA=14
04T01212STEP-32:POKEA,255:PLAY"L
25503AB":NEXTA:FORA=1404T01212ST
EP-32:POKEA,128:NEXTA
600 IF C1<>CA THENMI=MI+1:PRINT@
506,MI;:FL=1:PLAY"02L100FFFFFFF0
1AAAAAA02FFFFFFF"
610 IF C1=CA AND FL=0 THEN HI=HI
+1:PRINT@486,HI;
620 IF C1=CA AND FL=1 THEN FL=0
630 IF C1=1 ANDC1=CA THEN FORA=1
T03:PRINT@A+32+32,EP$(A);:NEXTA:
PLAYP$:GOTO670
640 IF C1=2 AND C1=CA THENFORA=1
T03:PRINT@A+32+42,EP$(A);:NEXTA:
PLAYP$:GOTO670
650 IF C1=3 AND C1=CA THEN FORA=
1T03:PRINT@A+32+53,EP$(A);:NEXTA
:PLAYP$:GOTO670
660 GOTO550
670 FORA=64T0128STEP32:PRINT@A,S
TRING$(32,128);:NEXTA:PRINT@22,S
TRING$(LEN(W0$(2)),191);:Q=0+1:I
F Q=N THENFORA=1T0N:A(A)=0:NEXTA
:Q=0:NEXTT ELSENEXTT
680 CLS:GOSUB760:PRINT@40,"HITS"
;:PRINT@52,"MISSES";
690 PRINT@97,"CURRENT";:PRINT@10
4,HI;:PRINT@117,MI;
700 IF HI>HH THEN HH=HI
710 IF MI>MH THEN MH=MI
720 PRINT@131,"HIGH";:PRINT@136,
HH;:PRINT@149,MH;
730 PRINT@452,"PRESS <ENTER> TO
PLAY";
740 IN$=INKEY$:A=USR0(0):PLAY"L6
403AG":IF IN$="" THEN740 ELSE IF
IN$=CHR$(13) THEN MI=0:HI=0:GOT
0270
750 GOTO740

```

```

760 FORX=0T031:POKEX+1024,16*RND
(6)+159:NEXTX:FORX=0T031:POKEX+1
504,16*RND(6)+159:NEXTX:FORX=105
6T01472STEP32:POKEX,16*RND(6)+15
9:NEXTX:FORX=1087T01503STEP32:PO
KEX,16*RND(6)+159:NEXTX
770 RETURN
780 CLS:PRINT@12,"SYNONYMS";
790 PRINT@64,"SYNONYMS ARE WORDS
OF SIMILAR MEANING. FOR EXAMP
LE, speak AND talk HAVE SIMILAR
MEANINGS AND THEREFORE ARE SYNO
NYMS."
800 PRINT@484,"PRESS <ENTER> TO
CONTINUE.";
810 IN$=INKEY$:IF IN$="" THEN810
ELSE IF IN$("<")CHR$(13) THEN810
820 CLS:PRINT" AT THE TOP OF THE
SCREEN YOU WILL SEE THREE ALI
EN SHIPS OF VARIOUS SIZES. THE
SE SHIPS ARE CARRYING WORD-BOMB
S TO DESTROY YOUR CITY."
830 PRINT:PRINT" AT THE BOTTOM O
F THE SCREEN, IN THE CENTRE, YOU
WILL SEE ANOTHERWORD."
840 PRINT:PRINT" ALSO AT THE BOT
TOM OF THE SCREEN ARE THREE
LAZER GUNS. MATCH THE BOTTOM
WORD WITH ITS SYNONYM AT THE T

```

CoCoConnection

Interfaces ECB CoCo's (any K) to the
outside world.
Connect your CoCo to a robot, burglar
alarm or model railway.
Monitor 16 inputs, and switch 16
outputs via your CoCo.

Price : \$185.00
From : Australian Rainbow.
Casula Hobbies.

```

OP AND PRESS A NUMBER (1,2 OR 3
).
850 PRINT@484,"PRESS <ENTER> TO
CONTINUE.";
860 IN$=INKEY$:IF IN$="" THEN860
ELSE IF IN$(<)CHR$(13) THEN860
870 CLS:PRINT" IF YOU HAVE MATCH
ED THE WORDS CORRECTLY, THE ALI
EN SHIP WILL EXPLODE AND A 'HIT
' IS ADDED TO THE SCORE."
880 PRINT:PRINT" IF YOU DID NOT
CHOOSE CORRECTLY A 'MISS' IS ADDE
D TO THE SCORE AND YOU HAVE ANO
THER TURN."
890 PRINT:PRINT" A 'HIT' IS ONLY
COUNTED IF YOU CHOOSE CORRECTLY
THE FIRST TIME."
900 PRINT@484,"PRESS <ENTER> TO
START.";
910 IN$=INKEY$:IF IN$="" THEN910
ELSE IF IN$(<)CHR$(13) THEN910
920 CLS:RETURN
930 FORA=LEN(LS$) TOSTEP-1:PRIN
T@K+A,LEFT$(LS$,LEN(LS$)-A);
940 PLAY"L6403A6"
950 NEXT
960 RETURN
970 DATA8E,04,00,8C,06,00,27,1A,
A6,84,81,80,25,08,81,F0,25,08,8B
,90,A7,84,30,01,20,E9,8B,10,A7,8
4,30,01,20,E1,39
980 DATAFOOLISH,ABSURD/REPAIR/BE
G
990 DATASPEAK,TALK/REPAIR/ABSURD
1000 DATAConsent,AGREE/CHEER/TAL
K
1010 DATAAMUSE,CHEER/AGREE/TALK
1020 DATAPLEAD,BEG/ABSURD/REPAIR
1030 DATAMEND,REPAIR/TALK/ABSURD
1040 DATAORDER,COMMAND/TRUST/ATT
EMPT
1050 DATACOLLECT,GATHER/SOFT/REP
EAT
1060 DATATRY,ATTEMPT/TRUST/COMMA
ND
1070 DATABASEAT,DEFEAT/COMMAND/TRU
ST
1080 DATABELIEVE,TRUST/COMMAND/A
TTEMPT
1090 DATAGENTLE,SOFT/ATTEMPT/TRU
ST
1100 DATAUNHAPPY,UPSET/YELLOW/ME
DICINE
1110 DATAFEAR,DREAD/JOKE/SUPPLY
1120 DATALIVELY,ENERGETIC/QUIET/
SLOWLY
1130 DATAYELL,ROAR/STALE/AFFORD
1140 DATAWRECK,DEMOLISH/HOSPITAL

```

```

/NEARLY
1150 DATAFALSE,UNTRUE/FASTEN/FRA
IL
1160 DATACASH,MONEY/POOR/GENERAL
1170 DATADRINK,CONSUME/PLEASD/S
TRONGER
1180 DATAWITTY,FUNNY/FEARFUL/PET
TY
1190 DATAHANDSOME,FINE/ANGRY/DAM
AGE
1200 DATAFAITHFUL,LOYAL/TASTY/CR
IMSON
1210 DATAFRAIL,FEEBLE/STANDARD/C
HOOSE
1220 DATABRIGHT,SUNNY/BEHIND/ANG
RY
1230 DATABRING,FETCH/TASTY/ROSY
1240 DATAFOOLISH,STUPID/SUPPLY/R
ECEIVE
1250 DATASPEAK,TALK/ABSENT/PRAWN
1260 DATAAFTER,BEHIND/AMUSE/HELP
1270 DATAAGONY,PAIN/NONE/REPEAT
1280 DATAHELP,ASSIST/HELPLESS/HI
NDER
1290 DATAAMUSE,ENTERTAIN/GLUED/T
RAIL
1300 DATAASTONISH,AMAZE/GRAPES/P
ERHAPS
1310 DATAANNOYED,ANGRY/TOWER/BEH
IND
1320 DATAAVERAGE,NORMAL/TADPOLE/
LENGTH
1330 DATAAVOID,SHUN/WELCOME/ADVA
NCE
1340 DATABASEG,PLEAD/REQUIRE/REGRE
T
1350 DATABELOW,BENEATH/OVER/BELI
EVE
1360 DATAHUGE,LARGE/HUMBLE/BARGE
1370 DATABITTER,SOUR/BATTER/TAST
Y
1380 DATABLACK,DARK/BLISTER/BLOC
K
1390 DATACOMFORT,SOOTHE/SLUMBER/
SCRAP
1400 DATABOTHER,ANNOY/DESTROY/PL
EASE
1410 DATABRAVE,BOLD/COWARD/CRUEL
1420 DATABUILD,ERECT/DESTROY/HOU
SE
1430 DATABUMP,JOLT/JUMPER/QUIETL
Y
1440 DATACAPABLE,ABLE/FOOLISH/PR
ESENTS
1450 DATASLUMBER,DOZE/DAZE/COMFO
RT
1460 DATACENTRE,MIDDLE/CIRCLE/SP
ACE

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```

1470 DATADELIGHT,PLEASE/LIGHTEN/
DELIVER
1480 DATACHEERFUL,JOYFUL/PROVE/P
LANK
1490 DATACHILLY,COLD/THUMB/VISIT
OR
1500 DATACHOOSE,SELECT/MOUSE/PIL
LOW
1510 DATACLEAN,WASH/BROAD/SPIDER
1520 DATACOMFORTABLE,SNUG/BLEAT/
SURPRISE
1530 DATACOMICAL,FUNNY/RADIO/FRI
GHTEN
1540 DATACOMMENCE,START/SUMMER/C
ARGO
1550 DATAFRIEND,COMRADE/SIMPLE/D
ISLIKE
1560 DATACONCEITED,VAIN/INVITED/
CRIED
1570 DATACONCERN,WORRY/INSECT/GR
OUND
1580 DATAFORGIVE,PARDON/KNIFE/PA
YMENT
1590 DATACONNECT,JOIN/GLORY/HIST
ORY
1600 DATADONATE,GIVE/COUNTRY/ROA
ST
1610 DATACOPY,IMITATE/TERRIBLE/G
IVE
1620 DATASUGGEST,ADVISE/VICTIM/D
ENY
1630 DATAFEARFUL,AFRAID/WINDOW/J
OLLY
1640 DATACORRECT,ACCURATE/WRITE/
LESSON
1650 DATALUNATIC,MADMAN/NINETY/P
OSTAGE
1660 DATAHURT,INJURE/BEYOND/FLIG
HT
1670 DATAMET,MOIST/CLIMB/HOIST
1680 DATADANGER,PERIL/MOTOR/SAFE
TY
1690 DATADECEIVE,CHEAT/PLOUGH/DE
CENT
1700 DATAPROCLAIM,ANNOUNCE/DENTI
ST/HERRING
1710 DATADEFEAT,CONQUER/DENY/BAT
TLE
1720 DATAGUARD,PROTECT/TRAFFIC/L
OOSE
1730 DATAEXHIBIT,DISPLAY/BASIN/E
XHAUST
1740 DATAYEARN,DESIRE/DECIDE/YEA
ST
1750 DATADIFFICULT,HARD/DIFFEREN
T/GOVERN
1760 DATALESSEN,REDUCE/HOSPITAL/
RISKY

```

1770 DATADISTRESS, DISCOMFORT/COR
RECT/EASE
1780 DATASCARE, FRIGHTEN/LIVELY/S
CAMPER
1790 DATADISMAY, HORROR/COUGH/HOL
LOW
1800 DATAOFFEND, DISPLEASE/DEFEND
/BETWEEN
1810 DATAQUARREL, ARGUE/QUARTER/B
ARREL
1820 DATADISTANT, REMOTE/PINCH/BL
OOD
1830 DATAQUESTION, DOUBT/ANNOY/DO
UBLE
1840 DATASOAK, DRENCH/BURNT/WOOD
N
1850 DATAPARCHED, ARID/BOARD/WROT
E
1860 DATADWINDLE, DIMINISH/TUNNEL
/TOAST
1870 DATAEAGER, KEEN/COLUMN/LONEL

Y
1880 DATAEDGE, BORDER/PAINT/BADGE
1890 DATAEMPLOYEE, WORKER/SALMON/
THROUGH
1900 DATAPIECE, FRAGMENT/BELOW/CH
OKE
1910 DATAVACANT, EMPTY/COUPLE/COR
NER
1920 DATAFINISH, CONCLUDE/ROUGH/R
EJOICE
1930 DATAFOE, ENEMY/BORROW/SMOOTH
1940 DATAACTIVE, LIVELY/ACTOR/PRE
SENT
1950 DATAENORMOUS, IMMENSE/DAINTY
/SENSE
1960 DATAENQUIRE, ASK/ELEVATE/END
ORSE
1970 DATACOMPLETE, ENTIRE/CONDENN
/ROLL
1980 DATAEQUAL, IDENTICAL/LOADS/
ANGRY

1990 DATABLUNDER, MISTAKE/STOLEN/
REMOTE
2000 DATAENDLESS, ETERNAL/FINISH/
QUAIL
2010 DATAVOID, DODGE/KNOWN/LOSS
2020 DATAEVERYONE, ALL/ADVICE/ALO
NE
2030 DATAINSPECT, EXAMINE/INDEED/
SPENT
2040 DATAWEAKEN, TIRE/STRENGTH/PR
OCEED
2050 DATALOYAL, FAITHFUL/ROYAL/GR
ATE
2060 DATARAPID, SWIFT/REMIND/RESP
OND
2070 DATAFERTILE, RICH/FORTUNE/FE
RMENT
2080 DATAFEEBLE, WEAK/JOKING/FLOW
ING
2090 DATAFIERCE, SAVAGE/BENEATH/F
LANES

EDUCATION OVERVIEW

Using Your Computer To Help Develop Classroom Material

By Michael Plog[†] Ph.D.

The use of the computer in education is not limited to computer assisted instruction, computer managed instruction and administrative programs. One often overlooked use of computers is the preparation of materials for students. When using the computer to prepare materials for a classroom, students do not ever have to see or touch a computer. In fact, teachers can use their home computers to prepare materials to be brought into class.

Let me give you a few examples from personal experience. My wife is a teacher for students with learning disabilities. She spends many hours at home preparing materials for her students. One type of material is a word find puzzle, using spelling words of the week. Since only three or four of her students would have the same list of words, this meant a lot of different puzzles. The first program I ever wrote on the Color Computer would take a list of words and create a word find puzzle. The program has undergone several revisions and improvements, May, 1985.

but still produces the same output. Instead of spending all that time preparing the word find puzzles, I now type in a list of her words, and the computer produces a matrix of letters, with words hidden among random letters.

Another type of exercise she prepared for students is a word scramble. A word is provided for the students, spelled correctly and then repeated four times, with the letters scrambled in all the repetitions except one. The students have to select the correctly spelled word. The Color Computer is ideal for this task. All I do now is type in her list of words, and turn on the printer; the computer then produces the word scramble.

These may sound frivolous to you, but they are not simple tasks for students with perceptual problems. The word find puzzles are providing experience with figure/ground relationships, which is a major problem for some students. The word scramble is a visual discrimination and visual sequencing while a child without realizing it, but

AUSTRALIAN RAINBOW

children with a visual discrimination and sequencing disability need practice before they can read and spell effectively.

Preparation of such materials using the computer is not limited only to lessons for students with learning disabilities. The computer can help prepare materials for any type of student. Consider a simple example for students in primary grades. One duty for educators is to teach kids how to write, that is, draw letters that can be recognized. It does not require much advanced knowledge of graphics to program a computer to use the period key on a printer to make big letters — which can be "filled in" by students. The practice of drawing correct letters is necessary before students can write adequately. (If you doubt this, check with your mother. She probably has some early efforts of yours tucked away somewhere.)

Of course, the use of a graphics printer can produce some wonderful materials for students. Instead of having all students in the class draw (or color) that same dumb leaf in the

PAGE 11

fall, pumpkin at Halloween, or snowflake in the winter, why not produce different designs for students? A graphics printer (and some good programming) can eliminate the sameness of classroom worksheets. Wouldn't it be wonderful to visit a second grade classroom and see different pictures instead of the same design, altered only by choice of colors?

Do not think that computer generated materials are to be used only by primary grade students. Materials can be developed for any age and grade. The computer makes an ideal way to print tests, for example.

Consider a mathematics test. The same process (multiplication, for instance) can be tested, but with different (random) numbers used for each test. This provides a very good protection against cheating, too. Each student has the same type of problem as the student in the next seat, but should get a different answer. The teacher is providing a variety of test items, but all related to the same skill.

Tests could be individualized in any subject matter. A social studies teacher may want to store over 100 questions on a computer for a single class. At test time, the computer could select a 20 item test (at random or not) for each student — but each student would receive a different set of items. The bank of test items could be continually updated by the teacher at home, without having to constantly create new exams.

By creative use of a database program, it is possible for a literature teacher to individualize test items to optional readings for students. For example, each student could be required to read any four of 10 optional pieces. Exam items for all 10 readings are stored in the computer, along with student names and the selections for each. The computer would then select a group of test items for each student, depending on the passage read.

Imagine the ease of test construction for a foreign language teacher using the item bank concept. Each individual student can only be tested on a small vocabulary list, compared to all the foreign words they are required to know. Using a database and an item bank, teachers can develop individual tests for students, as well as get some idea about what topics need greater coverage for the class as a whole.

With any test form printed by the computer, scoring can be simplified for the teacher. It is not difficult to have the computer print two pages for each test form. The first could have the correct answers printed; the second would have blanks for student responses. Naturally, individual student names could be printed on each test form.

The concept of an item bank for tests can be applied to other uses for computer generated materials. Work assignments, for example, can also be an application of an item bank. A teacher of a writing class might use an

item bank for work assignments. Each student could be assigned themes on five topics, with no student having the same five topics, but each topic being assigned to at least three students.

While humans may consider the logistics of this type of assignment to be unwieldy, a computer can deliver the correct mix with no complaints.

Many teachers already keep student grades on home computers. Instead of providing quarterly grade cards, it might be worthwhile for students (and parents and teachers) to have more frequent progress reports. Students could be shown their grades every month (or even more often). This simple procedure can eliminate surprises at the end of a grading period. In addition to students knowing their progress, parents can be informed quickly about problems, and the teacher can easily identify difficulties before it is too late for correction. (Just consider the public relations benefits to be gained by teachers with this type of information to parents.)

In all the examples listed above, the major emphasis is on individualization of materials for students. With increased demands being put on teachers' time, it is more and more difficult to provide individual challenges for students. Yet, individualization is necessary in order for education to accomplish its multiple goals. The microcomputer offers a new opportunity for teachers to individualize materials for students.

EDUCATION NOTES

16K
ECB



The Value of Comparison Shopping

By Steve Blyn

Consumer education was traditionally taught only in the higher grade levels; it was naturally assumed these students were closest to being out in the world and on their own. Although this is true, the topic has fortunately been introduced into the lower grades as well. Educators have learned that one is never too young to learn how to manage money wisely.

Young children are exposed to advertising through television. They see

toys and cereals and other products meant to attract their attention. They want almost everything: "Daddy, buy me this, Mommy, buy me that." How familiar these phrases are to parents! And what do we answer? "We don't have room for that toy," or "You have one just like it," or the old standby "It costs too much money!" From the age of 2 or 3, our children begin to build an awareness of products, purchasing and prices.

Shopping for food is a job most

youngsters take part in. Many accompany their parents to the supermarkets. There are many others who are able to shop alone at local groceries at surprisingly early ages. Consumer education should therefore begin when it is appropriate to the experiences of the students.

In the metropolitan New York area, the Wednesday and Sunday newspapers are full of ads and discount coupons for the local supermarkets. Hours can be spent combing the ads looking for

May, 1985.

the best bargains. It would be counter-productive to travel from market to market to get the best value on each particular item. By careful comparison pricing on selected items, people learn more efficiently to choose the better stores for their needs.

This month's program is designed to help middle grade students learn about comparison shopping in two stores. A list containing several grocery items and their prices in each store is presented.

The learner has two tasks to master. First, one must decide which store has the better price. This exercise gives practice in reading this type of list. Adults are quite familiar with such lists, but they can confuse children in the beginning.

Next, the student must determine how much money is saved in the less expensive store. This is done by subtracting either mentally or on a separate

piece of paper. The problem is counted right only if both questions are answered correctly. After 10 examples, a report card is given, and the player can begin again or end the program.

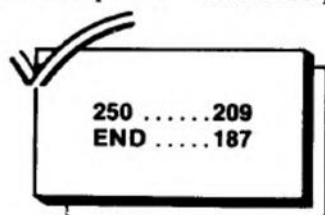
Lines 40 and 50 dimension the number of prices and articles. Each article has two prices. Lines 60-100 draw the screen and its information. Line 110 selects the random number (R). This determines which grocery item is picked for each question. This line also contains the counter (CT) for the total number of examples. The next line monitors the counter.

Lines 130-190 ask which store has the cheaper price on the item in question. Lines 200-230 check to see if the answer is correct. If it is, then lines 240-320 ask and check how many cents were saved at the less expensive store. If answered correctly, the student will receive 10 points.

After 10 questions, a report card is given on lines 420-470. Remember that a question is only counted as correct if both parts are answered correctly. This was done mainly because of the large screen size. We could only fit in eight items and felt it was too easy to merely memorize which item was cheaper. If you desire, you may easily alter the scoring by giving five points for each part of the two-part question.

This program is certainly not limited to supermarket shopping. The DATA lines are on 400 and 410. Line 400 has the two amounts and Line 410 has the item. You may substitute any items and amounts of interest to your children or students.

An even better idea is to let the children have fun and learn by substituting their own items and values. One of the best ways to learn is by being an active participant in the program.



The listing:

```

10 REM"COMPARISON SHOPPING"
20 REM"STEVE BLYN,COMPUTER ISLAN
D,NY,1985"
30 CT=0:GB=0
40 DIM A(8,2):'*THE AMOUNTS
50 DIM F$(8):'*THE ITEMS
60 CLS0
70 PRINT" STORE1      STORE2
ITEM":PRINT STRING$(32,188);
80 FORX=1TO8:FORY=1TO2:READ A(X,
Y):NEXTY,X:FORZ=1TO8:READF$(Z):N
EXTZ
90 FOR X=1TO8:FORY=1TO2:PRINT "
";PRINTUSING "###.##";A(X,Y);:P
RINT"      ";:NEXTY:PRINTF$(X):NEX
TX
100 PRINTSTRING$(32,179);
110 R=RND(8):CT=CT+1
120 IF CT>10 THEN 420
130 PRINT@352," WHICH STORE SEL
LS THE ";F$(R)
140 PRINT@384,"      AT A CHEAPER
PRICE";
150 REM"EN=PLAYER'S RESPONSE"
160 INPUT EN
170 REM"P1=PRICE AT FIRST STORE
AND P2=PRICE AT THE SECOND."
180 IF EN<1 OR EN>2 THEN 130
190 P1=A(R,1):P2=A(R,2)
200 REM"CHECK OUT THE ANSWER"
220 IF P1>P2 THEN N=2
  
```

```

230 IF EN=N THEN 250 ELSE 330
240 REM"IF CORRECT,ASK HOW MUCH
IS SAVED AT THAT STORE."
250 PLAY"L100;GFEGFEDC"
260 PRINT@416," ":PRINT@416,"RIG
HT! HOW MANY CENTS SAVED";
270 INPUT EE
280 IF EE<0 OR EE>99 THEN 240
290 CB=ABS(P1-P2)*100
300 CC=INT((CB)+.5)
310 IF EE=CC THEN PLAY"ABCABC":P
RINT@455,"CORRECT AGAIN !!";:G
B=GB+1:GOTO 340
320 IF EE<>CC THEN SOUND10,1:PRI
NT@448,"SORRY, YOU REALLY SAVED";
CC;"CENTS":GOTO340
330 PRINT"SORRY, STORE #";N;" IS
CHEAPER.":SOUND10,1
340 PRINT@485,"PRESS <ENTER> TO
GO ON";
350 EE#=INKEY#
360 IF EE#=CHR$(13) THEN 380
370 GOTO 350
380 FORT=1376 TO 1535:POKET,128:
NEXT T
390 GOTO 110
400 DATA 1.25,1.33,.84,.79,.64,.
59,2.25,2.39,.62,.49,2.65,2.48,.
87,.84,1.57,1.74
410 DATA CHEESE,CATFOOD,BEANS,CO
FFEE,CANDY,MILK,JUICE,BREAD
420 CLS5:PRINT@41,"REPORT CARD";
430 PRINT@134,"YOUR SCORE WAS";G
B*10;"%";
440 PRINT@357,"PRESS <ENTER> TO
GO ON";
450 EN#=INKEY#
460 IF EN#=CHR$(13) THEN RUN
470 GOTO 450
  
```

REVIEWS

Software Review

Colorforth Version 2.0 — A Good Compiler Made Better

Colorforth Version 2.0, by Armadillo International Software, is a revised version of a FORTH compiler which RAINBOW reviewed in the May 1982 issue. Since the review was short, we will reprint it here:

"The 16K program works very well and is easy to operate. It comes with extensive documentation, although it doesn't teach you the language.

"Our first brush with FORTH was a very positive experience. This was no doubt helped a great deal by the program, which behaved flawlessly and made our preliminary ventures into the language easy.

"If you're interested in a second language, FORTH and *Colorforth* would be a good bet."

Two other FORTH compilers were reviewed in the December 1982 issue of THE RAINBOW. *Color-Forth* (similar name), by Hoyt Stearns Electronics, comes in two versions costing \$58.95 or \$123, while *ccForth*, from the Frank Hogg Laboratory, is \$99.95 and is available only on disk. Armadillo's program has a distinct advantage over the others in that, for \$49.95, you get both tape and disk versions supplied on a single cassette. On the other hand, the more expensive programs contain a variety of sound and graphics routines not supplied in *Colorforth*. However, the nature of the FORTH language is such that you can create such routines yourself.

The instruction manual (82 pages, spiral-bound, 5½ by 8½ inches) clearly states that you will not learn FORTH from the manual. It recommends two books and points out several minor, but important, variations from the dialects taught in the books. For example, when the book *Starting Forth* tells you to write VARIABLE CATFISH, *Colorforth* requires 0 VARIABLE CATFISH. Similarly, WORD in the "standard" version becomes WORD HERE in *Colorforth*.

There is an introductory section that will give novice users an idea of command syntax (very heavy on spaces), and of how new commands are defined. Clear and complete instructions are given on how to make backups and save "screens" in which your source code and other data is stored. There is also a thorough description of the editor, which bears a strong resemblance to the ED text editor used in CP/M. But, most of the remainder of the manual will be difficult to understand unless the user knows the language.

For those who have some knowledge of machine language, instructions are given for incorporating ML routines into your programs so that you can have graphics, sound, control of I/O ports, etc.

The original *Colorforth* was a 16K program. *Version 2.0* requires a minimum of 16K, standard BASIC, but if you have 32K or 64K, it will take maximum advantage

of available memory. There is even a provision to bank-switch the upper 32K in a 64K CoCo between RAM and ROM.

Version 2.0 also contains certain "vectored" words, and an optional faster LIST that the original did not have. "Vectoring" means that some words can be redirected where needed. For example, if you sometimes use a printer that requires an extra linefeed after every carriage return, you have only to type '<CRLF> IS CR when using that printer. You can also create your own vectored words.

For those without Extended BASIC, *Colorforth* contains its own *CSAVEM* command for making backups and storing data to cassette.

The word FREEZE allows you to install your own definitions so they will be in effect automatically whenever you load *Colorforth* from disk or cassette.

(Armadillo International Software, Box 7661, Austin, TX 78712, \$49.95 plus \$2.50 S/H)

— Neil Edward Parks

Hardware Review

Comparable RS-232 Packs: Tandy Deluxe Program Pak And PBJ 2SP-Pak

One of the things that makes the Color Computer so desirable is that you do not have to buy extra plug-in boards in order to make it drive a printer or a modem. The reason for this is circuitry that comes with every CoCo allowing it to talk to the outside world through what is known as an RS-232 port. So why would anyone want to buy such a thing as a plug-in card when the RS-232 port is already built into the computer?

First, the CoCo has only one built-in port. If you need to use both a printer and a modem, you have to either plug and unplug each of them time and again, or buy a hardware device that switches between them. Even with such a switcher, you still are unable to use both at once. And some find the need to switch annoying. So, one reason to buy a hardware RS-232 device is to provide a second port for your computer.

More reasons relate to the nature of the CoCo's built-in port. That port is what we call a "software RS-232." That is, in order to send and receive information through that port, the CoCo must create and analyze the RS-232 signal using cumbersome software that is somewhat inaccurate and, worse yet, eats up a great deal of the central processor's time. If all you need to do is drive a printer or use a smart terminal program at no greater than 300 Baud, this is not a great problem. But if you want to do

both at once, or if you want a smart terminal program that functions with true full duplex at 1200 Baud, a hardware UART is required. Due to the limitations of the built-in software UART, it is impossible to write a smart terminal program that functions completely correctly at 1200 Baud with the CoCo's built-in port (Colorcom/E, sold by Spectrum Projects, comes closest to doing this).

For those of you using OS-9, there is even more reason to consider buying a hardware RS-232 port. Because the software RS-232 is so time-consuming, if you try to use the power of OS-9 to print out material as a background task while running another program (in effect spooling the printer via OS-9), the other program(s) will run badly, often unusably slowly. But with a hardware RS-232 port, the process of outputting data takes 10 to 100 times less time, and printer spooling can be accomplished very effectively. A hardware RS-232 port is also a must if you plan on having a second user hooked in through a terminal under OS-9.

Of course, you must either be able to write or buy software to use these pieces of hardware. OS-9 users may know by now that the new release of OS-9 from Tandy will now support both the Tandy Deluxe RS-232 Program Pak and one port of the PBJ product (the PBJ 2SP Dual RS-232 Pak) as both are addressed to the same place. PBJ has available a series of patches for OS-9 for both of its ports. Disk BASIC users will be happy to learn that Tandy and others will soon be coming out with disk-based smart terminal programs that can use the hardware RS-232 port. CompuServe's VIDTEX will soon be released in an updated version that makes use of such special hardware. And I am currently beta testing a smart terminal program that uses this hardware. Thus, by the time you read this, even Disk BASIC users should be able to buy software that uses this hardware.

Similarities of the Two Products

Both the Tandy and the PBJ product are similar in size, shape and cost. Both products must be used with an expansion port device if you want to use them with a disk drive. Both have a hardware RS-232 port addressed at \$FF68 that uses the same 6551 ACIA chip to create the port. Both have the address of the port fully decoded, meaning that the port will work regardless of which slot you put them in your expansion device and regardless of which slot you select. Both products have the capability of placing a ROM or EPROM on board the device, though in both cases the EPROM on the device is addressed using the *CTS line, meaning that in order to use any software in the EPROM you must select the slot the device is plugged into. Both products work as advertised. Both are designed to provide the required positive and negative RS-232 voltages using as input only the 5-volt line. That is, both will work when plugged directly into a CoCo 2. Full technical information, including schematic diagrams, is available for both from their respective suppliers. Both Tandy and PBJ are to be commended for this policy.

Differences Between the Devices

Unlike the PBJ product which comes only with traces provided for soldering in an EPROM socket, the Tandy product comes with a terminal program on a 24-pin, 8K by 8-socketed ROM inside the device. This might seem to be a tremendous advantage, until you realize that the program supplied cannot use the disk drive. This is a serious

limitation, because of its lack of support for disk systems and its overall poor structure and quality, I would advise potential buyers to ignore the supplied software in the ROM in the Tandy Pak, and look at that pack as solely a hardware port without software.

When one does that, the Tandy product doesn't look bad at all. The RS-232 port it provides connects to the rest of the world using an industry standard DB 25 connector, not the CoCo 4-pin DIN connector. The PBJ unit uses the "CoCo standard" 4-pin DIN connectors. In addition to the signal ground, transmitted data, received data, and carrier detect (DTR) line available with the CoCo's built in, or with the PBJ's port, the Tandy product also provides CD (Pin 8), CTS (Pin 5), DSR (Pin 6) and TD 8 (Pin 2). Thus, it represents a fuller implementation of the RS-232 protocol. If you wish to program an application that will need to use those other lines, your only choice in hardware packs is the Tandy product.

On the other hand, you can use your existing modem cables with the PBJ unit. And I know of no currently existing or proposed CoCo software that uses the extra lines provided by the Tandy Pak.

The Tandy unit provides about plus and minus 10 volts on its RS-232 lines. The PBJ unit provides about plus and minus 4.7 volts. Both figures are within specifications for the industry standard for the RS-232 protocol. But because the Tandy unit puts out somewhat more voltage than the PBJ unit, it may be preferable for those few applications where you want to run 50 or more feet of RS-232 cable. I must add that I know of few users who need more than 10 feet of cable.

Assuming one does not use the ROM supplied with the Tandy unit, one has a 24-pin socket to play with. The PBJ unit is designed to support a 28-pin socket that you solder in. If you are a hardware hacker, this means that you can put up to a 16K by 8 (27128) EPROM in the PBJ unit, whereas the ceiling on EPROM size with the Tandy unit as supplied is an 8K by 8 (68764) EPROM. You really should call PBJ if you plan to use the traces provided for the socket. There are a few details of how to wire it that you should be aware of, depending on which EPROM you want to use.

Since many Radio Shack Computer Center employees know little about the Deluxe RS-232 Program Pak, it's rather hard to get good information on how to use it. PBJ, in my experience, is readily available to aid its customers with prompt and knowledgeable advice. The folks at PBJ are always up to date on what software - both third party and from Tandy - works with their products.

Hackers will be delighted to learn that PBJ makes the 2SP available as a bare board with documentation. The price of this is \$19. But be warned: While the circuit is not very complicated, and all needed information is present, this is no Heathkit! You need some experience in electronics if you want to tackle the bare board. I built two of them, so I know! If you do decide to get the bare board, be sure to call or write PBJ for the latest revision of corrections to be made to the board. If you plan to wire up the EPROM socket, this is especially important. Purchasers of the assembled and tested unit need not worry about this, as all my reports indicate the units ordered have arrived in excellent working condition.

I've saved the biggest difference for nearly last. While the Tandy Pak provides only one hardware RS-232 port, the PBJ unit gives you two for almost the same price (only

\$10 more)! One port is addressed to the same place as Tandy's (\$FF68), and should run with all software designed to work with the Tandy unit. The second port is addressed just above it starting at \$FF6C. To use the second port as a printer port, you'll have to alter the wiring of the busy line from your serial printer, as PBJ uses the "CD" pin of the port as its busy detect, whereas the CoCo proper uses the "receive data line," instead. If you are using the PBJ C-C Bus expansion port device as well, PBJ tells you how to "strap the interrupt lines" to use its device under interrupt control. This option (not available to Tandy Multipak users) is useful to folks using a multi-user OS-9 system on the CoCo, but for little else. Using this option requires significant hardware and software experience. PBJ also sells driver modules for the 2SP to be used with

OS-9.

Recommendations

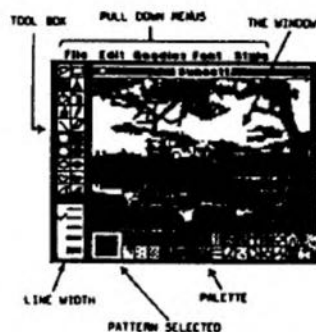
It's not an easy choice between these two excellent units. If you are sure you'll only want one hardware port forever, then the Tandy Deluxe RS-232 Pak is a good choice. It costs \$10 less than the PBJ product and is available at Radio Shack. But, if you are running OS-9, or if you're a hardware and/or software hacker, you may do well to get the PBJ product, because of the extra flexibility offered by having two, rather than one port.

(PBJ, Inc., P.O. Box 813, N. Bergen, NJ 07047, PBJ 2SP-Pak, \$89.95; Radio Shack stores nationwide, Tandy Deluxe Program Pak, \$80)

— Marty Goodman

CoCo MAX

by Darcy O'Toole



Ok, it's 2am and for the last 6hrs I've been running the new graphics manipulator CoCo Max.

I've got to say right up front, CoCo Max is going to set you on fire.

System requirements; you'll need 64k, one disk drive and controller, a multi-pak interface or Y cable, a CoCo Max input module, a joystick, mouse or koala pad and the CoCo Max diskette.

If a printer is to be used RUN 'Config', which will automatically patch the program to your printer, Config only has to be run once, 22 printer are supported including all Tandy printers.

CoCo Max is controlled by four functions, point, click, double-click and drag.

'Point' places the cursor over the desired location.

'Click' registers the position or function.

'Double-click' obtains shortcuts and other functions.

'Drag', you drag the image across the screen by holding the button down.

With the exception of text entries these four functions are the only ones needed to operate CoCo Max.

ICONS

CoCo Max gives the user 20 icons from which to choose.

Running down the left hand side of the screen they are;

'Lasso' which isolates and extracts any picture element.

'Editing Box' which restricts editing functions to the editing box only.

'Hand' which allows the image to be moved, what you see is not what you get in this case. The actual screen image is only part of the drawing area. 'Hand' lets you move the image and allows the user access to the unseen part of the workspace.

'A' is the alpha-numeric function that places text anywhere in the picture. A variety of fonts are shown on the Fonts and Styles 'Pull Down Menu' (more about those later.)

'Fill' which allows the drawer to fill an outlined area

THOSE OS8 CHIPS.

By now those of you who subscribe will have your OS8 chips and be wondering what to do with them.

We would like to point out some of their properties first:

1. They can be burnt, so be careful.
2. They are not toxic if they do burn.
3. You will need a different type of eeprom burner to effect any change in the internal structure. We understand an article is in preparation on this subject.
4. These chips will need to be attached to the main board of your CoCo between the SAM and the ROMs. We suggest a position about 2 - 3 inches above on any convenient white or grey surface.

5. When taken from the pack, there may be a slight 'greasy' feel to the chips. Do not worry about this, as this is quite normal.

As to their uses, well the list is quite long. For a chip of this internal structure and complexity, different names have been developed to describe the internal functions. Before discussing possible uses we should at least know some of the names.

CELL: this structure maintains the structural as well as the on going internal memory functions.

S-ap: These chips use S-ap pathways to link CELLS and provide the Gigosecond responses necessary.

BaRqUe: Also known as the OUTER CRUST, maintains the division between LOOF and LIRPA segments.

The Loof segment reverses the Lirpa segment, and the Lirpa segment reverses that of the Loof. In fact we suggest that you do just that, alphabetically, now.

See you next month?

with the desired pattern.

'Paint Brush' paints with a selected pattern using the selected paint shape.

'Rubberband lines' is fairly self explanatory.

'Pencil' can be used, as the name suggests, for free hand drawing as opposed to the rubber band feature which only allows straight lines.

'Spray Can' is just that, press the fire button on the joystick and the selected pattern can be sprayed over the work area.

Next we have a series of Shapes; square, square with round corners, circle or ellipse, free hand shape and polygon. These shapes can be used with or without the Fill option.

To access the icons just point the arrow (cursor) at the appropriate icon, click the button and wham!

PATTERNS

At the bottom of the screen is the pattern selection called 'Palette'. Sixty pattern choices are offered or you can create your own. These can be used in conjunction with most of the above features eg. fill, paint, spray to create a multitude of effects.

To complete our description of the drawing tools available we have Line Width where 4 seen line thicknesses are offered plus one that is unseen.

PULL DOWN MENUES

On top of the screen five menus are shown, File, Edit,

continued on P 32

32K
ECB



Getting To The Heart Of The Matter

CARDIO



Program By Rene St. Jacques

Had some trouble catching your breath lately? Recurring shoulder pains? What about pressure in the chest? Irregular pulse? Fluttering sensations?

It could be nothing. Or it could be the ol' ticker acting up on you. Don't feel like the Lone Ranger when you're flat on your back staring up into a sea of concerned faces. Coronary thrombosis (or heart disease) is the leading cause of death among Americans, probably even among CoCo lovers.

While Cardio is intended for fun purposes and will never receive the unanimous endorsement of the American Medical Association (what would?), it should serve as a reminder of the need for regular exercise, attention to your diet and some diversions to reduce May, 1985.

stress.

That means YOU if your among those who spend too many hours at the computer keyboard!

Imagine during this Simulation that you're an intern studying to be a heart specialist. Any number of things can go awry with the human heart, and to save the patient you must react quickly and accurately. You will be confronted with the following emergencies:

* Heart Attack - The heart stops functioning.

* Ischemia - A lack of blood to the heart.

* A-V Block - A malfunctioning of the ventricles.

* Lack of Energy or Oxygen - A shortage of air intake.

AUSTRALIAN RAINBOW

* Valve Failure - A failure of one of the organs pumping blood.

* Leukemia - An oversupply of white blood cells.

As the simulation begins, you observe what appears to be a normally functioning heart. Likely, you'll find it's fascinating to watch the movement of blood through the various sections of the heart as it is cleansed before being returned to other parts of the body.

Blood entering the right side of the heart contains carbon dioxide, a waste product of the body. All blood entering the right side goes to the lungs before it reaches the left side of the heart. In the lungs, the carbon dioxide is removed and oxygen is added to the blood. Blood that flows to the body from the left side

PAGE 17

of the heart contains fresh oxygen. The oxygen is used in the body cells to produce energy.

There are many examples of how the heart changes its rate of beating to meet a particular need. It beats faster when a person is angry, afraid or excited. If a person does not exercise, the heart runs slower, regulating the blood to fit the body's tempo.

As you are pondering all of these things, something suddenly goes wrong. You are expected to act immediately, determine the problem and prescribe course of action.

You have eight available options,

which you implement by pressing one of the following keys:

- B — Artificial respiration
- D — Dextrose (sugar)
- E — Excitative drug
- M — Heart massage
- O — Operation
- R — Relaxant drug
- S — Electroshock
- T — Blood transfusion

Like many graphics programs written in BASIC, it is sometimes difficult to enter commands via the keyboard, so you may have to issue your "order" two or three times.

We really don't want to lose any patients; here are some pointers:

For heart attack, massage first and apply electroshock. For ischemia, try a relaxant and artificial breathing or an operation. For A-V Block, use an excitant (stimulant) drug and apply electroshock if necessary. For lack of energy, prescribe dextrose. For lack of oxygen, use artificial respiration. For valve failure, you'll have to operate. For leukemia, try a transfusion.

Good luck, Dr. CoCo. And take care of yourself.

— Charles Springer

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The listing:

10 CLEAR1000

20 PCLEAR8

30 PMODE3,1:PCLS:SCREEN1,0

40 DIM L\$(33)

50 L\$(0)="BR4U2BU3U2BD7BR8":L\$(1)

)="BU4R8BD4BR4":L\$(4)="UBR2D8R2U

BR2D8R2UBR2D8":L\$(5)="BU5U3R8D3G

3L2D1BD2D1BR9":L\$(6)="BR12

60 L\$(7)="UBR8D4L8BR8D4BR4":L\$(8)

)="UBR6F2D2L8BR8D2G2L6BR12":L\$(9)

)="UBR8BD8L8BR12":L\$(10)="UBR6F2

D4G2L6BR12":L\$(11)="UBR8BD4L8BD4

R8BR4"

70 L\$(12)="UBR8BD4L8BD4BR12":L\$(13)

)="UBR8BD4L4BR4D4L8BR12":L\$(14)

)="UBR8BD8BU4L8BD4BR12":L\$(15)="

BU8R8BL4D8BL4R8BR4"

80 L\$(16)="U4BU4BR8D8L8BR12":L\$(17)

)="UBR8G4L4BR4F4BR4":L\$(18)="

UB8D8R8BR4":L\$(19)="UBF4E4D8BR4"

:L\$(20)="UBF8UB8D8BR4"

90 L\$(21)="UBR8D8L8BR12":L\$(22)="

UBR8D4L8BD4BR12":L\$(23)="UBR8D8

H4BG4R8BR4":L\$(24)="UBR8D4L8BR4F
4BR4":L\$(25)="BU4U4R8BD4L8BR8D4L
8BR12"

100 L\$(26)="BU8R8BL4D8BR8":L\$(27)

)="UBR8D8L8BR12":L\$(28)="BU8D4F

4E4U4BD8BR4":L\$(29)="UBR8D8H4G4

BR12":L\$(30)="EB8L8F8BR4"

110 L\$(31)="UBF4E4BG4D4BR8":L\$(

32)="BU8R8G8R8BR4"

120 ECG\$="R3U1E1U1E1R1F1D1F1D1R3

D2F1R1E1U4E1U2E1U2E1U2E1F1D2

F1D2F1D2F1D2F1D4F1R1E1U2R6U1E1U1

E1U1E1R2F1D1F1D1F1D1R6"

130 COLOR3,1:LINE(0,0)-(255,0),P

SET:LINE(0,0)-(0,191),PSET:LINE(

255,0)-(255,191),PSET:LINE(0,191

)-(255,191),PSET:COLOR2,1

140 A\$="CARDIO":OP\$="S14;BM8,40"

:GOSUB5000:A\$="BY:@RENE@ST":OP\$="

"S4;BM15,180":GOSUB5000:A\$="":JAC

QUES":OP\$="BM+0,0":GOSUB5000

150 DRAW"S10;C4;BM115,120;"+ECG\$

:OP\$="S3;C2;BM127,103":A\$="P@@@

@@T":GOSUB5000:OP\$="BM140,140":A

```

$="Q@ES":GOSUB5000:OP$="BM152,80
":A$="R":GOSUB5000
160 CIRCLE(40,86),15,4,1,.5,0:CI
RCLE(65,86),15,4,1,.5,0:CIRCLE(5
4,64),30,4,2.3,.33,.45:CIRCLE(51
,64),30,4,2.3,.05,.2:CIRCLE(53,8
0),22,4,2.5,.18,.38
170 IFINKEY$=""THEN170
180 CLS:SCREEN0,0:PRINT@136,"DO
YOU WANT THE":PRINT@200,"INSTRUC
TIONS":PRINT@264,"(Y/N)?"
190 B$=INKEY$:IFB$=""THEN190ELSE
IFB$="Y"THEN200ELSE350
200 CLS:N$=" THIS IS AN EDU
CATIONAL SIMULATION OF THE HEART
FUNCTION AND OF SEVEN EMERGENCY
SITUATIONS THAT CAN AFFECT IT."
:GOSUB8000
210 N$=" WHEN THE HEART IS
FUNCTIONING, AN EMERGENCY SITUAT
ION WILL APPEAR. THEN YOU HAVE A
LIMITED TIME TO REACT AND GIVE
THE CORRECT TREATMENT.":GOSUB800
0
220 N$=" NOTE THAT WHEN YOU
HAVE TO INKEY$ AND THE HEART IS
FUNCTIONING YOU MAY HAVE TO IN
KEY$ MORE THAN ONCE.":GOSUB8000:
PRINT:PRINT"PRESS ANY KEY TO CON
TINUE"
230 IF INKEY$=""THEN230
240 CLS:N$=" YOU HAVE TO TA
KE NOTE OF THE TREATMENTS BECAUS
E THEY WONT APPEAR DURING THE CO
URSE OF THE SIMULATION.":GOSUB80
00:PRINT:PRINT"(B) ARTIFICIAL BR
EATHING":PRINT"(D) DEXTROSE (SUG
AR)":PRINT"(E) EXITATIVE DRUG":P
RINT"(M) MASSAGE"
250 PRINT"(O) OPERATION":PRINT"(
R) RELAXATIVE DRUG":PRINT"(S) EL
ECTROSHOCK":PRINT"(T) TRANSFUSIO
N":PRINT:PRINT"PRESS ANY KEY TO
CONTINUE"
260 IFINKEY$=""THEN260ELSECLS:PR
INT:PRINT"THIS PROGRAM WAS WRITT
EN IN SUMMER 1984 BY:":PRINT
:PRINT"RENE ST-JACQUES":PRINT"21
55 RUE ED.-MONTPETIT #47":PRINT"
MONTREAL, P.Q., CANADA":PRINT"(5
14) 739-2689 H3T 1J3":PRINT
270 PRINT:N$=" DO YOU WANT
A BRIEF DESCRIPTION OF THE EMERG
ENCY SITUATIONS (Y/N)?:GOSUB8000
0
280 B$=INKEY$:IFB$=""THEN280ELSE
IFB$<>"Y"THEN350
290 CLS:PRINT"HEART ATTACK :":N$
="THAT'S WHEN THE HEART STOPS BE
ATING.":GOSUB8000:PRINT:PRINT"IS
May, 1985.

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CHEMIA :":N$="THAT'S A LACK OF B
LOOD CIRCULATION.":GOSUB8000
300 PRINT:PRINT"A-V BLOCK :":N$=
"THAT'S WHEN THE VENTRICLES ALON
E STOP BEATING.":GOSUB8000:PRINT
:PRINT:PRINT"PRESS ANY KEY TO CO
NTINUE"
310 IFINKEY$=""THEN310
320 CLS:PRINT"LACK OF ENERGY :":
PRINT"LACK OF OXYGEN :":PRINT"ME
ANING WHAT IT SAYS.":PRINT:PRINT
"VALVE FAILURE :":N$="THAT'S WHE
N ONE VALVE INSIDE THE HEART STO
PS FUNCTIONING PROPERLY.":GOSUB8
000
330 PRINT:PRINT"LEUKEMIA :":N$="
THAT'S A BLOOD CANCER RISING THE
LEVEL OF WHITE BLOOD CELLS. NOR
MALLY IT'S AN INCURABLE DISEASE
BUT IN THIS SIMULATION LET'S SUP
POSE THAT THERE IS A SUFFICIENT
TREATMENT.":GOSUB8000
340 IFINKEY$=""THEN340
350 PCLS:SCREEN1,0:COLOR2,1
360 'VEINES CAVES
370 LINE(8,10)-(8,160),PSET:CIRC
LE(19,10),11,2,.4
380 LINE(30,10)-(30,49),PSET:LIN
E(30,122)-(30,160),PSET:CIRCLE(1
9,160),12,2,.4,0,.5
390 'OREILLETES
400 CIRCLE(60,70),45,2,.7:CIRCLE
(130,70),45,2,.7,.6,.4
410 'VENTRICULES
420 CIRCLE(95,89),70,2,1.4,0,.51
430 'AORTE
440 CIRCLE(135,50),50,2,1.1,.52,
.68
450 CIRCLE(150,50),48,2,1.1,.52,
.66:CIRCLE(121,5),11,2,.4
460 'INTERSEPTUM
470 CIRCLE(112,135),30,2,2.4,.37
,.62:CIRCLE(75,106),7,2:CIRCLE(1
00,105),10,2:PAINT(75,106),2,2:P
AINT(100,105),2,2
480 'ARTERES PULMONAIRES
490 CIRCLE(30,48),50,2,.8,.79,.9
9:CIRCLE(35,43),55,2,.8,.9,.99:C
IRCLE(35,43),55,2,.8,.77,.87:CIR
CLE(110,50),50,2,1,.63,.68:CIRCL
E(110,50),58,2,1,.63,.66:CIRCLE(
36,6),5,2,1.4:CIRCLE(82,4),9,2,.
4
500 'VEINES PULMONAIRES
510 CIRCLE(105,50),50,2,.7,.86,.
97:CIRCLE(105,50),60,2,.7,.83,.9
5:CIRCLE(200,67),51,2,.7,.6,.72:
CIRCLE(200,67),60,2,.75,.64,.72:
CIRCLE(132,19),5,2:CIRCLE(190,29
),5,2

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520 'VALVES
530 CIRCLE(28,69),9,2,1.5:CIRCLE
(150,55),9,2
540 CIRCLE(59,92),17,2,.3:CIRCLE
(130,92),17,2,.3:PAINT(49,92),2,
2:PAINT(120,92),2,2:PAINT(28,69)
,2,2:PAINT(150,55),2,2
550 LINE(168,100)-(255,125),PSET
,B
560 FORX=1TO4:PCOPY X TO X+4:NEX
T
570 'BATTEMENT DU COEUR
580 TIMER=0:CA=4
590 PAINT(12,162),3,2:PAINT(161,
47),CA,2:CIRCLE(28,69),9,1,1.5:P
AINT(28,69),3,1:CIRCLE(150,55),9
,1:PAINT(150,50),CA,1:CIRCLE(28,
69),9,2,1.5:CIRCLE(150,55),9,2:P
AINT(28,56),3,2:PAINT(158,50),CA
,2
600 PAINT(12,162),1,2:PAINT(161,
47),1,2:PAINT(31,70),2,2:PAINT(1
50,50),2,2
610 CIRCLE(59,92),17,1,.3:CIRCLE
(130,92),17,1,.3:PAINT(59,92),3,
1:PAINT(130,92),CA,1:CIRCLE(59,9
2),17,2,.3:CIRCLE(130,92),17,2,
3:PAINT(50,100),3,2:PAINT(88,115
),CA,2
620 PAINT(49,92),2,2:PAINT(120,9
2),2,2
630 PAINT(60,70),1,2:PAINT(139,7
0),1,2:PAINT(12,162),1,2:PAINT(1
61,47),1,2
640 IFCOCO ANDR=3THENRETURN
650 A=TIMER:V=RND(700)+1200:IFCO
CO THEN660ELSEIFA>V THENSOUND100
,4:SOUND150,2:R=RND(7):ONR GOT07
50,890,1040,1150,1230,1300,1370
660 PAINT(75,106),3,3:PAINT(100,
106),CA,CA:CIRCLE(75,106),7,2:CI
RCLE(100,105),10,2
670 IFCOCO ANDR=6THENCIRCLE(100,
105),6,1
680 PAINT(78,30),3,2:PAINT(95,35
),CA,2
690 PAINT(50,100),1,2:PAINT(88,1
15),1,2:PAINT(75,106),2,2:PAINT(
100,106),2,2:PLAY"LB. ;V10;01;G-"
:PAINT(78,30),1,2:PAINT(108,35),
1,2
700 IFCOCO ANDR=6THENCIRCLE(100,
105),6,1
710 PAINT(78,30),1,2:PAINT(95,35
),1,2:IFCOCO AND(R=5ORR=6ORR=7)T
HENRETURN
720 FORH=8TO5STEP-1:PCOPYH TOH-4
:NEXT
730 IFCOCO ANDR=6THENCIRCLE(100,
105),6,1

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PAGE 20

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740 GOT0590
750 'ARRET CARDIAQUE
760 OP$="S3C4BM180,111":A$="HEAR
T":GOSUB5000:OP$="BM180,121":A$="
ATTACK":GOSUB5000
770 CIRCLE(210,63),30,2:CIRCLE(2
10,63),30,2,.6,.15,.35:CIRCLE(21
0,68),5,2,1.4:CIRCLE(200,58),7,2
:CIRCLE(222,58),7,2:PAINT(210,35
),3,2:OP$="S4C3BM120,187":A$="?"
:GOSUB5000
780 FORH=1TO60:B$=INKEY$:GOSUB60
00
790 IFB$="M"THENPAINT(210,33),1,
1:V=RND(2):ON V GOT0830,870
800 IFB$="S"THENGOSUB6080
810 IFB$<>"ANDB$<>"S"THENGOSUB6
110
820 NEXTH:GOT07010
830 GOSUB6050
840 FORH=1TO20:B$=INKEY$:GOSUB60
00:IFB$="M"THEN830ELSEIFB$="S"TH
EN870
850 IFB$<>"THENGOSUB6110ELSE880
860 GOT0880
870 PAINT(180,105),1,2:PAINT(180
,120),1,2:TIMER=500:GOT0660
880 NEXTH:GOT07010
890 'ISHKEMIE
900 OP$="S3C4BM175,117":A$="ISCH
EMIA":GOSUB5000
910 CIRCLE(200,47),15,4,1,.5,0:C
IRCLE(225,47),15,4,1,.5,0:CIRCLE
(214,25),30,4,2.3,.33,.45:CIRCLE
(210,25),30,4,2.3,.05,.2:CIRCLE(
211,41),22,4,2.5,.12,.38:PAINT(2
10,92),3,4:OP$="S4C3BM120,187":A
$="?":GOSUB5000
920 FORH=1TO60:B$=INKEY$:GOSUB60
00
930 IFB$="R"THENV=RND(2):PAINT(2
10,92),1,1:ONV GOT01030,970
940 IFB$="O"THENGOSUB6080
950 IFB$<>"ANDB$<>"O"ANDB$<>"R"
THENGOSUB6110
960 NEXTH:GOT07010
970 GOSUB6050
980 FORH=1TO20:B$=INKEY$:GOSUB60
00
990 IFB$="R"THEN970ELSEIFB$="B"TH
ENV=RND(2):ONV GOT01030,970
1000 IFB$="O"THEN1030
1010 IFB$<>"ANDB$<>"R"ANDB$<>"O
"ANDB$<>"B"THENGOSUB6110
1020 NEXTH:GOT07010
1030 PAINT(175,117),1,2:TIMER=50
0:GOT0660
1040 'A-V BLOCK
1050 OP$="S3C4BM190,109":A$="A;V
":GOSUB5000:OP$="S4BM180,123":A$

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="BLOCK":GOSUB5000:OP$="C3BM120,
187":A$="?":GOSUB5000:B$="":GOSU
B6000
1060 FORH=1TO4:COCO=1:GOSUB590:B
$=INKEY$:GOSUB6000
1070 IFB$=""THEN1080ELSEIFB$="E"
THENV=RND(2):ONV GOTO1090,1140:E
LSEIFB$="S"THENGOSUB6050ELSEIFB$
="O"THENGOSUB6080ELSEIFB$="R"THE
NGOOT07000ELSEGOSUB6080
1080 NEXTH:GOTO7010
1090 GOSUB6050
1100 FORH=1TO4:COCO=1:GOSUB590:B
$=INKEY$:GOSUB6000
1110 IFB$="E"THENV=RND(2):ONV GO
TO1090,1140:ELSEIFB$="S"THEN1140
1120 IFB$<>"ANDB$<>"E"ANDB$<>"S
"THENGOSUB6110
1130 NEXTH:GOTO7010
1140 PAINT(180,105),1,2:PAINT(18
0,120),1,2:COCO=0:TIMER=500:GOTO
660
1150 'LACK OF ENERGY
1160 OP$="S3C4BM180,111":A$="LAC
K@OF":GOSUB5000:OP$="BM180,121":
A$="ENERGY":GOSUB5000
1170 CIRCLE(210,63),30,2:CIRCLE(
210,63),30,2,.6,.15,.35:CIRCLE(2
10,68),5,2,1.4:CIRCLE(200,58),7,
2:CIRCLE(222,58),7,2:CIRCLE(212,
72),10,2,2.5,.05,.45:PAINT(210,3
4),3,2:PAINT(210,84),4,2:OP$="S4
C3BM120,187":A$="?":GOSUB5000
1180 FORH=1TO40:B$=INKEY$:GOSUB6
000
1190 IFB$="D"THEN1210ELSEIFB$<>"
"THENGOSUB6110
1200 NEXT:GOTO7010
1210 PAINT(180,105),1,2:PAINT(18
0,120),1,2:PAINT(210,34),1,1:TIM
ER=500:GOTO740
1220 GOTO1220
1230 'LACK OF OXYGEN
1240 OP$="S3C4BM180,111":A$="LAC
K@OF":GOSUB5000:OP$="BM180,121":
A$="OXYGEN":GOSUB5000
1250 OP$="S4C3BM120,187":A$="?":
GOSUB5000:B$="":GOSUB6000:COCO=1
:GOSUB660
1260 FORH=1TO4:CA=3:COCO=1:GOSUB
590:B$=INKEY$:GOSUB6000
1270 IFB$="B"THEN1290ELSEIFB$<>"
"THENGOSUB6110
1280 NEXT:GOTO7010
1290 PAINT(180,105),1,2:PAINT(18
0,120),1,2:R=0:COCO=0:CA=4:TIMER
=300:GOTO720
1300 'VALVE FAILURE
1310 OP$="S3C4BM190,111":A$="VAL
VE":GOSUB5000:OP$="BM180,121":A$

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May, 1985.

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="FAILURE":GOSUB5000
1320 OP$="S4C3BM120,187":A$="?":
GOSUB5000:B$="":GOSUB6000:COCO=1
:CIRCLE(100,105),6,1:GOSUB660
1330 FORH=1TO4:COCO=1:GOSUB590:B
$=INKEY$:GOSUB6000
1340 IFB$="O"THEN1290ELSEIFB$<>"
"THENGOSUB6110
1350 NEXT:GOTO7010
1360 PAINT(190,105),1,2:PAINT(18
0,120),1,2:COCO=0:TIMER=300:GOTO
740
1370 'LEUKEMIA
1380 OP$="S3C4BM175,117":A$="LEU
KEMIA":GOSUB5000
1390 CIRCLE(200,47),15,4,1,.5,0:
CIRCLE(225,47),15,4,1,.5,0:CIRCL
E(214,25),30,4,2.3,.33,.45:CIRCL
E(210,25),30,4,2.3,.05,.2:CIRCLE
(211,41),22,4,2.5,.12,.38:PAINT(
210,92),2,4:OP$="S4C3BM120,187":
A$="?":GOSUB5000
1400 B$="":GOSUB6000:COCO=1:CIRC
LE(100,105),6,1:GOSUB660
1410 FORH=1TO4:COCO=1:GOSUB590:B
$=INKEY$:GOSUB6000
1420 IFB$="T"THEN1290ELSEIFB$<>"
"THENGOSUB6110
1430 NEXT:GOTO7010
1440 PAINT(210,33),1,1:PAINT(175
,117),1,2:COCO=0:R=0:TIMER=300:G
OTO740
5000 'DESSINE UNE LETTRE
5010 C$="":FORA=1TOLEN(A$):M$=MI
D$(A$,A,1):B=ASC(M$)-58:C$=C$+L$
(B):NEXT:DRAW OP$+";"+C$
5020 RETURN
6000 '? B$(SOLUTION)+MESSAGE
6010 COLOR2,1:LINE(130,175)-(255
,191),PSET,B:IFB$<>"THENPAINT(1
33,185),1,2:PAINT(163,140),1,2:P
AINT(175,156),1,2:OP$="S4C3BM133
,187"
6020 IFB$="M"THENA$="MASSAGE":GO
SUB5000:ELSEIFB$="S"THENA$="SHOC
K":GOSUB5000:ELSEIFB$="R"THENA$=
"RELAXATIVE":GOSUB5000:ELSEIFB$=
"E"THENA$="EXITATIVE":GOSUB5000
6030 IFB$="D"THENA$="DEXTROSE":G
OSUB5000:ELSEIFB$="O"THENA$="OPE
RATION":GOSUB5000:ELSEIFB$="B"TH
ENA$="BREATHING":GOSUB5000:ELSEI
FB$="T"THENA$="TRANSFUSE":GOSUB5
000
6040 RETURN
6050 COLOR2,1:LINE(160,130)-(255
,170),PSET,B
6060 OP$="S4C3BM186,144":A$="NOT
":GOSUB5000:OP$="BM172,164":A$="
ENOUGH":GOSUB5000

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AUSTRALIAN RAINBOW

PAGE 21

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6070 RETURN
6080 COLOR2,1:LINE(160,130)-(255
,170),PSET,B
6090 OP$="S4C3BM160,144":A$="TOO
@MUCH":GOSUB5000:OP$="BM182,164"
:A$="TIME":GOSUB5000
6100 RETURN
6110 COLOR2,1:LINE(160,130)-(255
,170),PSET,B
6120 OP$="S4C3BM166,144":A$="BAD
;TRY":GOSUB5000:OP$="BM178,164":
A$="AGAIN":GOSUB5000
6130 RETURN
7000 'DEAD
7010 PMODE3,5:SCREEN1,0:PAINT(0,
0),4,2:OP$="S6C3BM176,118":A$="D
EAD":GOSUB5000
7020 IF INKEY$="" THEN 7020 ELSE CLS:
PRINT@166,"AN OTHER CHANCE":PRIN
T@230,"(Y/N) ?"

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```

7030 B$=INKEY$:IF B$="" THEN 7030 EL
SE IF B$="Y" THEN PMODE3,5:PCLS:PMOD
E3,1:PCLS:SCREEN1,0:COLOR2,1:COO
0=0:GOTO360:ELSE END
8000 'NEAT PRINT SUBROUTINE
8010 CX$=CHR$(32):LL=32
8020 CL=INT(LEN(N$)/32):CR$=RIGH
T$(N$,CL)
8030 IF LEN(N$)<LL THEN 8100
8040 IF MID$(N$,LL,1)=CX$ THEN 81
00
8050 FOR CX=LL TO 1 STEP -1
8060 IF MID$(N$,CX,1)=CX$ THEN CC
=CX:GOTO8080
8070 NEXT CX:GOTO8100
8080 PRINTLEFT$(N$,CC-1):N$=MID$
(N$,CC+1,LEN(N$)-CC-1)
8090 IF LEN(N$)>32 THEN 8050
8100 PRINTN$:CR$:RETURN
8110 END

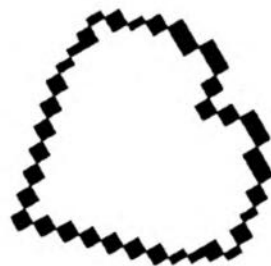
```

GAME

32K
ECB



COMPUTER CUPID



By T. Gray

This game will help you sort out your love life and find the girl or boy of your dreams! The teen-tested program was written for a "Wake-a-thon" held at a junior high school. Popular with boys, girls and chaperones alike, *Computer Cupid* was played for hours that night, and has been requested many times since.

Once you are past the cover screen, you will be asked to enter some vital personal information: your name and sex. You must then rate your "ideal" match on a variety of characteristics, following the prompts from the computer (lines 925 on). This standard will be used later on in the program, so it is important you give this some thought.

The characteristics used for the ideal match are based on lists made by junior high school students. The original version of *Computer Cupid* allowed the user to enter characteristics. After consultation with the students, it was revised to make it shorter and simpler.

PAGE 22

Feel free to change the characteristics as you and your friends see fit (lines 980 through 1045).

On a Scale of 1 to 10

Now comes the fun part. Again following the prompts, enter the names of some potential partners. You can enter as many as you want, but more than 10 takes a lot of time. You will rate each of those potential partners, as you did for your ideal match, with a rank of one to 10 on each of the qualities specified. Should you get carried away and seriously overrate or underrate a person here, the program will let you know about it. The routine that searches for a "perfect 10" asks the user to alert one of our teachers here at Thorsby Junoir High, who always claims he won't get married until he meets "the perfect woman." I've left his name in (Line 1155), but substitute *The Guinness Book of World Records*, or the name of your choice.

AUSTRALIAN RAINBOW

A Serious Side

The ratings for each person are now compared with your "ideal." Although some users of this program have made acid comments about the rating system, this section has a serious side. It is based on a method used by counselors to help people with serious life decisions. The client is asked to identify a number of important aspects of the problem, and weigh the seriousness of each aspect. Various solutions are then generated. Each solution is rated as to how well it satisfies each aspect of the "ideal" solution, and the results multiplied by the amount of each rating. The outcome is a score for each potential solution.

These scores have no particular value; they are used by the counselor as a basis for discussion to help with the decision-making process. I have personally used this method in my work and in my life, and have found it helpful.

However, *Computer Cupid* is simply
May, 1985.

a parlor game, and is not meant to be anything but entertainment.

Back to BASIC

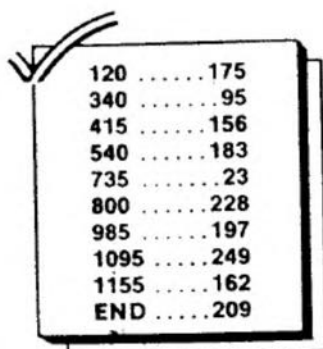
In *Computer Cupid*, the importance of a given characteristic (the rating on the "ideal") is multiplied by the rating on that characteristic for a given person. The results are added up for a total score for that person. Once all your prospects have been scored, the totals are compared, and the person with the highest score is selected as the best choice.

The name of your chosen one is teasingly and attractively displayed at the end of the program. *Computer Cupid* will be an enjoyable part of your

Valentine's Day party, or just for fun the next time you have friends over.

List Of Variables

ANSS	—	Response in replay subroutine	R(X,Y)	—	Rating of name X on quality Y
BL	—	Bottom line	S	—	Screen location counter in teaser, counter in save subroutine
C	—	Screen color	Score(X)	—	The weighted score for person X
CHS(X)	—	Characteristic or quality X	SBJ\$,OBJ\$,PSS	—	Subject, object, and possessive form of TS\$ (e.g., he, him, his for boy)
CHOICES	—	Name of highest-rated person	TS	—	Used to label titles
F	—	Flag used in weighting	T1\$,T2\$,T3\$	—	Words used in cover screen
FLAG	—	Flag used in name flash routine	TN(X)\$	—	Target names
IMP(X)	—	The importance of characteristic X	UN\$	—	User name
K	—	Counter in centering subroutine	US\$	—	User sex (boy/girl)
L,L1,L2,L3,L4	—	Various screen locations	W,X,Y,Z	—	Miscellaneous counters
N	—	Rating input	WS	—	Title in wait subroutine
NQ	—	Number of qualities	XS	—	INKEY\$ marker



The listing:

```

1 *****
2 '
3 '      COMPUTER CUPID
4 '      VERSION  2.2
5 '
6 '      BY T. GRAY
7 '
8 *****
9 '
10 '
15 CLEAR 3000
20 GOSUB100 'INITIALIZE
25 GOSUB200 'COVER SCREEN
30 GOSUB300 'INPUT PERSONAL DATA
35 GOSUB400 'INPUT NAMES,
    QUALITIES
40 GOSUB450 'INPUT QUALITIES
45 GOSUB500 'SORT, RANK, COMPARE
50 GOSUB600 'REPORT
55 GOSUB700 'DISPLAY
60 GOSUB900 'DO IT AGAIN?
65 END
70 '
100 'INITIALIZE
105 DIM TN$(20) 'TARGET NAMES
110 DIM R(20,10) 'RATINGS
115 DIM IMP(10) 'IMPORTANCE
120 DIM CH$(10) 'CHARACTERISTICS
125 NQ=10 'NUMBER OF QUALITIES
130 BL=453 'BOTTOM LINE
    May, 1985.
  
```

```

135 X=0:Y=0:F=0:T$=""
140 L1=163:L2=178:L3=176:L4=L3+9
    4
145 RETURN
150 '
200 'COVER SCREEN
205 C=RND(8):IF C=4 THEN 205
210 GOSUB 710 'DRAW HEART
215 T1$="computer":T2$="cupid":T
    3$="BY T. GRAY"
220 PRINT@128+32+16-(LEN(T1$)/2)
    ,T1$;
225 PRINT@224+16-LEN(T2$)/2,T2$;
230 PRINT@320+16-LEN(T3$)/2,T3$;
235 GOSUB 1055
240 RETURN
241 '
300 'INPUT PERSONAL DATA
305 CLS
310 PRINT:PRINT"HI, WHAT'S YOUR
    NAME?"
315 INPUT UN$
320 PRINT"OKAY, ";UN$,"
325 PRINT"ENTER <G> IF YOU'RE A
    GIRL"
330 PRINT"ENTER <B> IF YOU'RE A
    BOY"
335 INPUT US$:IF LEFT$(US$,1)<>"
    G" AND LEFT$(US$,1)<>"B"THENGOTO
    325
340 GOSUB980:GOSUB1055
345 '
350 CLS:PRINT:PRINT"NOW IT'S TIM
    E TO FIND OUT WHAT"
355 PRINT"YOU LOOK FOR IN A "TS$
    ". "
360 PRINT"YOU WILL HAVE TO RATE
    EACH":PRINT"QUALITY I SHOW YOU":
    PRINT"ON A SCALE FROM 1 TO 10.":
    PRINT:PRINT"1 MEANS YOU DON'T MU
    CH CARE":PRINT"IF THE "TS$" HAS
  
```

```

THAT QUALITY OR":PRINT"NOT. A <
10> MEANS IT IS REALLY IMPORTANT
TO YOU THAT THE "TS#
365 PRINT"HAS THAT QUALITY.":GOS
UB1055
370 CLS:PRINT:T#="YOUR IDEAL "+T
S#:F=1
375 GOSUB 925 ' DISPLAY QUALITIE
S
380 GOSUB1080:RETURN
385 IFF=1 THEN IMP(Y)=N:RETURN
390 IF F=2 THEN R(X,Y)=N:RETURN
395 RETURN
400 'INPUT NAMES, QUALITIES
405 CLS:PRINT
410 PRINT"NOW IT IS TIME TO ENTE
R THE":PRINT"NAME OF SOME "TS#"
S YOU ARE":PRINT"INTERESTED IN."
415 PRINT:PRINT"RATE EACH "TS#:P
RINT" ON A SCALE OF 1 TO 10":PRI
NT"FOR EACH QUALITY.":PRINT"A <1
> MEANS THE "TS#" IS LOW"
420 PRINT"ON THAT QUALITY, WHILE
A":PRINT"<10> MEANS THE "TS#" H
AS A LOT":PRINT"OF THAT QUALITY.
BE HONEST,":PRINT"FAIR, AND OB
JECTIVE."
425 GOSUB 1055
430 CLS:PRINT"ENTER THE NAME OF
EACH "TS#:PRINT"YOU ARE INTEREST
ED IN.":PRINT"PRESS <ENTER> AFTE
R EACH NAME.":PRINT"PRESS <ENTER
> AGAIN WHEN YOU AREFINISHED.":X
=1
435 PRINT TS#" NUMBER "X
440 INPUT TN$(X)
445 IF TN$(X)=""ORTN$(X)=CHR$(13
) THEN NT=X-1:RETURNELSEX=X+1:GO
TO435
450 CLS:F=2:FORX = 1 TO NT:T#="TN
$(X)
455 GOSUB 925
460 NEXT X:F=0
465 RETURN
500 'SORT, RANK, COMPARE
505 CLS:PRINT:PRINT:PRINT"I'M CH
ECKING THESE "TS#"S OUT...."
510 FOR X=1TO NT
515 FOR Y=1 TO NQ
520 SCORE(X)=SCORE(X)+R(X,Y)*IMP
(Y)
525 SOUNDNRND(100),RND(5):SOUNDRN
D(100),RND(5)
530 NEXTY,X
535 'RANK
540 W=1
545 FOR C= 2 TO NT
550 IF SCORE(C)>SCORE(W) THEN W=
C
555 NEXT C
PAGE 24

```

```

560 CHOICE#=TN$(W)
565 GOSUB1055
570 RETURN
600 'REPORT CHOICE
605 S=3:GOSUB1165:PRINT" ARE Y
OU READY FOR THIS?":GOSUB1055
610 GOSUB1165:PRINT" THE WINNE
R...":GOSUB1055
615 GOSUB1165:PRINT" THE ONE W
HO COMES CLOSEST TO MEETIN
G YOUR ":PRINT" REQUIREMENTS
...":GOSUB1055
620 GOSUB1165:PRINT" THE ";TS#;
" OF YOUR DREAMS... ";GOSUB 105
5
625 GOSUB1165:PRINT" IS....":G
OSUB1055
630 RETURN
700 RESTORE:GOSUB705:GOSUB735:RE
TURN
705 X#="" :C=0
710 CLS(C)
715 READ X:READ Y:IF Y=255 THEN
RETURN
720 C=4:FLAG=32
725 SET(X,Y,C)
730 GOTO 715
735 K=L1:N#=UN#:GOSUB1225:PRINT@
L,N#;
740 PRINT@L3,"+";
745 K=L2:N#=CHOICE#:GOSUB1225:PR
INT@L,N#;:L2=L
750 PRINT@L4,"true";:PRINT@L4+64
,"love";
755 GOTO 805
760 DATA 1,9,1,10,1,11,1,12,2,7,
2,8,2,13,2,14,3,6,3,15,4,5,4,16
765 DATA 5,4,5,17,6,4,6,18,7,3,7
,18,8,3,8,19
770 DATA 9,2,9,20,10,2,10,20,11,
2,11,21,12,2,12,21,13,1,13,22,14
,1,14,23,15,1,15,23,16,1,16,24,1
7,1,17,24,18,1,18,25
775 DATA 19,1,19,25,20,1,20,26,2
1,1,21,26,22,1,22,27,23,2,23,27,
24,2,24,27,25,2,25,28,26,3,26,28
780 DATA 27,3,27,29,28,4,28,29,2
9,4,29,30,30,5,30,30,31,6,31,31
785 DATA 32,6,32,31,33,5,33,30,3
4,4,34,30,35,4,35,29,36,3,36,29,
37,3,37,28,38,2,38,28,39,2,39,27
,40,2,40,27,41,1,41,27
790 DATA 42,1,42,26,43,1,43,26,4
4,1,44,25,45,1,45,25,46,1,46,24,
47,1,47,24,48,1,48,23,49,1,49,23
,50,1,50,22
795 DATA 51,2,51,21,51,22,52,2,5
2,21,53,2,53,20,54,2,54,20,55,3,
55,19,56,3,56,18,57,4,57,18,58,4
,58,17,59,5,59,16,60,6,60,15,61,

```

```

7,61,8,61,13,61,14,62,9,62,10,62
,11,62,12
800 DATA 255,255
805 X$=INKEY$:PRINT@L2,CHOICE$;:
GOSUB1195
810 X$=INKEY$:PRINT@L2,CHOICE$;:
IF X$=""THEN 805 ELSE RETURN
815 RETURN
900 'DO IT AGAIN OR QUIT
905 CLS:PRINT:PRINT"WANT TO TRY
AGAIN?"
910 INPUT ANS$
915 IF LEFT$(ANS$,1)="Y"THEN RUN
ELSE RETURN
920 RETURN
925 'PRINT QUALITIES
930 CLS:PRINT"RATE "T$:PRINT"ON
EACH QUALITY:":PRINT
935 FOR Y=1 TO NQ
940 PRINTTAB(0)CH$(Y)TAB(27)"";
945 GOSUB960:GOSUB385
950 NEXT Y
955 GOSUB1080:RETURN
960 'INPUT RATING, 0 TO 10
965 INPUT N
970 IF N<1 OR N>10 OR N<>INT(N)T
HEN PRINT"ENTER A NUMBER FROM 1
TO 10":GOTO 965
975 RETURN
980 'SET UP STRINGS, CHARACTERIS
TICS
985 IF LEFT$(US$,1)="G" THENGOSU
B1025:RETURN
990 SBJ$="SHE":OBJ$="HER":PS$="H
ER":TS$="GIRL"
995 CH$(1)="PRETTY FACE":CH$(2)=
"WELL-BUILT":CH$(3)="INTELLIGENT
":CH$(4)="SEXY/PASSIONATE"
1000 CH$(5)="THOUGHTFUL AND CONS
IDERATE":CH$(6)="WARM AND LOVING
"
1005 CH$(6)="SENSE OF HUMOUR":CH
$(7)="DELICATE AND FEMININE":CH$
(8)="THE RIGHT HEIGHT"
1010 CH$(9)="RICH":CH$(10)="ATHL
ETIC/LIKES SPORTS"
1015 RETURN
1020 '
1025 SBJ$="HE":OBJ$="HIM":PS$="H
IS":TS$="GUY"
1030 CH$(1)="HANDSOME":CH$(2)="M
USCULAR":CH$(3)="INTELLIGENT"
1035 CH$(4)="SEXY AND PASSIONATE
":CH$(5)="THOUGHTFUL AND CONSIDE
RATE":CH$(6)="HAS A CAR"
1040 CH$(7)="TOUGH AND MACHO":CH
$(8)="THE RIGHT HEIGHT"
1045 CH$(9)="SENSE OF HUMOUR":CH
$(10)="WELL-GROOMED"
1050 RETURN
May, 1985.

```

```

1055 'WAIT FOR USER
1060 W$="PRESS ANY KEY TO GO ON"
1065 PRINT@BL,W$;
1070 EXEC44539
1075 RETURN
1080 'CHECK FOR TOO MANY TENS
1085 SUM=0
1090 FOR P=1 TO NQ
1095 IFF=1THENSUM=SUM+IMP(P)ELSE
IFF=2THENSUM=SUM+R(X,P)
1100 NEXT P
1105 IF SUM>(NQ-1)*10 THEN GOSUB
1110ELSE IF SUM <15 THEN GOSUB 1
130 ELSE RETURN:RETURN
1110 CLS:SOUND10,5:SOUND1,10:PRI
NT:PRINT"COME OFF IT!"
1115 PRINT:PRINT"NO "TS$" IS THA
T PERFECT!"
1120 PRINT:PRINT"BE A LITTLE MOR
E realistic THE NEXT TIME Y
OU PLAY!":GOSUB1055:IF SUM=100AN
D TS$="GIRL"THENGOSUB1150:GOSUB1
055
1125 RUN
1130 CLS:SOUND 100,5:SOUND 200,5
1135 PRINT:PRINT"YOU'RE SURE NOT
FUSSY!":PRINT:PRINT"JUST SO THE
"TS$" IS ALIVE":PRINT"AND MOVIN
G, RIGHT?"
1140 GOSUB 1055:RUN
1145 'SUBROUTINE FOR PERFECT 10
1150 FORC=0TO8:CLS(C):FORW=1TO50
:NEXTW,C
1155 CLS:PRINT@32*3,"IF THE WOMA
N really IS ":PRINT@32*5," **
*** A perfect 10 ***** ":PRIN
T:PRINT:PRINT" THEN CALL MR. P
ROST!"
1160 'SCREEN ADVANCE FOR TEASER
1165 CLS
1170 FOR X=1 TO S
1175 : PRINT
1180 NEXT
1185 S=S+1
1190 RETURN
1195 'FLASH NAME
1200 FOR X=1 TO LEN(CHOICE$)
1205 : MID$(CHOICE$,X,1)= CHR$(A
SC(MID$(CHOICE$,X,1))+FLAG)
1210 NEXT
1215 FLAG--(FLAG)
1220 RETURN
1225 'CENTRE NAMES
1230 L=INT(K+(12-LEN(N$))/2)
1235 RETURN
1240 FOR S = 1 TO 2
1245 MOTORON
1250 FORX=1TO8000:NEXT
1255 CSAVE "CUPID"
1260 NEXT S

```

We mean business...

Part of what I wanted to say in this section has been said in the Education section - monitors are becoming an integral part of the hardware in use with CoCo - especially for business.

We still use Telewriter-64 with our monitor - it looks good in amber! And the monitor reduces eyestrain when we are programming or using a database.

Kevin has soldered in his 80 column card UNDERNEATH the main board of his computer. Of course this makes access difficult should it require service, but it also keeps things relatively uncluttered on top!

We are learning of more and more CoCo's that are being used to help in businesses across Australia, and this strengthens our belief in the CoCo as a viable business tool.

The Listing:

```
1 '*** LABELS *** 20/2/85*****
***** COPYWRITE *****
***** BY G. MORPHETT.*****
*DEATH COMES QUICKLY TO THOSE
***WHO NICK MY PROGRAMS!***
2 CLEAR3000:DIM S1$(25):GOTO10
3 SAVE LABELER/BAS:3:DIR3
4 I$=INKEY$:IF I$="" THEN 4
10 CLS:PRINT@8,"LABELER & LISTS"
20 PRINT" 1. RETURN TO MAIN MENU
":PRINT" 2. RAINBOW SUBSCRIBER'S
LIST.":PRINT" 3. COCOOZ LABELS"
:PRINT" 4. MICOOZ LABELS"
30 PRINT" 5. RAINBOW ON TAPE LAB
ELS":PRINT" 6. ROT CHARGE LIST":
PRINT" 7. COCOOZ SUBSCRIBER LIST
":PRINT" 8. MEET CONTACTS":PRINT
" 9. MEET CONTACTS LIST"
40 PRINT"10. GOCO LIST":PRINT"11
. POST PAID LABELS":PRINT"12. CO
COLINK LIST":PRINT"13. EXPIRED L
ABELS":PRINT"14. 'BEST OF' DISK
LABELS"
50 INPUT C$
51 IFC$="1" THEN RUN MENU:3"
55 IFC$="14" THEN 2000
60 IFC$="2" OR C$="1" OR C$="6"
OR C$="7" OR C$="9" OR C$="10" O
RC$="12" THEN CLS:PRINT@230,;:LI
```

Peter Collison from ComputerWare for Micros arranged for us to receive a copy of DynaCalc for review. This spreadsheet seems to be the most capable that we have seen for some time. It is complex and so we are taking the time to explore it - but with a bit of luck we'll be able to get the results of that review to you next month.

The last program in our current series on programs used in the office is one of several labelling programs we use here. It also provides summaries for the database.

As an example of what programming is all about, this program certainly fails badly. It is even messier than some of the others.

But it works.

And then therein lies the crunch - in business, if it works, and it doesn't waste time - use it!

On the other hand, if any of you want to tidy this program up

SUB No 585 OCTCS
CoCoOz #27

Graham MORPHETT
P O Box 1742
SOUTHPORT QLD 4215

FROM PO BOX 1742, SOUTHPORT. 4215.

```
NEINPUT"PLACE PAPER IN PRINTER";
PR$
70 IFC$="11" THEN 750
80 CLS:PRINT#-2,CHR$(27)"N"
90 INPUT"CURRENT MONTH Xxx8X";CM
$
95 IFC$="3" THEN INPUT"WHAT IS THI
S MONTH'S NUMBER";TP$:TP$="CoCoO
z #"+TP$
100 IFC$="2" THEN DL$="RAINBOW SUB
SCRIBER'S LIST" ELSE IF C$="7" TH
EN DL$="COCOZ DISTRIBUTION LIST"
ELSE IF C$="9" THEN DL$="MEET C
ONTACTS LIST"
110 IFC$="6" THEN DL$="RAINBOW ON
TAPE DISTRIBUTION LIST" ELSE IF
```

```
C$="10" THEN DL$="GOCO DISTRIBUTI
ON LIST" ELSE IF C$="12" THEN DL
$="COCOLINK SUBSCRIBER'S LIST."
120 IFC$="2" OR C$="6" OR C$="7" OR C$
">"8" AND C$<"13" THEN GOSUB 1000
150 OPEN"D",#1,"ACS2/DAT",103:60
TO180
160 OPEN"D",#1,"ACS2/DAT":2",103
180 FIELD#1,25AS E1$,17AS N1$,26
AS S1$,17AS T1$,4AS P1$,14AS Z1$
190 FOR I=1 TO 1450
200 PRINT@464,I
220 GET#1,I:PRINT@256,E1$:IF C$="
1" THEN GOSUB 310
230 FOR S=4 TO 24 STEP 5:S1$(S)=MID
$(E1$,S,1):NEXT S:IF C$="4" THEN GO
```

```

T0790
240 FORS=4T024 STEPS:PRINTS1$(S)
:IFS1$(S)=" "THEN280
242 IFC$="13" ANDS1$(S)="E" THEN
E2$=E1$:GOSUB310:GOTO280
245 IFC$="2" THENGOSUB850:IFRT=1T
HENRT=0:GOTO300
250 IFC$="5" OR C$="6" OR C$="8"
OR C$="9" OR C$="10" ORC$="12"
THEN520 ELSE IFS1$(S)="A"THEN290
260 IFS1$(S)="S"THEN290
270 IFS1$(S)="C"THEN290
280 NEXTS:GOTO300
290 IFC$="3" OR C$="7" THENNO=NO
+1:S=S-3:E2$=MID$(E1$,S,5):IFC$=
"7"THEN GOSUB550 ELSE GOSUB310
300 NEXTI:CLOSE:TS=TS+1:IFTS=1TH
ENI60 ELSEPRINT"NUMBER PRINTED =
";NO:END
310 IFTS=1THEN II=I+1450 ELSE II
=I
320 GOSUB420
330 PRINT#-2,CHR$(27)"Q";"SUB No
";II;" ";E2$
340 ILEFT$(CM$,3)=LEFT$(E2$,3)
AND LEFT$(E2$,5)="5" THENRN$="PL
EASE RENEW" ELSE RN$=""
350 PRINT#-2,TP$;" ";CM$;" ";RN$
360 PRINT#-2:PRINT#-2,CHR$(27)"Q
";CHR$(14);N1$
370 PRINT#-2,S1$
380 PRINT#-2,CHR$(27)"X";T1$;60
SUB660:PRINT#-2,ST$;" ";P1$;CHR$
(27)"Y";CHR$(15)
390 IFC$="8"THEN PRINT#-2:PRINT#
-2:PRINT#-2:GOTO410
400 PRINT#-2:PRINT#-2,CHR$(27)"L
001";CHR$(27)"Q";"FROM PO BOX 17
42, SOUTHPORT. 4215.";CHR$(27)"N
":PRINT#-2
410 RETURN
420 PRINT#-2,CHR$(27)"N";TAB(25)
;
430 FORT=1T010:PRINT#-2,CHR$(133
);NEXTT:PRINT#-2
440 PRINT#-2,CHR$(27)"N";TAB(25)
;CHR$(140);" ";CHR$(140)
450 PRINT#-2,CHR$(27)"N";TAB(25)
;CHR$(140);" POSTAGE ";CHR$(140)
460 PRINT#-2,CHR$(27)"N";TAB(25)
;CHR$(140);" PAID ";CHR$(140)
470 PRINT#-2,TAB(23);CHR$(140);"
AUSTRALIA";CHR$(140)
480 PRINT#-2,CHR$(27)"N";TAB(25)
;CHR$(140);" ";CHR$(140)
490 PRINT#-2,CHR$(27)"N";TAB(25)
;:FORT=1T010:PRINT#-2,CHR$(133);
:NEXTT:PRINT#-2:PRINT#-2

```

```

500 PRINT#-2
510 RETURN
520 IFC$="8" OR C$="9" OR C$="10
" OR C$="12" THEN590 ELSE IFS1$(
S)="R" OR S1$(S)="T"THEN530 ELSE
280
530 TP$="RAINBOW ON TAPE":N=NO+1
:S=S-3:E2$=MID$(E1$,S,5):IFC$="6
"THEN GOSUB550 ELSE GOSUB310:GOT
0300
540 GOTO300
550 IFTS=1THEN II=I+1450 ELSE II
=I
560 PRINT@432,II;:SS$="":IFS=24T
HEN585 ELSE IF S1$(S+3)="T" THEN
SS$="*"
570 PRINT#-2,CHR$(27)"Q";II;TAB(
8)E2$;" ";TAB(34)N1$;" ";S1$;60
SUB660:PRINT#-2,T1$;" ";ST$;" ";
P1$;TAB(107);Z1$;:NM=NM+1:PRINT#
-2;" ";NM;" ";SS$
580 PP=PP+1:IFPP=58THENPRINT#-2:
PRINT#-2:PRINT#-2:PRINT#-2:PRINT
#-2:GOSUB1000:PP=0
585 RETURN
590 IFC$="10" ORC$="12" THEN 620
ELSE IFS1$(S)="M" OR S1$(S)="S"
THEN600 ELSE 280
600 IF C$="9" THEN610 ELSE PRINT
#-2,CHR$(27)"Q":PRINT#-2:NO=NO+1
:GOSUB360:GOTO300
610 GOSUB570:GOTO300
620 IFC$="12"THEN640 ELSE IFS1$(
S)="6" THEN E2$=E1$:GOSUB550 ELS
E 280
630 GOTO300
640 IFS1$(S)="L" THENGOSUB550 EL
SE 280
650 GOTO300
660 ST=VAL(LEFT$(P1$,1)):IFST=2T
HENST$="NSW"
670 IFP1$="2600" AND P1$(<="2640
" THEN ST$="ACT"
675 IFP1$="2900" AND P1$(<="2999
" THEN ST$="ACT"
680 IFST=3THENST$="VIC"
690 IFST=4THENST$="QLD"
700 IFST=5THENST$=" SA"
705 IFP1$="5600"THENST$=" NT"
710 IFST=6THENST$=" WA"
720 IFST=7THENST$="TAS"
730 IFST=9THENST$="STOP"
740 RETURN
750 CLS3:INPUT"HOW MANY LABELS";
LO
760 CLS3:FORT2=1T0 LO
770 PRINT@258,"LABEL NO";T2;"NOW

```

```

PRINTING";GOSUB420
780 NEXTT2:RUN
790 FORS=4T024 STEPS
800 IFS1$(S)="Z"THEN TP$="MiCoOz
":E2$=E1$:GOSUB310
810 NEXT:GOTO300
850 IFS1$(S)="8"THEN910
860 IFS1$(S)="A"THEN910
870 IFS1$(S)="M"THEN910
880 IFS1$(S)="B"THEN910
890 IFS1$(4)="C"THEN910
900 RETURN
910 E2$=E1$:GOSUB550:RT=1:RETURN
1000 PRINT#-2,CHR$(27)"N";TAB(20
)DL$:PRINT#-2,TAB(60)CM$:PRINT#-
2,CHR$(27)"X";CHR$(27)"Q";"SUB
RENEW";TAB(36)"NAME";TAB(54)"AD
DRESS";:IFC$="2" OR C$="7"THEN10
20
1010 PRINT#-2,TAB(110)"CHARGE DE
TAILS";TAB(125);CHR$(27)"Y":RETU
RN
1020 PRINT#-2,TAB(125);CHR$(27)"
Y":RETURN
2000 CLS2:INPUT"NO OF LABELS";N
2010 FORT=1T0 N
2020 PRINT#-2,CHR$(27)"N";CHR$(2
7)"!";CHR$(27)"C2";:FORTT=1T033:
PRINT#-2,CHR$(27)"C5";CHR$(130);
:NEXTTT:PRINT#-2,CHR$(130)
2030 PRINT#-2,CHR$(27)"Q";CHR$(1
4);" THE BEST OF COCOOZ #1."
2035 PRINT#-2,CHR$(27)"E";"EDUCA
TIONAL PROGRAMS";CHR$(27)"Q"
2040 PRINT#-2,CHR$(15)"Featuring
programs by Australia's pre-emi
nant programers."
2050 PRINT#-2," for";CHR$(14
);CHR$(27)"E";" TANDY COLOR":PR
INT#-2,TAB(5)"COMPUTERS."
2060 PRINT#-2,CHR$(15);CHR$(27)"
Q";"FROM AUSTRALIAN COCO, PO BOX
1742, SOUTHPORT. QLD. 4215.";PR
INT#-2,TAB(19)"PHONE 075-51-0015
.
2080 PRINT#-2:PRINT#-2
2085 PRINT#-2,CHR$(14);TAB(5);CH
R$(27)"X";"INSTRUCTIONS";CHR$(2
7)"Y";CHR$(15)
2090 PRINT#-2:PRINT#-2:PRINT#-2,
"Insert disk in disk drive,":PRI
NT#-2," close drive and type 'RU
N ";CHR$(34);"C";CHR$(34);".'.":P
RINT#-2," Press (ENTER)":PRINT#
-2
2095 PRINT#-2
2100 NEXTT:GOTO10

```

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Hi-Res Racer

By James W. Wood

Racer is a high resolution game which involves dodging cars as you pass them. Your car runs faster than your computerized opponents. (Would you expect to be slower?)

The road animation is accomplished by storing three different sets of center line stripes on different graphics pages. As the pages are flipped, the two-lane

highway appears to move toward the bottom of the screen. The race cars are drawn and stored as arrays. They can be quickly PUT onto the screen. Your racer is at the bottom of the screen. Use the left- and right-arrow keys to dodge the other cars as you fly by them.

As the game proceeds, it becomes more difficult. After a short while, the cars that appear at the top of the screen will jump from their original lanes into the other lane. The cars only show in five positions as they move from the top to the bottom of the screen. If one lane jump doesn't cause you to rear-

end them, the game will later cause the cars to possibly jump lanes in the second and third positions as they come down the screen.

There is room for improvement in *Racer*. (Isn't that the best part?) One could add a better title page or add lines to allow more than one crash. The crash sequence could stand improvement; perhaps a high resolution crash could be stored on graphics Page six and shown at the moment of impact. Study the line description to decide which enhancement you will program, or enjoy the game "as is."

(James Wood teaches high school math, science, computer programming and photography. He has master's degrees in both physical science education and instructional media.)

Line	Description		
20	Reserves memory for high resolution graphics	50-130	Draws race cars for computer and player and stores them
30	Title screen	140-240	Draws three views of the road on three different pages
40	Reserves memory for graphics arrays	250-280	Stores locations where race cars can be PUT

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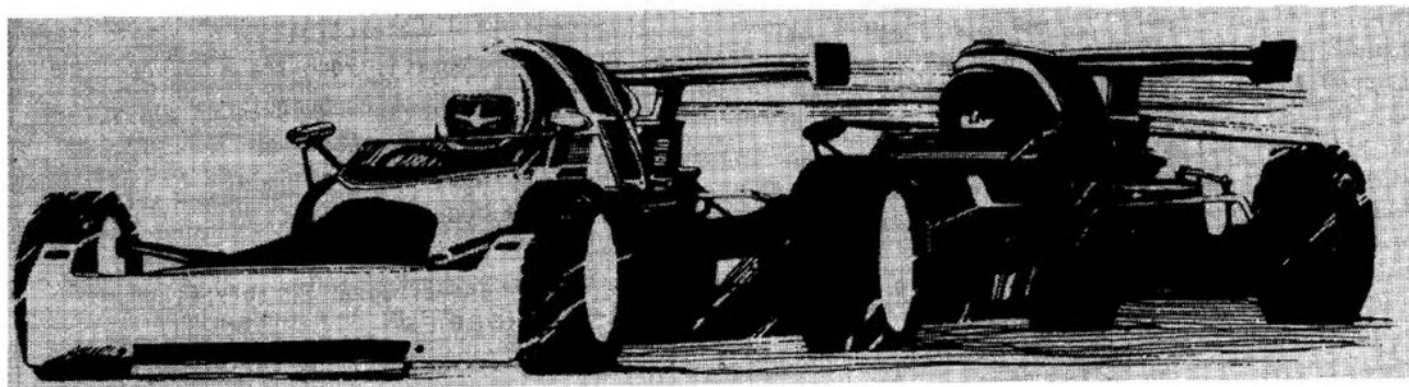
300-320 Deals with flipping pages
 330 Sets computer's car at top of screen
 340 Sets computer's car into second position after certain number of miles
 350 Sets computer's car into third position after certain number of miles
 360 Puts computer's car onto screen
 370 Sets computer's car back to top of screen
 380 Resets keyboard memory
 390 Sets player's car's position according to arrow key pressed
 400 Puts player's car onto screen
 410 Shows Hi-Res screen which was just drawn
 420 Keeps track of mileage
 430 Determines if crash occurred
 440 Variable to flip to correct road screen
 450 Back to top of animation loop
 460 Random color flash, crash sequence
 470-490 Ending message

27065
 END72

The listing:

```
10 REM JAMES W. WOOD, 424 N. MIS
SOURI, ATWOOD, IL, 61913
20 PCLEAR5:CLS0
30 FORA=160TO180:SOUNDRND(150)+5
0,1:PRINT@A," R A C E R":NEXTA
40 DIM R(10),S(10),X(0,4),M(0,14)
50 PMODE0,1:PCLS
60 CR$="D10L2U4R2D16L2U4R2D6R6U6
R2D4L2U16R2D4L2U10L6BR2BD12U1R2D
1"
70 DRAW"BM2,0S4"+CR$
80 GET(0,0)-(10,24),X,G
90 PCLS
100 DRAW"BM4,0S6"+CR$
110 DRAW"BR2D2L6"
120 PAINT(6,30),1,1
130 GET(0,0)-(20,48),M,G
140 PMODE0,1:PCLS
150 B=0:GOSUB210
160 PMODE0,2:PCLS
170 B=14:GOSUB210
180 PMODE0,3:PCLS
```

```
190 B=28:GOSUB210
200 GOTO250
210 LINE(100,0)-(75,191),PSET
220 LINE(150,0)-(175,191),PSET
230 FORA=1TO190STEP42
240 LINE(125,A+B)-(125,A+B+7),PS
ET:NEXTA:RETURN
250 FORA=1TO10:READ R(A):NEXTA
260 DATA 106,104,100,94,88,130,1
35,138,140,144
270 FORA=1TO10:READ S(A):NEXTA
280 DATA 10,40,70,100,140,10,40,
70,100,140
290 A=1:D=88
300 IFE=4THENE=5ELSEE=4
310 PMODE0,E
320 PCOPY A TO E
330 IF G=0 THEN G=1:IF RND(2)=1
THEN H=1:GOTO360 ELSE H=6:GOTO36
0
340 IF J>50 AND G=1 THEN G=2:IF
RND(2)=1 THEN H=2:GOTO360 ELSE H
=7:GOTO360
350 IF J>100 AND G=2 THEN G=3:IF
RND(2)=1 THEN H=3:GOTO360 ELSE
H=8:GOTO360
360 PUT(R(H),S(H))-(R(H)+10,S(H)
+24),X,PSET:H=H+1
370 IF H=6 OR H=11 THEN G=0
380 POKE343,255:POKE344,255
390 IF PEEK(343)=247 THEN D=88EL
SE IF PEEK(344)=247 THEN D=144
400 PUT(D,140)-(D+20,188),M,PSET
410 SCREEN1,1
420 J=J+1
430 IF H=5 AND D=88 OR H=10 AND
D=144 THEN 460
440 A=A+1:IFA=4THENA=1
450 GOTO300
460 SCREEN0,0:FOR AA=1TO20:CLSRN
D(9)-1:PLAY"L25501"+CHR$(64+RND(
7)):NEXTAA
470 CLS:PRINT@260,J/10;"MILES"
480 PRINT"PLAY AGAIN (Y/N)"
490 A$=INKEY$:IFA$="Y"THENCLS0:R
UN ELSE IF A$="N"THENEND ELSE 49
0
```



CoCo LINK

The problems plaguing CoCoLink have been largely cleared up this month with the exception of downloads. And we finally separated the visitor section, and started to input data to the data bases.

In the meantime STARS, an encyclopedic data base, has started in Sydney, and provides the sort of data you once obtained from an encyclopedia, only up to date!

STARS will be available from Tandy, and is an excellent investment. It is the perfect excuse (apart from CoCoLink!), to buy a modem.

Speaking of modems, there have been quite a number of Rainbow Bits modems sold now, and I'm pleased to report that they seem to be performing well. Brian and anonymous took on a major project with these modems, and I am pleased for them that the work has been worthwhile.

Greg always encouraged us to support the people who support CoCo. I know I'm biased because Brian put so much work into CoCoLink, but that works for you too, because you know that his modem will work at least with our BBS.

Back to downloads! As soon as we can download programs reliably, we will be offering special discounts on CoCo0z subscriptions taken through CoCoLink. We will also be seeking to get on the Austpac system - no point in that otherwise, till we're reliable!

We would encourage Ham radio operators to contact us if you would like to see a section for you on CoCoLink. We have set the space aside, so now is the time to claim it!

Currently there are help files for CoCo and the T100, and a wealth of other info on the board - even a list of steam engine museums! So its time to take the next step with your computer - come on, get yourself a modem and see what you're missing!

from P 16

Goodies, Font and Style

File allows you to print save and recall images.

A variety of print options are available, these include double-strike, double size plus standard size print out. Shift right arrow allows screen dumping at any time during drawing.

Edit, this one is used to cut and paste (editing features) also rubberstamping and is used to activate the special graphic effects such as invert, trace edges, flip etc.

Goodies, holds several nice features including Grid, Fat Bits, Show Page etc.

Font gives access to several type faces which Style, our next menu, is used to enhance.

And it goes on and on...

The depth Max has, must be used to be believed.

Max was supplied for review by Computerware for Micros, Peter has got himself a definite winner. The documentation is superb, although I must admit, but for a quick skim through, isn't needed that much, Max is that simple to use.

Look it's late, let me finish off by saying, if you are into graphics Max is for you, the Color Computer has now one of the most powerful graphics tools, this end of the home computer field.

The price for Max is \$149.95. This does not include Y cable or multi-pack interface.

I'm told on good authority that the tape version is not far off, it will retail at the same price.

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Farewell To A 'Pioneer,' A Look At Some Updates And A Review Of New Arrivals

By R. Wayne Day

This month, the look at slow-scan television will have to be delayed since there are several other things we need to look at, most of which have happened on The Color SIG (CCSIG) on CompuServe.

Pioneer BBS System Goes Offline

Bob Rosen, president of Spectrum Projects and the operator of a multiple host BBS system in Woodhaven, N.Y., and San Jose, Calif., announced on the CCSIG in January that due to circumstances beyond his control, his Rainbow Connection BBS system is going offline.

Bob's assistant SYSOP is no longer able to work on the system, and since Bob has relocated himself to sunny southern California, he is unable to maintain the system as it should be. Additionally, by the time you read this, his San Jose BBS will probably also be offline.

Bob was one of the first BBS operators to support the CoCo, and his Woodhaven BBS featured some of the old hands in the CoCo community such as Shawn Jipp, Alfredo, Jorge Mir and others.

Just like the newspaper publishing business, I'm always saddened to see a long-running BBS system be turned off, and the loss of the Rainbow Connection will surely be felt by many.

Two New Versions of WEFAX

Marty Goodman's *WEFAX.BAS* program (THE RAINBOW February '85, Page 42) has been modified at least three times now: once to support the Okidata 92 printer, again for the Gemini 10 series of printers and the newest version which supports the

Radio Shack printers. All of the new versions (*WEFAXG.BAS*, *WEFAXO.BAS* and *WEFAXR.BAS*) are resident in the DL2 database on The Color SIG if you're interested in downloading them directly. Or, if you'd like to take advantage of Marty's offer to supply a disk, check the February issue of THE RAINBOW for details on how to go about it and if you need one of the special versions, be sure and let him know.

If you're new to THE RAINBOW and haven't heard of *WEFAX.BAS*, pictures can literally be plucked out of the air with this program. *WEFAX.BAS* allows a person with a shortwave receiver to decode the audio directly from a facsimile station, such as a station that sends weather maps, without any hardware devices on a 64K Color Computer. The resulting pictures are nothing less than fantastic, and this program is a definite *must* for any serious, CoCo-equipped, shortwave listener.

Special thanks are due to Alexander "Sandy" Trevor, Glenn Little and Bill Tubbs for providing the new versions of *WEFAX*. Several other folks are also working on porting the program over to other printers, and there will probably be other versions available as well.

MIKEYTERM Debuts

Another program in the SIG/Access databases on the CCSIG is called *MIKEYTERM* and, as well-known author Dennis Kitz put it, it's "... probably the finest Color Computer smart terminal program you *can't* buy."

MIKEYTERM is a public domain smart terminal program that's now

AUSTRALIAN RAINBOW

available to all users of the CCSIG. It requires a 64K CoCo or CoCo 2 and will work on a system with or without disks.

MIKEYTERM supports both capture buffer (ASCII) file transfers and XMODEM, allowing the CoCo user to get the most flexibility out of his online communications effort, since most terminal programs do not support any kind of binary file transfer (machine language programs, graphics screens, etc.).

In its present version, *MIKEYTERM* allows the user to set up three predefined strings that will be sent out of the serial port when various control keys are pressed. For instance, in my application, I have one setup to dial the local CompuServe computer node, another to dial Star-Text, the videotext service of the Fort Worth Star-Telegram, and another that contains my ID for use on CompuServe.

Other control functions allow the receiving and sending of a file from the program's buffer (up to 42K long) using XMODEM, or another control function allows that same buffer to be sent using a straight buffer dump (it takes the buffer and just sends it out at 300 Baud, pausing only when the remote host sends an X-On or X-Off).

MIKEYTERM also supports an offline printer, allowing you to print either all or part of the receive buffer.

A separate configuration program allows the user to customize *MIKEYTERM* with his choice of cursor colors (two are selected - one for when the receive buffer is closed, another when the buffer is open), as well as some other

nice-to-have customizations.

At the time of this writing, *MIKEYTERM* has been a phenomenal success, not only in that so many folks have gotten it, but also that the SIG/Access databases are beginning to show the results of many new faces; those folks who had things to share with others, but just didn't seem to have the way to do it!

As good as *MIKEYTERM* is, though, it's important to note that it will probably not be the only terminal program you'll ever want to get. It doesn't have, for instance, complicated automatic login capability, and the file transfers are limited to the size of the buffer since *MIKEYTERM* does not read and write directly to and from the disk (or cassette) as some other terminal programs do. But, if you're looking for a hard-working, simple and useful terminal program with a lot of built-in flexibility, *MIKEYTERM* might just be what you're looking for.

If you're a CCSIG member (and membership is free to all CompuServe subscribers -- just go to Page PCS-126 and join, if you haven't already), you can find the *MIKEYTERM* files in the DL4 (Telecommunications) database.

If you're going to download the BASIC loader version (that lets folks who use non-protocol programs such as *Colorcom/E*, *VIP Term*, *VideoText*, *Autoterm*, etc., get the programs), you'll need to download the following files:

MTERM1.BAS
MTERM2.BAS
MTERM3.BAS

The documentation (produced by SIG member Don Hutchinson of Atlanta) is contained in three files:

MTD0C1.TXT
MTD0C2.TXT
MTD0C3.TXT

And finally, you'll need the configuration program:

CONFIG.BAS

There are also some additional utilities that can be used with *MIKEYTERM* in the DL4 database -- a quick `**BRO/KEY:MIKEYTERM**` will show you what's available.

There are two other ways you can get a copy of *MIKEYTERM*, especially useful if you're not a CompuServe subscriber. Mike has generously put this program in the public domain, and is encouraging folks to upload the program to their local BBS to share with all, so check on your local board

to see if someone has already placed *MIKEYTERM* there for you.

Finally, if you don't want to, or can't download *MIKEYTERM* from one of the available online sources, Mike will make available on disk the *MIKEYTERM* files, including the completed *BIN* version of *MIKEYTERM* (that's the one you actually LOAD and EXEC) if you will send him \$10 for the package (including printed documents). The disk will also include the ASCII BASIC programs, the documentation files (on disk), and a description of each disk file. It's a complete package for you to use and distribute to a friend or BBS if you wish. His address is: Mike Ward, 1807 Cortez, Coral Gables, FL 33134.

Although the current version of *MIKEYTERM* runs only at 300 Baud, there are rumors from the Miami area that a new version of *MIKEYTERM* that supports the RS-232 ROM Pak (and the PBJ 2SP serial card) is in beta testing right now. An announcement of availability of that version of *MIKEYTERM* will be made both on the CCSIG and in this column.

What About OS-9?

One of the biggest reasons OS-9 and BASIC09 programs have been hard to come by on bulletin boards and the OS-9 Forum on CompuServe is the lack of any terminal programs that supported reading from and writing to OS-9 system disks. That's changing very rapidly, now.

There's beginning to be a veritable plethora of commercially produced CoCo OS-9 terminal programs, and from initial reports, some of them are very good indeed.

But what about public domain terminal programs for OS-9? Well, on The Color SIG and The OS-9 Forum (on CompuServe, GO PCS-18), three new additions to the OS-9 terminal family have arrived.

First on our list of new arrivals is *LTERM*, written in BASIC09 by Mike Randazzo.

LTERM requires the RS-232 Deluxe ROM Pak and works with the normal 32 x 16 character screen, *O-Pak's* graphics screens or the *Word-Pak*. It supports uploading and downloading of ASCII files up to 12K long, and the documentation is built into the program -- it's that simple to operate and use! *LTERM* operates only at 300 Baud.

LTERM has been modified so it will run at either 300 or 1200 Baud in a "dumb" terminal emulation. The BASIC09 file is called, appropriately enough, *DTERM.B09*, and is designed to be

used with the RS-232 ROM Pak and the PBJ *Word-Pak*.

Last on our list of new OS-9 public domain programs is *HITERM*, produced by Bill Brady. *HITERM* is available in DL6 of both The Color SIG and the OS-9 SIG, and comes in two varieties: one version supports *O-Pak* and a modified 64 x 24 character graphics screen and the other version is designed specifically for use with the PBJ *Word-Pak's* 80-column screen.

The PBJ *Word-Pak* files have the extension *.WPK*, while the *O-Pak* files are extended as *.B09*. All of the files are written in BASIC09 and require the RS-232 ROM Pak.

To run *HITERM*, you'd need:

HITERM.DOC
HITERM.WPK or HITERM.B09
MENU.WPK or MENU.B09
AUTOLD.WPK or AUTOLD.B09
UPLFIL.WPK or UPLFIL.B09

So, as you can see, whether you're using a commercially produced OS-9 terminal program or one of the various public domain programs available, there's little doubt that CoCo OS-9 is taking to online communications like a duck to water!

Why the Emphasis on Public Domain?

At this point in the column, you might be wondering why the emphasis on public domain programs this month?

Consider the first public computer bulletin board, Ward and Randy's BBS in Chicago, Ill. Prior to Ward and Randy coming online, CP/M users around the country were a very fragmented group of individuals, although there were the occasional users groups. Mainly, though, folks struck out on their own.

Then this electronic meeting hall we call a BBS appeared and for the first time, computer users could, at their convenience, check in to see what the latest gossip was, who was doing what and how, and could actually share programs among themselves. It was this spirit of "sharing the wealth" that has led, I believe, to the massive popularity of personal computers we see today.

You can see it in THE RAINBOW, too. I'm sure there aren't very many RAINBOW contributors who can quit their regular job and write programs exclusively as their sole source of income, so there's got to be another reason.

We all started pretty much the same on the CoCo wondering what we could do, experimenting with this concept or

that, and we shared our ideas and programming examples with others.

This does not mean that commercial ventures and commercial programs have no place in the CoCo Community, of course they do! And we should help encourage those producers to keep on doing the fine job they've been doing so those of us who can't program a spreadsheet, or a database program, or even a terminal program, can continue to learn and grow with our favorite computer.

The next time you're on your favorite BBS or online service downloading that nifty new program, remember to say "thanks" to those who have donated their handiwork for your enjoyment.

Your thanks will be all the payment the public domain author will get!

This 'N' That

In a little better news for the month, Bob Rosen of Spectrum Projects, mentions that *Colorcom/E* will be showing up in a radically new version by the time you read this. Bob hints at such things as XMODEM support, as well as some other goodies.

And, Phil Zweigert, the co-author of *Autoterm*, is getting ready to debut his new version of *Autoterm* which, incidentally, also includes XMODEM support.

Needless to say, CoCo communications have come a long way from the time *Videotext* on tape was the only terminal program available for the CoCo!

A rumor that reached me this winter which has very good ramifications for CoCo users is that the Express Order Service of Radio Shack, where you can order non-Tandy software through the local stores, has taken a good look at terminal programs for the CoCo. It seems that, now, they won't even look twice at a terminal program unless it includes some sort of protocol file transfer, preferably XMODEM. That's something that can only help the average CoCo communicator!

I ran across an interesting *Videotext* service you might be interested in, especially if you live in or around the Boston, Mass., area.

The Yellow-Data-Pages is a free information service, available at (619) 489-4930 (300/1200 Baud). Among the data you'll find are listings for entertainment in and around Boston, classified ads, as well as quite a bit of off-the-cuff humor. It's well worth the call!

Looking Forward

The November '85 issue of THE May, 1985.

RAINBOW will again be dedicated to telecommunications, and this year there are a couple of things I'd like to do.

First off, quite a few folks seem to be interested in becoming a SYSOP on their own BBS system, and quite often I am asked "What's available, how much is it, what do I need to run it, and where do I get it?" So, here's a call to all of you who are either selling a BBS package commercially, or have one you'd like to share with others.

Please drop me a line (my address is below) and give me the following information:

- 1) The name of the BBS package.
- 2) If it was not written by you, who wrote it.
- 3) The price or, if you're willing to share it with others, how they go about getting a copy of it.
- 4) The minimum system configuration (64K CoCo with two drives and RS-232 ROM Pak, etc).
- 5) Any system expansion you support (i.e., adding a hard disk or two more drives, real time clock, etc.).
- 6) What Baud rates, word lengths and parity the BBS supports or requires.
- 7) Does it include ASCII (capture buffer with control-R/ control-T) up- and downloading?

8) Does it include protocol (XMODEM, DFT, etc.) up- and downloading?

9) Does it support online high resolution graphics for any terminal type?

10) Finally, if the BBS is online, anywhere, please give me a telephone number we can use to look at the product and get a general impression of how it works.

The deadline for getting all the information to me is August 1, 1985. Please note the information I need is separate from any product review on your BBS that you may desire. So, if you're selling a BBS package, by all means still send a review copy to THE RAINBOW editorial offices in Prospect, Ky.

Wrapping it Up

If all goes well, the June issue will have our delayed look at slow-scan television, along with a couple of other goodies.

Remember, you can contact me one of four ways: Wayne Day, P. O. Box 79074, Fort Worth, TX 76179-0074; CompuServe: 76703,376; MCI Mail: 201-7723; or through the editorial offices of THE RAINBOW. Please remember to enclose a SASE if you desire a quick response.

NEW LISTINGS

A/C	Number	City	BBS Name	Remarks
201	572-0617	Highland Park, NJ	Colorama	
201	657-0611	Lakehurst, NJ	Color Corner	
212	682-0681	New York City, NY	Grand Central Terminal	
301	736-9425	Forestville, MD	Colorama	
404	924-1248	Acworth, GA	CCBBS	
602	245-0488	Phoenix, AZ	CoCo Net	
609	448-1361	Larencville, NJ	The Tardis	
609	448-7768	East Windsor, NJ	CoCo Enterprise	
619	368-3478	unknown, CA	Inner Connection	
714	350-2668	Fontana, CA	Color Corner	
716	248-2743	Rochester, NY	Spectra-80	
805	656-3746	unknown, CA	OS-9 Section	
803	669-3275	Florence, SC	Pro-Color Board 300 1200	
805	687-9400	Santa Barbara, CA	CoCo Corner #1 300 1200	HQ SYS
817	767-5847	Wichita Falls, TX	Commnet-80	
818	334-2864	Arcadia, CA	Color America BBS	

CHANGE LISTINGS

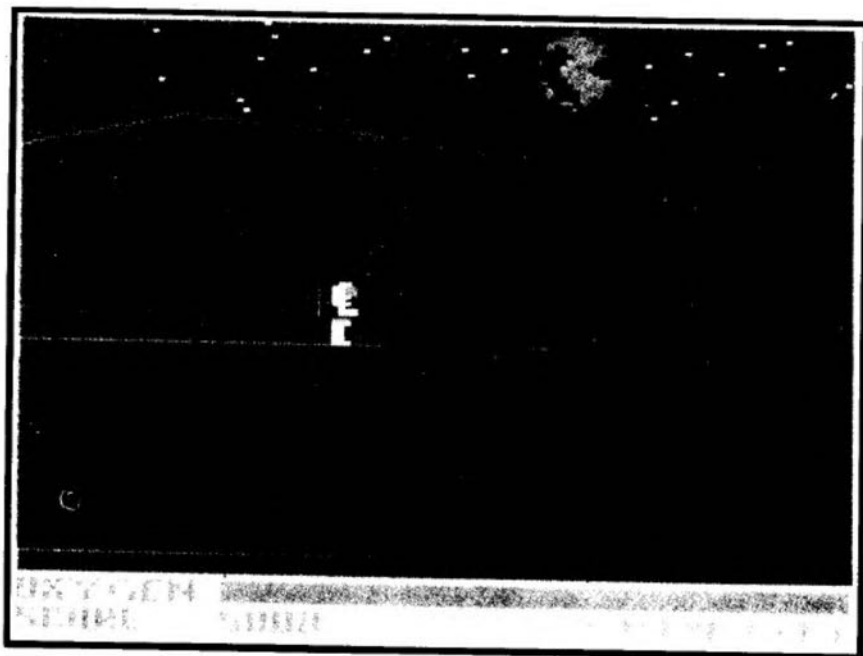
A/C	Number	City	BBS Name	Remarks
219	234-9717	Mishawaka, IN	Sagcom	New Phone #
201	725-5028	Manville, NJ	C.C.I.E.	Now HQ SYS
212	441-3755	Woodhaven, NY	Rainbow #1	Now Offline
212	441-3766	Woodhaven, NY	Rainbow #2	Now Offline
212	441-5719	Woodhaven, NY	Rainbow #3	Now Offline
212	441-5907	Woodhaven, NY	Rainbow #4	Now Offline

Run For Your Life!

32K
ECB

the
RAINBOW

Stranded . . .
weaponless . . .
oxygen running out . . .



By Michael Repasy

Senario: You were on a spaceship traveling to your home planet. The ship sustained heavy damage due to a meteor shower. You were ejected from the ship in a space pod. Your space pod landed just 20 miles from a small military base on a strange planet. You must walk to the base if you are to survive. There are many obstacles blocking your way and you have only enough oxygen to make it to the base with little or no delays.

The ending to this story is up to you and your playing skills. Death can occur by hitting the obstacles or by running out of oxygen. There is that small possibility you will make it to the base. Whatever happens, I hope you'll have fun. Good luck! (You will surely need it.)

Instructions

- 1) Before typing in the program, for those of you with disk drives, make sure you unplug the disk controller.
- 2) To move your man forward, just move your joystick right. To make your man stop, move your joystick left. To make your man jump, press the firebutton.
- 3) The obstacles you will face include spider webs, water, pits and sharp crystals. If you hit any of the obstacles, except the pits, you will die. If you hit a pit, you will fall down to the lower level.
- 4) Avoiding the obstacles isn't very hard; all you must do is jump over them.
- 5) When you die by hitting an obstacle, you don't lose the game. You have two men in reserve you can use. However, if you die by running out of oxygen, then you lose the game.

- 6) Every 20 boards you get a 5,000 point bonus and you get to choose on which level to place your man. If you fall down a pit, you lose 250 points. If you reach the base, your final score will be computed.
- 7) The computer will list the top 10 scores at the end of the game. If you are one of the top 10, you will be asked to enter your initials. This is done as in the arcade; you move the blinking blue box around the letter of your choice and press the firebutton to enter that letter. If you circle the word "enter" or you reach the maximum of five letters, the computer will store your name. If you make a mistake, circle the word "clear." This will allow you to reenter your name.
- 8) The oxygen level and the number of men you have in reserve are shown at the bottom of your playing screen.

Now you know all that you need to


```

3000
1130 GOTO 1000
1200 IF JOYSTK(0)>45 THEN T=8 ELSE T=0
1210 OY=Y
1220 FOR C=1 TO 3
1230 PUT(X,Y)-(X+24,Y+18),CM
1240 Y=Y-4:X=X+T:IF X>208 THEN GOSUB 1400:Y=OY:GOTO 1000
1250 PLAY"L25502CE"
1260 PUT(X,Y)-(X+24,Y+22),MJ
1270 NEXT C
1280 FOR C=1 TO 3
1290 PLAY"AF"
1300 PUT(X,Y)-(X+24,Y+18),CM
1310 Y=Y+4:X=X+T:IF X>208 THEN GOSUB 1400:Y=OY:GOTO 1000
1320 IF Y=OY THEN 1340
1330 PUT(X,Y)-(X+24,Y+22),MJ
1340 NEXT C
1350 OC=OC+6
1360 RETURN
1400 PCOPY5TO1:PUT(0,0)-(255,28),ST
1405 BN=BN+1:IF BN=200 THEN 5000 ELSE IF BN/20=INT(BN/20) AND BN<>0 THEN 2600
1410 R=RND(20)*8+40
1420 T=RND(6):IF T=BT THEN 1420 ELSE BT=T
1430 ON BT GOTO 1440,1450,1460,1470,1480,1450,1470
1440 PUT(R,2)-(R+24,26),P1:GOTO 1490
1450 PUT(R,2)-(R+24,26),P2:GOTO 1490
1460 PUT(R,2)-(R+24,26),P3:GOTO 1490
1470 PUT(R,2)-(R+24,26),P4:GOTO 1490
1480 PUT(R,2)-(R+24,26),P5:GOTO 1490
1490 DRAW"BM0,40C3"+LS$(RND(5))
1500 PUT(X,Y)-(X+24,Y+18),CM
1510 X=0
1530 IF Y>105 THEN 1630
1540 ON BT GOTO 1550,1560,1570,1580,1590,1600
1550 PUT(0,100)-(255,105),F2:GOTO 1610
1560 PUT(0,100)-(255,105),F3:GOTO 1610
1570 PUT(0,100)-(255,105),F4:GOTO 1610
1580 PUT(0,100)-(255,105),F5:GOTO 1610
1590 PUT(0,100)-(255,105),F6:GOTO 1610
1600 PUT(0,100)-(255,105),F7
1610 PUT(0,165)-(255,170),F1
1620 GOTO 1710
1630 ON BT GOTO 1640,1650,1660,1670,1680,1690
1640 PUT(0,165)-(255,170),F8:GOTO 1700
1650 PUT(0,165)-(255,170),F9:GOTO 1700
1660 PUT(0,165)-(255,170),F0:GOTO 1700
1670 PUT(0,165)-(255,170),FA:GOTO 1700

```

PAGE 38

```

1680 PUT(0,165)-(255,170),FB:GOTO 1700
1690 PUT(0,165)-(255,170),F1
1700 PUT(0,100)-(255,105),F1
1710 X=0
1720 RETURN
1800 COLOR4,1
1805 IF ML=-1 THEN 5000
1810 LINE(172,182)-(178,190),PSET,BF
1820 DRAW"BM173,182C2"+N$(ML)
1830 RETURN
1840 PUT(65,182)-(115,190),CI
1850 A$=STR$(SC)
1860 FOR T=2 TO LEN(A$)
1870 DRAW"BM"+STR$(49+T*8)+",182C2"+N$(VAL(MID$(A$,T,1)))
1880 NEXT T
1890 RETURN
2000 PUT(X,Y)-(X+24,Y+18),CM
2010 SC=SC-250:GOSUB 1840
2020 IF X>80 AND X<128 THEN X=116
2030 IF X>128 THEN X=180
2040 IF X<80 THEN X=48
2050 FOR Y=81 TO 143 STEP 2
2060 PUT(X,Y)-(X+24,Y+18),M2
2070 LINE(X+8,Y-3)-(X+24,Y-1),PRESET,BF
2080 NEXT Y
2090 Y=146
2100 LINE(X,Y)-(X+24,Y-3),PRESET,BF
2110 IF SC=0 THEN 5000
2120 GOTO 1000
2200 IF PPOINT(X+18,Y+19)=7 THEN RETURN
2210 GOTO 2400
2300 IF BT>3 THEN 2200
2310 IF PPOINT(X+18,Y+19)=7 THEN RETURN
2320 GOTO 2000
2400 PUT(X,Y)-(X+24,Y+18),M2
2405 FOR T=0 TO 17
2410 GET(X,Y+T)-(X+24,Y+17),DM
2420 LINE(X,Y+T)-(X+24,Y+T),PRESET
2430 PUT(X,Y+T+1)-(X+24,Y+18),DM
2440 NEXT T
2450 DRAW"BM"+STR$(X+8)+", "+STR$(Y+18)+"C4NR16U12E4R8F4D12":PAIN T(X+12,Y+17),4,4:PMODE4,1:DRAW"BM"+STR$(X+10)+", "+STR$(Y+6)+"CON D6R2FDGLF2DBR3R2LU6LR2BR3ND6R2FDGL2":PMODE3,1
2460 ML=ML-1:GOSUB 1800
2470 PLAY"T2L401CP96CL3FL4P24CFA P64CFAP64GFAFA02C01AFCP64CP96CL3 F"
2474 LINE(X,Y)-(X+24,Y+18),PRESET,BF
2475 X=0
2480 GOTO 1000
2600 PUT(X,Y)-(X+24,Y+18),CM:PCOPY4TO5:PCLS
2610 COLOR2,1
2620 FOR T=0 TO 9
2630 LINE(T,T)-(256-T,192-T),PSET,BF
2635 NEXT T
2640 DRAW"BM68,26C4"+L$(3)+L$(15

```

AUSTRALIAN RAINBOW

```

)+L$(14)+L$(7)+L$(18)+L$(1):DRAW L$(4)+L$(21)+L$(12)+L$(1)+L$(20)+L$(9)+L$(15)+L$(14)+L$(19)+"BDBL4M68,35"
2650 DRAW"BM46,50C3"+L$(25)+L$(15)+L$(21)+"BR8"+L$(8)+L$(1)+L$(22)+L$(5)+"BR8":DRAW L$(18)+L$(5)+L$(1)+L$(3)+L$(8)+L$(5)+L$(4)+"BR8":DRAW L$(20)+L$(8)+L$(5)
2660 A$=STR$(BN)
2670 FOR T=2 TO LEN(A$)
2680 DRAW"BM"+STR$(30+T*8)+",60"+N$(VAL(MID$(A$,T,1)))
2690 NEXT T
2700 DRAW"BM"+STR$(LEN(A$)*8+38)+",60"+L$(20)+L$(8)+"BR8"
2710 DRAW L$(2)+L$(15)+L$(1)+L$(18)+L$(4)+"BD6RULDBR4BU6":DRAW L$(25)+L$(15)+L$(21)+"BR8"+L$(7)+L$(5)+L$(20)+"BR8"
2720 DRAW L$(1)+"BM46,70"+N$(5)+"BR8BU6"+L$(15)+L$(15)+L$(15)+"BR8":DRAW L$(16)+L$(15)+L$(9)+L$(14)+L$(20)+"BR8"
2730 DRAW L$(2)+L$(15)+L$(14)+L$(21)+L$(19)+"BR8":DRAW L$(16)+L$(12)+L$(21)+L$(19)
2740 DRAW"BM46,80"+L$(25)+L$(15)+L$(21)+"BR8":DRAW L$(3)+L$(8)+L$(15)+L$(15)+L$(19)+L$(5)+"BR8":DRAW L$(20)+L$(8)+L$(5)+"BR8"
2750 DRAW L$(12)+L$(5)+L$(22)+L$(5)+L$(12)+"BR8":DRAW"BM46,90"+L$(20)+L$(15)+"BR8":DRAW L$(16)+L$(12)+L$(1)+L$(3)+L$(5)+"BR8"
2760 DRAW L$(25)+L$(15)+L$(21)+L$(18)+"BR8":DRAW L$(13)+L$(1)+L$(14)+"BR4BD6RUL"
2770 DRAW"BM68,110C4"+L$(1)+"M4+3M-4,+3BR12BU6C3"+L$(6)+L$(15)+L$(18)+"BR8":DRAW L$(20)+L$(15)+L$(16)+"BR8":DRAW L$(12)+L$(5)+L$(22)+L$(5)+L$(12)
2780 DRAW"BM68,125C4"+L$(2)+"M4+3M-4,+3BR12BU6C3"+L$(6)+L$(15)+L$(18)+"BR8":DRAW L$(2)+L$(15)+L$(20)+L$(20)+L$(15)+L$(13)+"BR8":DRAW L$(12)+L$(5)+L$(22)+L$(5)+L$(12)
2790 A$=INKEY$:IF A$="" THEN 2790
2792 IF A$="A" THEN Y=81:GOTO 2800 ELSE IF A$="B" THEN Y=146:GOTO 2800 ELSE 2790
2800 PCLS
2810 PCOPY5TO4:PCOPY1TO5
2820 SC=SC+5000:GOSUB 1840
2830 GOTO 1410
3000 OC=0:OL=OL-2
3010 COLOR4,1:LINE(65+OL,172)-(65+OL,180),PSET
3020 IF OL<1 THEN 5000
3030 RETURN
4000 PMODE3,1:PCLS
4005 PCLS2
4007 FOR T=1 TO 20 STEP 2:LINE(28-T,30+T)-(0,30+T),PRESET:LINE(28-T,80+T)-(0,80+T),PRESET:NEXT T
4010 DRAW"BM68,50C4E20R60G20L60R

```

May, 1985.


```

10NE5R10E10H4L5E10L20BD5BR2R6BR12
BU5R20G20L10BE5E15R17BG5G15R6BE5
E15"
4020 DRAW"BM148,50C4E20R60G20L40
E15NL10NE5G5L10G10L10BR30DE5E10B
E5R30G10NL5G10L10NE5L10E20BD5BR2
R6"
4030 DRAW"BM127,100E10L5E10R80G20
L60E10NE10L5G10L10BU20BR25NG5R20
BG5NG10BE5R20NG15BR20BG15G5R10E1
0HL5E10L20NG20L20NG20BR22BD5R6"
4040 DRAW"BM128,100E20R10C15R10N
G5R5E10L5E5R60G7NL10G6NL10G7L20E
15HL10NE5G5L10G10L10NE20E5L5E10R
5G15L40"
4050 PAINT(0,0),1,4
4051 PHODE4,1:SCREEN1,1:PHODE3,1
4055 FOR TT=1 TO 2
4060 FOR T=0 TO 208 STEP 8
4065 PLAY"L12R02CE"
4070 A=A+1:IF A>4 THEN A=1
4080 ON A GOTO 4090,4100,4110,41
00
4090 PUT(T,120)-(T+24,138),M1:GO
TO 4120
4100 PUT(T,120)-(T+24,138),M2:GO
TO 4110
4110 PUT(T,120)-(T+24,138),M3
4120 COLOR3,1:LINE(T,130+T*9)-(
T+24,130+T*9),PSET,BF
4125 NEXT T
4126 LINE(200,130+T*9)-(255,139
+T*9),PSET,BF
4130 LINE(200,120)-(255,138),PRE
SET,BF
4132 ON TT GOSUB 4140,4150
4135 NEXT TT
4137 GOTO 4160
4140 DRAW"BM156,141C1"+L$(2)+L$(2
5)+"BR8"+L$(13)+L$(9)+L$(3)+L$(8
)+L$(1)+L$(5)+L$(12)+"BR8":DRAW
L$(18)+L$(5)+L$(16)+L$(1)+L$(19)
+L$(25):RETURN
4150 DRAW"BM134,150C1"+L$(16)+L$(
18)+L$(5)+L$(19)+L$(19)+"BR8":DR
AW L$(1)+L$(14)+L$(25)+"BR8"+L$(
11)+L$(5)+L$(25)+"BR8":DRAW L$(2
0)+L$(15)+"BR8":DRAW L$(2)+L$(5)
+L$(7)+L$(9)+L$(14):RETURN
4160 IF INKEY$="" THEN 4160
4170 RETURN
5000 IF BH=200 THEN 6000
5010 COLOR3,1:LINE(88,65)-(168,7
5),PSET,B:PAINT(128,70),4,3
5020 DRAW"BM192,67C2"+L$(7)+L$(1)
+L$(13)+L$(5)+"BR8"+L$(15)+L$(22
)+L$(5)+L$(18)
5030 FOR T=1 TO 2500:NEXT T
5040 GOTO 7000
6000 GOSUB 1400
6010 PUT(0,100)-(255,105),F1
6020 PUT(0,165)-(255,170),F1
6030 DRAW"BM130,99C4U10L20H10U10
E10R6OF10R20E10R45BD30L5D10L20U1
0L20H10L20G10L20D10L20"
6040 PAINT(130,80),2,4
6050 DRAW"BM130,106C4R20U28R20F1
0R20E10R20U28R20D28R5BD30L45H10L
20G10L60H10U10E10R20U28"
6060 PAINT(160,140),2,4
6070 DRAW"BM164,99C4NR24ENR22ENR2

```

```

0ENR18R4C2H+6,-12NH+6,+12E8NU4G1
6HL4U16HR16F4"
6080 COLOR4,1:LINE(0,171)-(255,1
92),PSET,BF
6090 DRAW"BM10,172C1"+L$(25)+L$(1
5)+L$(21)+"BR8":DRAW L$(13)+L$(1
5)+L$(4)+L$(5)+"BR8":DRAW L$(9)+L
$(20)+"BR8"
6100 DRAW L$(20)+L$(15)+"BR8":DR
AW L$(20)+L$(8)+L$(5)+"BR8":DRAW
L$(2)+L$(1)+L$(19)+L$(5)+"BR8"
6110 DRAW L$(1)+L$(14)+L$(4)+"BR
8":DRAW"BM10,180"+L$(25)+L$(15)+L
$(21)+"BR8"
6120 DRAW L$(23)+L$(15)+L$(14)+"
BR8":DRAW L$(20)+L$(8)+L$(5)+"BR
8":DRAW L$(7)+L$(1)+L$(13)+L$(5)
+"BDGUBU5BR8"
6130 DRAW L$(14)+L$(9)+L$(3)+L$(
5)+"BR9":DRAW L$(10)+L$(15)+L$(2
)+L$(4)+L$(3)+L$(4)+L$(3)+L$(2)+L
4UBU2U3"
6140 PHODE4,1
6150 DRAW"BM163,50C1"+L$(25)+L$(1
5)+L$(21)+L$(18)+"BR8":DRAW L$(1
9)+L$(3)+L$(15)+L$(18)+L$(5)
6160 SC=SC+5000+OL*1000+ML*15000
6170 A$=STR$(SC)
6180 FOR T=2 TO LEN(A$)
6190 DRAW"BM"+STR$(134+T*8)+",50
"+N$(VAL(MID$(A$,T,1)))
6200 NEXT T
6210 FOR T=1 TO 10000:NEXT T
6220 PHODE4,1:SCREEN1,1:PHODE3,1
:GOTO 7000
7000 FOR T=1 TO 10
7010 IF SC>=HS(T) THEN X=T:GOTO
7500
7020 NEXT T
7030 GOTO 8000
7500 FOR T=9 TO X STEP -1
7510 HS(T+1)=HS(T)
7515 HS$(T+1)=HS$(T)
7520 NEXT T
7525 HS$(X)=""
7530 HS(X)=SC
7535 HN=X
7540 PCLS
7550 DRAW"BM15,10C3"+L$(25)+L$(1
5)+L$(21)+L$(18)+"BR8":DRAW L$(1
9)+L$(3)+L$(15)+L$(18)+L$(5)+"BR
8":DRAW L$(9)+L$(19)+"BR8"
7560 DRAW L$(15)+L$(14)+L$(5)+"B
R8":DRAW L$(15)+L$(6)+"BR8":DRAW
L$(20)+L$(8)+L$(5)+"BR8"
7570 DRAW L$(20)+L$(15)+L$(16):D
RAW"BM15,20"+L$(20)+L$(5)+L$(14)
+"BR8"
7580 DRAW L$(20)+L$(15)+L$(4)+L$(
1)+L$(25)+"D3BD2DDBR8BU6":DRAW L
$(16)+L$(12)+L$(5)+L$(1)+L$(19)+
L$(5)+"BR8"
7590 DRAW L$(5)+L$(14)+L$(20)+L$(
5)+L$(18)+"BR8":DRAW L$(25)+L$(
15)+L$(21)+L$(18)+"BR8"
7600 DRAW"BM15,30"+L$(9)+L$(14)+
L$(9)+L$(20)+L$(9)+L$(1)+L$(12)+
L$(19)+"BD6U"
7610 FOR T=0 TO 12
7620 DRAW"BM"+STR$(16+T*18)+",50
C4"+L$(T+1)

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```

7630 DRAW"BM"+STR$(16+T*18)+",70
"+L$(T+14)
7640 NEXT T
7650 DRAW"BM16,90"+L$(5)+L$(14)+
L$(20)+L$(5)+L$(18)
7660 DRAW"BM12U2,90"+L$(3)+L$(12)
+L$(5)+L$(1)+L$(18)
7665 X=16
7668 CT=0
7670 H=JOYSTK(0):V=JOYSTK(1)
7675 IF V>42 THEN 7750
7680 IF H>50 THEN X=X+18:IF X>23
2 THEN X=232
7690 IF H<14 THEN X=X-18:IF X<16
THEN X=16
7700 IF V<21 THEN Y=48 ELSE Y=68
7710 COLOR2,1:LINE(X-4,Y)-(X+12,
Y+12),PSET,B:LINE(X-4,Y)-(X+12,Y
+12),PRESET,B
7715 P=PEEK(65280):IF P=126 OR P
=254 THEN 7730
7720 GOTO 7670
7730 A=INT((X-16)/18)+1:IF Y=68
THEN A=A+13
7732 HS$(HN)=HS$(HN)+L$(A)
7734 DRAW"BM100,120C3S8"+HS$(HN)
+"S4"
7736 PLAY"L25505BGFDG"
7737 CT=CT+1:IF CT=5 THEN CT=0:G
OTO 8000
7738 GOTO 7680
7750 H=JOYSTK(0):V=JOYSTK(1)
7760 IF V<43 THEN X=16:GOTO 7670
7780 IF H<31 THEN X=14 ELSE X=20
0
7790 COLOR2,1:LINE(X,88)-(X+42,9
8),PSET,B:LINE(X,88)-(X+42,98),P
RESET,B
7800 P=PEEK(65280):IF P=126 OR P
=254 THEN 7820
7810 GOTO 7750
7820 IF H<31 THEN 8000 ELSE CT=0
:HS$(HN)="" :GOTO 7540
8000 PCLS
8010 COLOR3,1:LINE(48,20)-(208,1
30),PSET,B
8020 LINE-(48,10),PSET,B
8030 DRAW"BM104,12C4"+L$(20)+L$(
15)+L$(16)+"BR8"+N$(1)+"BR6BU6"+
N$(0)
8040 FOR T=1 TO 10
8050 DRAW"C2BM164,"+STR$(13+T*10)
+HS$(T)
8060 A$=STR$(HS(T)):IF HS(T)=0 T
HEN 8080 ELSE FOR TT=2 TO LEN(A$
):DRAW"BM"+STR$(116+TT*8)+",+ST
R$(13+T*10)+N$(VAL(MID$(A$,TT,1)
)):NEXT TT
8080 NEXT T
8090 DRAW"BM150,140C4"+L$(1)+L$(1
4)+L$(15)+L$(20)+L$(8)+L$(5)+L$(
18)+"BR8":DRAW L$(7)+L$(1)+L$(13
)+L$(5)+"BR4G2D2F2BR4BU6":DRAW L
$(25)+"BR4H-4,+6BR8BU6"+L$(14)+
F2D2G2BR8BU5UR4D3L2BD2D"
8100 A$=INKEY$:IF A$="" THEN 810
0
8110 IF A$="Y" THEN CLS:PRINT:GO
TO 40 ELSE IF A$="N" THEN 8120 E
LSE 8100
8120 POKE 65494,0

```

Get It Together With Disk Merge

By Paul Gani

Having finally transferred all of my programs from cassette to disk, I was left with a new problem. I had put the contents of each of my cassettes onto a different diskette, and I suddenly found out I was running out of empty ones.

Since each of my diskettes had at least 30 free grants left, I decided to merge them all together. But that left me with a huge task, for that would necessitate typing the syntax for *COPY* dozens of times. To alleviate that problem I wrote *Disk Merge*.

Disk Merge is a form of Disk BASIC's *BACKUP* routine. However, it does not obliterate the data on the diskette to which you are transferring the programs, but rather, as the name suggests, merges the contents of the two together.

To run it, simply enter the program and type *RUN*. If you are using two drives, the program will work automatically. If you only have one drive, you

will be prompted to exchange diskettes when necessary. You will have to switch diskettes for every program on the source disk. It may be annoying if you have a few dozen of them, but the other alternative is typing *COPY* "name/ext" for each program. Here, you just have to press *ENTER* when prompted.

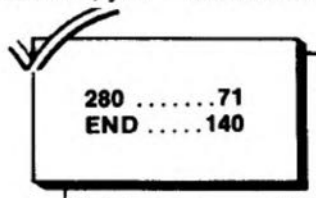
The program listing is rather short because I realize most of you do not want to type in a long program if you have not seen it. Thus, you may run across a few problems when using *Disk Merge*. First, if you have a program on the destination disk with the same name as on the source disk, you will get an error and the program will crash. Just be sure to check for matching names.

Another bug you may find is if the destination disk becomes full, you will also get an error and the program will crash again. Check beforehand using the *FREE* command.

The final "bug" is not a bug in the program, but rather in the Disk BASIC *COPY* command. If for some reason a file is unreadable, you will not get an I/O Error, but rather the computer will freeze up. If the disk has stopped moving and there is no prompt, this has happened. Press *Reset* to get back to BASIC. To reduce the chance of an I/O Error, keep your drive(s) far away from each other and your TV or monitor. They are usually the main causes of I/O Errors.

The first two bugs mentioned can be fixed by putting in a few routines using *FREE* and *DSKI\$*. However, as I have said, I didn't want the program to be too long so I have left those projects for you to do.

If you have any questions about this program, feel free to write me at the address shown at the top of the program. I hope all of you find this program useful.



The listing:

```

10 * *****
20 * ***** DISK MERGE *****
30 * *****
40 * ** BY PAUL GANI *****
50 * ** 812 N. COLUMBUS AVE. **
60 * ** MARSHFIELD, WI 54449 **
70 * *****
100 CLS:GOTO 580
110 * MENU AND SELECTIONS
120 PRINT @ 3,"***** DISK TRANSF
ER *****"
130 PRINT @ 100,"SOURCE DRIVE:";
140 A$=INKEY$:IF A$="" THEN 140
150 S=VAL(A$):IF S>3 THEN 140
160 PRINT S
170 PRINT @ 132,"DESTINATION DRI
VE:";
180 A$=INKEY$:IF A$="" THEN 180
190 D=VAL(A$):IF D>3 THEN 180
200 PRINT D

```

```

210 PRINT @ 225,"PRESS <ENTER> T
O START....."
220 IF INKEY$="" THEN 220
230 * LOAD DIRECTORY-4 PER VAR
240 Y=3:FOR X=1 TO 17 STEP 2
250 DSKI$ S,17,Y,A$(X),A$(X+1)
260 Y=Y+1:NEXT X
270 * SEPARATE INTO SINGLE FILES
280 FOR X=1 TO 18
290 B$(X*4-3)=MID$(A$(X),01,11)
300 B$(X*4-2)=MID$(A$(X),33,11)
310 B$(X*4-1)=MID$(A$(X),65,11)
320 B$(X*4-0)=MID$(A$(X),97,11)
330 NEXT X
340 * SORT OUT FILES TO TRANSFER
350 FOR X=1 TO 72
360 IF LEFT$(B$(X),1)=CHR$(0) TH
EN 540
370 IF LEFT$(B$(X),1)=CHR$(255)
THEN 560
380 NA$=LEFT$(B$(X),8)+"/"+MID$(
B$(X),9,3)
390 PRINT @ 296,NA$
400 IF S=D THEN 460
410 * MULTI-DISK COPY
420 A1$=":"+RIGHT$(STR$(S),1)

```

```

430 A2$=":"+RIGHT$(STR$(D),1)
440 COPY NA$+A1$ TO NA$+A2$
450 GOTO 540
460 ' SINGLE DISK COPY
470 A1$=":"+RIGHT$(STR$(S),1)
480 COPY NA$+A1$
490 SOUND 100,5:CLS
500 PRINT "INSERT SOURCE DISKETT
E AND"
510 PRINT "PRESS 'ENTER' ";

```

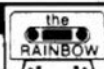
```

520 LINE INPUT A$
530 GOTO 540
540 ' INCREMENT TO NEXT FILE
550 NEXT X
560 ' END PROGRAM
570 PRINT @ 359,"FINISHED....."
:END
580 ' SET UP SYSTEM CONTROLS
590 PMODE 0:PCLEAR 1:CLEAR 5000
600 DIM A$(18),B$(72):GOTO 120

```

TAPE UTILITY

4K



How Not To Let The Bugs Bite In Your Cassette Merge Program

By John D. Boyle

There have been several articles on merging cassette-based programs in various CoCo magazines. All of these I have seen have a common bug which has the potential for bombing any attempted merges. The bug will appear in only 0.8 percent of the programs, and is a function of the length of the initial program.

Bug apart, there is an excellent introductory article on the merge procedure by John Nicoletto in the January 1983 *80 Micro*. Another good reference is "A Mixed Bag Of BASIC" in the August 1983 *RAINBOW* by Richard A. White.

The method operates by modifying the start of BASIC pointers contained in RAM locations 25 and 26 to be two less than the current end of BASIC pointers contained in RAM locations 27 and 28. This fools the BASIC loader into putting the second program behind the first. The subtraction of two is needed to eliminate the two locations used to identify end of program to the BASIC interpreter.

The method described works as long as the value in 28 is two or higher. When 28 is one or zero, there is a need to borrow one from Location 27 and this capability is not included in the published programs. Since any single byte (eight-bit) location has 256 possible values for its contents, the problem can show up 2/256 or around 0.8 percent of the time.

The bug is relatively obvious to anyone who did assembly language programming for the 6800 (the 6809 predecessor). For those who started on

the 6809 with its double precision (two-byte) instructions, the difficulty may be less clear. Compare the two assembly language programs shown in listings 1 and 2.

Listing 1: 6809 Assembly Code

```

LDD 27 get values in 27 & 28
SUBD #2 subtract 2 -borrow is automatic
STD 25 save result

```

Listing 2: 6800 Assembly Code

```

100 LDAB 28 fetch low byte
200 LDAA 27 fetch high byte
300 SUBB #2 subtract 2 from low byte
400 SRCA #0 take any borrow from high byte
500 STAB 26 save low byte
600 STAA 25 save high byte

```

The 6809 code is simpler and shorter because the 'D' instructions handle two bytes at once, and automatically take care of the borrow between the two bytes. The 6800 code requires one line to cater for the borrow possibility. Unfortunately, the *PEEK* and *POKE* capabilities of BASIC are like the 6800 in that they can only handle a single byte at a time. Hence, any attempt to carry out the double precision subtraction used in the merge procedure must build the capability for handling a borrow situation into the BASIC code.

Possibly the most elegant solution is to include the 6809 code shown above as a machine language subroutine.

However, only BASIC solutions will be discussed in this article.

Listing 3 contains the simplest equivalent of the 6800 instructions in BASIC. The only real complexity comes in the determination of whether or not a borrow occurred. This is done in Line 400. If FL is negative (less than zero), a borrow is needed from the upper byte. The lowest bit of the upper byte is worth 256. Therefore, when it is borrowed from FH, it is added to FL as 256. This is guaranteed to make FL positive and it can then be *POKED* into the answer location.

Listing 3: BASIC Program

```

100 FL=PEEK(28) fetch low byte
200 FH=PEEK(27) fetch high byte
300 FL=FL-2 subtract 2
400 IF FL>= 0 THEN 500 borrow needed?
450 FH=FH-1:FL=FL+256 yes!
500 POKE 26,FL save low byte
600 POKE 25,FH save high byte

```

Other methods are possible. Listing 4 gives an example. Here, the two bytes are combined into one using the 256 factor between bytes by multiplying and adding. The subtraction is then carried out before separating the bytes, again using BASIC's divide and *INT* (integer) functions.

Why are alternates important? They are most commonly investigated to obtain the best solution in terms of either execution speed or memory usage, but another important reason is for test purposes.

By running a program such as shown in Listing 5, which directly compares the results of two alternate methods, it is possible to use the computer to exhaustively test routines like this one and avoid obscure bugs. Such tests are time consuming, but are essential for commercial software. A bug in a commercial or industrial package can

Listing 4: Alternate BASIC Program

```
100 FL=PEEK(20) fetch low byte
200 FH=PEEK(27) fetch high byte
300 FC=FH*256+FL combine bytes
400 FC=FC-2 subtract
500 FH=INT(FC/256):FL=FC-256*FH separate bytes
600 POKE 26,FL:POKE 25,FH
```

be very expensive in terms of time, money and reputation. This and good documentation are two reasons for the often higher cost of good software.

Line 100 sets up start conditions for two consecutive memory bytes. Line 200 sets up a loop which will cycle the

program through all possible values of the lower byte. Lines 400-550 carry out one method of subtraction. Lines 700 and 800 carry out the second method.

Listing 5: Test Program

```
100 CLR:POKE1020,10:POKE1021,0
200 FORX=1TO256
300 T1=PEEK(1020):T2=PEEK(1021)
400 T2=T2-2
500 IF T2<0 THEN GOTO
550 T1=T1-1:T2=T2+256
600 T3=PEEK(1020):T4=PEEK(1021)
700 T5=T3+256+T4
800 T5=T5-2:T3=INT(T5/256):T4=T5-256+T3
900 IF T1-T3=0 AND T2-T4=0 THEN 1200
1000 PRINT"TEST FAIL"
1100 STOP
1200 POKE1020,T1:POKE1021,T2
1250 PRINT00,X
1300 NEXTX
1400 PRINT"TEST O.K."
1500 END
```

Line 900 compares and takes appropriate action.

Because the methods are both correct, this test will always show a successful completion. During the test the value of 'X' is printed on the screen to allow progress to be monitored. If lines 500 and 550 are deleted, thus ignoring the borrow situation, the test will fail at two values (zero and one) of Location 1021. The program halts with an error in this case. It can be run successfully by starting with a value of two for location 1021 in Line 100, thereby duplicating the error in the original program.

This method of testing does not apply to all types of programs, but where applicable it is a powerful tool in the software quality armory. The cassette merge procedure is a useful one, too, and I would encourage readers to learn and use it. It can also be used with advantage in some disk situations as an alternate to the *MERGE* command.

LOADING UTILITY

4K

Put Your Programs On 'Automatic'

By Jeffrey Dwight

If you've been programming in machine language for a while, you probably have a stockpile of simple utility programs (like printer spoolers, the *Rainbow Check PLUS* program, or keyboard simplifiers) which you're constantly *LOADING*, *EXECing* and then forgetting about.

After awhile, one starts to look longingly at those packaged software programs which auto-*EXEC* themselves and wonder "Could I . . . ?" The answer is yes, you certainly can. There is a primitive means of copy "protection" which you (and some software companies) can use to make *any* ML program self-*EXEC* after loading.

It's done by means of the interrupt vectors. For those folks without an Editor-Assembler, sorry; you have to include it in the program during assembly. The following listing is called *AUTOBOOT* and relies on the fact that an ML program can have multiple origins. Simply substitute your own program, of whatever length, for the lines between MAIN and ENDIT.

This program will function on any machine, 4K through 32K, cassette or

disk. There are three crucial things to note, otherwise the program may crash.

First, your ML program cannot rely on interrupts during execution — that is, your program is being inserted between an interrupt and its handling vector, so further interrupts will not occur until your program has finished execution.

Second, lines 58-60 must be the *very last* lines in your program. These lines change BASIC's normal procedures a bit, and must occur after the rest of the program has been successfully loaded.

Third, the only crucial origin is in Line 58 — the others may be changed to whatever suits your purposes. If you want to place the *BOOT* routine at the top of available memory, 32K users should change nothing. 16K users should make Line 44 read *ORG \$3FDD* and 4K users must change it to *ORG \$0FDD*.

Now, how it works. On startup, BASIC runs through a routine which puts values in a series of vectors, one of them being the "regular interrupt vector" which occurs approximately 60 times a second. BASIC then checks for

Extended BASIC, and if it's present, transfers control. Extended BASIC changes those vectors, and passes control on to Disk BASIC, if it's there. All interrupts are masked (inoperative) during I/O — that's why Extended BASIC's timer stops — and reenables immediately thereafter. If, during the loading process we change the vector, then the next interrupt will direct control to the new program.

Of course, the program must restore the old vector, and that's what lines 45 through 54 accomplish. These lines perform the same checks BASIC does to ascertain which vector is appropriate. This vector is then restored, but before we "clear" the interrupt and return control, we jump to the MAIN program.

The last thing the MAIN program does is reset BASIC's *EXEC* default (so you get an ?FC Error) and finish the interrupt process. And that's all there is to it. This technique will work with cassette or disk, and affords some degree of copy protection, though its main function is to save you a few keystrokes.

Tack the program's few lines onto the

end of yours and assemble it as usual. Then, when you *CLOADM* (or *LOADM*) your program, it will boot itself. Note: If you are using Radio Shack's *EDTASM+*, you will produce a Bad Memory Error if you assemble the program in memory. This is because *EDTASM+* will not assemble code

"below" hexadecimal \$600. Don't worry, the program will transfer to tape or disk perfectly well, and if you want to debug it in memory, use *A/IM/AO/NO* and *EDTASM+* will allow the procedure.

Obviously, this sort of program is not reentrant, and lines 40 and 41 ensure

you do not *reEXEC* it accidentally. *EXECing* your program twice would cause the processor to reenter the interrupt handling routines when it shouldn't, and your computer would definitely "hang up" or crash. Use this technique for programs you load only once; reload to *reEXEC*.

The listing:

```

00010 *****
00011 * *
00012 * AUTOBOOT LOADER 1.0 *
00013 * *
00014 * IF ADDED TO ANY M-L *
00015 * PROGRAM, IT WILL *
00016 * AUTOMATICALLY START *
00017 * THAT PROGRAM UPON *
00018 * LOADING. *
00019 * *
00020 * NOTE: INTERRUPT- *
00021 * DRIVEN PROGRAMS CAN'T *
00022 * BE BOOTED THIS WAY. *
00023 * *
00024 * JEFFRY DWIGHT *
00025 * JADE PRODUCTS *
00026 * 519 N. SCOTT STREET *
00027 * WHEATON, IL 60187 *
00028 * *
00029 *****
00030
00031
5500 00032 ORG $5500
5500 00033 MAIN *
00034 * START YOUR CODE HERE, OR AT
00035 * WHATEVER ORIGIN YOU WANT.
00036 *
00037 * REMEMBER TO HAVE A SINGLE EXIT
00038 * POINT AT "ENDIT"
00039 *
5500 8E B44A 00040 ENDIT LDX #$B44A ?FC ERROR ADDRESS
5503 9F 9D 00041 STX $9D BASIC'S EXEC DEFAULT
5505 6E 9F 010D 00042 JMP [$10D] PATCH TO VECTOR
00043
7FDD 00044 ORG $7FDD START OF NEW VECTOR
7FDD 7F FF40 00045 BOOT CLR $FF40 SHUT OFF DRIVES
7FE0 CE D7BC 00046 LDU #$D7BC PREPARE DISK VECTOR
7FE3 BE C000 00047 LDX $C000 EXAMINE ROMS
7FE6 8C 444B 00048 CMPX #$444B DISK CONTROLLER?
7FE9 27 0E 00049 BEQ BOOT1 IF YES, ALL DONE
7FEB CE 894C 00050 LDU #$894C PREPARE FOR ECB
7FEE BE 8000 00051 LDX $8000 EXAMINE ROM
7FF1 8C 4558 00052 CMPX #$4558 EXTENDED BASIC?
7FF4 27 03 00053 BEQ BOOT1 IF YES, ALL DONE
7FF6 CE A9B3 00054 LDU #$A9B3 DEFAULT IS BASIC
7FF9 FF 010D 00055 BOOT1 STU $10D REPLACE ORIGINAL VECTOR
7FFC 6E 9F 009D 00056 JMP [$9D] JUMP TO MAIN PROGRAM
00057
010C 00058 ORG $10C CHANGE WHILE LOADING
010C 7E 7FDD 00059 JMP BOOT VECTOR TO BOOT PROGRAM
5500 00060 END MAIN SET BASIC EXEC DEFAULT

```

00000 TOTAL ERRORS

COOKING
With
CoCo



Part VII

By Colin J. Stearman

Probably the most frustrating limitation of the Microsoft BASIC in CoCo is its lack of ability to trap errors. Even the best written programs generate errors and when they do, it's infuriating to have CoCo tell you how you messed up and then tell you with a condescending smirk that it's OK! It isn't OK, so we must do something about it.

Error Trapping

Most flavors of BASIC have a state-

(Colin J. Stearman is an electronics engineer educated in the U.K. He has worked with all kinds of computers and has been a CoCo enthusiast for over two years.)

ment similar to *ON ERROR GOTO nnn* which tells the interpreter that if an error occurs jump to line 'nnn' and continue running. Then at line 'nnn' we can write some lines which handle the error and continue the running of the program.

Because *ON* is already a BASIC keyword I decided to simplify the syntax. So here is a description of the error trapping command and some associated variables:

ERRORS

The syntax for the error directing line is *ERRORS GOTO nnn*, where 'nnn' is an existing line number or zero. When such a line is encountered in your program it simply tells the interpreter that, should an error occur, go to line 'nnn'. This command will stay in effect until another such line is encountered saying go to a different line on an error. Except if 'nnn' is a zero, error trapping is canceled and errors cause BASIC to

stop the program and report just as before (or nearly as before, as you will see).

If line 'nnn' does not exist, then a 'No such line number' error will occur if the statement is entered in the direct mode. However, if it is in a program, it will create an error itself, but the error will have nowhere to go, and the program will lock up. Pressing Reset is the only option left.

Because the line number follows a normal *GOTO* statement, the *RENUM* command will handle it correctly.

When any error occurs all *FOR...NEXT* loops and subroutine return addresses are canceled, allowing the error handling routine to jump to anywhere in the program without a problem.

ECODE

This numeric variable returns the current error code number. If no error

has yet been encountered, it will have the value -1, so if a NO SUCH FILE error was the most recent error, then doing a PRINT ECODE would print 26, the code number for that error. ECODE may be used just as any other numeric variable, but it may not be assigned a value by putting it on the left of an equal sign.

ELINE

This is also a numeric variable and all comments about ECODE apply equally to it. This returns the BASIC line number on which the most recent error occurred. If no error has yet occurred this variable will have the value of -1.

ENAMES

This is a string variable which contains the name of the most recent error. If no errors have yet occurred, ENAMES is a zero length string. All normal string manipulation functions may use it, but it too must not appear on the left of an equal sign.

The error code numbers returned by ECODE and the associated error strings are:

ECODE	ENAMES
0	NEXT without FOR
1	Syntax
2	Return without GOSUB
3	Out of Data
4	Function Call
5	Overflow
6	Out of Memory
7	No such line #
8	Subscript
9	Redimensioned Array
10	Divide by 0
11	Illegal Direct Command
12	Type Mismatch
13	Out of String Space
14	String too long
15	String too complex
16	Can't Continue
17	File Data
18	Already Open
19	Device Number
20	Read/Write
21	File Mode
22	File Not Open
23	Read past End of File

The listing:

```

1007 OPT LIS
1008 *****
1009 * PATCH #4 to RSDOS (C)1984 Colin Stearman *
1010 *****
1011 *
1012 * "BAUD" COMMAND CODE
1013 * SYNTAX IS BAUD(N) WHERE N =
1014 * 300,600,1200,2400,4800,9600
1015 *
DC62 RE 1016 BDCNST FCB #0E,#57,#29,#12,#6,#1 300,600,1200,2400
1017 * 4800,9600 BAUD CONSTANTS
1018 *

```

24	Direct Command in File
25	Undefined Function
26	No such File
27	Record #
28	Disk Full
29	Out of Buffer Space
30	Write Protect
31	File Name
32	Directory
33	File Exists
34	Field Overflow
35	Set to Non-Fielded String
36	Verify
37	Access past End of File

If no error trapping is set, BASIC will return these fully spelled out error messages followed by the word ERROR, instead of the cryptic question mark and two letter code.

Due to memory space limitations, ENAMES and fully spelled out error messages are not included in the patch to DECB 1.1.

SWAP

The final BASIC command to be added is SWAP. This has no connection with error trapping but is useful to have around. The syntax is: SWAP var1,var2 where 'var1' and 'var2' are like variables. This means that SWAP A\$,B\$ will cause the string associated with A\$ to be assigned to B\$ and vice versa. Similarly, SWAP DL,WP will cause the value assigned to DL to be assigned to WP and that of WP to be assigned to DL. If the two variables are not of the same type, (string or numeric) then a 'Type Mismatch' will occur.

The SWAP command saves the need for an intermediate holding variable when exchanging variable values and is considerably faster than this approach. The obvious application is in 'bubble sorts' where elements must be swapped.

A Final Flourish

If you look at Listing 1 around the label RESET you will notice some additional start-up codes. This executes when CoCo does a cold start. The first thing this code does is restore all the drives to track 0. This eliminates that annoying search up and down the disk during the first disk access. The slight

increase in start-up time is worth the subsequent savings in access time and reduction in wear and tear on the drive itself, not to mention your nerves!

This code restores all possible drives to track 0. If you do not have four drives you can improve the start-up time a little by only restoring the drives you do have. This is done by changing the '3' in the line immediately after the line defining RESET (which reads 'LDB #3 NUMBER OF DRIVES') to one less than the number of drives you do have.

Adding This Month's Code

Just as in previous months, pull the assembly file built up so far into your editor, then remove the commenting asterisks from the start of line with [REF #] of 2, 9-1, 9-2 and 9-3. Completely delete reference lines 18, 19, 25, 26 and 27. Also delete all lines at the end starting with 'ZZLAST EQU *-1'.

Now type in the new code found in Listing 1 and reassemble the result. As this month's addition is the last, rename the composite assembly language source as DISKPTCH.ASM and the binary file as DISKPTCH.BIN. Test the binary patch file just as you have for the past few months.

Wrapping It Up Next Month

The next issue of THE RAINBOW will see the last installment of this series. In it we will tie up a few loose ends; put the entire revised version of Disk BASIC in an EPROM and mount it in the disk controller, and make some suggestions for commands you could add yourself. I hope you'll plan on joining me then.

If you would like the entire DOS-PATCH program source, along with binary files with and without the parallel port driver for DECB 1.0 and DECB 1.1, just send me a disk (no cassettes please) along with \$6 and a stamped, addressed disk mailer. I will load the disk and return it to you promptly.

Address this request or any questions to: Colin Stearman, 143 Ash Street, Hopkinton, MA 01748.

```

1099 *
DC68 BDB262 1100 BAUD JSR #B262 EVAL BRKT ARGUMENT
DC69 BDB740 1101 JSR #B740 GET INTEGER IN I
DC6E 6FE2 1102 CLR ,~S FOR COUNTER
DC70 1F10 1103 TFR I,D GET BAUD VALUE
DC72 10B32500 1104 CMPD #9600 HIGHEST LEGAL VALUE
DC76 1022FBFF 1105 LBHI FCERR ERROR IF HIGHER
DC7A 6CE4 1106 CNTBD INC ,S COUNT SUBTRACTION
DC7C 63012C 1107 SUBD #300 DIVIDE BAUD BY 300
DC7F #02FBFBb 1108 LBMI FCERR NOT A VALID VALUE
DC83 26F5 1109 BNE CNTBD CONTINUE SUBTRACTION
1110 * GOT A VALID MULTIPLE OF 300
DC85 3502 1111 PULS A GET RESULT
DC87 3F 1112 CLR0 POWER COUNTER

```

DCB8 8EDC62	1113	LDI #BDCNST	POINT 1 TO BAUD CONSTANTS	1198 *****	
DCB9 44	1114	SFTAGN LSRA	BIT INTO CARRY	1199 * "ERRORS" Command	
DCBC 2503	1115	BCS GETCON	GET BIT GET CONSTANT	1200 * Executed when the ERRORS command is encountered	
DCBE 5C	1116	INCB	COUNT SHIFT	1201 *	
DCBF 20FA	1117	BRA SFTAGN	GO SHIFT AGAIN	DCFB 0081	1202 ERRCMD LDB #081 CHECK "60"
DC91 A6B5	1118	GETCON LDA B,1	GET BAUD RATE	DCFB B0B26F	1203 JSR #B26F NOT THEN SYNTAX ERROR
DC93 9796	1119	STA BAUDRT	SET BAUD RATE	DCFE C6A5	1204 LDB #A5 CHECK "10"
DC95 #F95	1120	CLR BDFLAG	CLEAR TO ENABLE SERIAL PORT	DD00 B0B26F	1205 JSR #B26F NOT THEN SYNTAX ERROR
	1121 *		AND SET LSB OF BAUD RATE	DD03 B0AF67	1206 JSR #AF67 PROCESS LINE # INTO #28
	1122 *			DD06 DC2B	1207 LDB #2B GET THE LINE #
DC97 39 *	1123	RTS	ALL DONE	DD08 D0DC	1208 STD JLINE SAVE IT
	1124 *****			1209 ** IF IERO THEN CLEAR TRAPPING	
	1125 *	"LDIR" COMMAND, PRINT DIRECTORY		1210 BEQ ERRSET	
	1126 *			1211 ** CHECK FOR VALID LINE NUMBER	
DC98 C6FE	1127	LDIR LDB #1-2	POINT DEVNUM TO PRINTER	DD0C DCA6	1212 LDB #A6 GET PARSER POINTER
DC9A D76F	1128	STB DEVNUM		DD0E 3406	1213 PSHS D SAVE ON STACK
DC9C 7ECBCF	1129	JMP A0016	DO DIR COMMAND	DD10 B0AE9	1214 JSR #AE9 CHECK VALID NUMBER
	1130 *****			1215 *IF WE GOT BACK HERE IT'S OK	
	1131	IFDF PARPRT	ASSEMBLE FOR PARALLEL PORT	DD13 3506	1216 PULS D RESET PARSER POINTER
	1132 *			DD15 D0A6	1217 STD #A6 "
	1133 *	"PARALLEL" COMMAND CODE AND OUTPUT ROUTINE		DD17 39	1218 RTS "
DC9F CC01CA	1134	PARA LDB #1CA	120 BAUD DELAY	1219 *****	
	1135 *		SET MSB TO 1 FOR PARALLEL PORT	1220 * ERROR TRAPPING AND HANDLING ROUTINE	
DCA2 D095	1136	STD BDFLAG	TO MAKE PARALLEL ACTIVE	1221 *	
DCA4 39	1137	RTS		1222 * this code is executed when an error is	
	1138 *****			1223 * encountered by BASIC from jump at #18F	
	1139 *	Parallel port output routine		1224 *	
	1140 *	This is called by the modified jump at #168		DD18 B0DB1B	1225 ERTRAP JSR DIRECT CURRENT LINE
DCA5 D095	1141	PAROUT TST BDFLAG	IF NOT ZERO THEN PARALLEL	DD1B 2724	1226 BEQ NOTRAP SO DONT TRAP IT
DCA7 1027EE9F	1142	LBEQ A0015	DO SERIAL OUTPUT	DD1D 9EDC	1227 LDX JLINE GET EARLINE JUMP
DCAB 3402	1143	PSHS A	SAVE VALUE	DD1F 2720	1228 BEQ NOTRAP SO DONT TRAP IT
DCAD 966F	1144	LDA DEVNUM	GOING TO DEVICE -2?	1229 *****	
DCAF B1FE	1145	CMPA #1-2		1230 * WE WANT TO TRAP ERROR NOW B HAS ERROR CODE #2	
DCB1 3502	1146	PULS A	RECOVER CHAR, FLAGS DONT CHANGE	1231 * IF AN OD ERROR THEN THEN ADDRESS AT #2B NEEDS	
DCB3 1026EE93	1147	LBNE A0015	NOT DOING DEVICE #1-2	1232 * PUTTING AT #A6 BECAUSE READ MOVED IT TO SCAN	
	1148 *			1233 * THE DATA STATEMENTS	
	1149 *	PARALLEL OUTPUT WANTED		1234 *	
DCB7 B18D	1150	CMPA #00	WAS IT A CR?	DD21 C106	1235 CNP# #06 DD ERROR NUMBER
DCB9 2703	1151	BEQ WASC#		DD23 2604	1236 BNE N0READ NOT A OD ERROR
DCBB 0C9C	1152	INC #9C	INCREMENT LINE PRINT POSITION	DD25 9E2B	1237 LDX #2B GET POINTER
DCBD 8C	1153	FLB #0C	SKIP NEXT 2 BYTES	DD27 9FA6	1238 STX #A6 PUT IT IN PARSER
DCBE 0F9C	1154	WASC# CLR #9C	LINE COUNTER	DD29 54	1239 N0READ LSR# DIVIDE BY 2
DCC0 3411	1155	PSHS CC,1	PRESERVE BASIC VALUES	DD2A D75A	1240 STB ECODE CODE ADDRESS
DCC2 BEFF26	1156	LDI #DATA	POINT X TO PIA	DD2C 9E6B	1241 LDX #6B CURRENT LINE
DCC5 6D1E	1157	CHKRDY TST #2,X	BUSY IF LINE # HI	DD2E 9F76	1242 STX ELINE EARLINE ADDRESS
DCC7 28FC	1158	BMI CHKRDY	WAIT UNTIL LOW	DD30 9EDC	1243 LDX JLINE GET ERROR GOTO LINE #
DCC9 A7B4	1159	STA #X	DATA REGISTER	DD32 9F2B	1244 STX #2B PREPARE TO GO TO IT
DCCB 3511	1160	PULS CC,X	RECOVER VALUES	DD34 10DE21	1245 LDS #421 CLEAN STACK
DCCD 3262	1161	LEAS 2,S	OLD RETURN OFF STACK	DD37 CCADC4	1246 LDB #ADC4 RETURN TO INTERPRET LOOP
DCCF 39	1162	RTS	TO ORIGINAL CALLER	DD3A 3406	1247 PSHS D PUT ONTO STACK
	1163 *****			DD3C 0F6F	1248 CLR DEVNUM RESET DEVICE CODE
	1164	EMDC		DD3E 7EAE9	1249 JMP #AE9 GO TO NEW LINE
	1165	OPT LIS		1250 ****	
	1166 *****			1251 *PROCESS NO TRAP	
	1167 *	PATCH #5 to RSDOS (C)1984 Colin Stearns *		DD41 B03C	1252 NOTRAP BSR ERRSET RESET ERROR CODE
	1168 *****			1253 *	
	1169 *			1254	IFGT REV <---
	1170 *****			1255	JMP #AC49 : DOS 1.1 only
	1171 *	"SWAP"		1256	ENDC <---
	1172 *			1257 *	
	1173 *	CODE FOR SWAP COMMAND SYNTAX IS SWAP V1,V2		1258	IFEQ REV <---
	1174 *	WHERE V1 AND V2 ARE LIKE VARIABLE TYPES		1259 *	Process new error display :
	1175 *			DD43 B0D1E5	1260 JSR #0026 CLEAR DISK SYSTEM ;
DCD0 B0B357	1176	SWAP JSR #B357	GET FIRST STRING POINTER	DD46 3406	1261 PSHS B PRESERVE ERROR CODE ;
DCD3 9606	1177	LDA #6	TYPE #=NUMBER -1=STRING	DD48 B0CA3B	1262 JSR #0014 MORE DISK SHUTDOWN ;
DCD5 3412	1178	PSHS X,A	SAVE ON STACK	DD4B 3504	1263 PULS B GET ERROR CODE BACK ;
DCD7 B0B26D	1179	JSR #B26D	PARSE REQUIRED COMMA	DD4D B0A7E9	1264 JSR #A7E9 MOTOR W/F ;
DCDA B0B357	1180	JSR #B357	GET 2ND STRING POINTER IN X	DD50 B0AD33	1265 JSR #AD33 RESET STACK ETC. ;
	1181 *	NOW TEST THAT BOTH VARIABLES ARE SAME TYPE		DD53 0F6F	1266 CLR DEVNUM REST TO SCREEN ;
DCDD 3502	1182	PULS A	RECOVER FIRST TYPE	DD55 B0B95C	1267 JSR #B95C OUT RETURN IF NEEDED ;
DCDF 9106	1183	CMPA #6	CHECK FOR SAME AS SECOND	DD58 54	1268 LSR# DIVIDE ERROR CODE BY 2 ;
	1184 *	NOT SAME TYPE SO ISSUE ?TN ERROR		DD59 B006	1269 BSR ERFIND FIND ERROR MESSAGE ;
DC E1 1026D46C	1185	LBNE #B151	TYPE MISMATCH	DD5B B0B9A2	1270 * OUTPUT NEW ERROR MESSAGE ;
	1186 *	SAME TYPE SO SWAP POINTER INFO		DD5E 7EAC65	1271 JSR STROUT OUTPUT IT ;
DC E5 3546	1187	PULS U	ONE IN X, OTHER IN U	1272	JMP #AC65 PRINT " ERROR" ETC. : DOS 1.0 only
DC E7 C605	1188	LDB #5	COUNTER	1273 *****	
DC E9 A6B4	1189	SWAPS LDA #X	GET VALUE AT X	1274 * error message finder ;	
DC EB 3402	1190	PSHS A	PRESERVE IT	1275 * B has error count/2 coming in ;	
DC ED A6C4	1191	LDA #U	GET VALUE AT U	1276 * HAS CHARACTER COUNT COMING OUT ;	
DC EF A7B0	1192	STA #X+	PUT AT X	1277 * X HAS POINTER TO FIRST CHAR ;	
DC F1 3502	1193	PULS A	GET ORIGINAL AT X	DD61 1F98	1278 ERFIND TFR B,A MOVE ERROR CODE TO A ;
DC F3 A7C0	1194	STA #U+	PUT AT U	DD63 B0EDC5	1279 LDX #ERR# POINT X TO MSG # ;
DC F5 5A	1195	DECB	REDUCE COUNTER	DD66 5F	1280 CLRB DONT AFFECT X FIRST TIME ;
DC F6 26F1	1196	BNE SWAPS	CONTINUE SWAPPING	DD67 3A	1281 KPLONK AB1 ADD COUNT TO ERROR ADDRESS ;
DC F8 39	1197	RTS			

DD68 E6B0	1282	LDB	,X+	GET CHARS IN MESSAGE ;	DDF2 0B	1366	ERR3	FCB	ERR4-(+1) ;
DD6A 4A	1283	DECA		DECREASE ERROR COUNT ;	DDF3 4F	1367	FCC	/OUT OF DATA/ ;	
DD6B 2AFA	1284	BPL	KPLOOK	KEEP LOOKING ;	DDFE 0D	1368	ERR4	FCB	ERR5-(+1) ;
DD6D 3F	1285	RTS			DDFF 46	1369	FCC	/FUNCTION CALL/ ;	
	1286	ENDC		<----	DE0C 08	1370	ERR5	FCB	ERR6-(+1) ;
	1287	*****			DE0D 4F	1371	FCC	/OVERFLOW/ ;	
	1288	*		CLEAR ERROR TRAPPING ON RUN	DE15 0D	1372	ERR6	FCB	ERR7-(+1) ;
DD6E 8D0F	1289	ERCNCL	BSR	ERRSET	DE16 4F	1373	FCC	/OUT OF MEMORY/ ;	
DD70 7EC998	1290	JMP	A#013		DE23 0E	1374	ERR7	FCB	ERR8-(+1) ;
	1291	*****			DE24 4E	1375	FCC	/NO SUCH LINE #/ ;	
	1292	*		THIS CODE RUNS ON A COLD START AND RESETS ALL	DE32 09	1376	ERR8	FCB	ERR9-(+1) ;
	1293	*		DRIVES TO TRACK ZERO AND RESETS ERROR TRAPPING	DE33 53	1377	FCC	/SUBSCRIPT/ ;	
	1294	*			DE3C 13	1378	ERR9	FCB	ERR10-(+1) ;
	1295	*		Reset drive 0-1 to track zero	DE3D 52	1379	FCC	/REDIMENSIONED ARRAY/ ;	
DD73 #FEA	1296	RESET	CLR	#EA RESTORE OPCODE =0	DE50 0B	1380	ERR10	FCB	ERR11-(+1) ;
DD75 C601	1297	LDB	#1	NUMBER OF DRIVES-1	DE51 44	1381	FCC	/DIVIDE BY 0/ ;	
DD77 D7EB	1298	STB	#EB	DRIVE NUMBER	DE5C 16	1382	ERR11	FCB	ERR12-(+1) ;
DD79 8D14	1299	NITDRV	BSR	HOME DD RESTORE TO TRACK 0 WITH 1 RETRY	DE5D 49	1383	FCC	/ILLEGAL DIRECT COMMAND/ ;	
DD7B #AEB	1300	DEC	#EB	NEXT DRIVE	DE73 0D	1384	ERR12	FCB	ERR13-(+1) ;
DD7D 2AFA	1301	BPL	NITDRV		DE74 5A	1385	FCC	/TYPE MISMATCH/ ;	
	1302	*			DE81 13	1386	ERR13	FCB	ERR14-(+1) ;
	1303	*			DE82 4F	1387	FCC	/OUT OF STRING SPACE/ ;	
	1304	*		Clears ERROR trapping	DE95 0F	1388	ERR14	FCB	ERR15-(+1) ;
	1305	*			DE96 53	1389	FCC	/STRING TOO LONG/ ;	
DD7F 3416	1306	ERRSET	PSHS	D,X SAVE REGS	DEA5 12	1390	ERR15	FCB	ERR16-(+1) ;
DD81 9E8A	1307	LDX	ZERO		DEA6 53	1391	FCC	/STRING TOO COMPLEX/ ;	
DD83 9FDC	1308	STX	JKLM		DEBB 0E	1392	ERR16	FCB	ERR17-(+1) ;
DD85 CCFFFF	1309	LDB	#FFFF		DEB9 43	1393	FCC	/CAN'T CONTINUE/ ;	
DD88 DD76	1310	STD	ELINE		DEC7 09	1394	ERR17	FCB	ERR18-(+1) ;
DD8A 975A	1311	STA	ECODE		DEC8 46	1395	FCC	/FILE DATA/ ;	
DD8C 3516	1312	PULS	D,X	RECOVER REGS	DED1 0C	1396	ERR18	FCB	ERR19-(+1) ;
DD8E 39	1313	RTS			DED2 41	1397	FCC	/ALREADY OPEN/ ;	
	1314	*****			DEDE 0D	1398	ERR19	FCB	ERR20-(+1) ;
	1315	*		restore drive head with no retries	DEDF 44	1399	FCC	/DEVICE NUMBER/ ;	
DD8F 3476	1316	HOME	PSHS	A,B,I,Y,U	DEEC 0A	1400	ERR20	FCB	ERR21-(+1) ;
DD91 8601	1317	LDA	#1	RETRY COUNT != NO RETRIES	DEED 52	1401	FCC	/READ/WRITEX ;	
DD93 7ED670	1318	JMP	A#032	RESTORE CODE ENDS WITH AN RTS	DEF7 09	1402	ERR21	FCB	ERR22-(+1) ;
	1319	*****			DEF8 46	1403	FCC	/FILE NODE/ ;	
	1320	*			DF01 0D	1404	ERR22	FCB	ERR23-(+1) ;
	1321	*		"ELINE"	DF02 46	1405	FCC	/FILE NOT OPEN/ ;	
	1322	*			DF0F 15	1406	ERR23	FCB	ERR24-(+1) ;
DD96 DC76	1323	ERRLIN	LDD	ELINE	DF10 52	1407	FCC	/READ PAST END OF FILE/ ;	
DD98 10B3FFFF	1324	CPD	#FFFF	IF #FFFF NOT SET?	DF25 16	1408	ERR24	FCB	ERR25-(+1) ;
DD9C 102AFE8D	1325	LBNE	UNSIGN	YES IT IS	DF26 44	1409	FCC	/DIRECT COMMAND IN FILE/ ;	
DDA0 7EB4F4	1326	SIGNED	JMP	#B4F4 RETURN AS SIGNED VALUE (-1)	DF3C 12	1410	ERR25	FCB	ERR26-(+1) ;
	1327	*****			DF3D 55	1411	FCC	/UNDEFINED FUNCTION/ ;	
	1328	*			DF4F 0C	1412	ERR26	FCB	ERR27-(+1) ;
	1329	*		"ECODE"	DF50 4E	1413	FCC	/NO SUCH FILE/ ;	
	1330	*			DF5C 0B	1414	ERR27	FCB	ERR28-(+1) ;
DDA3 4F	1331	ERRCOD	CLRA		DF5D 52	1415	FCC	/RECORD #/ ;	
DDA4 D65A	1332	LDB	ECODE		DF65 09	1416	ERR28	FCB	ERR29-(+1) ;
	1333	*		IF MINUS THEN IT IS -1 AND THEREFORE UNSET	DF66 44	1417	FCC	/DISK FULL/ ;	
DDA6 102AFEB3	1334	LBPL	UNSIGN	OUTPUT UNSIGNED # TO VARIABLE	DF6F 13	1418	ERR29	FCB	ERR30-(+1) ;
DDA8 1D	1335	SEX		MAKE D HAVE VALUE IN B	DF70 4F	1419	FCC	/OUT OF BUFFER SPACE/ ;	
DDAB 28F3	1336	BRA	SIGNED	OUTPUT TO VARIABLE(-1)	DF83 0D	1420	ERR30	FCB	ERR31-(+1) ;
	1337	*****			DF84 57	1421	FCC	/WRITE PROTECT/ ;	
###	1338	IFEQ	REV	<----	DF91 09	1422	ERR31	FCB	ERR32-(+1) ;
DDAD D65A	1339	*		ENAME# ;	DF92 46	1423	FCC	/FILE NAME/ ;	
DDAF 2A02	1340	ERNAME	LDB	ECODE GET ERROR CODE ;	DF9B 09	1424	ERR32	FCB	ERR33-(+1) ;
DDB1 5F	1341	BPL	BETNM	GET ERROR NAME STRING ;	DF9C 44	1425	FCC	/DIRECTORY/ ;	
DDB2 A1	1342	CLRB		FOR NULL STRING LENGTH ;	DFA5 0B	1426	ERR33	FCB	ERR34-(+1) ;
	1343	FCB	#A1	SKIP NEXT INSTRUCTION ;	DFAA 46	1427	FCC	/FILE EXISTS/ ;	
	1344	*			DFB1 0E	1428	ERR34	FCB	ERR35-(+1) ;
DDB3 BDD061	1345	BETNM	JSR	ERFIND RETURNS I AT ERROR NAME ;	DFB2 46	1429	FCC	/FIELD OVERFLOW/ ;	
	1346	*		B WITH COUNT ;	DFC0 19	1430	ERR35	FCB	ERR36-(+1) ;
DDB6 1F13	1347	TFR	X,U	SAVE ERROR STRING POINTER ;	DFC1 53	1431	FCC	/SET TO NON-FIELDED STRING/ ;	
DDB8 BDB50F	1348	JSR	#B50F	CHECK FOR AVAILABLE SPACE ;	DFDA 06	1432	ERR36	FCB	ERR37-(+1) ;
	1349	*		X NOW HAS STRING START ADDRESS ;	DFDB 56	1433	FCC	/VERIFY/ ;	
DDBB 2705	1350	BEQ	STREXT	NULL LENGTH STRING ;	DFE1 17	1434	ERR37	FCB	ENDERR-(+1) ;
DDBD 1E13	1351	EXG	X,U	SWAP THE POINTERS ;	DFE2 41	1435	FCC	/ACCESS PAST END OF FILE/ ;	
DDBF BDA39A	1352	JSR	#A39A	MOVE STRING ;	DFF9	1436	ENDERR	EQU	*
DDC2 7EB69B	1353	STREXT	JMP	#B69B RETURN VIA STRING# CODE ;		1437	ENDC		<----
	1354	*****				1438			
	1355	*				1439			
	1356	*		ERROR MESSAGES ;	DFB8	1440	ZLAST	EQU	*-1 last used address value
	1357	*				1441	*		
	1358	*		FORMAT IS CHARACTER COUNT/CHARACTERS ;		1442	*		ZLAST must not be greater than #DFFF for
	1359	*				1443	*		DOS 1.0 and #DEFF for DOS 1.1. The latter
DDC5 10	1360	ERR0	FCB	ERR1-(+1) ;		1444	*		has the OS-9 Boot program and SWI set routines
DDC6 4E	1361	FCC	/NEXT WITHOUT FOR/ ;			1445	*		from #DF00 to #DF4C
DDD6 06	1362	ERR1	FCB	ERR2-(+1) ;		1446	*		
DDD7 53	1363	FCC	/SYNTAX/ ;			1447	*		
DDDD 14	1364	ERR2	FCB	ERR3-(+1) ;		1456	OPT	LIS	
DDDE 52	1365	FCC	/RETURN WITHOUT GOSUB/ ;		D994	1457	END	ADDCOM	



Potpourri!

A Medley of Hints And Tips

By Dale L. Puckett

One of the things I enjoy most about writing this column is the opportunity to see the ingenuity of Color Computer OS-9 enthusiasts. We'll share some of this creativity with you this month and try to answer a few of your questions. A few listings will round out the column.

Our first tip and the one that will grab a lot of attention comes from John E. Carter, WB4HLZ, of Smyrna, Ga. Since most people have three initials and the standard OS-9 prompt has three characters, John reasoned that he could find a way to personalize the OS-9 prompt. His procedure, *chgprompt*, will do the job. Use it by typing:

```
OS9: debug <chgprompt
```

The command line above assumes you have saved *chgprompt* in your current data directory. Do that using the OS-9 BUILD utility command or your favorite editor now. Here's the listing.

```
l shell
. +36
```

```
=4A
=45
=43
q
```

After you run the command line above you will see the following prompt on your Color Computer screen.

JEC:

Of course, I forced OS-9 on my Color Computer to prompt me with "DLP: Do your thing!"

Later, I tried John's trick on the GIMIX. It worked. The prompt string of the Level II SHELL was at the same exact offset as the Level I SHELL that runs on the Color Computer.

Here's another trick John sent in. If you have been using OS-9 for awhile, you know you can use the DISPLAY utility command to do many things. For example, you can clear your Color Computer screen by typing:

```
OS9: display C ENTER
```

Or, you can send a form feed to your printer by typing:

```
OS9: display C >/p ENTER
```

And, since you can send more than one character with the DISPLAY command, you may send complex cursor commands to your screen or make your printer sing and dance. But, if you're like me, you can never remember the codes needed to do the job, and it's a major hassle to look them up in the "OS-9 Commands" manual or some appendix to your printer's users manual. For example, on my Epson MX-80 printer, I can switch into the Italics mode by displaying a two-byte string.

```
OS9: display 1B 34 >/p ENTER
```

Since it's much easier to remember the word "Italic," John rightly suggests that we place the command line above in an OS-9 procedure file named "Italic." Then, as long as that file is in our working data directory we may tell our printer to switch into its Italic mode by typing:

```
OS9: italic ENTER
```

The command line above that sends the form feed to your printer could be put in a procedure file named FF. That would be easy to type. If you like to make your printer impress the neighbors, get out the manual and turn your imagination loose on some OS-9 procedure files.

John also sent in a short procedure

```
load display
display 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80
80 80 80 80 80 80 80 80 80 80 80 80
display ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
ff ff ff ff ff ff ff
display 20 6f 73 39 20 4f 53 39 20 6f 73 39 20 4f 53 39 20 6f 73 39
20 4f 53 39 20 6f 73 39 20 4f 53 39
display 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20
display ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff ff
ff ff ff ff ff ff ff
display 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80
80 80 80 80 80 80 80 80 80 80 80 80
unlink display
```

file that prints a simple graphics display on your Color Computer. Try John's demo, then create your own. Have fun!

We were sorry to receive the last issue of Dick Dundon's *68XX(X)* newsletter earlier this week. Dundon had served the Color Computer and SS-50 family in the Evergreen State for several years with a quality newsletter. He was especially bullish about OS-9 and passed on a number of OS-9 tips to eager readers. We personally appreciated the nice things he said about *DynaSpell* and *The Official BASIC09 Tour Guide*.

Dundon's newsletter will be missed by everyone in Washington state that was lucky enough to subscribe. However, his writing talents won't be wasted. He started editing *MOTD*, the OS-9 users group newsletter in November and it was the best issue yet.

Speaking of *MOTD*, kudos to Jim Schmidt, who wrote a tremendous story about a conversation between several Radio Shack computers at a computer center after hours. His "CoCo Advocate" column will soon be required reading for all users group members. Tim Grovac also made a nice contribution to the new *MOTD* with an excellent BASIC09 tutorial. Keep up the good work.

After recovering from three weeks of temporary duty in San Francisco following the explosion and sinking of the tanker vessel Puerto Rican, and a month of burnout that hit after we completed *The Complete Rainbow Guide To OS-9*, we finally got a chance to check into the OS-9 SIG on CompuServe again. We picked up a couple

of hints we thought we should share.

The concept of having a current execution directory and a current data directory is one of the most powerful features of OS-9. Besides, it saves a lot of typing. But, sometimes we get in trouble because we try to execute a program that isn't stored in our current execution directory. The infamous

Error #216 message hits the screen.

Here's a novel way to beat the system. It was suggested by Greg Law. Remember though, if you don't follow this same procedure with all your disks, you could get in trouble using this technique. Every time you make a new system disk — or any disk that will hold an execution directory — follow these steps.

```
OS9: format /d1 ENTER
OS9: cobbler /d1 ENTER
OS9: mkdir /d1/CMDS ENTER
```

Can you figure out the trick? During operation, OS-9 doesn't search for your current execution directory by name. It looks at the particular sector on your disk that it learned when you last ran the CHX command. If you run the sequence of commands above each time, you make a new disk; the CMDS directory will always be in the same location on each disk. Thus, once OS-9 has set itself up to use /d0/CMDS as the execution directory on one disk, it will find /d0/CMDS on all disks initialized the same way.

Here's another trick I was reminded of when I visited the OS-9 SIG. Study the /d0/SYS/password file on my system.

```
.,0,150,..,shell
dale.coastie,0,128,/d0/cmds,..,shell
esther.tripp,1,128,/d0/cmds,..,ds
michele.tiffy,2,128,/d0/cmds,..,shell
```

Everything here is standard except the third line. What do you think

happens if Esther signs on with TSMON? You guessed it! She never sees the "OS9:" prompt. LOGIN takes her directly to the *DynaStar* text editor and lets her go to work.

During the long discussion that took place, David L. Kindred offered a suggestion that takes the process one step further. He showed how to let each user come online using his/her own "startup" file.

To do this, put the following entry in the last position of a user's password file.

```
shell startup ; shell
```

This entry will call a SHELL to process a file called "startup." That file will be located in the user's current data directory. In the password file above that would be the current data directory when LOGIN was called. However, it doesn't need to be. A pathlist to any directory could be typed in the entry position held by the period. Give it a try!

Just before we were called to San Francisco, Richard Don at GIMIX called us with hot news from the Windy City. GIMIX is now shipping UniFLEX for its 6809 GMX III computers. Don also told us that Bob Phillips, GIMIX president, visited Technical Systems Consultants (TSC) and that he was presently designing a 68010 CPU to work with the virtual memory version of UniFLEX 68000.

Don said the new card will run on GIMIX S-50 bus computers using existing intelligent I/O cards. He said that BASIC, COBOL, FORTRAN and a C compiler with bit fields already runs under UniFLEX, and noted that up to 15 users can each use up to four megabytes of virtual memory. The 68010 virtual memory systems reportedly run five times faster than present 6809 systems.

Speaking of upgrades, I received word from Tandy in Fort Worth recently that OS-9 *Version 01.01.00* had been released. Unfortunately, when I arrived at the Radio Shack Computer Store in Springfield, Va., they were already out of the \$14.95 upgrade. The new version contains an enhanced screen that lets you clear to the end of a line, clear to the end of the screen as well as change the background color of your screen. It also supports the Radio Shack RS-232 pack at Baud rates as high as 9600.

A new version of OS-9 for the Color Computer is good news. However, I have been told by several readers that

a few of the old bugs are still in the release. I am told you will find that the most important non-change is in the Baud rate tables for the Printer and RS-232 modules.

That's the bad news. The good news is the tables are the same. Only the offset from the beginning of the modules has

Listing 1:

CRYPT: AN ASSEMBLY LANGUAGE ENCRYPTION FILTER

```
* crypt utility : crypts files for user protection
* 6809 Assembly Language
* for Color Computer OS-9 v. 01.00.00
* (c) 6/17/84 by Tim Harris
*
* Uses std. input and output so it acts as a filter
* Sample calls:
* crypt keyword <infile >codedfile
* crypt keyword <codedfile prints file to screen
* list infile ! crypt keyword >outfile
* crypt keyword <infile ! crypt keyword will print out file
*
```

```
nam crypt
use /d0/DEFS/OS9Defs

* Data Area
EOF equ 211
MAXKEY equ 15
org 0
OUTCHAR rmb 1
KEYLEN rmb 1
CHAR rmb 1
KEYBUF rmb MAXKEY
rmb 200 stack area
CRPMEM equ .

* Program Area
mod CRPEND,CRPNAM,PRGRM+OBJECT,REENT+1,CRPENT,CRPMEM
CRPNAM fcs "crypt"
CRPENT clrb clear the counter
leay KEYBUF,u get the key value
CRP10 lda ,x+
cmpa #$0D are you done?
beq CRP15 yes, go on with program
cmpa #$20 maybe, check again?
beq CRP15 yes, go on
sta ,y+ no, store the char
incb increment the counter
bra CRP10 go back for more
CRP15 stb KEYLEN save the key length
CRP20 ldb KEYLEN get key length
leay KEYBUF,u point to start of key
CRP25 pshs y,b
clra
ldy #$1
leax CHAR,u
os9 I$Readln
bcs CRP30
puls b,y
lda CHAR get the char
eora ,y+ crypt it
sta CHAR store it for output
pshs y,b
lda #$1
ldy #$1
leax CHAR,u
os9 I$Writln
bcs CRP30
puls b,y
decb are you done?
bne CRP25 no, crypt more
bra CRP20 yes, get more of the file
CRP30 cmpb #EOF is it at EOF?
bne CRP35 no, exit with error
```

changed. This means you can correct them with DEBUG. In the new PRINTER module the offset is now \$65. In the new RS-232, the offset is \$72. Use the following procedure file to do the job.

* make changes to allow 9600 Baud rate for printer

```
l printer
..+65
=04
=82
=01
=a2
=00
=cd
=00
=63
=00
=2d
=00
=13
=00
=05
l printer
..+a5
=12
=c6
=00
=59
=58
l printer
..+b3
=f2
* Make changes to allow /tl to work
at 9600 Baud
l rs232
..+72
=04
=82
=01
=a2
=00
=cd
=00
=63
=00
=2d
=00
=13
=00
=05
l rs232
..+b2
=12
=c6
=00
=59
=58
l rs232
..+ba
=f2
q
```

Save the procedure above in a file named *Baud_changes* and then make the changes with the following command line.

OS9: debug <baud_changes

As before, the file *Baud_changes* must be located in your current data directory.

K. J. Johnson of Brechin, Ontario,

```

CRP35      clr b yes, clear error status
           os9 F$Exit exit the program
CRPEND    pmod
           equ *
           END

```

Listing 2:

"F.C": A SIMPLE TEXT FORMATTING UTILITY

```

/* f utility: optional formatter for DynaStar */
/* formats with tm=6; bm=60; pl=66; lm=8 */
/* has optional page numbering (use -n) */
/* has no problems with double spacing */
/* sends to stdout so use redirection for /p */

/* CoCo OS-9 C-Compiler 01.00.00 */
/* (c) 6/6/84 by: Tim Harris */
/* Call: */
/* f <-n><filename> (> redirection)

#include <stdio.h>
#define MAXLINE 80
#define PAGLEN 54
main(argc,argv)
int argc;
char *argv[];

FILE *fp,*fopen();
int linenum=1, number=0, pageno=1;
char line[MAXLINE];

if (argc>3 argc==1)
    error ("f: improper arguments",NULL);
if (argc ==2)
    if ((fp=fopen(argv[1],"r"))==NULL)
        error ("f: can't open %s",argv[1]);

else
    if (argv[1][0]=='-' && argv[1][1]=='n')
        number=1;
    else
        error ("f: illegal option %c",argv[1][1]);
    if ((fp=fopen(argv[2],"r"))== NULL)
        error ("f: can't open %s",argv[2]);

printf("\n\n\n\n\n");
while (fgets(line,MAXLINE,fp)!=NULL)
    printf(" %s",line);
    ++linenum;
    if (linenum>PAGLEN)
        linenum=1;
        printf("\n\n\n");
        if (number)
            printf(" %d\n\n\n\n\n\n\n\n\n",pageno++);
        else
            printf("\n\n\n\n\n\n\n\n\n");

while (linenum <= PAGLEN)
    ++linenum;
    printf("\n");

printf("\n\n\n\n");
if (number)
    printf(" %d\n\n\n",pageno++);
else
    printf("\n\n\n\n");
fclose(fp);

error(s1,s2)
char *s1,*s2;

printf(s1,s2);
printf("/n");
exit(1);

```

posed a problem. "For fun, you might poll your readers to submit how they resolved with the SHELL or BASIC09, the simple command frequently used in Radio Shack BASIC — *Print Hex\$(30) ENTER*. Here's one solution using BASIC09:

PRINT USING "H2",30

Johnson wanted a filter that would indent the front of each line before printing. We'll try to put together a quick and dirty BASIC09 filter soon.

We have some TANO Dragon users out there. Kent D. Meyers wrote to say he could be reached at any of the following BBS numbers: 312-286-9015, 405-728-7654, 612-433-5194, 512-285-5028. You may also write him at Box 266, Le Roy, MN 55951.

And finally, we close this edition of KISSable OS-9 with two more listings from Tim Harris, a brand new programmer at Microware. *CRYPT* is an assembly language program that shows you how to encrypt and decrypt a file for security purposes. "F.C" shows you how to write a simple text formatter you can use to print and number text files.

Enjoy! And if you live on the West Coast, we hope to see you at RAINBOWfest in Irvine, February 15-17.

FILECOPY — A Handy OS-9 Utility

By Gerry Schechter

If you have a disk system, you know what a hassle it can be when you want to copy several files from one disk to another. All that typing in of the *COPY* command can really wear your poor fingers to the bone. With OS-9 and its multilevel directories, the problem is even worse. For example, to copy just one file, you would have to enter the following: *COPY /DO/CMDS/FORMAT/DI/NEWCMS/FORMAT*. Needless to say, if you have a dozen or so files to copy, it could take quite a while.

I decided my computer should do most of the work for me, so I set out to write a BASIC09 program to take care of all that typing. This in itself was an experience, since I had never written a BASIC09 program before. With my **The listing:**

```
PROCEDURE FILECOPY
REM FILE COPY UTILITY V1.0
REM BERRY SCHECHTER
REM 75 MIDLAND TERRACE
REM YONKERS, NY 10704
REM MARCH 1984
REM -----
DIM INPATH,OUTPATH,FNAME,FILENAME:STRING(24)
DIM ERRNO,DISK,XX:INTEGER
DIM INDATA:STRING(80)
DIM YESNO:STRING(1)
DIM SD:STRING(3)
DIM FIRST:BOOLEAN
FIRST:=TRUE
ON ERROR GOTO 160
PRINT CHR$(12);
PRINT "  ** FILE COPY UTILITY **"
PRINT
PRINT "DO YOU HAVE MORE THAN"
INPUT "ONE DISK DRIVE ? ",YESNO
IF YESNO="Y" THEN
SD=""
```

trustworthy manual in hand, I came up with *FILECOPY*.

FILECOPY, as its name suggests, is a utility program that will copy files from one disk to another. Using it is very simple. All you have to do is to enter the input pathname, such as */DO/CMDS*, and the output pathname, such as */DI/NEWCMS*. The program will then take care of the rest by prompting you to see which files you want to copy. Any time it asks you a question, you merely enter a 'Y' for yes, or anything else for no. The way it works is quite interesting, and it shows off some of the powers of OS-9 and BASIC09.

It starts off by creating a file of the input pathname. It does this by redirecting the output from the *DIR* command to a disk file. This file is then read and the filenames are extracted from it.

Making liberal use of the *ONERROR* statement, the program will also determine if the file already exists in the output pathname. If it does, it asks you if you would like to rewrite the file. The program will also let you know if you try to copy a directory, or if you have no more room left on the disk.

As with any computer program, *FILECOPY* could be enhanced some. The first thing that comes to mind is to have it run itself recursively in order to copy a directory along with some or all of its files.

I hope this program will encourage you to delve deeper into the marvelous OS-9 operating system. For those of you who really hate typing, I would be happy to send you a copy of the program for only \$1, if you send a blank disk and SASE to: 75 Midland Terrace, Yonkers, NY 10704.

```
ELBE
SD="" -8"
ENDIF
PRINT
INPUT "ENTER INPUT PATH:",INPATH
PRINT
INPUT "ENTER OUTPUT PATH:",OUTPATH
PRINT
PRINT "ONE MOMENT PLEASE.."
PRINT
PRINT "LOADING COPY COMMAND."
SHELL "/DO/CMDS/LOAD /DO/CMDS/COPY"
PRINT "CREATING DIRECTORY FILE."
100 SHELL "/DO/CMDS/DIR "+INPATH+" >/DO/FILECOPY.DIR"
FIRST:=FALSE
OPEN #DISK,"/DO/FILECOPY.DIR":READ
READ #DISK,INDATA
PRINT CHR$(12)
PRINT "FILE COPY FROM:",INPATH
PRINT "                                TO:",OUTPATH
PRINT
110 READ #DISK,INDATA
IF EOF(#DISK) THEN
GOTO 150
ENDIF
```

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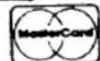
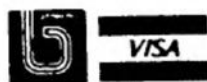
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With the exception of Nov 82, we have copies of all back issues available, and in fact need to reduce our stocks of many of them. The early copies of Rainbow are a source of excellent information for the new CoCo owner. The later copies reflect the growing knowledge of the average user of the time. There are games, utilities, hints, and programs for educational, business and club use. There are also many tutorials and articles of interest.

We also have considerable numbers of GoCo Magazine. If you don't have a full set of GoCo's, give me a call!

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CoCoOz and MiCoOz this Month.

CoCoOz has approximately 16 programs on it this month. Included are programs that test your memory, an excellent pair of OSB programs; a Forth compiler and a Forth program; a machine language key beep; Escher graphics; Bob Delbourgo's map of Tasmania (excellent); another Lotto program; 5 Card Stud; and several more, including two entries in our games competition.

You've never seen better!

MiCoOz has several short programs, including a text processor, and a massive 17K Cattle Baron game that takes up a mighty slice of MiCo Magazine's space this month!


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Martha Says....



The minute Tandy released news of its T1000, all sorts of cheap Taiwanese copies started landing on the Australian scene.

Personally, I think Tandy have made an error. There is no doubt that the T1000 will be a quality product, and there is no doubt that Tandy will get some sales, but their 128K machine is up against some pretty high memory competition.

When I spoke to Graham recently about this, he said that Tandy would have company size and service back-up on its side. And that may be true, but I doubt that those reasons will convince too many to part with an extra \$500 - \$1000 for the same computer.

Tandy has forgotten that they are no longer selling a different computer. This T1000, has definite advantages

over the competition, but it is what it is - an IBM copy, and you can buy them anywhere.

This time of the year is traditionally a time of slow sales in the retail trade. I have more fun at this time of the year than any other, because now is when you can talk even the hard nose shop keepers (with the exception of Tandy of course!) into dropping the price.

If I were shopping for a computer, I'd be looking for a Tandy Dealer, ie one who owns his own shop, because I KNOW that many of them bought too much junk at Christmas, and now they are looking for money. They won't sell the junk till next Christmas, but a quick sale of a computer will certainly help the cash flow!

There are a number of really nice people out there selling software. Jack Fricker was here recently when I called in to get a program, and it was nice to talk to him.

His reputation had preceded him, and everything I had heard about him proved to be true.

He used to be called 'Happy' Jack in Greg's days, but perhaps because he spends too much time with OS9, or because he still hasn't got his 80 column card going, the tag of 'happy' seems to be gone.

A top guy never the less.

```
FNAME=""
FOR XX=1 TO LEN(INDATA)
IF MID$(INDATA,XX,1)="" THEN
FILENAME=FNAME
GOSUB 120
ELSE
FNAME=FNAME+MID$(INDATA,XX,1)
ENDIF
NEXT XX
GOTO 110
120 PRINT "COPY "+FILENAME+" ";
INPUT YESNO
IF YESNO="Y" THEN
130 SHELL "COPY %BK "+INPATH+"/"+FILENAME+" "+OUTPATH+"/"+FILENAME

+90
ENDIF
140 WHILE MID$(INDATA,XX,1)="" DO
XX=XX+1
ENDWHILE
XX=XX-1
FNAME=""
RETURN
150 CLOSE #DISK
PRINT
PRINT "PROCEDURE CONCLUDED."
PRINT
END
160 ERRNO=ERR
IF ERRNO=218 THEN
IF FIRST THEN
PRINT "DELETING OLD DIRECTORY FILE."
```

```
DELETE "/DO/FILECOPY.DIR"
GOTO 100
ELSE
PRINT FILENAME+" ALREADY EXISTS"
INPUT "DO YOU WISH TO REWRITE IT ? ",YESNO
IF YESNO="Y" THEN
SHELL "/DO/CMDS/DEL "+OUTPATH+"/"+FILENAME
GOTO 130
ELSE
GOTO 140
ENDIF
ENDIF
ENDIF
IF ERRNO=215 OR ERRNO=216 THEN
PRINT
PRINT "PATH NOT FOUND!"
PRINT
END
ENDIF
IF ERRNO=214 THEN
PRINT "CANNOT COPY "+FILENAME
PRINT "IT IS A DIRECTORY."
GOTO 140
ENDIF
IF ERRNO=248 THEN
PRINT "DISK IS FULL!"
PRINT "PROCEDURE ABORTED."
END
ENDIF
PRINT
END "OS9 ERROR # "+ERRNO+" HAS OCCURRED!"
```

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