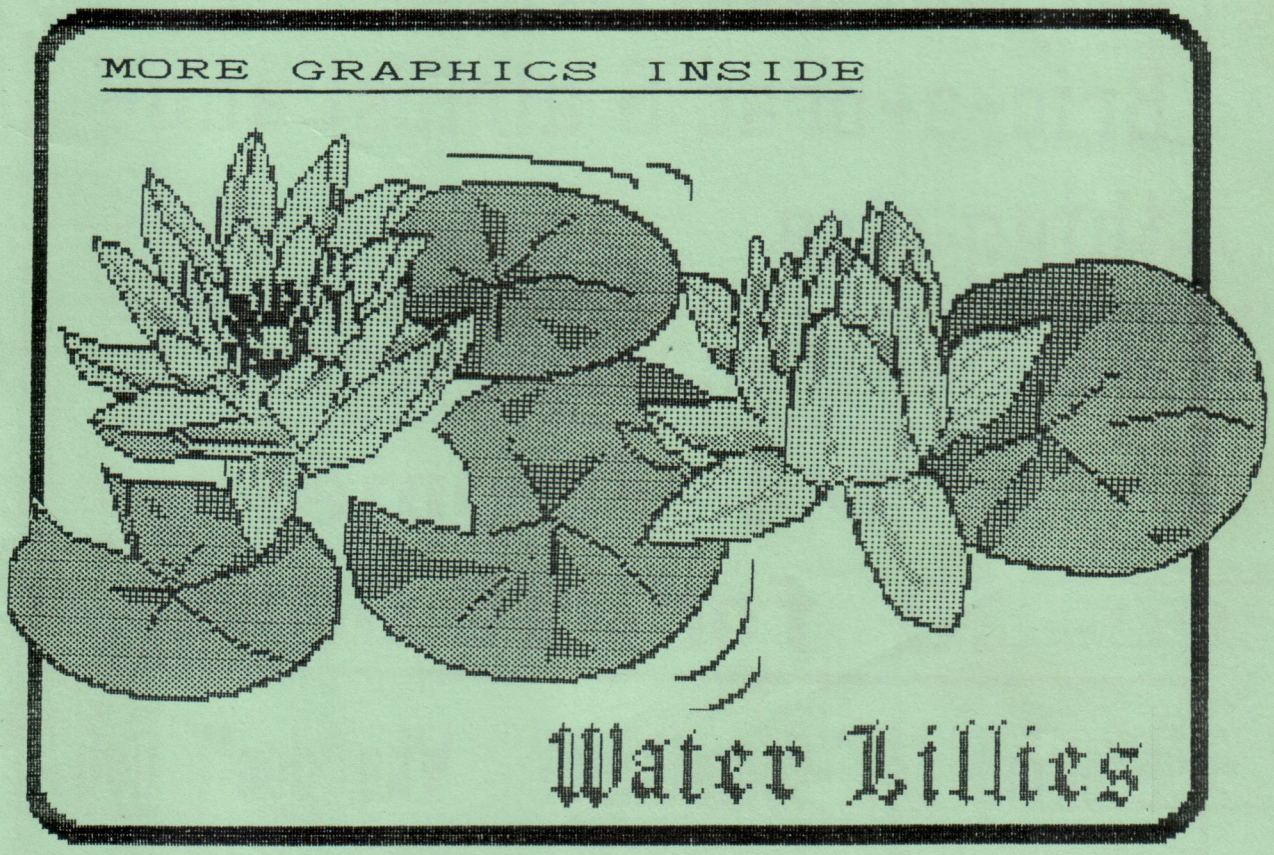
June 1990 Vol 3. No.3

COCO LINK

The Color Computer Magazine



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COCO LINK

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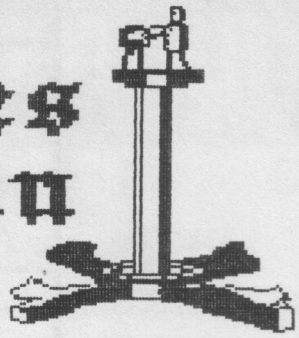
Robbies Column



UNIX, OS9, THE COCO AND YOU.
Recently much has been written in the upper echelon magazines about the UNIX Operating System. The "Australian" newspaper ran a feature on the system in one of their tuesday Computer Supplements. Amongst the quotes were the following excerpts:

> IN recent years, Unix has moved into the technology spotlight to become a new standard for the computer industry.
>
> Based on a simple structured architecture, it has become one of the most popular operating systems in the history of computing, has had a powerful impact on the engineering and academic communities in particular, and has inspired new ways of thinking about programming.
>
> Its machine independence and ability to process many tasks at once are its great strength.
>
> Through groups such as the Open Software Foundation (OSF), Unix International and X-Open, almost all the leading computer vendors, including IBM, have made a public commitment to Unix, making it one of the fastest growing sectors of the computer market.

Lotus Development Corporation have also got into the act:

> LOTUS Development Corp's leading spreadsheet product for DOS-based personal computers, Lotus 1-2-3, has been adapted for Sun Microsystems workstations which run under the Unix operating system.
>
> It is also an acknowledgement of the growing influence of a commercial marketplace which is beginning to demand Unix, an operating system whose domain has hitherto been primarily in engineering and in scientific laboratories.
>
> "And Unix is also the third largest installed operating system, behind DOS and Apple Macintosh, even ahead of OS/2."

There were many more articles and comments on the Unix System and all pointed to it being the system which will be the norm in the near and not too distant future.
"What has this got to do with the Coco?" You ask.
OS9 is very closely related to the Unix System and is really a sort of subset. Many of the commands and structure are the same, It is said if you can operate OS9 you won't have much difficulty mastering Unix.

This puts the humble Coco in a new light. With the ability to run OS9 on our machine, the Coco can be used as a training ground for future Unix operators. This is a facility that few home computers have. Especially at the Coco price.

We must all strive to get the most out of this magnificent little machine and show Tandy that they may just have made a mistake by taking it out of the market place this early. Certainly there is nothing to compete with it in the price range.

****

OS9 DIARY
MOst of the tutorials I have seen for beginners in OS9 have been written by people who have known a lot about the system. In some ways this has been a drawback because it is hard for them to think like the raw beginner and more and more technicalities creep in. With OS9 it is a bit hard to stop the technicalities from creeping in.
I have at last managed to get started on my OS9/"C" language project. In this I will try to show the learning curve through the eyes of a rank beginner. In recording my progress it must be remembered that I can't record everything I do or read. This would mean copying the whole manual and a few books as well. The purpose of the DIARY is to highlight the problems I run into as I try to come to grips with the system. It is not my intention to produce a tutorial for learning OS9.
This series may just help some of the more skilful OS9 users to remember what it was like to start out on your own and therefor help to make answering "silly" questions easier to bear.
Where possible I will get the articles checked for technical faults or wrong assumptions on my part. I don't want to put you in a worse mess than you will manage all by yourself.

****

WHAT'S NEW THIS ISSUE
We have some new features starting this issue. In addition to the OS9 Diary, Darren (Gonzo) Ramsey has produced the first of his hardware series with a LED on/off indicator for your Coco. The few parts needed for this project are supplied with the magazine and were kindly donated by: Payne Electronics
4 Lander Ave.
Sheidow Park
S.A.

We feature another GRAPHICS BY.... page and are always looking for more pictures to publish. It is a pity we don't have colour as some of the pictures are very colourful.
We hhave the first of a three part series on Fourth Generation Languages (4GL's), a Tax file to show you how to save money with your Coco and lots of other goodies.

****

FINDING CARMEN SANDIEGO
Broderbund Software have brought out a sequel to their very popular game, "Where in the world is Carmen Sandiego?" called "Where in time is Carmen Sandiego?"
Not only do you have to find where Carmen and her gang have gone but now you also have to find where in time they are.
The gang have been given the ability to travel through time as well as across the surface of the earth. That means they could be in the future or the past or just about anywhere. Again, the graphics are said to be of the first order. I am sure the fans of Carmen Sandiego will be wanting to get a hold of this sequel.
Here is the rub. I do not know if it is being produced for the Coco this time around. I suppose we will just have to wait and see.

****

CHEAP DISKS
Watch the "Austa!ian" newspaper's computer section on Tuesdays for some good disk bargains..The latest has been 100 NASHUA disks for $95.00 including tax and delivery plus a free lockable storage box. That's good value for top class material.
Rod Irving Electronics also have good deals on "NO BRAND" disks for as low as $4.95 per pack of ten. These disks are also guaranteed.

****

COCO 4
The new Coco 4 based on OS9 has been announced in the USA. This machine is not being produced by Tandy and shows that third party vendors seem to have more confidence in the machine than Tandy does. There is also another version in the pipeline, so soon there will be two different versions of the Coco 4. Whether there will be a flow on to Australia through some enterprising enthusiast we will have to wait and see.
The commitment of the makers of these new Cocos will hopefully encourage programmers to turn out more top shelf material for the Coco.
There is a growing interest in OS9. Other machines such as IBM and Commodore are moving into the market. We can only hope that the new Cocos will be a success so as to keep the humble Coco in the forefront of OS9 technology then all those people who went through the rigours of learning the system will begin to see some profit from there dedication.

****

READERS SURVEY
Not long ago the Rainbow magazine ran a readers survey. This put in my mind to try the same thing. It should help us find out if we are doing the things that our readers want us to do. The information gleaned from this survey could help us format the magazine to better meet the needs of our readers.
To date we have not had much response with competitions and suchlike. I hope that we will fare better this time. After all, it's for your good.

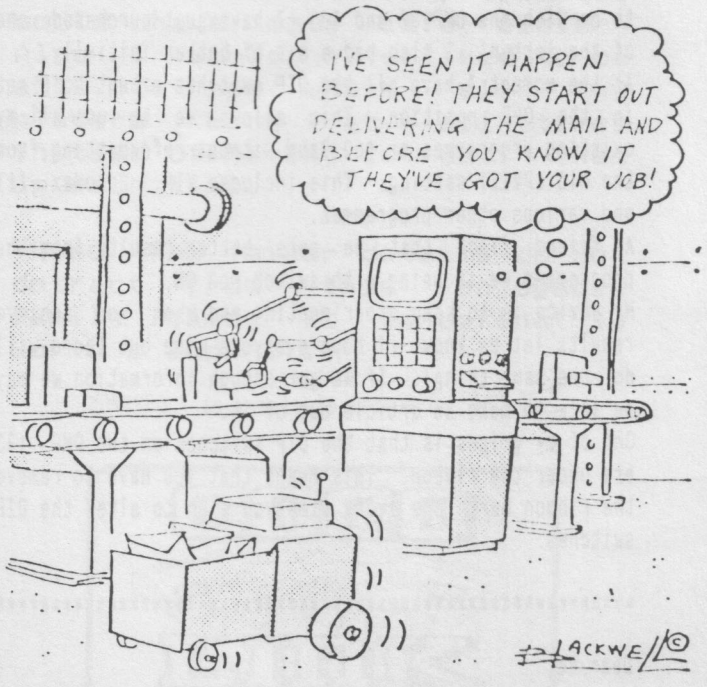
****

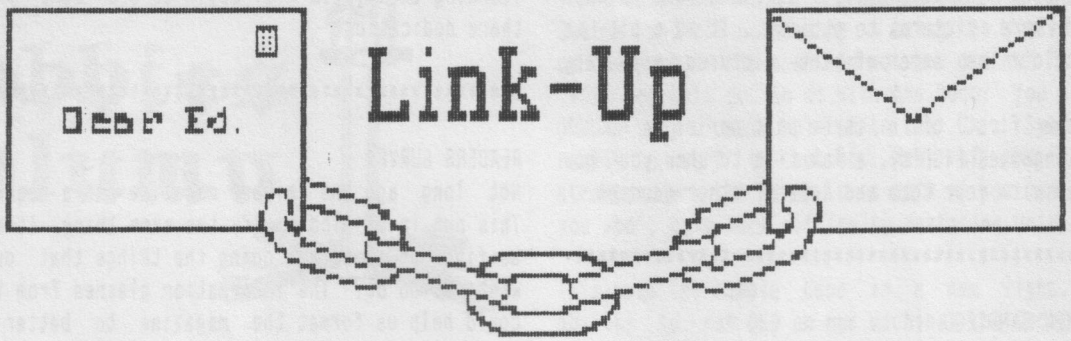
SUBMISSIONS
We are always looking for submissions on all aspects of Coco. The lifeblood of this magazine is the programmes, articles and information we receive from readers. Please send us your material and help keep COCO-LINK functioning in a useful capacity.

****

Keep Hacking

Robbie





Dear Ed,
Hi I'm up to my neck in OS9, my old CoCo 64k is in the cupboard and my new CoCo3 is running hot. My DMP132 printer just loves paper and my disk drives are great and my wife still loves me!
Just a suggestion for the magazine. With the no support from CoCo3 from Tandy any more my Bankcard has had a feast on the CoCo3 programs going out cheap, some of these programs have included for example 'Home Publisher'; 'Color Graphics Designer'; 'Scripsit' and my latest 'Color Computer Artist'.
It's very hard to match the 2 and 8 switches at the back of my printer to the program. (I can't get a printout for Color Computer Artist). So how about a column on the switch settings for each printer for each program, or some hints on a way to get a printout 'PRINT HINT' or 'DIP SWITCH' or ?
Great Magazine yours and OS9 newsletter, plus my Rainbow from Blaxland. You all are a great help.

Ron Munro. NSW.

Dear Ron,
You are not the only one who has been having a bit of bother with the newer Tandy printers. Most problems seem to be with the DMP132 and 133 (I have just purchased one of the latter). I also had a bit of bother initially.
At the moment I have all the DIP switches except No10 set in the OFF position. This allows me to use all my existing programmes at 600 Baud without reformatting from the old LPVIII setting. This includes VIP, CocoMax III and various other programmes.
A friend finds that he gets better results from the programmes he is using with switch No3 ON.
My advice is to keep experimenting and when you achieve results let us know. (I hope everyone else out there will do the same thing). If we get enough information we may be able to make an article out of it.
One of my gripes is that the DIP switches on the DMP 133 are under the ribbon. This means that you have to remove the ribbon cartridge every time you wish to alter the DIP switches.

****

Dear Ed,
I am writing in answer to the letter from Mr M. Williams which you published in the April issue of COCO-LINK. I really feel that Mr Williams is not fully aware of the facts of life as it applies to the Colour computer world out here. His statements about support for the CoCo do not seem to be supported by the staff working in Tandy stores here in Brisbane. I will cite a few examples about what Tandy calls 'support'.

1. Last year I needed a spare part for the Tandy CCR-82 cassette recorder, (a common enough part for the CoCo), and was told that it was a discontinued line and so parts for it were not stocked in Australia; I finally received the part NINE MONTHS later.

2. About a month ago I tried to get a replacement GIME chip for my CoCo3 (you never know...), and after conferring with staff at the National Parts office to get the right part number, and being told that there were ample stocks for my needs, I went to my local Tandy store to place the order. Two weeks later I was told by my local Tandy manager that Tandy National Parts had told him that no such parts existed. After quietly blowing my stack, I finally received the part a month after the original order. Great service?

3. Recently quite a number of people have been coming to me with their Colour Computers for repairs because their local Tandy store told them that because the Colour Computer has been discontinued they would no longer accept repairs. I'm not complaining, mind you, I do the repairs, and always cheaper and quicker than the Tandy Service Centre.

4. Mr William's pet Computer centres do not seem to know anything about the Colour Computer either. If a question about software or hardware problems come up, who do you think answers the questions? Yep, I and others like. This is especially true about OS9. You'd think that after about 6 years of OS9 for the Colour Computer, they would have learned something! But no, almost all Tandy staff are exclusive MS-DOS experts.!

If Mr Williams really wants to see service, he should look at some of the Colour Computer Users Group people, who, far from being experts in any one facet of the Colour Computer, are able to come up with answers for just about any one who asks. I would like to see Mr. Williams get all the Tandy stores to agree to have signs in their stores advising Colour Computer owners of the existence of these User Groups. Almost without exception, the User Groups are non-profit organisations and exist solely for the purpose of teaching the joys of computing, using the Tandy Colour Computer. Tandy HAD the best computer in the world...What happened?

Bob Devries. Brisbane.

Dear Ed,
As part of our year 11 VCE curriculum, work requirements have been set which require us to undertake a communication project. With this in mind my partner and I wish to design and develop a computer program on the Coco 3. This will be centred around a poker machine game.
We wish to submit our ideas and program to your magazine for publication in the near future. We realise this may or may not be possible. However, it is a project we sincerely wish to undertake and, as there can be no guarantees that you will publish our program, we need to ascertain if you will be willing to give us a critical review of our ideas as part of an audience response and evaluation, which is an integral requirement of our project. If you would be willing to comply with this request then we could begin the development of the program immediately.
We would be grateful if you would notify us if this is possible, as time is of the essence. We would be most grateful for your help in this matter.

Mark Funston Vic.

Dear Mark,
It is aim of COCO-LINK to be of as much assistance to Coco owners as we can. We most certainly comply with your requests and will be happy to be of help in any technical matter which may arise.
We encourage any other students who are doing similar projects to get in touch with us. We will be pleased if we can be of any assistance.
We look forward to viewing your completed project when the time comes.

****

From Tandy Australia, Mt Druitt, NSW.

Dear Robert,
Thank you for sending the copies of COCO-LINK subscriptions for the Intertan stores
All the information will be forwarded to the Tandy stores this week.
Stores are being asked to pass this information on to any customer inquiring about Color Computer Software.
Please keep myself informed of any changes that need to be transferred to the Tandy stores.
Thank you again for giving Tandy stores the opportunity to offer their Color Computer customers a better service.

Teresa Berndt
Computer Software Buyer
For: Wilfred Egert.

I am sure that the knowledge of the existence of COCO-LINK which is being distributed to all Tandy stores will be not only be a great help to COCO-LINK but will be a definite plus in customer relations for the Intertan organisation.
Thank you.

****

Review

MONEYPOLY
****

The name doesn't leave much to the imagination on what game this is based on.

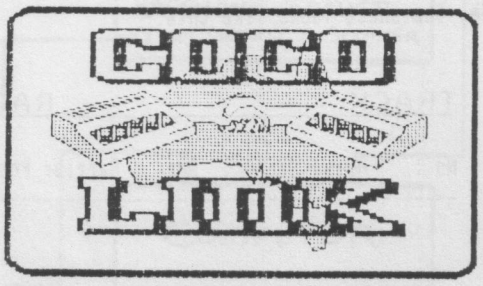
This version of the well known board game has all the attributes needed to make it a real family affair. It even cuts out the arguments about who has to be banker and who is dipping into the till.

The programme starts by setting up the game in the manner you want it played. There are a few questions to answer but after that the game gets under way. You start with $2000 and after that you are on your own. Play carries on as it would on the normal board game with just a few minor changes.

Although I found this a fun game to play, I feel that one or two minor changes would have made it even better. For instance, a help screen with names and positions of the properties would have made life easier Also I would have liked to be able to see where all the players were at all times instead of having to call them up each time.

These few minor details do not detract from this enjoyable family game. It is definat ly worth a look at.

MONEYPOLY is available from APD. $32.00



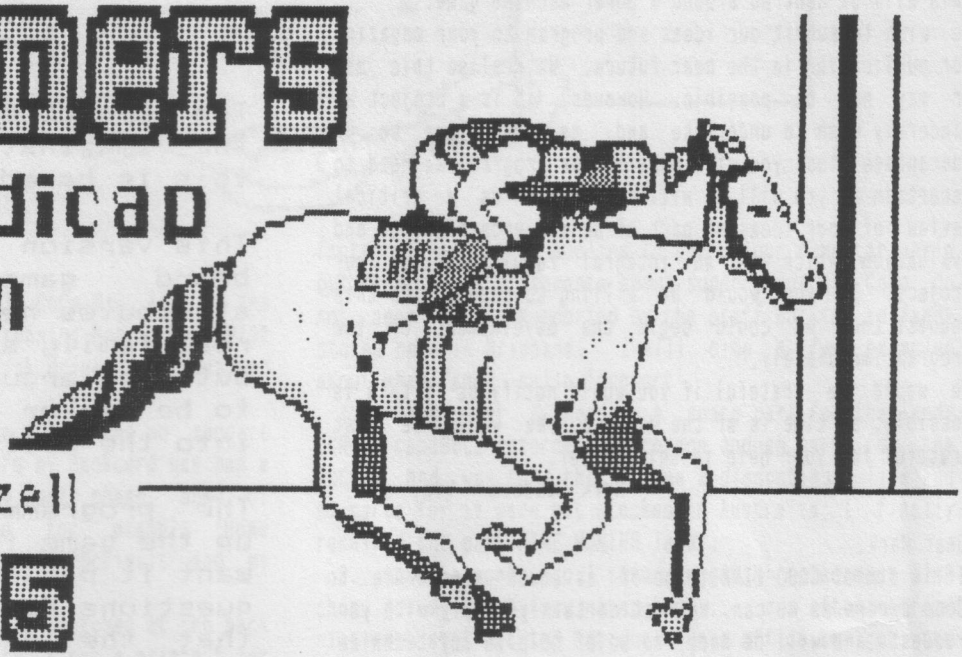
Winners

A Handicap System

By

Robbie Dalzell

Part 5



I have received no letters or phone calls regarding the WINNERS series of articles. This either means that I have done a good job of the explanation or nobody has followed the series. I sicerely hope that the latter is not the case. Please give me some feedback on what you think of the programme as it will help in upgrading in the future.

To conclude the series I would like to add these few notes and ideas for getting the most out of the Winners Handicapping System.

Anyone who has gone to the bother of typing in this long programme should take the time to read one of the books by Don Scott. I used his "The Winning Way" to get all the information needed to write this programme. The book is a must for the serious punter. The book is published by:

Puntwin Pty. Ltd.
1903 National Mutual Centre
44 Market Street.
Sydney. 2000

To make compiling the Tomorrows races easier when I sit down in front of the computer I use what I call a "Race Card". This is a sheet with all the information required on the race and horses. I keep a bundle of these ready for use. The sheet looks like this:-

I fill in one of these for each race I have decided to have a bet on before going near the computer. When I do sit down in front of the keyboard all the necessary information is there in front of me.
This same card is kept and used to fill in the Yesterdays Races results. A definite time saver.

The Jockey file can be a very important factor in your search for winners. It is a definite plus to keep this file up to date. I recommend it be updated at least once per month. The JOKCALC utility will help you to do this.

I have not included a factor on the track conditions as I feel that heavy going has such a diverse effect on horses. My advice is to do the same as I do, leave muddy tracks to the cross-country enthusiasts.

If interest is shown I will make up DATA files for Perth and Brisbane tracks and maybe at a later date work on some country tracks if the information is available.

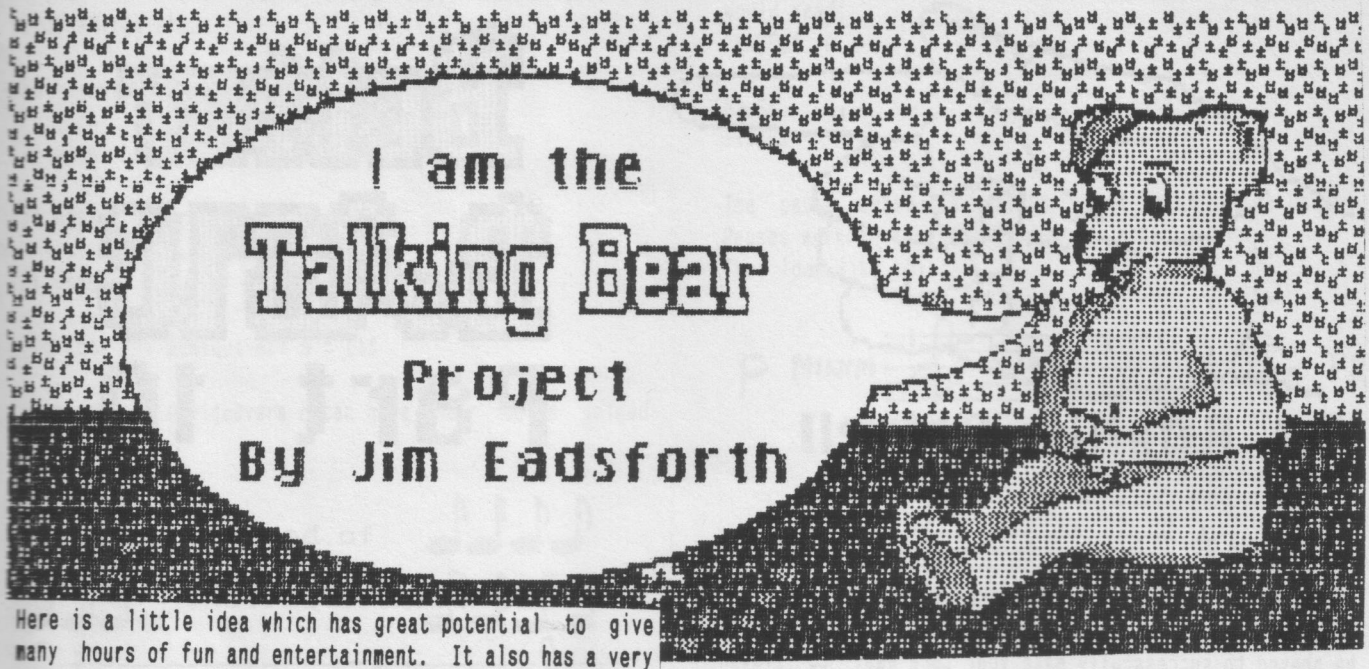
The best of luck!!!

END

Fig. 1

TRACK RACE NO. LENGTH

No.	Horse	Age	Barrier Pos.	Hand.Wt.	Since Spell	Jockey



Here is a little idea which has great potential to give many hours of fun and entertainment. It also has a very good educational potential for younger learners. In fact, it could give a whole new meaning to learning for small children.

The first essential is to purchase one of the talking bears from Tandy. (They were available at $59.95).
The total requirements for this job are:
1 - Talking Bear
1 - Coco plus Television
1 - Cassette player (altered to suit).
1 - DPDT switch (available at Tandy or any electronic store.
1 - Speech systems pack or super voice or similar.

A slight alteration needs to be made to the cassette recorder so as it can be switched back and forth from the bear to normal use.
The following diagram shows how the system should be set up:-

Using the Speech Systems Package or something similar the bear can be made to sing, recite and generally hold conversations.

Jim Eadsforth has set the system up with education programmes where the tables questions are asked by the bear. With the ability to move it's mouth the children are truly fascinated and quite often try to hold conversations with it. He gets it to use their names repeatedly and this adds to the realism. The bear praises them when they are correct and gently chastises them when they are wrong.
I can see vast potential for this system in primary schools and kindergartens.

Jim also uses the bear to ask the questions in games. For instance, in card games such as poker he will have the bear ask if you require another card. Even without the bear this can add a bit more fun to some games.

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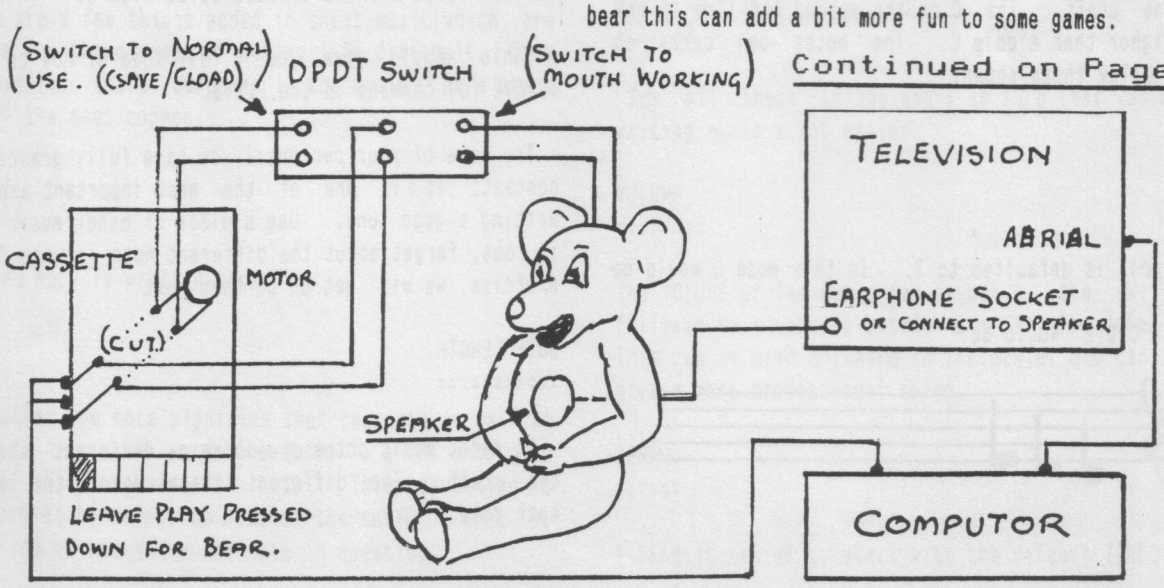
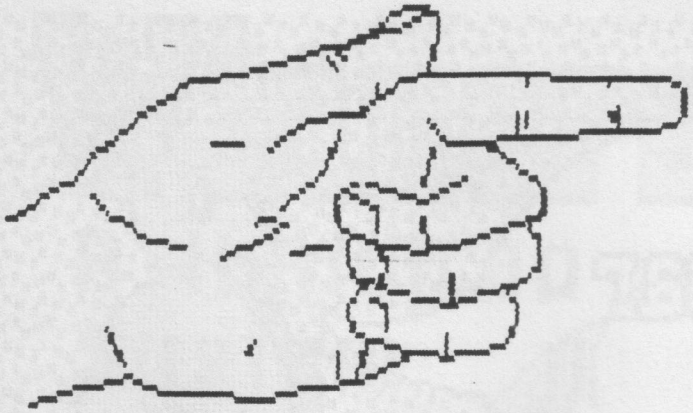




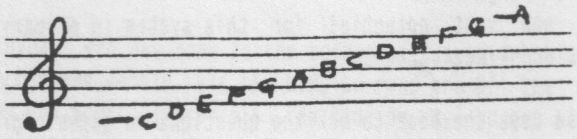
Better BASIC Part 10

By Robbie Dalzell

The PLAY$ feature on the COCO makes making music fairly simple. There are some rules and conventions which must be obeyed to successfully make your tune easy to listen to as well as write. The pages on PLAY in the TANDY "Getting Started" book should be read fully before carrying on with this article.

The aim of this article is to help you write a tune using the music staff in a normal song book. As PLAY$ can only play single notes, we will stick to the top line in the music.

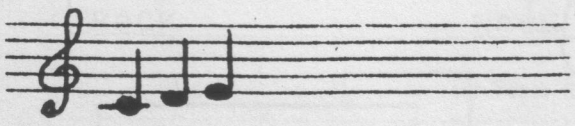
Let's start with the notes on the staff. Each line and space designates a note.



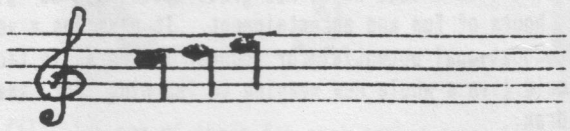
Middle C is the one on the short line below the normal five line staff. The C on the second top line is one octave higher than middle C. The notes can carry on above or below those shown.

OCTAVE.
=======

OCTAVE (O) is defaulted to 3. In this mode C would be middle C.
i.e. PLAY"C;D;E" would be:

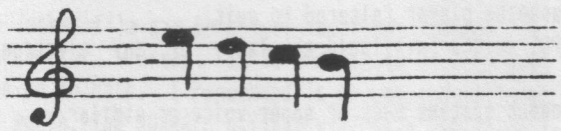


To write C;D;E one octave higher:



PLAY"O4;C;D;E"
Notice that we have made (O) OCTAVE one higher than the default of 3 we had in the last example.

To write E;D;C;B as:



We would write it thus:
PLAY"O4;E;D;C;O3;B"
Notice that this time we started on the higher octave but had to reduce when we dropped below high C.

This should give you a fair idea of how to use the OCTAVE (O) command in the PLAY$.

Try some of your own until you have fully grasped this context; it is one of the most important aspects of writing a good tune. Use a piece of handy music to try it out, forget about the different note lengths for this exercise, we will get on to them next.

NOTE LENGTH.
============

On sheet music notes are shown as different shapes on the staff. The different shapes denote the length of each note.

These can be directly changed to a note length (L) on your computer.

The following table shows the note length and accompanying shape.

Whole note = Semibreve = o = L1

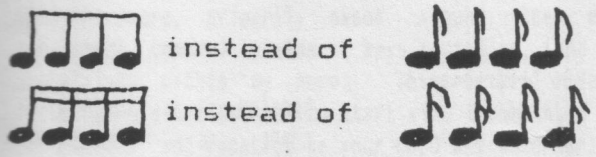
1/2 note = Mimum = o = L2

1/4 note = Crochet = o = L4

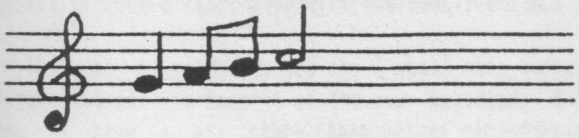
1/8 note = Quaver = o = L8

1/16 note = Semiquaver= o = L16

Quavers and semiquavers often have their tails joined in this manner.



Each note in the PLAY$ will remain the same length as the previous one, unless changed by the LENGTH (L) command.
Therefore:



would be written:
PLAY"L4;G;L8;A;B;O4;L2;C"

Note that not only did we change the length of the note, but we also had to change the octave at high C.

Try this example and then try a few experiments of your own..

There are a few things added in sheet music which are not there for the purpose of making life difficult. They have specific useful purposes in the music. Here are a couple of the most common.

THE DOT.
==========

The dotted note is written thus:

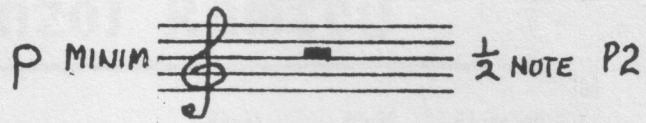
The dot after the note signifies that the note is half as long again. In other words the above is a 1/4 note plus 1/8 note which equals 3/8 note. This convention is easily covered by doing the same as the music. That is, add a period or dot after the note in question.

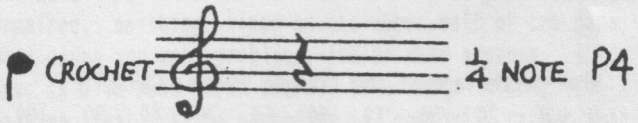
i.e. 

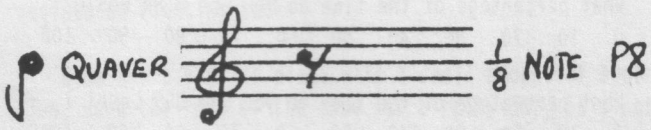
Would read:
PLAY"L4.;G"

PAUSE.
======

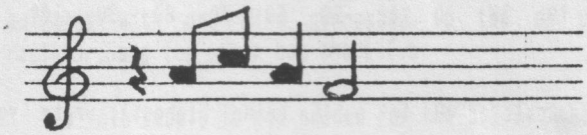
The pause shape is another sent to trick the unwary. Pauses work in the same lengths as notes.
They look like this:







Therfore.



Would be written:
PLAY"P4;L8;A;O4;C;O3;L4;A;L2;F"

SHARP (#)
==========

Your COCO will recognise sharps (#). For instance A# would be written:
PLAY"A#"

Try all these things and I am sure that you will find writing music a lot easier.

VOLUME.
========

The VOLUME of the music can be set by the (V) command, followed by a numeral between 0 - 31. The default is 15. This can be used anywhere in the music, and can help to give a more professional sound.

TEMPO.
======

I find it easier to start with the default TEMPO of 2 and

Continued on Page 27

COCO-LINK Reader Survey

Circle the appropriate response:

GENDER: Male Female

AGE:

Under 15 26-35 46-65
16-25 36-45 Over 65

What percentage of the time do you use CASSETTE
0 10 20 30 40 50 60 70 80 90 100

What percentage of the time do you use DISK BASIC
0 10 20 30 40 50 60 70 80 90 100

What percentage of the time do you use OS9 Level 1
0 10 20 30 40 50 60 70 80 90 100

What percentage of the time do you use OS9 Level 2
0 10 20 30 40 50 60 70 80 90 100

On a scale of 0 to 5 (5 being highest), rate your interest in each of the following:

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- Robbie's Column
- Better BASIC
- Graphics By...
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- Chain reaction

Do you type in COCO-LINK listings:
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Are COCO-LINK Listings:
Too long Too short Just right

Regarding listings are there:
Too many Too few Just right

Do programme in:
BASIC BASIC09 FORTRAN
C COBOL ASSEMBLER

Will you submit material to COCO-LINK:
Yes No

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Comments and suggestions:

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Send completed survey to:-
COCO-LINK SURVEY
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Pt. Noarlunga Sth.
S.A. 5167

A L.E.D. on/off Indicator for your Coco.

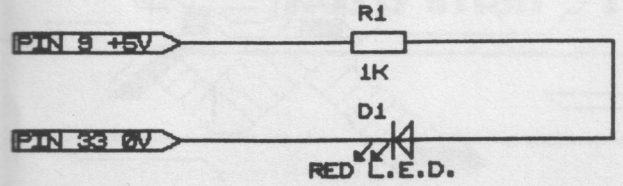
By Darren (Gonzo) Ramsey

Robbie has requested that I write a series of articles on COCO hardware, primarily based around the energy management control system I have installed, (and still installing) within my home. This I will do in forthcoming articles, but to start with I thought a small but useful modification to your COCO was in order. It was indicated to me at the last meeting I attended, that most Club members still didn't have a power on indicator on their computer. Well that will never do; so here we have a means of overcoming this minor problem. Now, before you lose interest and say to yourself "Not another hardware mod", or "I can't do that - I don't know a capacitor from a fuse, even if I got boot from it"!

This is a very easy job and I shall step through it throughout for the benefit of the raw beginner; I urge you to have a go; there is a lot of satisfaction in getting these things to work, and a power indicator is very useful.

THEORY: all COCO's have 5 Volts available, so we will use this to power our indicator. I could use a 5 Volt globe to show when the power is on, but globes are inefficient, use lots of power, and they tend to "blow" when you need them most. There is an electronic device however that can be used for indication which is very efficient. this device is a Light Emitting Diode, (L.E.D. for short).

A diode is like an electronic "non return valve" that is, it allows current to flow in one direction, but not in the other. When the current flows the L.E.D. lights. The nature of L.E.D.'s require that the current through them be limited, and this is done by placing a resistor in series with it. The circuit looks like this:-



or have the unfortunate need to have your machine repaired, anything fixed to the upper half of the case, will cause you many problems, and/or much expense. I for one, as with most other techs, take more kindly to a machine that can be worked on in "comfort", rather than fighting with some U.F.O. (Unwanted Fixed Object), which insists on fighting back!

Glue the L.E.D. in place with a small amount of super glue, save the rest of the tube for a rainy day, it's not wanted here.

The resistor supplied is now soldered to the longest lead of the L.E.D. The twin wire should be stripped and soldered with one wire connected to the end of the resistor, and the other tob the L.E.D.

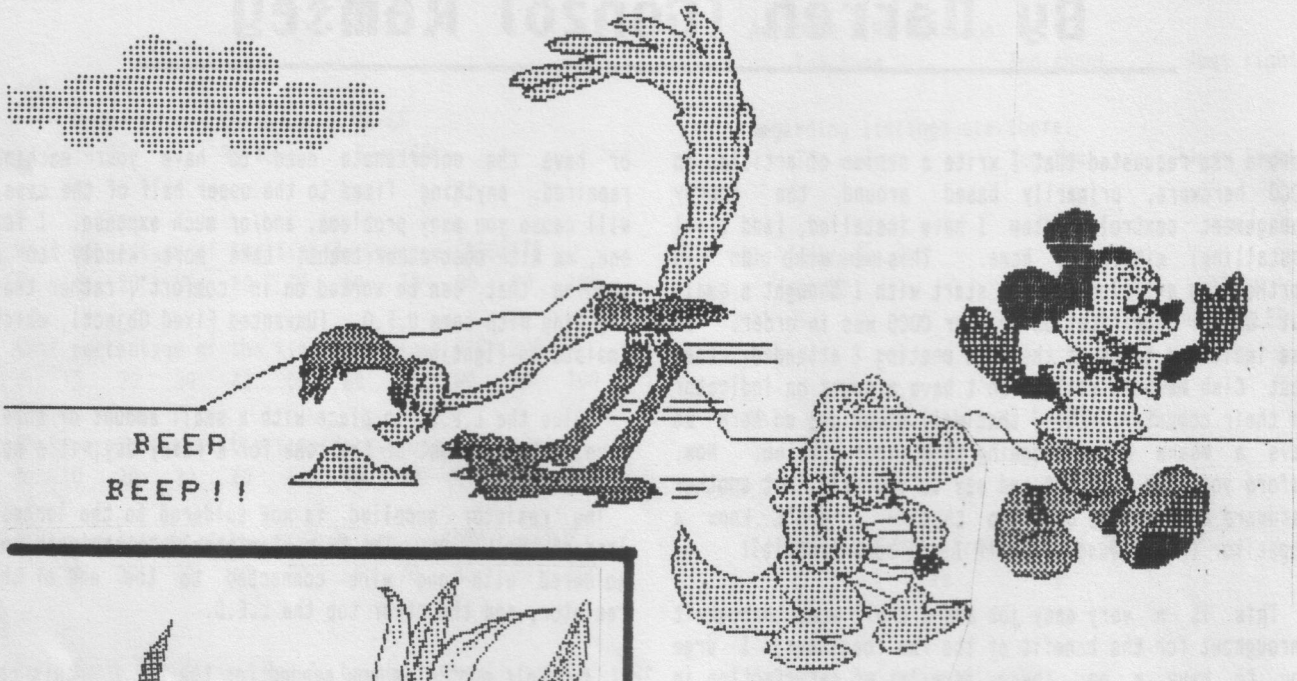
A 5 Volt supply is now needed for the L.E.D. this can be found on any COCO on pins 9 and 33 of the Rom port edge connector socket. Pin 9 is +5V and pin 33 is ground. The wire which goes to the resistor is now soldered to PIN 9. The wire which goes to the L.E.D. is now soldered to PIN 33. DO NOT SHORT ANY OF THE EDGE CONNECTOR SOCKET PINS TOGETHER.

The next step is to test the unit; plug the computer in and turn it on. If the L.E.D. glows and the rest of the computer doesn't, then success can be assumed. If the L.E.D. doesn't glow, it may be that the L.E.D. is connected backwards, so try swapping the connections on the L.E.D. If the L.E.D. doesn't glow and the computer doesn't work either, then unsolder the wires to the edge connector socket and try turning on the computer again. If the computer still won't work, then note where the smoke comes from and take it along with you to your next Club meeting.

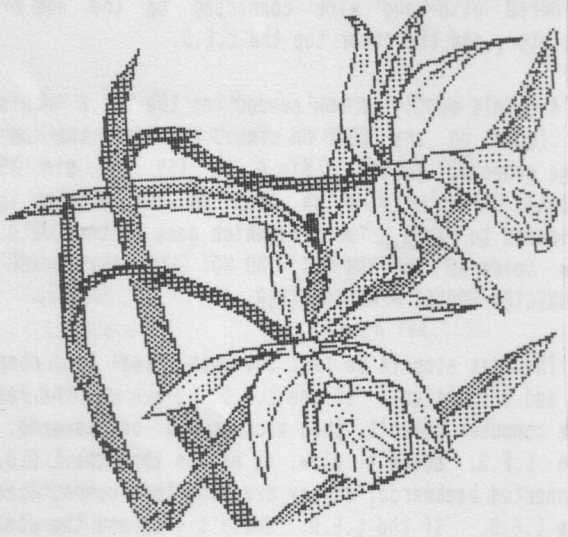
Good luck and happy hacking. GONZO.

END

Graphics by.....



Cartoon Characters
by Andrew Green

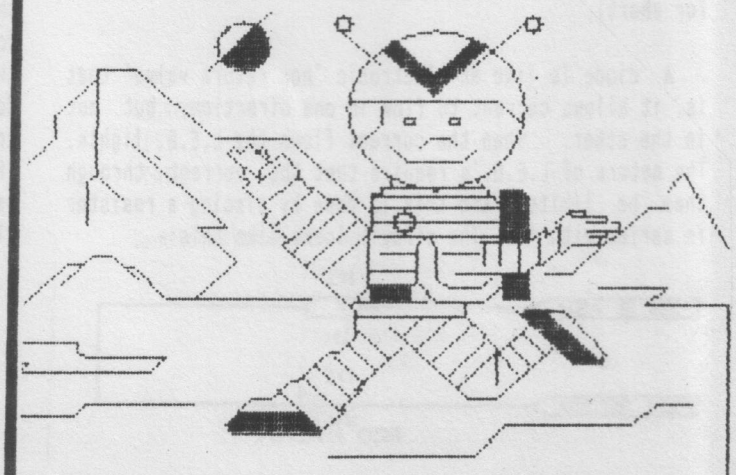


Orchids
in
Bloom

Robbie Dalzell

on CocoMax III

Graham Elphick
using Linemaster



Viruses give legislators a headache

WHEN Robert Morris, a post-graduate student at Cornell University in the United States, was charged with planting a computer virus in a scientific network in 1988 many people gleefully identified with him as a seeming underdog.

But computer experts said such an attitude shows ignorance of the true hazards of computer viruses and the thorny technical and legal issues they pose.

"Technical measures against viruses are very limited. So the biggest strides will be in ethics – convincing people that electronic crime is bad," a spokesman for IBM, Mr Stanley Kurzban, said.

Computer viruses are programs that execute the instructions of the program's author when entered into a computer. These instructions might be merely to display a humorous message. But viruses can also erase files, alter stored data or replicate themselves repeatedly until a computer system is overwhelmed.

They are called viruses because they can jump from file to file in a computer and from computer to computer in a network. They are undollars and brought important scientific research to a halt before it was identified and stopped.

Morris was convicted in January of violating the 1986 Computer Fraud and Abuse Act and awaits sentencing. He could get up to five years in prison and a fine of $US250,000 ($330,500).

The Morris virus was unusual. Most viruses have been confined to personal computers and have done little real damage.

Their intent has been more malicious than pernicious, a reflection of the youthfulness of most perpetradetectable to the average user until activated.

The virus planted by Morris, whose father is a computer security expert at the US National Security Agency, entered Internet, a network of more than 150,000 computers used by scientists and the military around the world.

Such networks are used for publishing, storing and communicating data.

The virus was responsible for damage estimated at tens of millions of tors, computer enthusiasts known as "hackers".

The potential danger, however, is great and growing as an era of personal computing done in isolation gives way to large-scale networking, opening up new channels for viruses to spread.

"We need to change our image of the perpetrator from one of the graduate student playing a prank to one of a villain. It could be organised crime, banks or big corporations," a senior associate of the US Congressional Office of Technology Assessment, Mr Fred Weingarten, said.

"We need to think about the potential of organised crime. I would be astounded if organised crime wasn't interested in the potential of these systems and networks."

Perfect technical solutions are theoretically ; they would be extremely expensive or would impose unacceptable restrictions on computer access, according to experts interviewed at a recent meeting of the American Association for the Advancement of Science in New Orleans.

While the computer industry and governments consider their options, hackers have been organising conferences and publishing manuals.

"For $US1000 ($1317) you can buy a personal computer and books on hacking," a professor of computer science at George Washington University, Mr Lance Hoffman, said.

"The last 30 to 40 years we operated in a vacuum. The computer industry has to come of age and live by the rules everybody else does.

"Computer systems of the future can and should have certain anti-viral protection built in as standard equipment. Like seat belts, these safeguards won't offer perfect protection but computers with them will be a lot safer."

The experts said commonsense measures, such as backing up data and limiting access to networks, offered the best protection against viruses. But they added that any moves to restrict access should be approached with caution.

"There's an inherent contradiction. Security is a form of gatekeeping which conflicts with American values of openness," Mr Weingarten said.

Mr Hoffman believes it may be necessary to make propagating computer viruses a crime and to licence some computer professionals.

Legislators, however, face a host of tricky problems in grappling with a new technology that spreads its tentacles across time and space.

The experts say that work has only just begun for the legislators.

"Communications are international. So we'll need international coordination," Mr Weingarten said.

Reuter

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"Australian" March 13th 1990

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COCO 3 ☐ DISK ☐

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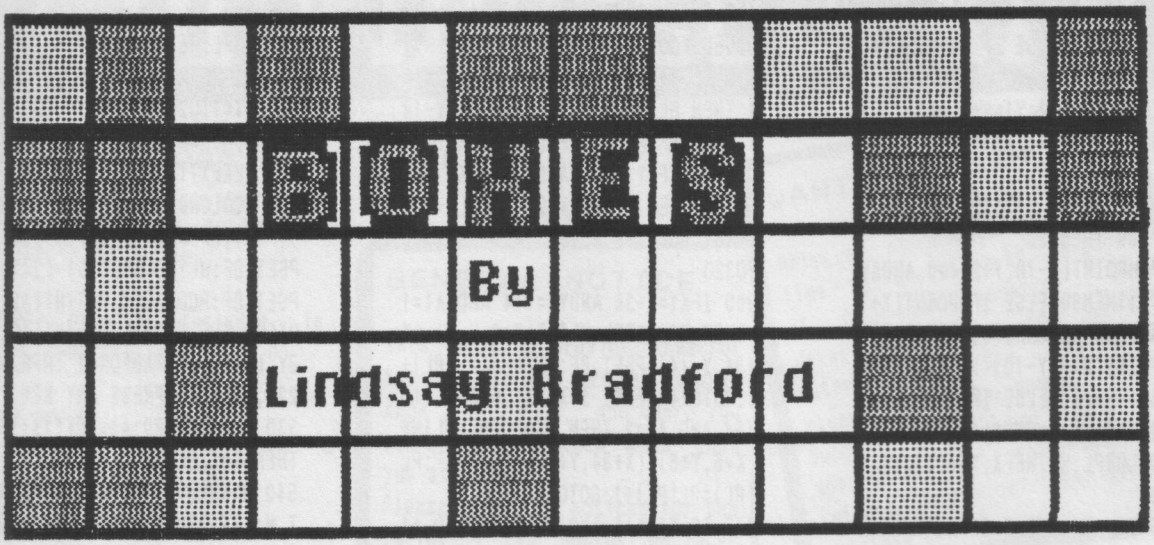
Coco 3 Game



Here's a little game that I have always loved but as yet, I have never seen done on the Coco. I'm not sure what the mane of the game really is, I think it is called something like "BOXES".

The idea of the game is for you and a friend to attempt to beat each at completing boxes by placing lines around the screen. The person who completes a box has his colour filled into the box. At the end of the game the totals of boxes completed by each player are calculated and the winner is notified.

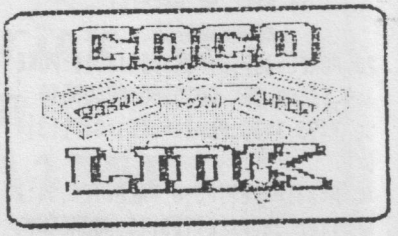
The program is for the Coco3. I have included the high speed poke because, without it, the program seem a little slow. If you wish not to use the high speed poke, I have put it at the beginning of line 20.

When the game screen is drawn, you will see a series of small boxes.
The top left hand box will be red on the inside. Use the cursor keys to move the red box around the grid. When you decide to draw a line, hit the ENTER key and the cursor key showing the direction you want the line drawn. The line will appear in your colour. The box will then change to blue. Your opponent must then do the same thing. This will continue back and forth until 3 sides of the box have been drawn. The person who completes the box will have the inside filled in his colour. Seeing as he filled the box he gets to have another turn. If he keeps filling boxes, he keeps having extra turns. This happens until he draws a line without filling a box.
When all the boxes have been filled, the winner will be told.
Sit back and enjoy.

```
10 '*****************************
   ********* 3 BOXES! *********
   **** BY LINDSAY BRADFORD ***
   ********* 10/12/88 *********
   *****************************

15 'SHAREWARE CONTRIBUTION,
     $1 WILL BE GREATLY
       APPRECIATED.
20 POKE65497,0:POKE65314,16:POKE
359,57:ON BRK GOTO590:GOSUB510
30 Y=23:X=38:PL=2:PL(2)=0:PL(3)=
0
40 M=23:PALETTE0,0:PALETTE1,54:P
ALETTE2,36:PALETTE3,15:HSCREEN2:
HCLS0:HCOLOR1:HLINE(36,21)-(260,
169),PSET,B:HLINE(37,170)-(261,1
70),PSET:HLINE(261,22)-(261,170)
,PSET:HLINE(262,22)-(262,170),PS·
ET
50 HLINE(37,175)-(260,192),PSET,
BF:HPRINT(11,0),"BOXES - THE GAM
E!"
60 HPRINT(33,8),"BLUE":HPRINT(33
,10),"RED":HCOLOR2:HPRINT(14,22)
,"RED'S TURN":HCOLOR1
70 FORT=38TO258STEP36:HLINE(T,M)
-(T+4,M+4),PSET,BF:NEXTT:M=M+20:
IFM>180THEN75 ELSE 70
75 HCOLOR2:HLINE(X,Y)-(X+4,Y+4),
PSET,BF:HCOLOR1:HLINE(X,Y)-(X+4,
Y+4),PSET,B:GOTO90
80 A$=INKEY$:IFA$<>CHR$(13)ANDA$
<>CHR$(94)ANDA$<>CHR$(10)ANDA$<>
CHR$(8)ANDA$<>CHR$(9) THEN 80 EL
SE RETURN
90 GOSUB80:A1=0:GOTO100
100 IF A$=CHR$(13)THENGOTO150 EL
SE:HCOLOR1:HLINE(X,Y)-(X+4,Y+4),
PSET,BF
110 IFA$=CHR$(94)THENY=Y-20 ELSE
 IF A$=CHR$(10)THENY=Y+20ELSEIFA
$=CHR$(8)THENX=X-36 ELSE IFA$=CH
R$(9)THENX=X+36
120 IF Y<23 THEN Y=163 ELSE IF Y
>180 THEN Y=23
130 IF X<38THEN X=254 ELSE IF X>
254 THEN X=38
```

```
140 HCOLORPL:HLINE(X,Y)-(X+4,Y+4
),PSET,BF:HCOLOR1:HLINE(X,Y)-(X+
4,Y+4),PSET,B:GOTO90
150 GOSUB80:IF A$=CHR$(94)THEN X
1=X+4:Y1=Y-16 ELSE IF A$=CHR$(10
)THENX1=X+4:Y1=Y+20 ELSE IFA$=CH
R$(8)THENX1=X-32:Y1=Y+4 ELSE IFA
$=CHR$(9) THEN X1=X+36:Y1=Y+4 EL
SE 90
160 IF Y1<20 OR Y1>170 OR X1<20
OR X1>260 THEN 90
170 IF HPOINT(X-10,Y+2)<>0 ANDA$
=CHR$(8)THEN90 ELSE IFHPOINT(X+1
0,Y+2)<>0ANDA$=CHR$(9)THEN90 ELS
E IFHPOINT(X+2,Y-10)<>0 AND A$=C
HR$(94)THEN 90 ELSE IF HPOINT(X+
2,Y+10)<>0ANDA$=CHR$(10)THEN90
180 HCOLORPL:HLINE(X,Y)-(X1,Y1),
PSET,BF
190 IF Y+4=Y1 AND X-32=X1 THEN A
=HPOINT(X+1,Y-5):B=HPOINT(X-10,Y
-16):C=HPOINT(X-32,Y-5):D=HPOINT
(X+1,Y+9):E=HPOINT(X-10,Y+20):F=
HPOINT(X-32,Y+9) ELSE GOTO220
200 GOSUB390
210 GOSUB 400:IF A1=1 THEN 320 E
LSE 310
220 IF X1=X+36 ANDY1=Y+4 THEN A=
HPOINT(X+2,Y-5):B=HPOINT(X+36,Y-
5):C=HPOINT(X+20,Y-16):D=HPOINT(
X+2,Y+8):E=HPOINT(X+36,Y+8):F=HP
OINT(X+20,Y+20) ELSE 250
230 GOSUB 390
240 GOSUB400:IF A1=1 THEN 320 EL
SE 310
250 IF X1=X+4 AND Y1=Y-16 THEN A
=HPOINT(X-6,Y+1):B=HPOINT(X-36,Y
-10):C=HPOINT(X-6,Y-16):D=HPOINT
(X+10,Y+1):E=HPOINT(X+40,Y-10):F
=HPOINT(X+8,Y-16) ELSE GOTO 280
260 GOSUB390
270 GOSUB 400:IF A1=1 THEN 320 E
LSE 310
280 IF X1=X+4 AND Y1=Y+20 THEN A
=HPOINT(X-10,Y+1):B=HPOINT(X-36,
Y+10):C=HPOINT(X-10,Y+20):D=HPOI
NT(X+10,Y+1):E=HPOINT(X+40,Y+10)
:F=HPOINT(X+10,Y+20)  ELSE 320
290 GOSUB390
300 GOSUB 400:IF A1=1 THEN GOTO3
20: ELSE 310
310 IFPL=2THENPL=3ELSEPL=2
320 HCOLOR1:HLINE(X,Y)-(X+4,Y+4)
,PSET,BF:IFA$=CHR$(94)THENY=Y-20
ELSEIFA$=CHR$(10)THENY=Y+20ELSEI
FA$=CHR$(8)THENX=X-36ELSEIFA$=CH
R$(9)THENX=X+36
330 HCOLORPL:HLINE(X,Y)-(X+4,Y+4
),PSET,BF:HCOLOR1:HLINE(X,Y)-(X+
4,Y+4),PSET,B
340 A=0:B=0:C=0:D=0:E=0:F=0:IFA1
<>0 THEN SOUND100,1:GOSUB410:GOT
O90ELSEGOSUB480:GOTO90
350 IF Y+4=Y1 AND X-32=X1 ANDA1=
1 THEN HLINE(X-2,Y-2)-(X-30,Y-14
),PSET,BF:PL(PL)=PL(PL)+1:GOTO21
0:ELSE IF Y+4=Y1 AND X-32=X1 AND
 A1=2 THEN HLINE(X-2,Y+6)-(X-30,
Y+18),PSET,BF:PL(PL)=PL(PL)+1:GO
TO320
360 IFX1=X+36 ANDY1=Y+4 AND A1=1
 THEN HCOLORPL:HLINE(X+6,Y-2)-(X
+34,Y-14),PSET,BF:PL(PL)=PL(PL)+
1:GOTO240 ELSE IFX1=X+36 AND Y1=
Y+4 AND A1=2 THEN HCOLORPL:HLINE
(X+6,Y+6)-(X+34,Y+18),PSET,BF:PL
(PL)=PL(PL)+1:GOTO320
370 IF X1=X+4 AND Y1=Y-16 AND A1
=1 THEN HCOLORPL:HLINE(X-2,Y-2)-
(X-30,Y-14),PSET,BF:PL(PL)=PL(PL
)+1:GOTO 270 ELSE IF X1=X+4 AND
Y1=Y-16 AND A1=2 THEN HCOLORPL:H
LINE(X+6,Y-2)-(X+34,Y-14),PSET,B
F:PL(PL)=PL(PL)+1:GOTO 320
380 IF X1=X+4 AND Y1=Y+20 AND A1
=1 THEN HLINE(X-2,Y+6)-(X-30,Y+1
8),PSET,BF:PL(PL)=PL(PL)+1:GOTO3
00 ELSE IF X1=X+4 AND Y1=Y+20 AN
D A1=2 THEN HLINE(X+6,Y+6)-(X+34
,Y+18),PSET,BF:PL(PL)=PL(PL)+1:G
OTO320
390 IF A=0 OR B=0 OR C=0THENRETU
RN ELSE A1=1:GOTO350
400 IFD=0 OR E=0 OR F=0 THEN RET
URN ELSE A1=2:GOTO350
410 HCOLOR0:HLINE(304,64)-(320,7
2),PSET,BF:HCOLOR3:HPRINT(37,8),
PL(3):HCOLOR0:HLINE(304,80)-(320
,88),PSET,BF:HCOLOR2:HPRINT(37,1
0),PL(2)
420 IF PL(2)+PL(3)=42 THEN 430 E
LSE 480
430 IF PL(2)>PL(3) THEN HPRINT(1
5,23),"RED WINS" ELSE IF PL(3)>P
L(2) THEN HPRINT(15,23),"BLUE WI
NS" ELSE IF PL(2)=PL(3) THEN HPR
INT(14,23),"IT'S A DRAW"
440 FORT=0TO2000:NEXTT
450 FORT=150TO250STEP2::SOUNDT,1
:NEXTT:HCLS0:HPRINT(2,12),"ANOTH
ER GAME?(Y/N)"
460 A$=INKEY$:IFA$="Y"THENGOTO30
ELSEIFA$="N"THEN590ELSE460
470 RETURN
480 IF PL=2 THEN A$="RED"ELSEA$=
"BLUE"
490 IFZ=PL THEN RETURN ELSEHCOLO
R1:HLINE(112,176)-(200,184),PSET
,BF:HCOLORPL:HPRINT(14,22),A$+"'
S TURN"
500 Z=PL:RETURN
510 HSCREEN2:PALETTE0,0:HCLS0:M=
0:FORT=1TO200STEP2::HCIRCLE(160,
96),T,M:M=M+1:IFM=15THENM=0:NEXT
T ELSENEXTT
520 HCOLOR0:HLINE(95,15)-(225,25
),PSET,BF:HLINE(79,79)-(241,89),
PSET,BF:HLINE(79,175)-(241,185),
PSET,BF:HCOLOR15:HPRINT(12,2),"B
OXES, THE GAME!":HPRINT(10,10),"
BY LINDSAY BRADFORD!":HPRINT(10,
22),"PLEASE PRESS ANY KEY"
530 FORZ=0TO20:A$=INKEY$:IFA$=""
THEN540ELSE550
540 M=RND(64):FORT=0TO14:PALETTE
T,M:IFT=7THENPALETTE15,0:NEXTT,Z
:ELSEIFT=14THENPALETTE15,64:NEXT
T:NEXTZ ELSE NEXTT,Z
550 WIDTH32:PALETTE12,30+RND(34)
:PALETTE13,0:PRINT@8,"Boxes, the
 Game!":PRINT" This is a 2 playe
r game.The onewith the most amou
nt of boxes inhis colour at the
end of the    game wins. Positio
n the cursor  with the cursor ke
ys.To make a  line,hit ";
560 PRINT"ENTER and the arrow ke
yin the direction of where you
 want the line placed. The playe
rwho puts in the last line to
 make the box takes the box. Eg-
 [ENTER]+[^] will draw a line up
 and if this completes a box the
 player who drew it takes
570 PRINT" the box":PRINT@488,"P
RESS ANY KEY";
580 A$=INKEY$:IFA$=""THEN580ELSE
RETURN
590 HSCREEN0:WIDTH32:PALETTE13,0
:PALETTE12,54:PRINT"SURE YOU WAN
T TO QUIT?(Y/N)"
600 A$=INKEY$:IFA$="N"THEN 30 EL
SE IFA$="Y"THENPOKE65496,0:POKE3
59,126:PRINT"TRY AGAIN SOME TIME
!":NEW ELSE 600
```



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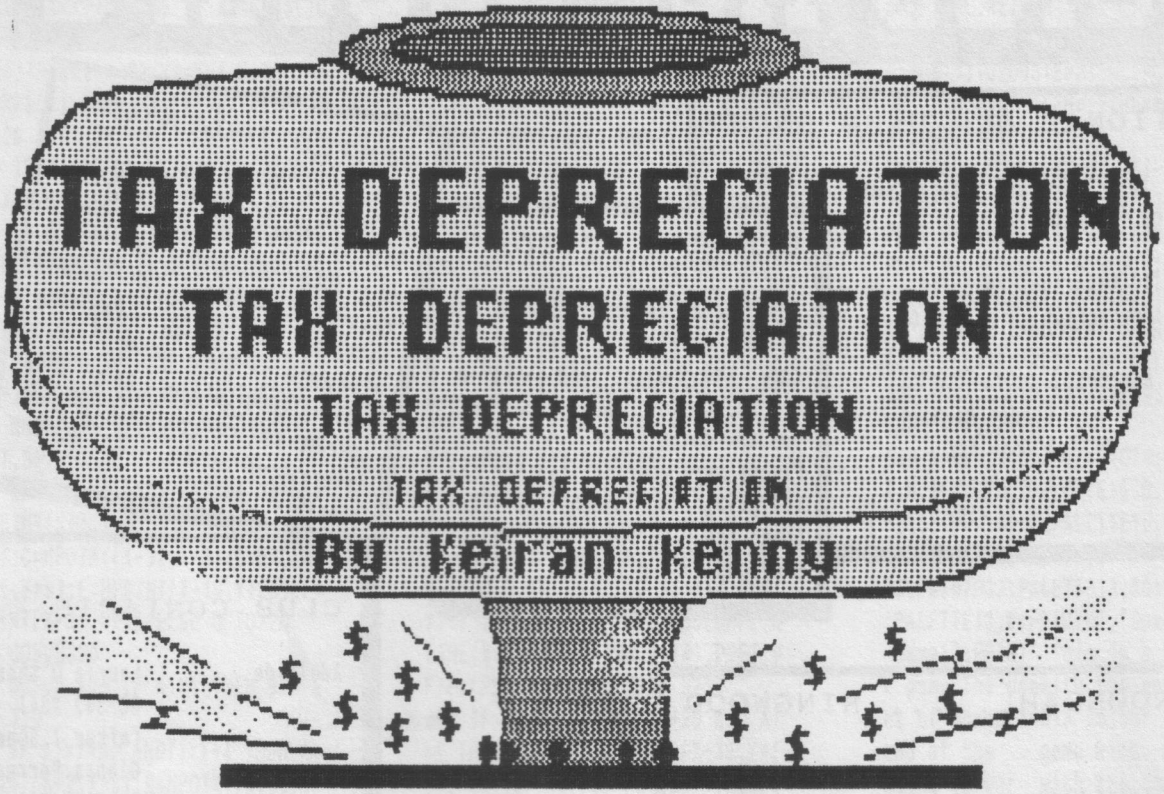
Clubs or persons wishing to be added to this list please inform the editor.



If you earn any income with your computer, or any other equipment, and you include your earnings in your annual tax return, you are also entitled to claim deductions for expenses incurred in earning that income. Thus I earn a modest amount of extra income each year from writing and programming and, quite fairly, I may claim deductions for items like printer paper and other stationery, postage, disks, and software such as word processing programs.

This calls for accurate record keeping, and there are plenty of programs available to help you keep tabs on what comes in and what goes out and, finally, produce a printed schedule to accompany your tax return.

I can also claim depreciation on my equipment (in my case: computer, monitor, disk drive and printer).
This program will help you prepare your depreciation statement. To understand these instructions, ask your local tax office for a copy of Form NAT 112-2.85 and any booklet they may have available. The prompts in the program follow the columns in Form NAT 112-2.85 in the order in which they occur and I will take them in that order.

Description: for example, printer, computer, monitor, diskdrive.

Original Cost: what you actually paid for the item.

Prop'n Private Use: Of course you don't use your equipment solely for the purpose of earning money. You write letters to family and friends and, maybe, spend time playing games and adventures. In my case, ten per cent was acceptable to the Taxation Office.

There are two methods of claiming depreciation, as follows -
PRIME COST METHOD: at present 24% per year of what you paid for the item. But, if, for instance, I bought a CoCo 3 for $329 on 31/10/1988 I could claim only 24% of 243/365ths of $329 in my taxation return for 1988-1989. But in all subsequent years up to and including the fifth year I can claim 24% of the full $329.
DIMINISHING VALUE METHOD: at present 15% deducted from the original cost for the first year and thereafter 15% of the remainder each year.

Allowable depreciation percentages can vary according to the nature of the equipment, but the above apply at present to computers and peripherals.

For short lived equipment like computers and peripherals, the prime cost method will probably be preferable. Amortization of even a small sum will take many years under the diminishing value method.

This brings us to the fourth column and all subsequent

calculations built into the program proceed from the value entered here -
Opening Written Down Value: If you are using the prime cost method, the value to be entered here will always be the original cost, as in the first column. If you use the diminishing value method, enter the original cost for the first year (more about this later).

The program skips the next four columns as it is unlikely that any equipment would be disposable. If you trade in on a new model then comsult the tax office on how to complete these columns.

Your next prompt is a question: IN USE > 364 DAYS? If you have not had the item for a full year press N. You then get prompts to enter the purchase date and the number of days in use. To help you count the days, the first half of a normal year has 181 days and the second half 184 days.
On the next prompt enter 1 or 2 according to whether the item is to be depreciated on the diminishing value or prime cost method. After you have repeated the procedure for all items, the program will do all necessary calculations and display all the entries you need for columns 1-4, 9-12, 14 or 15, and 16 for each item in turn, and you can then copy them into your Form NAT 112-2.85.

The figure you write in the final column will be the figure to enter on the column 4 prompt (Opening Write Down Value) next year. Keep a copy of the depreciation schedule for yourself.

Finally, the program gives you the values to be written into the boxes under the bottom line in your schedule.

To keep this listing as short as possible, I have not made any attempt to limit the the length of long fractional values, and this may make the display look somewhat untidy at times. However, you are only expected to write whole numbers into the columns and boxes of your schedule form.

TAX DEPRECIATION SCHEDULE

```
0 'DEPRSCHD':COPYRIGHT 1989
  KEIRAN KENNY
1 '2/45 CREMORNE ROAD, CREMORNE
  NSW 2090.
10 CLS:GOTO40
20 PRINT@64,"ITEM";T;"- ";NM$(T)
;":":RETURN
30 PRINTTAB(6)"PRESS ANY KEY.";:
EXEC44539:CLS:RETURN
40 PRINT@128,"";:INPUT"# OF ITEM
S OF EQUIPMENT";X:CLS
50 DIMNM$(X),OC(X),PU(X),IU(X),D
U(X),OV(X),AD(X),WV(X),PD$(X),DV
(X),PV(X)
60 FORT=1TOX
70 PRINT@64,"ENTER ITEM";T;CHR$(
8);":"
80 INPUT"NAME:";NM$(T)
90 INPUT"ORIGINAL COST:";OC(T)
100 INPUT"% PRIVATE USE";PU(T)
110 INPUT"OPNG WRITEDOWN VAL:";O
V(T):OX=OX+OV(T)
120 GOSUB30
130 NEXT
140 FORT=1TOX
150 GOSUB20
160 INPUT"IN USE > 364 DAYS? - Y
/N";IU$
170 IFIU$="Y"THENIU(T)=1:GOTO230

180 IFIU$="N"THEN200
190 GOTO160
200 INPUT"PURCHASE DATE";PD$(T)
210 INPUT"DAYS IN USE:";DU(T)
220 IU(T)=DU(T)/365
230 GOSUB30
240 NEXT
250 FORT=1TOX
260 GOSUB20
270 PRINT"DEPRECIATION ON:",TAB(
3)"1. DIMINISHING VALUE.",TAB(3)
"2. PRIME COST."
280 INPUTDV(T)
290 IFDV(T)=1THENPV(T)=15:GOTO32
0
300 IFDV(T)=2THENPV(T)=24:GOTO32
0
310 GOTO280
320 GOSUB30
330 NEXT
340 FORT=1TOX
350 AD(T)=OV(T)*IU(T)
360 NEXT
370 FORT=1TOX
380 GOSUB20
390 PRINT"ORIGINAL COST:";OC(T)
400 PRINT"% PRIVATE USE:";PU(T)
410 PRINT"OPNG WRITEDOWN VALUE:"
;OV(T)
420 IFIU(T)<1THENPRINT"PURCHASE
DATE: ";PD$(T):PRINT"COST";OC(T)

430 PRINT"VAL. FOR DEPRECIATION"
;AD(T)
440 PRINT"DEPRECIATION ";PV(T);"
%"
450 PRINT"DEPRECIATION ON"
460 IFPV(T)=15THENDR=AD(T)*PV(T)
/100:DE=DE+DR:DD=DD+DR*PU(T)/100
:AR=AR+DR:PRINTTAB(2)"DIMINISHIN
G VALUE:";DR
470 IFPV(T)=24THENDS=AD(T)*PV(T)
/100:DF=DF+DS:DP=DP+DS*PU(T)/100
:BR=BR+DS:PRINTTAB(2)"PRIME COST
:";DS
480 IFPV(T)=15THENWV(T)=OV(T)-DR
 ELSEWV(T)=OV(T)
490 PRINT"WRITE DOWN VALUE:";WV(
T)
500 GOSUB30
510 NEXT
520 PRINT"TOTAL OPNG WRTDWN VALS
:";OX
530 PRINT"DEP. PRIME COST:";BR
540 PRINT"DEP. DIM. VALUE";AR
550 PRINT"DED PRIV USE PRIME COS
T:";DP
560 PRINT"DED PRIV USE DIM VAL:"
;DD
570 PRINT"NETT DEP PRIME COST:";
DF-DP
580 PRINT"NETT DEP DIM VALUE:";D
E-DD
590 PRINT"AMT CLAIMED FOR DEP:";
BR-DP+AR-DD
600 PRINT"TO END, PRESS ANY KEY.
":EXEC44539:CLS:END
```

Coco 1,2&3 Utility

A= _____ AA= _____ A$= _____ AA$= ___

B= _____ BB$= ___

C= _____ CC$= ___

D= _____ DD$= ___

E= _____ EE$= ___

F= _____ FF$= ___

G= _____ GG$= ___

H= _____ HH$= ___

I= _____ II= _____ I$= _____ II$= ___

This programme is for keeping track of variable values while writing a programme. If the programme I am writing is using the High-speed poke and I am changing from high to low a lot, I can use A = 56497:B = 56496: POKE A,0; and so on. This way you can pack your programme to save more memory for your data.

The programme prints out a sheet of 52 numerical variables A to Z and AA to ZZ, this is followed by 52 string variables A$ to Z$ and AA$ to ZZ$. It also gives 5 lines at the bottom for comments.

Questions or comments may be directed to the authoe at:

81 Frederick St.
Sydenham
NSW 2044

```
1 CLS:A=15:B=14
2 PRINT@193,"*** STRING VALUE PR
INT-OUT ***"
3 PRINT@257,"****** BY KARL BECK
MAN *******"
4 A$="                "
5 POKE150,18
6 B$="A= ":C$=" AA= ":D$=" A$= "
:E$=" AA$= ":GOSUB32
7 B$="B= ":C$=" BB= ":D$=" B$= "
:E$=" BB$= ":GOSUB34
8 B$="C= ":C$=" CC= ":D$=" C$= "
:E$=" CC$= ":GOSUB34
9 B$="D= ":C$=" DD= ":D$=" D$= "
:E$=" DD$= ":GOSUB34
10 B$="E= ":C$=" EE= ":D$=" E$=
":E$=" EE$= ":GOSUB34
11 B$="F= ":C$=" FF= ":D$=" F$=
":E$=" FF$= ":GOSUB34
12 B$="G= ":C$=" GG= ":D$=" G$=
":E$=" GG$= ":GOSUB34
13 B$="H= ":C$=" HH= ":D$=" H$=
":E$=" HH$= ":GOSUB34
14 B$="I= ":C$=" II= ":D$=" I$=
":E$=" II$= ":GOSUB34
15 B$="J= ":C$=" JJ= ":D$=" J$=
":E$=" JJ$= ":GOSUB34
16 B$="K= ":C$=" KK= ":D$=" K$=
":E$=" KK$= ":GOSUB34
17 B$="L= ":C$=" LL= ":D$=" L$=
":E$=" LL$= ":GOSUB34
18 B$="M= ":C$=" MM= ":D$=" M$=
":E$=" MM$= ":GOSUB34
19 B$="N= ":C$=" NN= ":D$=" N$=
":E$=" NN$= ":GOSUB34
20 B$="O= ":C$=" OO= ":D$=" O$=
":E$=" OO$= ":GOSUB34
21 B$="P= ":C$=" PP= ":D$=" P$=
":E$=" PP$= ":GOSUB34
22 B$="Q= ":C$=" QQ= ":D$=" Q$=
":E$=" QQ$= ":GOSUB34
23 B$="R= ":C$=" RR= ":D$=" R$=
":E$=" RR$= ":GOSUB34
24 B$="S= ":C$=" SS= ":D$=" S$=
":E$=" SS$= ":GOSUB34
25 B$="T= ":C$=" TT= ":D$=" T$=
":E$=" TT$= ":GOSUB34
26 B$="U= ":C$=" UU= ":D$=" U$=
":E$=" UU$= ":GOSUB34
27 B$="V= ":C$=" VV= ":D$=" V$=
":E$=" VV$= ":GOSUB34
28 B$="W= ":C$=" WW= ":D$=" W$=
":E$=" WW$= ":GOSUB34
29 B$="X= ":C$=" XX= ":D$=" X$=
":E$=" XX$= ":GOSUB34
30 B$="Y= ":C$=" YY= ":D$=" Y$=
":E$=" YY$= ":GOSUB34
31 B$="Z= ":C$=" ZZ= ":D$=" Z$=
":E$=" ZZ$= ":GOSUB34:GOTO37
32 PRINT#-2,TAB(24)"NAME OF PROG
RAM. ......../..."
33 PRINT#-2:PRINT#-2
34 PRINT#-2,B$;CHR$(A);A$;CHR$(B
);C$;CHR$(A);A$;CHR$(B);D$;CHR$(
A);A$;CHR$(B);E$;CHR$(A);A$;CHR$
(B)
35 PRINT#-2
36 RETURN
37 FORX=1TO5
38 PRINT#-2,STRING$(80,".")
39 PRINT#-2
40 NEXT
41 CLS
42 PRINT"DO YOU WANT ANOTHER COP
Y ?"
43 I$=INKEY$:IFI$=""THEN43
44 IFI$="Y"THEN1
45 IFI$="N"THEN47
46 GOTO43
47 END
```

Fourth Generation Languages and OS9

By Ole Eskilsden

PART 1....What are 4GL's and what is available for OS9?

This is the first of three parts on 4GLs, what they are, and what is available for the OS-9 operating system. At the end I hope to be able to make you a special offer to try out such a 4GL. For reasons of space availability in this magazine I will obviously have to be fairly brief, however, I hope to cover the subjects sufficiently to benefit the general reader. The more experienced reader will probably find that Part 1 in particular does not provide him with a lot of new information, but please bear with me.

In the three parts I intend to cover the following subjects:

Part 1 - What Are 4GLs and What Is Available for OS-9?
Part 2 - A Real 4GL Called Sculptor
Part 3 - A Sample Application Using Sculptor and a Special Offer to Try It.

So, what are 4GLs? As the name implies there must have been first, second and third generations before and perhaps fifth, sixth and seventh generations to follow. Let us therefore briefly review the history of computing as it relates to software.

Way back in the dim, dark ages of the forties the first computers started to appear and, as we all know now, the internal workings is based on the binary (two state) principle such as positive/negative, on/off and expressed mathematically as 0 and 1. In order to get the computer to work the "programmer" had to enter a long string represented by 0s and 1s which had the effect of switching the gates in the circuit on and off in order to finally arrive at the desired result. For instance, to add two numbers together he might have entered: "11110011001100000000000" This is machine language, the FIRST GENERATION. Little wonder you had to be a mathematics professor to program the early computers. Next someone decided to group the binary digits (bits) together in groups of four and use the hexadecimal numbering system to represent the bits so the string above becomes: "1111 0011 0011 0000 0000 0000" or hex "F 3 3 0 0 0" which incidentally in 6809 machine language means to add the value stored in hex address 3000 to the value in register D. This is somewhat easier to read, but to use it in the computer it was necessary to make a simple program that could translate the hex numbers into binary. Wow! Aren't you glad you don't have to program like that?

The SECOND GENERATION was born when someone decided that the above method was a bit too cumbersome for his liking and came on the idea of using mnemonics to represent the individual machine language instructions, such as add, subtract, store, move data, etc as well as performing jumps from one place in the program to another perhaps depending on a condition that had been tested for, and so on. This language is of course Assembler, where one mnemonic instruction correspond to one machine language instruction. This is therefore known as a 'low level' programming language because it is very close to the way the hardware (the Central Processing Unit or CPU) works and that also accounts for the fact that Assembler language differs from one type of processor to another such as Motorola 6809 (in the CoCo) and Intel 8088 in the original IBM PC. Still, this was a vast improvement over the first generation way of programming but again necessitated that a program was developed (in the first generation language) to translate the programmer's Assembler language instructions and this program is simply known as "the Assembler". The add instruction shown above now looks like this: "ADDD $3000" in 6809 Assembler language which, I am sure you will agree, is a lot easier than the First Generation. Sometimes you hear

a programmer say that he is programming in machine language. What he probably means is that he is programming in Assembler language and his program is assembled into machine language. As you can probably imagine this is the most efficient way of programming and that is the reason why most system functions and system software is written in Assembler although there is at least one notable exception which I will explain under Third Generation languages.

The THIRD GENERATION languages came into existence when some programmers realized that it was too tedious to program in Assembler language since even a short program may soon run into hundreds and thousands of instructions. The idea was therefore conceived to develop a 'high level' programming language where one instruction may be translated into many machine language instructions. In other words, it would now be possible to write programs with fewer instructions which would mean that it could be written and debugged in a shorter time (fewer instructions = fewer potential bugs). Two of the first 3GLs were FORTRAN and COBOL. Other 3GLs include (yes, you guessed it) BASIC as well as PASCAL, RPG, PL1, and many others. How would you now perform the example instruction shown in the preceeding paragraphs? Well, you cannot! (At least I don't think you can in any of the languages mentioned.) This is why 3GLs are called 'high level' languages. I said in the previous paragraph that there was an exception and that is the 'C' programming language, which is a very powerful 3GL but at the same time it allows the programmer to dive down to a low level close to the hardware whenever required and as a result C is also very useful for systems programming. Of course the 3GL cannot directly be executed by the processor, so a translating program, called a compiler, had to be developed for each language. This introduced a new benefit, namely that of portability of an application. By developing compilers for e.g. COBOL in Assembler language for many different processors it became possible to write a program in COBOL and then port the source program to different hardware and recompile it using the resident COBOL compiler.

Now then, what about FOURTH GENERATION languages? Well, there seems to be several different opinions about what constitutes a 4GL, however, we can probably agree that it has to be even more powerful than a 3GL, i.e. one 4GL instruction must result in even more work being done by the processor. All of this is aimed at improving the productivity of the programmer so that he can churn out more and more solutions in as short a timeframe as possible. 4GLs usually have some of the following characteristics:-

1) A powerful database management system (DBMS), perhaps a relational DBMS, which will store and retrieve the data for the programmer without him having to actually tell the system where or how to do this, thus removing an enormous burden from the programmer.

2) A powerful programming language which performs the most work with the least number of instructions.

3) A program generator of some sort whereby the programmer or perhaps even the end user can specify his requirements and the generator then automatically 'writes' the program (with no bugs).

4) The ability to modify (or fine tune) a program generated by the program generator. It should be easier to learn than 3GLs and it should be possible for an experienced programmer to produce a desired result in a much shorter timeframe, some say as much as ten times faster than using a 3GL, this however, would vary from language to language, still it would be a considerable improvement.

One such 4GL is SCULPTOR which I have used on and off for the last couple of years to develop real applications that are installed and running at customer sites. In Part 2 I will describe some of the main functions of Sculptor and in Part 3 I will present a sample application. The Sculptor distributor for Australia has kindly agreed to provide a demo version so that you can try out the sample application. If you like it you can then obtain Sculptor either from myself or from the distributor.

There may be other 4GLs available for OS-9 but I have never seen them, but I would of course be interested to hear about and particularly to try out any other 4GLs.

Questions or comments should be addressed to:

Ole Eskildsen
11 Monarch Street
Kingston QLD 4114
Tel: (07) 209 4322

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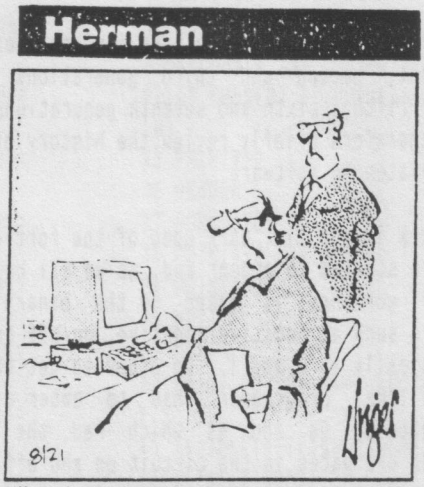
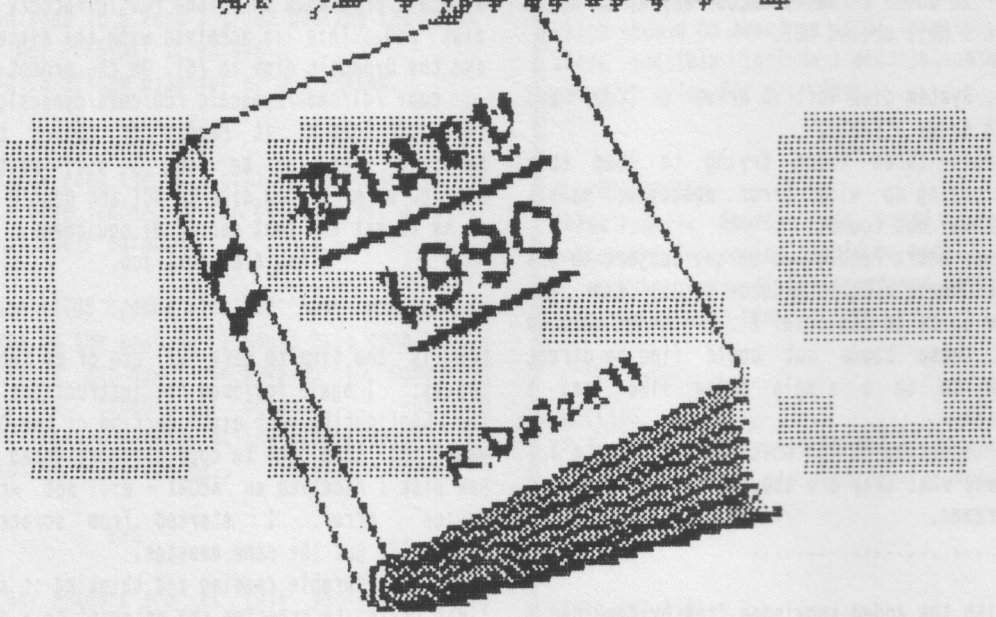


"I've just calculated that by the year 2183, the government will declare the 365th national holiday."

A Beginner's



IN THE BEGINNING...

I've got a 512K Coco3, OS9 level 2, Multivue and a "C" Compiler. The time has come to make a start into these more advanced Coco uses. As stated in a previous article my purpose is to learn to programme in C and try and record the process to you in the hope that you will be able to avoid the pitfalls which I will most certainly fall into.

As I am a complete beginner in these usages and have no experience whatsoever of OS9 my first objective must be to get my disks and system ready for use. In doing this I will try mainly to stick to the authorised manual which comes with each set of disks. Where I hit a snag I will try to reference other sources of information or just shout "Help!" and hope someone out there who knows what this is all about will come to my rescue.

Because I am short on spare time, the sequences of this diary may be stretched over a fairly long period of time but, to simplify things, I will just record them as they happen with no time base given. So let's get started.

.....

I have read through the "Getting Started" sections of the OS9 manual and have decided to follow their advice and firstly make backups of all disks.

This job proved to be no trouble. I just followed the instructions; which I found easy to understand and follow. Now I can put my master disks away in a safe place until I need them again should I damage my backups.

Now I have a set of disks and am ready to start the learning process but first I have a couple of questions. The answers to these questions may save me a lot of time and trouble in the future. The questions are:-

1) How much do I really need to know about OS9 level 2 to get good use out of it?
2) When I eventually get round to starting to learn to programme in C would I be better working from OS9 or would I be as well to do it through Multivue?

The answers to the above questions were supplied by Ken Wagnitz and Gordon Bentzen, two very helpful people with a vast knowledge of OS9. Abridged editions of the answers given were:

1) One should learn as much about the OS9 system as possible as it will always stand you in good stead You must at least learn enough to be able to manipulate your disks and also have an understanding of the OS9 Directory system.
2) Multivue as it stands is a fairly slow system. It uses pull-down menus and things like that to make life easy and in the process slows things down a lot.
   Using it constantly will prevent you from learning the intricacy of how OS9 operates.

I think that answers my questions. I will put Multivue back up on the shelf and look at it at a later date. I'll go for the intricacies and see how I progress.

.....

MOVING ON.....SLOWLY

What do most people want to do with any computer system? They want to run programmes on it.

Under OS9 it is not possible to run all the programmes run under RSDOS. Only programmes designed for the system will run on OS9. In many cases this will prove to be a

great drawback, meaning the purchase of a whole new array of expensive software.
Like everyone else I would first of all like to see something actually running on my OS9 system. I have an OS9 copy of Dynacalc which will not boot from the disk (I do not know why). It doesn't really matter anyway as now I can run it after I have booted OS9.

OK. OS9 booted, System disk left in drive 0 (/d0) and Dynacalc disk in drive 1 (/d1).
I spent the next three hours trying to load this programme. All ending up with error messages, mainly Error #216 - Pathway not found.
I next spent many hours reading up on the subject in the OS9 manual, "The Complete Rainbow Guide to OS9" and "The Complete Rainbow Guide to OS9 Level 2". I scanned through many pages of these books but could find no direct reference on how to do a simple thing like load a programme from /d1.
I read many interesting things which will help me a lot (when I understand what they are about) but nowhere how to load my programme.

.....

Next evening with the added knowledge from my reading, I tried many wild and varied ways to try and load the programme but only managed to produce some quite flamboyant error messages. I will explain them in due course. (When I understand what they are about). I obviously haven't read the right paragraphs.

What can I possibly do next? My eyes are red from reading and my fingers are sore from typing. I know!!!
.....HELP!!!
The call was answered by none other than Graham Bentzen.

Gordon gave me a couple of ways to go about the problem. I decided first of all to try what I reckoned would be the easiest. On the OS9 prompt type:

chd /d1;chx /d1/cmds <ENTER>

(Don't forget the spaces before the /d1 on both occasions).
The above command line is actually two separate commands, chd /d1 and chx /d1/cmds. the semicolon separating them tells the computer to execute the two commands sequentially. (ie one after the other).
The 'chd /d1' puts the current Data directory to the root directory of /d1 and the 'chd /d1/cmds' puts the current execution directory in the CMDS directory of /d1.
You then load the programme (file) directly from /d1.

chd and chx are two of the commands OS9 holds in memory because of their intensive use. This way the disk does not have to be searched each time these commands are used thereby saving a lot of time. The commands are especially useful when disks in /d1 (or other drives) are being changed regularly. If you wish to return to reading the root directory in /d0 remember to reverse the process. ie substitute /d0 for /d1 in the above command lines.
All I need to do now is type Dynacalc.....And voila! The Dynacalc programme appears on screen. The above command made things work but shows that I had better do a bit more reading on directories and suchlike.

Another method explained by Gordon was to put the Dynacalc programme on to the root directory on the system disk /d0. This is acheived with the system disk in /d0 and the Dynacalc disk in /d1. On the prompt type:

copy /d1/cmds/dynacalc /d0/cmds/dynacalc <ENTER>

This just does as it reads. It copies the cmds and dynacalc from /d1 to /d0. I will wait till I have configured my System disk to 40T and double sided drives so as to get the best use of my equipment.

That's my next job.

.....

Now is the time to make full use of my two Double Sided drives. I again followed the instructions as given in the "Configuring your disk" section of the OS9 Manual but when the time came to copy the configured modules to my new disk I received an "ABORT - will not write to this device" error. I started from scratch again but eventually got the same message.
After considerable reading and thinking it struck me that I was trying to transfer the material to a 40TDS disk but the device descriptors still saw it as a 35TSS drive. What next?
COCO-LINK had an article by Ken Wagnitz many months ago which turned out to be exactly what I was looking for. "Customising your OS9 system Disk" appeared in April '89 Vol.2 No.2. This shows that there is still some life in old COCO-LINKs.
I read the article and then, starting all over again from scratch, followed the instructions to the letter....or nearly. After a couple of hiccups I got a 40TDS System disk made.
Here are a couple of little things to look out for while in the MODPATCH module:

1) <CTRL> <BRK> (escape). Make sure you hold down the CTRL key while you press BRK or you will exit modpatch without getting the required EOF (end of file) required. An error message will result.
2) The character in the first line is a small L for Link (l), not a one (1) as is shown on page 6-71 in the Command Description section of the OS 9 Manual.

I now put my new disk in /d0 and pressed (reset) to boot the disk.

The OK sign appeared after a few seconds.

What's this? I must have done something wrong somewhere So I went right back to the beginning and started all over again.....(reset).

OK! Same again.

This time I booted my 35T customised disk and through it looked at the root directory in my 40T disk. Would you believe it? There was no OS9Boot file. I didn't read anywhere that this would happen.
Back to the books again where I found a command called OS9gen. This creates and links the required OS9Boot file

to a disk making it a bootable disk. I read the command description and then followed the directions.

With my 35T disk in /d0 and my 40T disk in /d1:

os9gen /d1 (enter)
/d0/os9boot (enter)
CTRL BRK

When it had finished it's work I tried booting the disk.

HEY PRESTO!! It works!

I now have a 40TDS System disk for my OS9 system.

.....

I think I will now read the full official description of the commands I have learned so far so as to get a fuller understanding of their purpose.

I now have a new 40TDS System disk and have managed to run a programme on the system. I could have done that a lot easier on RSDOS, but now I can move on to something that RSDOS is not capable of doing..... Run two programmes in different windows at the same time.
So it's back to the books for me.

END

ADDENDUM - If any readers are at this early stage of development on OS9, please send me a description of any problems that you find in operating the system along with a solution (if you have one). I will try to incorporate them in the DIARY.

From Page 7

You don't need batteriesor printed cicuit boards for this small project. All you need are the main ingredients and some imagination.
I repeat, the educational value of this system is still to be tapped.

Jim will be glad to answer any queries on his Talking Bear System. He can be reached at Ph.(08) 296 2843.

From Page 9

after the tune has been fully written and debugged, alter the tempo by the (T) command to suit the tune's requirements.

There are more strings to the PLAY$'s bow, but I feel that the above are enough to get you writing music that sounds good.

PLAY$ can be used to make many strange and varied sound effects. Should there be enough interest I will do a follow up article on that subject.

(END)

HOW TO SUBMIT MATERIAL TO COCO-LINK
****

PROGRAMMES: On tape or disk.
At least two copies should be on the tape/disk one of which should be saved in ASCII format.
Where possible include a description of your prodgramme saved as below for articles.

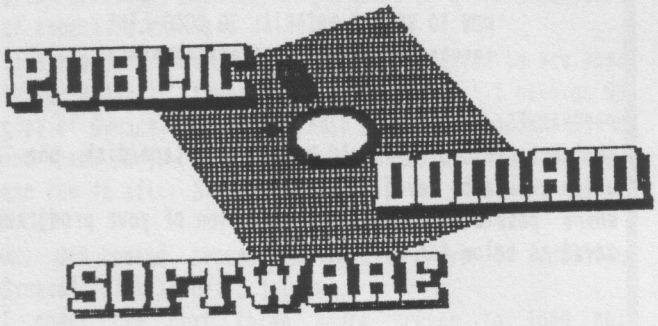
ML PROGRAMMES:
These require Source code saved on a suitable word processor. Two copies should be made.
A working copy of the programme should be included for checking by COCO-LINK.

ARTICLES:
At least one copy saved in ASCII format plus one copy on a commercial word processor where possible. (VIP Writer etc.)

HINTS AND TIPS:
Hand written or typed is acceptable.

LETTERS TO THE EDITOR:
Hand written letters will be accepted subject to the length. Long letters should be submitted on disk in the manner above for articles.

All disks and cassettes will be returned in due course.



PD Disk 031 Home Applications
****

This months disk is a flippy. On side 1 we have HOMEHELP a Coco 3 programme by Geoff Donges. On side 2 we have a selection of programmes for use in the home which are compatible with all versions of Coco.

SIDE 1
******

HOMEHELP. This programme takes up about 23 granules of the disk. The remainder can be used for storing files created by the programme.

This Coco 3 programme consists of 5 separate modules all of considerable help around the household. There is also an instuctional module. The programme consists of:

ADDRESS BOOK
LETTER WRITER
BIRTHDAY BOOK
IDENTIFICATION Nos.
BANK BALANCE
READ ME

The modules are all selected from a central menu and each module in turn has a sub-menu which allows you to create files, append files, print, change, delete and do all the things you would expect of them.

I found the idea of the IDENTIFICATION NUMBERS module to be refreshing. We should all have a list of the serial numbers of electrical and other gear we own in case we are visited by the light fingered brigade.
LETTER WRITER is a very basic word processor. It should be useful to those who cannot afford some of the more expensive word processors, or those who do not find the neccessity to write many letters..
BANK BALANCE will look after the deposits and withdrawals of those still able to do either, with a minimum of fuss.
READ ME is probably the most important module when you first run the programme. In this Geoff has outlined the function of the programme and how to use it in a very orderly and easy to understand fashion. (Thus saving me a lot of work). Geoff includes a notice regarding his willingness to be of help to anyone requiring further information on the programme. His address is included in this section.

All in all the layout of the programme is first class. Geoff has made good use of the PALETTE command and his colourful screens are a joy to behold. The width40 screens make everything very easy to read even for those of us with failing eyesight.

I would like to have used this programme in COCO-LINK magazine but the size of it curtailed its use unless spread over a number of issues. I decided against this option as I feel Geoff's programme deserved to be viewed as a whole.

HOMEHELP is a programme of a very high standard and makes this public domain disk well worth considering.

SIDE 2
******
This side includes programmes which will work on all versions of Coco. The programmes are:

SHOPLIST.....Make shopping easy with a predetermined shopping list
BUDGET.....Plan a whole years budget and workout how much you need to save from each pay check to cover your expenses.
LOAN.....Work out how long it will take to pay off your loan with different repayments and different interest percentages.
WILL.....This programme will help you make out a basic Will and take you through all the things you need to consider step by step

Although a personal Will made up and signed by two witnesses is a legal document, this programme should only be used as a guide to your final wishes. To be on the safe side your Will should be made through a Trustee Company or similar organisation

Where neccessary the above programmes include instructions. I am sure that you will find something of interest on this disk.

PD DISK 031 is definitely a bargain at $5.00. Order your copy NOW!

END

COCO-LINK PD SOFTWARE

DISK 001 EDUCATION

1) Australian Geography (GEOG)
   General
   South Australia
   New South Wales
   Queensland
2) Australian Explorers (AUSEXPL)
3) Fractutor (FRACTUT)
4) Decimal (DECIMAL)
5) Spellit (SPELLIT)
6) Times Table (TABLES)

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Trivial Pursuit game.
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Complete with races and tote betting.
Marvelous for club fund raising!

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DISK 021 UTILITIES

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DSKDET — GOSUBBER
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DISK 031 HOME APPLICATIONS

Homehelp — Shoplist
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Registered by Australia Post –
Publication No. SBH 1944

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