

MOD 20, it essentially subtracts 20 from the number repeatedly until the result is a number from 0 to 19. Remember that mwords is the number of elements in the array, dimensioned in line 30. This means that cword can end up to be any number between 0 and mwords-1.

So, line 800 calculates cword from the word in the variable word\$. If we are storing a new word, it tells us where to put it in the array, and if we are looking to see where an existing word is, it tells us where to look.

AIR TRAFFIC CONTROL

We still have the problem of collisions, when two words get sent to the same slot. Of course, as our array is big (line 20 sets mwords to 1009), there is plenty of space to store words. Even so, you might be surprised how quickly the collisions occur.

You may have heard of the "birthday paradox". If you have 23 people in a room, it is more often than not the case that two of them will share a birthday. It is all a matter of probability. Exactly the same applies to our words in the array, but instead of 365 days for birthdays, we have 1009 slots for words. The probabilities mean that we will only need 38 words for there to be a greater than even chance that two will generate the same value of cword and be sent to the same position in the array.

How can we deal with these collisions? One approach is to put the word in the next free slot instead. Suppose "Kermit" generates a hash value of 543, and we look in the array and find "Frog" is already there. We then move on the space 544, and if it is free, put "Kermit" in there. If we then needed to search for Kermit in the future, we would calculate the hash value, 543, and find Frog there. We would then look at the

```

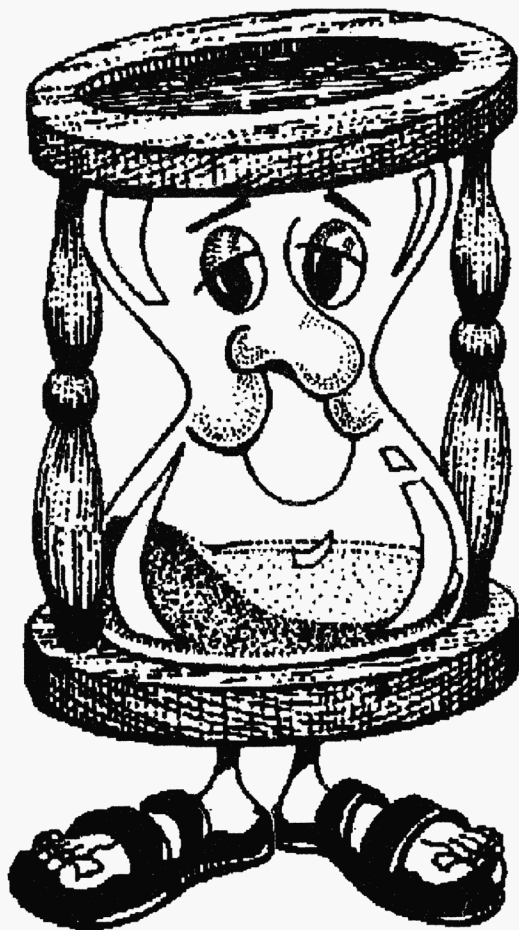
10 DEFINT a-z:OPENOUT"d":MEMORY HIMEM-1:CLOSEOUT
*20 mwords=1009:mlinks=6:nwords=0
*30 DIM w$(mwords-1),lk(mwords-1,mlinks),tempw$(128),stack(5)
*31 w$(0)=" "
35 MODE 2
40 LINE INPUT",a$
41 IF UPPER$(LEFT$(a$,5))="*LOAD" THEN GOSUB 600:GOTO 40
42 IF UPPER$(LEFT$(a$,5))="*SAVE" THEN GOSUB 700:GOTO 40
*43 IF UPPER$(LEFT$(a$,9))="*SHOWHASH" THEN GOSUB 900:GOTO 40
*44 IF UPPER$(LEFT$(a$,10))="*HASHGRAPH" THEN GOSUB 920:GOTO 40
50 wcount=0:GOSUB 300:IF a$<>" THEN GOSUB 100
60 IF nwords THEN GOSUB 200
70 GOTO 40
100 WHILE INSTR(a$," ")>0:a=INSTR(a$," ")
110 tempw$(wcount)=LEFT$(a$,a-1):a$=MID$(a$,a+1)
120 wcount=wcount+1:GOSUB 300:WEND
130 IF a$<>" THEN tempw$(wcount)=a$:wcount=wcount+1
140 pword=0:FOR i=0 TO wcount-1:word$=tempw$(i)
150 GOSUB 800
*160 IF w$(cword)=" THEN nwords=nwords+1:w$(cword)=word$:lk
(cword,0)=0
170 GOSUB 400:pword=cword:NEXT
180 cword=0:GOSUB 400
190 RETURN
200 pword=0:GOSUB 500
210 WHILE pword>0:PRINT w$(pword) " ";:GOSUB 500:WEND
220 PRINT CHR$(8);".":PRINT
230 RETURN
300 WHILE LEFT$(a$,1)=" ":a$=MID$(a$,2):WEND:RETURN
400 j=lk(pword,0):x=1:y=pword
410 WHILE j>0 AND cword<>lk(y,x):j=j-1:x=x+1
415 IF x=mlinks THEN y=lk(y,x):x=1
420 WEND:IF j>0 THEN 440
430 lk(pword,0)=lk(pword,0)+1:lk(y,x)=cword
*435 IF x=mlinks-1 THEN nwords=nwords+1:j=ASC(w$(cword)+" "):x=
(cword+j) MOD mwords:WHILE
w$(x)>":x=(x+j) MOD mwords:WEND:lk(y,mlinks)=x:lk(x,0)=0:w$(x)
=" "
440 RETURN
500 i=INT(RND*lk(pword,0)+1)
505 WHILE i>=mlinks:i=1+i-mlinks:pword=lk(pword,mlinks):WEND
510 pword=lk(pword,i):RETURN
600 file$=MID$(a$,7):IF file$="" THEN file$="VOCAB"
610 OPENIN file$:INPUT#9,nwords
*620 FOR i=0 TO mwords-1:INPUT#9,w$(i),lk(i,0)
630 j=lk(i,0):y=i:x=1:WHILE j>0:j=j-1:INPUT#9,lk(y,x):x=x+1
635 IF x=mlinks THEN INPUT#9,lk(y,x):y=lk(y,x):x=1
636 WEND:NEXT
640 CLOSEIN:RETURN
700 file$=MID$(a$,7):IF file$="" THEN file$="VOCAB"
710 OPENOUT file$:WRITE#9,nwords
*720 FOR i=0 TO mwords-1:WRITE#9,w$(i),lk(i,0)
730 j=lk(i,0):y=i:x=1:WHILE j>0:j=j-1:WRITE#9,lk(y,x):x=x+1
735 IF x=mlinks THEN WRITE#9,lk(y,x):y=lk(y,x):x=1
736 WEND:NEXT
740 CLOSEOUT:RETURN
*800 a=ASC(RIGHT$(word$,1))+ASC(RIGHT$(word$,3)):b=ASC(RIGHT
$(word$,4))+ASC(word$):c=(a MOD
256)*128+(b MOD 128):cword=c MOD mwords
*810 WHILE w$(cword)<>word$ AND w$(cword)<>"":cword=(cword+b)
MOD mwords:PRINT CHR$(7);:WEND:RETURN
*900 FOR x=0 TO mwords:IF w$(x)>" THEN PRINT x;":w$(x)":lk
(x,0)
*910 NEXT:RETURN
*920 MODE 2:MOVE 0,300:DRAW 600,300,1:MOVE 0,200:DRAW
409,200,1:FOR x=0 TO 1000 STEP 50:MOVE x MOD
600,300-100*(x\600):DRAWR 0,-6,1:NEXT
*930 FOR x=0 TO mwords:IF w$(x)>" THEN MOVE x MOD 600,300-100*
(x\600):DRAWR 0,16,1
*940 NEXT:LOCATE 1,20:RETURN

```

A Magazine For CPC Users And Members Support Club

WACCI

Issue 130 July 1999 £2.00



**Time is running out to book your ticket
for this year's convention.
To order your tickets contact Angie Hardwick.**

WACCI

a magazine for CPC user's and members support club

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WACCI The CPC User Group

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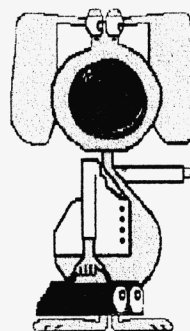
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Production Method

WACCI is created using Protex and Promerge on a CPC and transferred over to a PC using SANKO, MAKEBMP, PROCLIP, DOSCOPY, MULTICON, MODE 1-2 and lots of luck. The magazine is then printed on a Epson Stylus 200. WACCI is printed and collated by A 2 Z!

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WACCI needs you

Thanx & Stuff

Edited By: John Bowley
Owned By: The Club Members

Conceived and Founded
By: Jeff Walker
In: October 1986

Developed and Expanded by: Steve Williams, Clive Bellaby, Paul Dwerryhouse and Philip DiRichleau.

Copy date: 28th July 1999
Membership: 248



A lot as been happening here at WACCI over the last few months some of it good and some is bad. However with your help WACCI will continue for as long as YOU the members want it.

First The Bad News

Doug Webb and Angie Hardwick has both resigned from the committee over a dispute in regards of the PC pages in WACCI. With Doug and Angie resigning the committee is now dissolved and all the responsibilities of running WACCI is solely on my shoulders.

Doug and Angie are still staying with the club. Angie is still organising the convention. Angie has however ask me to take over the Market Stall until after the convention so if you have any wants or items for sale please send them to me until further notice.

Where is WACCI Going?

WACCI will continue for as long as YOU the membership wants it, for my part I want WACCI to continue to support the CPC and I will do everything in my power to make this happen.

Now For The Good News

Some of you may already have heard that WACCI is now going to distribute the ex-Arnors

(*Amsdos*) range of software on disc which include the following: ProText, ProText Office, Maxam, ProSpell, Model Universe, ProMerge and ProType.

ROM Software

It is also possible for WACCI to distribute the following ROM software: Utopia, Maxam, ProSpell, ProText Help, ProMerge Plus and ProText. All these programs are copyright of Brian Watson and its with Brain's full co-operation that WACCI are to be the sole recommended source of all the above programs. (*Disc and ROM*) On behalf of WACCI I would like to thank Brain. *Cheers.*

Please note: The above programs are **NOT** Public Domain.

Help

I need the following help and I would be pleased to hear from anyone who can help me.

- 1) I need help in blowing ROM's.
- 2) Cheap supply of ROM's.
- 3) A member to supply members and non-members.

If you can help with any of the above please get in touch with me.

Prices

The disc versions will be £5.00 and the Rom versions will be around £12.00 depending on how much WACCI has to pay for the ROM's.

Update

My thanks to Peter Campbell (*ComSoft*) has also kindly permitted WACCI to distribute ProPrint disc and Rom and again ProPrint is **NOT** PD.

Ordering

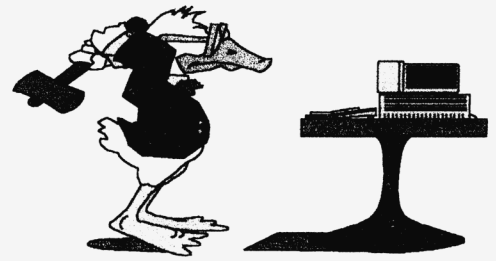
You can now place your orders (*with me*) for any of the programs that WACCI can now distribute ROM and Disc, however please allow **20 days** for delivery. Please make your cheques payable to WACCI.

My Thanks

Goes to all those that have helped to make this issue possible. *Thanks.*

I hope you will all enjoy this issue and if not write in and tell me I don't bite. *John.*

Are You Game For A Game?



AA issue 95/AUG 93TAPE No 29 BIFF And this month, we're looking at animal research. Not all that boring skinned rabbit or beagle with lung cancer stuff, but the exciting stuff involving shooting chimps off into space.

You see, one of the western world's greatest achievements was actually putting a chimp in orbit around the earth. There are a few things about the space research project, however, that didn't come to light the first time around. You see, publicly, the whole point of sending a chimp whirling around the planet was to try and bring them back safely. Research wise, though, the real experiment was to see how far they could slingshot somebody, in an attempt to save vast amounts of rocket fuel. NASA had gone green.

No fuel like an old fuel.

The principle was simple, if you could send a person hurtling point B, without them taking any fuel from point A, then get them back to point A, without using any fuel from point B and loop the process, you've achieved perpetual motion. The only real problem was timing the flights to collide with a planet, spin round it (due to gravitational pull) and fling itself back to earth.

Fission chimps.

The point of all this, sadly, is that there is currently a chimp who's flight path took it clean out of the way of any danger. Unfortunately, it also took it out of the flight path of the target slingshot planet, which, by all accounts, was a bit of a bummer. So we have a chimp, floating alone in space. Scary plot development. Food was running low. Air was running even lower. Still the chimp lived. When the food had run out, the chimp fed

itself solely on the insects it found in its fur. When his fur was clean (I'm not sure he deserved a name), Fernandez (I'm not sure he deserved that name) ate select parts of the ship, carefully so as not to depressurise the cabin. He's down to his last 5 minutes of breathable air and the ship's empty. Fernandez was flying through space in a large steel tennis ball, with no air and no food.. Alone. So very oh. He's hit a planet. Thank heavens (I couldn't have filled this page if he'd died).

What sort of a new world?

A strange new world. The lush, deep greens blending with the subtle, glassy blues. The dew lying like a blanket over the fresh, clean new world. Grass and trees alone do not an alive chimp make, though, and it's your job to keep Biff going in other ways. One such way is to appease the mighty god of all things sacred, Donnakibab. Don (to his friends) is known for his habit of sending little messages into the cortex of others, demanding jobs to be done and generally making a nuisance of himself. Something about the game? Surely not. There were loads of strange mutated beastie things to get in his way, but he found he could avoid a lot of them using left and right on his joystick and jump over them by moving up. As well as this, Biff soon discovered that he could pick up objects by hitting them and actually use different things to achieve various tasks by hitting fire. That to be honest, is about all. Have loads of fun. The

remaining energy of the laser system is indicated by the cell reading. Both the laser temperature indication and cell readings are available on status screen 5. Status screen 4 provides details of your neutron torpedo armament.

Planet data on status screen 3 reports on the landers (Alien spacecraft that have landed) and the amount of planetary life still remaining, which will decrease and will eventually be completely annihilated unless you locate the landers and destroy them. If you fail to do this the planet will be destroyed.

THIS WILL RESULT IN YOUR OWN DESTRUCTION.

When you wish to leave a planet increase your thrust and head your ship upwards by use of the navigation cursor/laser sights. Status screen 2 gives details of your power unit, which comprises of fuel level, thrust and power unit temperature. Excessive thrust will cause your power unit to overheat and an automatic cut-out will override your thrust until the temperature returns to an acceptable level. Your shield level is indicated on status screen 1. Left, Right and Forward shields are all indicated. The bottom right of the screen displays all these status indicators and to the right of each is a global indicator that will show green if levels are acceptable, amber if levels are falling and red if the situation is becoming critical. Final impending disaster will be indicated by the red indications flashing.

Fair Comment

with John



**Please send all letters on disc (if possible) to:
John Bowley, 97 Turrington, Bretton, Peterborough. PE3 9XT**

STEVE "EINSTEIN" POTTS



I must put pen to paper or key to disk having read the Fair Comment on page five of WACCI 129. I do not believe it !!!

The part about the only voice in favour of the PCW AMSTRAD being included was Richard Fairhurst, I personally pointed out the similarity of the two sister machines.

These not only use the same components and same disks but also run all the same CP/M software except for colour games. If you look at the suppliers the two are synonymous. I came to the CPC AMSTRAD through my PCW AMSTRAD and then became interested in the EINSTEIN which is very similar in some respects.

Looking at the names of the regulars in the CPC and PCW world and surprise surprise they must all have twins with the same names. At the Convention talking to CPCers lots have PCWs as well. I have a collection of CPC's, PCWs, and even three PCs up to

Pentium 200 and personally I cannot see the reasoning of choice of IBM PC over PCW except for crossover areas of emulators, file transfer, and comms these are opposing philosophy.

I support as much 8bit activity as I can by subscribing to WACCI, IEBA, ALL MICROS, BRITISH PCW, EINSTEIN USER GROUP and the UNITED CPC mag. I now have the EINSTEIN USER GROUP PD library and if you have WACCI PD 82 you can access the 400 items on offer from the user group. I will write more soon on this subject.

To put the final touch I quote a friend "what is PC stuff doing in here, if you want that W. H. SMITHS have walls full of rows and rows of it how much AMSTRAD do you see there?

Best wishes

Steve

<<Hi Steve, Many thanks for your letter. In regards to only Richard Fairhurst being the only one in favour of the PCW being covered in WACCI. I'm afraid I didn't make

myself very clear on this issue. So let me explain. When Philip DiRichleau sent letters out to various members such as Paul Dwerryhouse, Frank Neatherway, Doug Webb, and myself we all rejected the PCW in favour of the PC. - John >>

CPC Back In Service



Dear John, Here I am again after months of enforced idleness as far as computing is concerned, emerging from the rubble of my forcibly "re-modelled" home after several months (it seems longer) of living in the kitchen, the only habitable room in the house, and sleeping on a camp bed wherever there was a clear corner!

The CPC is back in service apparently none the worse for being buried in plastic bags and moved from pillar to post as the work progressed, but the dreaded PC still has no home as yet, in fact I'm not too sure where it all is. I say forcibly advisedly, as with some trepidation we had tentatively inquired about some help in replacing the roof which was original and looked it (somewhere between 150 and

200 years old, we think). We were descended upon by an enthusiastic lady inspector who rushed around making cryptic runes on a clipboard, the upshot of which resulted in a complete re-furbish of all the main ingredients, roof, ceilings, walls, floors etc, you name it, they did it! Which meant that apart from the kitchen which I had already done, every blessed room in the house needs redecorating. And this is supposed to be retirement?

However, back to things WACCI-ish, I was sorry to miss the Convention, but I had been on an all-day outing the day before, which included a lot of walking over rough ground/building site at the new National Botanical Garden of Wales at Middleton, and the next morning I did not feel like turning out and driving a 100 miles or so, especially as there were no lunches to be had. A powerful argument you must admit. So it would seem I missed a real good do, but there you are, bodies don't always respond the way one would like.

I can't remember if I wrote to you about the discs you sent me, as the above mentioned mayhem erupted soon after they arrived and I haven't had much of a chance to use them properly.

I did have a problem or two which as I say, I really didn't get to grips with, so I'll mention them again here so that perhaps you or some other expert can put me on the right track.

First SANKO. I seem to be unable to get a perfect text transfer to the PC Publisher program from Protex. If I go direct I get a jumble of what I take to be "instructions" all mixed in with the text. If I go via Wordpad then it's much better but what I assume to be "carriage returns" remain in the text and have to be deleted manually.

Also, the "smart quotes" facility produces an upper case O with an accent over it! Otherwise the program works as it should. Am I missing something here? Second MAKEBMP1. No joy at all here.

All I get is an error message "Line too long" and I am unable even to list it to see if there is an error that I could perhaps correct. Does it have to work in conjunction with another program i.e. PROCLIP? WACPAGE PUB and EASY PUB are, as I remember, fine.

Thanks a lot, I'm itching to get back to using them as soon as I can get the PC up and running. Finally, (people cheered) with so many people and organisations jumping on the bandwagon of the Internet and the proliferation of websites, how about a definitive (series of?) article on all the angles of networking for computer thickies like me who are interested but apprehensive about costs of equipment, escalating phone bills et al. Us oldies need all the help we can get.

Ron Izett

<<Hi Ron, I always import text into directly into Word then I highlight all the text and copy it over to the WACCI template (Publisher) and paste it and bob's your uncle.

Using Sanko makes it even easier to transfer text files from a CPC over to a PC then before. Since Sanko saves the text file as RTF (rich text format) and as it so happens a review of this very useful program will be in the next issue.

The version of Sanko that I sent to you in fact didn't do the smart quotes so I shall send you an updated version to try soon. Moving on to MAKEBMP it looks to me that the program is corrupted so I will send you another copy.

You would like to see some articles about the internet, well! We shall see what we can do for you Ron. Any takers out there? - John >>

Disrupted Discs



Dear WACCI, I have been a member of WACCI for a while now, but have not really done much to help the club, and I don't feel I have all that much to offer. So I thought I would write to you at Fair Comment at least. I'll admit I'm not very knowledgeable when it comes to CPCs, although I do know a fair amount about PCs.

I am therefore looking for some simple advise. At present I have a CPC6128 with a ROMBO rom box, a Canon BJ-10sx and very little else. I am having increasing

problems with disrupted discs. I am therefore looking to invest in a 3.5" disc drive to use to back up my data discs. I have seen many advertised in Market Stall, but they are all slightly different.

The main two I have seen have been the DDI-1 disc drive and the FD-1 disc drive. I want to use it as drive B so would not use it very often. Which of these would be the best for my use? I am also confused by the type of 3.5" discs available. Which type should I use and where are these available?

In my Rombox, I only have Protext and Utopia and I was thinking of getting Prospell and DES (mainly for use by my younger family).

I remember reading a long while ago that these were available at a reduced price from Brian Watson I believe. Could you tell me whether this is still the case?

Is this offer (if still going) also available on other products from Brian and Comsoft as well? Thank you in advance for your help,

Lee Bragginton

<<Hiya Lee, Every member who keeps re-subscribing to WACCI is doing his bit to help the club.

In regards to your disrupted discs problem, it could be that your disc drive belt needs changing.

The FD-1 and the DDI-1 are both 3" disc drives. The FD-1 (first drive) disc drive is for a CPC 464,

owners of the CPC 464 also needs a interface but it can be used as a second drive for the CPC 6128 without one.

You would be far better (in my opinion) getting a 3.5 disc drive. Most 3.5 disc drives can be adjusted to work with the CPC all that's needed is a ready signal on pin 34 and of course the ribbon cable to connect it up to the CPC.

When you see an advert in the Market Stall selling a 3.5 disc drive give the member a call and I'm sure he/she will put you on the right track.

As for suppliers, the only one who now sales new 3.5 disc drives ready for use is Roy Everett and his address and telephone number is below.

2 Coldnailhurst Avenue
Braintree
Essex
CM7 2SJ
01376 344572

ComSoft no longer sales Prospell, but WACCI does or will be doing soon. DES is still available from ComSoft, Peter Campbell does offer a discount to WACCI members. - John>>

Deleting Spaces



Hi John, I thought one or two Protext users might be interested in a little trick I've come-up with. The original problem was to convert documents which were in three columns of 38 characters, to one column of 77 characters, to display on the CPC screen.

The first step is easy enough; use box mode (Promerge needed here) to cut-and-paste everything into one 38 character column. Then, use PF (Print to File) to get rid of control codes (plus I like to save regularly, just in case) with the side margin set to 1, load the file back in, go back into DOC mode, and use the box mode again to produce narrow box to the right of the text. Delete the box. Why?

Well, it'll produce a RETURN-character at the right of each line of text. Now remove excess spaces with the find and replace function, replacing TWO spaces with ONE space.

Doing this several times will eventually leave you with a document which has lines of up to 38 characters each ending in a space followed by a RETURN character (use CONTROL T to see them). You will also have a column of single spaces down the left side; remove them using box mode again.

The problem now is to close-up these short lines of text into longer lines in order to be able to format them to the required size. The obvious way is to move the cursor to the left of a line and then press Delete to pull-up the line of text to the end of the previous line. Very tedious!

After some experimentation (and cups of coffee) I found a few useful control codes that Protext uses. So, one more cup of coffee and a Pot Noodle later, I wrote the following little BASIC

proggy:- 10 KEY 128,CHR\$(251)+CHR\$(16)+CHR\$(250)

This cunning little piece of trickery works as follows:

KEY 128 - This assigns what follows to the f0 function key.

CHR\$(251) - This tells Protext to move the cursor to the right-hand end of the current line.

CHR\$(16) - This control code will make Protext delete the character under the cursor.

CHR\$(250) - And finally, this moves the cursor to the left-hand end of the current line.

So, just move the cursor to a line of text and press f0 as many times as required. Protext will move the cursor to the right end of the line, delete the character under the cursor (in this case it is the RETURN character; this will cause the next line to be "pulled-up"), and then return the cursor to the left end of the line (so you can see the remaining text properly). Easy huh?

I've got around 2Meg of text to edit, so this little keypress is quite a time-saver. Whilst I was about it, I put the find-and-replace into a function key as well; as follows, if anyone's interested:-

20 KEY 129,"r"+CHR\$(13)+""+CHR\$(13)+" "+CHR\$(13)+"ga"+CHR\$(13)

This will search the whole document and automatically

replace two spaces with one space; all at the touch of a button (f1 in command mode). If you're wondering what it is I'm editing, well, it's some of the "unavailable" issues of WACCI (issues 27 to 38), which I'm preparing for Christine Raisin so as they can be added to the disc back-issues list.

Anyway, I hope some of the above can be of use to someone else. One of the things mentioned in these early WACCI's is the RADIO WACCI project. I would be very interested in getting hold of a copy it; so if anyone has a copy of the tape for sale or would be prepared to copy it for me, they can contact me at the address below. Perhaps it could be made available from WACCI again, to help raise a few beer tokens.

Finally John, thanks for the disc from a while ago; unfortunately I'd already bought the same one from the library a few weeks before, but at least I've now found-out what the name of the program was that I was really after. It's Fidelity; do you know if it's still available from anywhere? I'd better finish now as LEXX is about to start on the telly (superb series, don't cha think?) so tarra for now; oh, and I just want to say that I think that putting some WACCI page numbers on the inside corners, and some on the outside corners (issue 129) is an interesting concept, John. Cheerio.....

Martin Bela

<<Good day to you Martin, Many thanks for all that info and I'm sure Christine is glad of your help.

LEXX never heard of it but Carol has and she tells me it is very good so you won't get any arguments from me on that one or Carol will beat me up. Fidelity by Richard Fairhurst is not available yet.

In regards to the Radio WACCI project I looked back at my full set of WACCI's to see what you where on about and I'm sorry I can't help at all with this one, this was before I joined WACCI, maybe Clive, Paul or members who where with WACCI in Steve Williams time could help and tell us more about this project. Even if it's a short message to say it was released or not would be welcomed.

The Radio WACCI project was a collection of voices from the contributors which was then compiled and edited by Glenn Carey to celebrate WACCI's third birthday. Finally! So you spotted my deliberate mistake, well done. - John >>

Future Programming Ideas



Dear WACCI, As a very long standing CPC owner who has had a collection of Amstrads over the past 15 years (CPC 464, 6128 & 6128 plus) and keen supporter of innovative software for antique machines.

I was wondering if anyone was thinking of producing any more software for the DES environment on ROM. Programs

that spring to mind for transferring are Route Planner, G-Print (fully Translated) Smart+ (small demand for Plus & DES users).

How about RamBase 5.1 for DES and (most importantly) PowerPage 128 for DES, what a concept, The best Amstrad DTP package [PowerPage 128 v1.2] re-coded by the best Amstrad CPC coder in the UK [Richard Fairhurst] for the best operating system on the Amstrad CPC [DES], So come on CRTIC, give the CPC liking, DES owning PowerPage using public what we want. A great piece of DTP coded by an expert for DES.

I would pay highly for this piece of software, I'm sure Peter Campbell or Brian Watson could be asked to carry this product on their stock lists. I was wondering if the might of WACCI would be able to persuade Richard to recode his DTP masterpiece for DES users. Kind Regards

Craig Harrison

<< Hi Craig, Thanks for your letter, I'm sure when Richard reads this he might consider doing some that's of course if he has the time. - John >>

Surfin The Net



Dear WACCI, Could any of the members tell me how much it would cost me to get set up with the Internet. Being that I am a pensioner with very limited funds, I would like to know how much it would cost me, after I have got all that I would need as "ADD ON" how much would my telephone bill likely to be, if say I surf the Internet for about four hours per night

Nora Lees
BIRMINGHAM

<<Hi Nora, I'm assuming that you have got a PC. The first thing you will need is a modem (either external or internal) these vary in price depending on speed and make, but the higher the speed the better and lower your telephone bill will be. You will then need a ISP server

(Internet Service Providers) these vary in price, but there are quite a few good free servers (ISP's) going around at the moment for e.g. FreeServe, FreeUK and Free-Online, but I'm sure there are a lot more to look out for.

Once you have got your modem and a ISP then you're ready to surf the net, but be warned surfin the net can be very costly even at local phone rates. If you use it only for sending and receiving e-mails it won't cost you too much. Since you can also compose your e-mails offline then go online only when you want to send them.

If you are thinking of connecting your CPC up to the internet then the above still applies. - John >>

Well that's about all we got time for this month, my thanks to everyone who has taken the time to write in. Please send your letters directly to me, since Frank Neatherway's CPC no longer works. You can send me your letters by e-mail, fax or by Royal Mail. Bye for now. John

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1.44Mb Drive Interface

Due to popular demand (well, one letter!) and a little cajoling from John, I have finally got round to writing an article about the 1.44Mb interface. I am hoping it will clear up a few problems that have been brought to my attention, so read on.

Firstly I want to dispel any myths about what the interface actually does. The interface was designed by me, by the way (surprise, surprise!)

I, like many of you, no doubt, read a comment in a WACCI some time ago, by Phillip Dirichleau, about how it was possible to use 1.44Mb discs, to their full potential, with the CPC. I was intrigued by this as I had always thought it couldn't be done.

After waiting for the solution to appear in WACCI for a while, I realised that maybe somebody had misled Phillip. I didn't think anymore about it until a letter appeared in Fair Comment about whether it was possible to use 1.44Mb format discs with the CPC. Richard Fairhurst, who was the Fair Comment letter editor at the time, gave that one a resounding NO. He also outlined the reason why it wasn't possible.

Basically, the FDC chip just isn't fast enough to transfer the data at the faster rate required to write to HD format discs. It is actually possible for the FDC, in the CPC,

to be used with HD format discs, but the way it is used within the CPC doesn't allow for this. I immediately (well, almost immediately) thought about transferring the data via the expansion port, rather than the FDC, because the expansion port is faster. This works in theory but as you may well be aware (if you're not a DDI-1 owner) the 3.5" disc drive actually plugs into the disc drive socket.

Anyway, to cut an even longer story short, the 1.44Mb interface actually plugs onto the expansion port and then the disc drive plugs into it. It is kind of like a DDI-1, in this respect, except the interface requires the cable from the second (or first if using a DDI-1) disc drive port to be plugged into it.

Power to the CPC

The interface actually succeeds in doubling the speed that the data is exchanged between the CPC and the disc drive, by cutting out the FDC. As you may be aware the CPU can actually work a hell of a lot faster than the FDC, so by sending the data directly from the CPU to the disc drive, the data

transfer rate is doubled. The interface actually does the job of the FDC in translating the data and sending it on to the disc drive, except it works twice as fast. The sacrifice that has to be made is that the FDC still needs to be used to move the drive head to the track that is to be read/written to. This is why the interface needs to be connected to the 2nd disc drive socket.

Myths, what myths?

I have recently learned that there has been a little misunderstanding about exactly what the interface does. Apparently, some of you were under the impression that it only allowed HD discs to be formatted and used as DD discs. This is not true.

The interface was designed to allow HD format discs to be used with the CPC, to their full potential.

This means that HD discs can be used on the CPC to store up to 1.44Mb of data. It also allows the discs to be formatted and everything else that can be done with DD discs. I hope that has clarified exactly what it does,

although my advert wasn't very clear about it. There should be a new advert in this issue, which is a little more descriptive. There is also a little more, about what I need to know, when ordering the interface.

The downside

Unfortunately, as with many CPC modifications, the interface does have its drawbacks. Since I first

placed the advert I have tested the interface with several different disc drives, and guess what, none of the disc drives work in exactly the same way! This means that I need to know a little more about your CPC setup and your disc drive before I can make the interface up.

The main problem occurs because most disc drives only allow the IDC cable to be connected one way

around. This would be a good idea, except there doesn't seem to be a general consensus, between manufacturers, on which way around this should be.

This means that some disc drives have the cable connected the other way around to others. Since the interface connects to the disc drive, I need to know what type of connection your disc drive has.

1.44Mb Drive Interface

£39.99 + £2 p&p

The 1.44Mb drive interface allows HD discs to be used to their full potential with the CPC. It allows the discs to be formatted, read, and written, just like a DD disc, but with the added bonus of enabling up to 1.44Mb to be stored on one disc.

The interface plugs onto the expansion port and is connected to the disc drive port. It also has a cable to connect it to the disc drive, as well as a pass through connector to enable other expansion peripherals to be attached.

The 1.44Mb interface must be used with a 1.44Mb disc drive. If it is intended for use with a 464 a DDI-1 interface will be required.

When ordering the interface could you please state:

- 1) The make and model of your disc drive.
- 2) The orientation of your drive cable.
- 3) The length of your disc drive cable.
- 4) The supplier of your disc drive.
- 5) Whether you own a plus or a CPC.

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This means that a test will have to be carried out on your disc drive cable. To do this you should disconnect the disc drive cable from the CPC, and the disc drive, and lay it out flat, with the plug for the CPC facing upward ie. the side of the connector, which can be seen when plugged into the computer, facing downward.

If both of the connectors are facing upward then it is a same side connection. If the connectors are facing in opposite directions then it is an opposite side connection. The other problem is that most disc drives aren't configured for use with the interface. This problem is rather like the ready/disc change problem when using PC drives.

The interface needs to know whether there is a DD or HD disc in the drive, so it doesn't try to operate with a DD disc. This means that the interface is fully compatible with DD discs.

This is essential, because the software for the interface is provided on DD disc. It also means the interface doesn't have to be plugged/unplugged when switching between HD/DD discs.

The pin that is supposed to indicate this is pin 33, on the CPC disc drive port. The interface is provided with software to test whether this pin is operational on your disc drive (although the software might not load if it isn't!)

If this pin isn't operational with your disc drive there are two ways

to change this. The first way, and the easiest by far, is to connect a wire from the sensor on the disc drive to the pin on the disc drive PCB, although this requires cutting the track that is connected to the pin.

The other method requires detailed knowledge of the disc drive, because there is, or at least there is supposed to be, a jumper on the disc drive PCB that enables/disables this pin, although I have never come across it.

There are detailed instructions on how to carry out the simple procedure to enable the density detection pin (pin 33) with the interface.

If you don't feel confident carrying out the operation yourself, anyone who is relatively competent with a soldering iron could do it for you.

Other things that I need to know are the make and model of the disc drive, and the length of your existing drive cable. This is because if the combined length of the cables gets too long the disc drive won't work correctly. It might also help if I knew where you got your disc drive.

C o m p a t i b l e w i t h B r u n w o r d ? ! !

The interface works happily with just about every piece of hardware I have thrown at it, although it won't necessarily work with all software.

This is because the software that operates the interface is RAM based. This means that some programs may wipe it from memory when they are loaded.

I am sorry to say that Brunword is one of these programs, although the interface doesn't have to be unplugged to use Brunword.

If you have a 128K the software can be loaded into the extra bank of RAM, which may allow it to work with more programs, but I haven't tested it thoroughly yet. I will endeavour to find out soon, though.

The interface makes use of an obscure IO port, so it is most likely to work with most hardware, but the chances are that this port has already been used by a piece of hardware at some point in time, so I can't guarantee compatibility with everything.

As regards another version of Parados to use the interface. It isn't totally necessary, but it would greatly improve the interfaces compatibility with other software.

Unfortunately I doubt that this will ever happen, since Richard Wilson (the programmer of Parados) has supposedly stopped programming for the CPC.

T o F i n i s h

I think that just about covers everything I can think of about the interface, but if you have any more questions don't hesitate to ask.

You may want to read those wonderful articles on the A-Z of CPC chips, now, I hear they're very good!

James Hoskisson

Programmers

Patch

by Matthew Phillips

I said you would have to dust off your CP/M system discs this time. We are going to look at Logo, that neglected language that every CPC disc drive user has access to. You may have met Logo through turtle graphics and never realised that it is a reasonably complete and powerful programming language. The Amstrad version is very slow, but it's still worth exploring.

First you will need to make a working copy of the relevant side of your system discs. For 464 and 664 users this is side 2 of the CP/M 2.2 disc. 6128 users should use side 3 of their system discs. You can also try this out on a PCW if you have one. On the 464 and 664, you then insert the copy and type |CPM. Logo will run automatically. 6128 users will need to start CP/M+ from side 1 of your system discs and then insert your Logo disc and type "submit logo3". That's what it says in your manual, so I hope it works.

Once Logo has started, you will be faced with a question mark prompt, which is Logo's way of saying "What do you want me to do?"

LOGO SCRIPT

Because you will probably not have seen much Logo before, I had better explain a bit about what the program is meant to look like, and how you type it in. Unlike BASIC, there are no line numbers. BASIC is in fact unusual in using line numbers, which are only really used for the GOTO and GOSUB commands. Other languages give subroutines names, and call them functions or procedures.

The first line is "to ai". This defines a new procedure or command, which is to be called "ai". The lines up to "end" are the definition of the procedure. It works the same way as a subroutine, but instead of typing GOSUB 100 to call it, we just type ai. This particular routine refers to two others, parse and speak, which we define later. It also calls itself, in the last line before the end. This means the program goes round and round until we press escape.

All of those double quote signs at the start, but not the end, of words are actually correct. Try to get the spacing the same as it is printed: there are no spaces between the quotes or colons and the following word. It is important to type the spaces at the starts of the lines. This is so that Logo recognizes that the indented lines form blocks of instructions which are associated with the previous line. You must also type the commands in lower case letters.

TYPE-IN CORNER

To enter the program, just type all the lines, pressing ENTER at the end of each one. While you are in the middle of typing a procedure definition, the prompt will change to a greater-than sign. Some of

the program lines are wider than the screen. Logo will display an exclamation mark when you wrap round to the left of the screen. Just ignore this.

If you need to edit the procedure called "parse" later, just enter

```
ed "parse
```

and you will be put into an editing screen. Press COPY to save the changes, or ESC to get out without altering anything. If you use a 464 or 664 you will find that the procedure will have been joined up in one long line, which works just the same way, but is rather harder to read. On the 6128 the formatting is preserved.

The Logo provided with CP/M 2.2 for the 464 and 664 is a cut-down version designed to fit into the smaller memory of these machines. As a result, two commands I have used are not available on this version. Fortunately we can add them very easily, so 464 and 664 users will also need to type in the definitions of "thing" and "memberp" from the separate listing.

Once it is all typed in, you can save it by typing save "anyname

and then run the program by entering the single command "ai". If all is well, you will be able to type sentences and the computer will respond with random gibberish based on what you have typed. Logo's error messages are usually very helpful, so you will be able to correct any mistakes with the ed command as described above.

SHORTLISTING

The AI program is much shorter when written in Logo compared to the BASIC version. This is because Logo works in a completely different way. It was derived from the language LISP, which was developed for artificial intelligence processes. LISP stands for LIST Processing. Whereas BASIC uses numbers, strings and arrays, LISP and Logo use a form of data called the list. Everything in the language, even the procedures and programs we define are formed from lists. This means that really advanced programs can rewrite themselves while they are running!

Look at the first procedure we define, "to ai". The first line of this has Logo's equivalent of the INPUT command. The "rl" command reads a line of input from the user. The make command is followed by a variable name and then the value to be taken by the variable. If the value to be taken is a command, the result of that command is used as the value. Hence the first line takes a line of input from the user, and puts it in the userinput variable.

Actually rl stands for "read list". The stuff typed by the user is treated as a list of words. Logo is particularly good at manipulating these. The next line uses the "count" command which finds out how many words there are in a list. (In BASIC we needed a couple of lines of program to do this.) If the sentence has at least one word, we run the "parse" function, which analyses the sentence, remembering which words can follow which. Then we "speak", which prints up a computer-generated sentence, and

MAIN LISTING

```
to ai
  make "userinput rl
  if (count :userinput) > 0 [parse]
  speak
  ai
end

to parse
  make "list (se "TheStart :userinput "TheEnd)
  make "pointer 1
  repeat ((count :list) - 1)
  [
    make "w item :pointer :list
    make "pointer :pointer + 1
    make "x item :pointer :list
    if not (memberp :x thing :w)
    [
      make :w (se thing :w :x)
    ]
  ]
end

to speak
  make "w "TheStart
  make "x []
  if (count :TheStart) > 0 [addword]
  pr :x
end

to addword
  make "z thing :w
  make "w item ((random count :z) + 1) :z
  if not (:w = "TheEnd)
  [
    make "x (se :x :w)
    addword
  ]
end
```

EXTRA LISTING FOR 464 AND 664 USERS

```
to memberp :bit :list
  (local "pointer)
  make "pointer 1
  repeat count :list
  [
    if item :pointer :list = :bit
    [op "TRUE]
    make "pointer :pointer + 1
  ]
  op "FALSE
end

to thing :variable
  op gprop :variable ".APV
end
```

then we loop round by executing the "ai" procedure again. The "userinput" variable has appeared twice so far. When it was defined the name was preceded by double quotes. This is because it is the name of the variable that the "make" command needs. In the other case, the count command needs to look at the value of userinput to see how many words there are, so the name is preceded by a colon.

PUNCTUATION EXERCISE

The difference between the double quotes and the colon is very important. Start up Logo and type the following lines:

```
make "fred "albert
pr :fred
```

The word "albert" will be printed up, because that is the value of the variable "fred". Next try these two:

```
make :fred "george
pr :albert
```

Notice that the word "fred" had a colon in front this time. This time the word "george" is printed up. Somehow the "albert" variable has acquired the value "george".

Remember that the make command needs to be told the name of the variable to set. Instead of "fred we put :fred, so the value of fred, which is "albert", was used as the name of the variable to set. This is something which you just cannot do in BASIC, and we will be using it to full effect.

PARSE THE MUSTARD

Let us look at parse now, which analyses the sentence and records the links between words. The first line of parse sets the "list" variable to a new value. The "se" command forms a sentence, a list of words, from the values you give it.

The command and parameters are all within round brackets so that se knows where to stop. We give it "TheStart", the value of "userinput" and "TheEnd", effectively adding these two words to each end of our original sentence. We use these dummy words to mark which words can start and end sentences.

After setting pointer to 1, we repeat a list of commands. The number after the repeat command shows how many times we repeat

them (in this case one less than the number of words in the list). The commands to execute follow in a list enclosed by square brackets.

Inside the loop we set w to be the item of our sentence "list" pointed to by "pointer". As pointer starts out at 1, w will be set to be the first word in the sentence "list".

The next line increases pointer. Note how we are using the name preceded by double quotes to tell "make" the name of the variable, and the name preceded by a colon to use the value of the variable. The next line sets x to the the next word in the sentence.

The "if" statement and the next line are crucial. Ignore the "if" line for the moment. The next line is creating the link that will lead us from the word in w to the word in x. Suppose :w was "This" and :x was "is". The make command is setting :w, which means it is setting a variable called "This". Our variable names are actually determined by the user's sentences! It is setting it to a sentence (list of words) made up of "thing :w" and ":x". We know ":x" is the word "is", but what is the "thing" command doing? The "thing" command gives us the value of the variable name we give it. If you type

```
thing "variable
```

it has the same effect as :variable and gives us the value of "variable". However we are asking for thing : w, and :w is "This", so we get the value of the variable This.

It is pretty weird, isn't it? The idea is that for each word the user types, we build up a list of other words that can follow it, and store the list in the variable whose name is that word. That is what the line following the "if" statement is doing. The "if" statement itself is

just using the memberp command to see if the word :x is not already in the list.

HOMEWORK ASSIGNMENT

I will leave studying the rest of the listing to you. The speak procedure builds up a sentence in x, starting off with "TheStart". The addword routine takes a random word out of those that can follow w. If it is not "TheEnd" it is added it to the sentence and addword is called again.

You will see how various features of the Logo language have made it easier to write our AI program. We are all used to using BASIC, and it is quite a revelation to see just how different another programming language can be.

In BASIC we had to write our own routines for dividing the sentences up into words and linking those words together using pointers in arrays. In Logo a lot of this work is done for us already.

If you want to learn more about Logo, there was an excellent series in Computing with the Amstrad CPC from June 1987 to March 1988. The definitions of "thing" and "memberp" were adapted from this. Details of all the Logo commands are in your computer manual (or the disc drive manual if you have a 464).

If you are really keen, write into Fair Comment and tell me, and I can do a few more articles. You may have spotted a problem with the program as it stands.

If the user types a sentence including words which we are using as variable names, such as "list" and "pointer", strange things will happen. There is a better way to write the program using "property lists", and I have included this on the Programmers' Patch disc.

Market Stall

I want to say a big thank-you to Christine Raisin this month for working so hard in raising money for the Convention. WACCI had magazines donated from Joolz in London and with the help of some friends I managed to get them back to the Midlands. Christine and Chris came down and helped me get them in order and organised the sale raising over £50. 00 Thank-you both.

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A Comedy Of Errors



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PART ONE

Picture the scene: You spend all night crafting your latest game and excitedly enter RUN. The title screen springs up, pictures flash and the machine grinds to a halt, flatly refusing to continue. "Syntax Error" reads the screen, devoid of sympathy, and you're heading for a night scanning screenfuls of code.

It's a message that Basic uses to cloak its own ignorance. But there are clues that can help track down where the error really is, whether it's in your own program or a dodgy public domain release that's misbehaving. We'll kick off with some general tips on improving your debugging life:

First of all, use lower case when entering programs. When the program is LISTed, all command words (keywords) will be converted to upper case, springing up above the variables. This makes mistyped keywords ("pront" and friends) glaringly obvious, since they will still be covering in non-caps. It is better still to define keys to contain whole commands.

Try entering the following at the Ready prompt:

```
KEY 139,"data "
```

Pressing the small [ENTER] key hereafter will make the word DATA spring up, eliminating the possibility of mistyping it (unless you manage to do so when defining the key: very silly). There's a chart showing the numbers you need to redefine the whole numeric keypad in the back of the manual and you will find it worth the time writing a tiny program to set-up your most used commands.

There are two commands that will trace a program's execution. Entering TRON at the Ready prompt will switch TRace ON and TROFF will disarm it. Each line number will be displayed as it is executed, which sounds more useful than it is. It makes an awful mess of the screen and is rarely helpful. That said, if the program doesn't do much screenwise anyway it could come in handy and there are public domain programs around that will divert the output to a printer.

You can create a special routine which your program will jump to when things go to the wall, by placing ON ERROR GOTO [line number] in your program. When an error occurs, Basic sets two system variables. System variables are variables which only the

computer can change, like TIME. The first of these, ERL, contains the line in which the error was found. The second, ERR, contains the error number. Here's an example error trapping routine:

```
10 ON ERROR GOTO 500
20 FOR g= 1 TO 11
30 PRINT a$(g)
40 NEXT
499 END
500 MODE 1:PAPER 0:PEN 1:
CALL &BC02
510 REM That line sets the
screen to something
sensible.
520 PRINT "Error in
line"ERL
530 PRINT "Error number"ERR
```

This program crashes because it tries to use an undimensioned array. Don't worry if you don't understand arrays, the program is only supposed to show the possible shape of a program with error trapping. You can use RESUME to continue the program after an error, but it's probably more useful to let it stop and begin your investigations.

Your first clues are the values of ERR and ERL. Each error number has a corresponding error message which the computer uses as it ejects you from your comfy proggy into the Ready prompt. The first thing

about debugging is that the error line does not always point to where the error is. It points to where it was discovered, which is a good starting point nonetheless. This is a very important concept, since some errors might not be discovered for ages and when they are, the line reported will be perfect. We're going to discuss each of the errors in turn now, considering where the bug could really be lying.

ERROR 1-Unexpected NEXT

A loop is a chunk of program that is to be repeated and its boundaries are marked by a FOR command at the beginning and a NEXT command at the end. The line given should contain a NEXT command. Check that the variable after it is correct if present and try removing it altogether (it is optional). Failing that, check the FOR statement most immediately before it. Make sure that it exists and that it has been entered correctly.

ERROR 2 - Syntax Error

Syntax means grammar (nothing to do with revenue from immoralities). This error occurs when you use a command incorrectly. Assuming that it looks okay, reach for the manual and check the correct format. It's possible that the parameters (data items) in the suspect command are in the wrong order. It's possible you've mistyped the command (although using lowercase, this sticks out like a sore proverbial). If you are using long multi-statement lines, tracking the problem command becomes less easy. You

could try copying each command out of the line (using shift with the cursor keys and the copy key) and running them one by one from the Ready prompt to try to locate the bugged one. There's no guarantee though that the command is not failing because it's running without the conditioning of the rest of the program.

ERL will show when the error was discovered and the line that Basic calls up for your attention may not be where the problem is. In particular, where user functions are concerned (variables that begin FN and are defined using a DEF FNvariablename command), the error is often in the DEF FN even though the first use of the function prompts the crash.

In DATA statements, a Syntax Error can be caused by data getting out of step which can have as much to do with the READ commands as the data commands. If you use commas in strings contained in DATA statements, you must place speech marks around the whole string. For example:

```
10 DATA Good Afternoon,  
Sir,4  
20 READ string$,number
```

Line ten contains two strings, because of the comma in the middle, and would cause a crash when trying to READ the number because a string would be next in the queue. This example shows how to correct this:

```
10 DATA "Good Afternoon,  
Sir",4  
20 READ string$,number
```

If there is a loop in the suspect

area, it's always a good idea to print the values of the looping variables (those immediately after the FOR commands). This will tell you whether the error is inherent in the code, or whether it only occurs when the loop reaches a certain point. If the variable values are the start values (usually one, otherwise the numbers after the equals sign in the FOR commands), then it occurs first time and is probably inherent.

If not, it has already worked and is only stopping now the loop has reached a certain point. This could be because a number is going out of range for a command's use so it's worth checking any arrays or commands that react to the looping variable.

ERROR 3 - Unexpected RETURN

This usually means that Basic has strayed into a subroutine. Assuming that you put your subroutines at the end of your program, it's always a good idea to put an END command just before the first one to prevent this happening.

Apart from which, this might have been caused by using GOTO. There is always a better alternative to GOTO (except with ON ERROR) and programs are a lot easier to debug without the command.

* This series was originally published in the programming tutorial *The Basic Idea*, which is now available in full at Sean's website.

<http://www.sean.co.uk/bidea0.htm>

Sean McManus

PROTEXT

THE STORY SO FAR

By the time you read this, WACCI will be the sole recommended source of all the Amsdos programs on disc and ROM originally published by Arnor Ltd. That includes Prottext, Prospell, Promerge, Prottext Office, Utopia, Maxam, Model Universe, and many more.

What are **not** available through WACCI are the CP/M, PC, Atari and Amiga versions of Prottext.

The story of how this has come to be the case is a longish but, I hope, interesting one.

THE ACTUAL RESCUE

In mid-1995, Arnor Ltd were a well-established company supplying Prottext and a number of other fine programs for users of CPCs, PCWs, PCs, Acorn Archimedes/BBCs, Ataris and Amigas.

As a personal and business user of the CP/M version of *Prottext* (*I have a greeting card and gift agency business and also earn a significant part of my income from writing*) I was a big fan and heavy user of that version of the program and I had joined WACCI and the UAUG for additional user support. Also, there was regular coverage of the program in the CPC and PCW press.

That was back when there **was** a CPC and PCW press! But suddenly, a rumour went around the CPC community that Arnor Ltd might be in trouble. The

actual order in which things happened during that summer of 1995 is now a little vague (*poor old soul!*), but I have tried to piece this together as accurately as I can. If my memory is faulty in some details please understand that I am trying my best to get the facts right, but if you watch Crimewatch you will see what time can do to recollections!

What is sure is that I phoned them (*actually Douglas Thompson, a prominent member of the Arnor team*) one Friday afternoon and was told that they **were**, unfortunately, closing down that very weekend.

By the time I got back on the phone that same evening to Paul Dwerryhouse, **this** news was already **old** news! However, I suggested to Paul that it might be possible to rescue the programs, and I volunteered to try to track down the receivers who would be winding up Arnor's business affairs so that an offer could be made for the copyrights. As he was the man in charge of the largest CPC club, Paul was in a very real sense representing the CPC community

in this: I was just a concerned user who saw his favourite program disappearing down some metaphorical plughole, but thought that my business experience might be brought to bear to keep Prottext alive.

Around that time, and I assume it was during the following week, several people including John Bowley (*who lives in Peterborough*) and myself (*who goes there on business*) turned up at Arnor's offices at 733 Lincoln Road Peterborough to peer through the letterbox at the pile of correspondence that was already heaping up behind the door.

At this point we should record a great unsung hero of the Prottext rescue. Mr Patel who owned the general store at 735 Lincoln Road was a source of much useful information on Arnor and its recent history. I even eventually persuaded him to part with Mark Tilley's home telephone number.

Mark, with Gavin Every his business partner in Arnor Ltd, was one of the creators of Prottext and he had kept hold of all the master discs, source code etc

when the company closed. When I phoned him to commiserate and express an interest in acquiring the rights to the 8-bit versions of Arnor's programs he was very happy to put me in touch with the person at the receivers in Romford Essex (*of all places!*) who was dealing with Arnor's affairs.

Liaising with Paul, I contacted the receivers and expressed our interest in the programs. **They** wanted to know how much I/we were prepared to pay, and **I** wanted to know how much they were expecting! This circular conversation was all part of the game, I knew that from a previous acquisition when I worked for Athena, the poster and card publishers.

The longer it went on, the surer I was that the programs could be acquired quite cheaply.

So, with the probability increasing that an economic rescue could be secured, I expressed my newly-dawning personal interest to Paul.

"I'd like a piece of this," I said, or words to that effect, and in return I'll do all the legwork and negotiation to get the copyrights. In principle he agreed, but we both knew there would be a lot of details to resolve later.

Well, I did the legwork all right! I contacted the person handling the file at the receivers in Romford again and discovered by several phone calls that Arnor

Ltd was to be wound up through a petition to be heard at Croydon Magistrate's Court. I duly got on a train from Cambridge early one morning and sat until 1pm in a humid waiting room with Sally, the lady from the Romford office, who was representing her company at the hearing.

By 2.15pm it was all over; Arnor Ltd was wound up and the receivers were authorised to make arrangements with another company, nominated by them, to dispose of all the Arnor assets.

Sally and I got on very well in that court waiting room and, over lunch, she promised to keep me informed on who would be put in charge of disposing of Arnor's property. She did too; it turned out to be an estate agent in Peterborough, about five doors away from where WACCI's magazine is now printed. Small world, *huh?*

Still Paul and I stayed in touch by phone and we agreed a top limit to be spent on the purchase of the copyrights, bearing in mind that we both believed that they still had some commercial potential and that by this time the assumption was that WACCI and I would be joint owners and administrators of the programs.

I think the most WACCI and I were each prepared to put to the project was £300, but it may have been a little less. Certainly that was the figure I had in mind as a top limit for my contribution and we were to go 50/50 on

whatever the price turned out to be. So I made an appointment and, wearing my best business suit and carrying my most impressive and expensive-looking aluminium suitcase, I turned up at the estate agents to (*hopefully*) close the deal. The following is as near as I can remember to a verbatim re-telling of how the meeting went. Certainly the key points of the negotiation are accurate.

I told him what I wanted. This was all the copyrights, plus the master discs and ROMs and the source code discs for all the 8-bit programs ever published by Arnor Ltd.

He asked me how much I was prepared to offer. "One hundred pounds," I replied.

He seemed a little reticent at this. "I am instructed that I can't accept that figure, and anyway the copyrights are not for sale. Only the master copies of the programs and their source code are on offer."

"I don't know who's giving you your instructions," I countered, not at all surprised that he didn't accept my first bid, "but Arnor Ltd is now closed and those copyrights have no **commercial** value to anyone. You have only one buyer for them and I'm it."

"I'll have to make a phone call," he said. It later turned out that the call was made to Mark Tilley, who had himself already bought back the copyrights of the PC,

Atari and Amiga versions of the programs. The negotiator returned from the phone and put it to me that a bid of four hundred pounds would be acceptable, and that this would include permission to copy and distribute the programs.

“That is not the **copyright**, in a legal sense, and it is the **copyright** which is crucial in this matter. I will offer two hundred pounds for all the items I require and that is my final offer. Sorry, but you accept **that** offer or I walk out of here without the programs.”

He accepted my offer, and told me that if I returned to the office the following day, everything would be ready for collection. I did and it was. Mark had been an absolute gentleman about preparing everything. The discs were in three boxes,

- (1) The set of program discs.
- (2) The manuals on discs as text files.
- (3) The discs containing the source code to all the programs.

Every disc was clearly labelled, as was each box. In addition, there was a ROM box containing all the latest editions of each of the ROM versions of the programs.

One thing I had overlooked was the printed versions of the manuals. Mark hadn't, however, and there was a mint copy of each manual with the discs' boxes.

There was also a printed document transferring the copyright of all the programs to me, as it was my cheque which was used to pay for it all. We hadn't actually agreed in detail on how the programs were going to be handled, but I phoned Paul when I got home from Peterborough that evening and told him that the deal was done, and the details of it.

As it happens this was just before that year's WACCI Convention at the Bescot stadium.

There were various options talked about as to how to re-present the programs, but the original plan was that both WACCI and I would sell the programs as two equal outlets. Without a doubt, WACCI was the best club/magazine in which to present the rescued programs, and my experience of PR and expertise in marketing seemed an appropriate background to make a success of the re-launch and subsequent handling.

We also explored many options on the division of costs and profits (*if any*), and we certainly discussed getting ComSoft involved in some way, but nothing was really settled upon before the Convention.

We agreed to tie up as many as possible of the loose ends there. At the Convention a small difficulty arose. Someone, it doesn't matter now who, was blowing ROMs with whatever programs anyone wanted.

At least, that was how I heard it. It **may** have been only the Protex family, and there **may** have been an assumption that it was OK because WACCI had bought the copyrights to the Protex family. Either way, it jeopardised the financial viability of managing the programs to recoup WACCI's and my investment in the programs.

Paul and I met on the steps of the stadium late on in the afternoon and I recall he was uneasy about WACCI's role in the ownership and ongoing management of the programs, having achieved the primary intention of rescuing them.

We both agreed to give the best way to proceed some thought, and this text following is an directly quoted extract from a letter he sent to me on 1st October 1995, having consulted with other key WACCI people.

“The piracy of Protex at the Convention, whilst I have no idea of the degree, it is not something that I like being levelled at the club. I suppose one pirate copy is enough, so how do I control this?”

“If members think that they own Protex then all and sundry start selling it. Can members demand the code. My main intention in obtaining copyright was to ensure that Protex didn't disappear forever. This has been achieved. The best place for Protex is in the commercial world. Your half certainly is and I propose that

WACCI's half also is". To this end I approached Peter Campbell and he is happy to take over WACCI's half.

"He will not be buying it, I shall still be sending you a cheque (*enclosed*) but I shall donate it on the firm understanding that every former Arnor product that he sells to a WACCI member must be £2 cheaper than available anywhere else. After 50 sales to WACCI members he has effectively bought it and the pricing structure reverts back to Peter and yourself".

"You will have to grin and bear the prospect of somebody joining WACCI to enjoy discounts but I rather see that as an advantage to the club but not one we shall use in advertising."

Peter and I discussed this last point - that of discounting to give back WACCI's money - and we felt we could do even better than Paul's suggestion.

Rather than have two outlets, each with its own price, **all** sales would go through Peter/ComSoft, as the custodian of WACCI's interest in the programs, and we would guarantee a discount to WACCI members on all sales until the £100 WACCI contribution to the purchase was repaid by those discounts.

If fact, we kept that discount going long after the money was repaid. A letter that reflected Paul's earlier position was

published in WACCI 94 for November 1995, and the first ComSoft advert to include the ex-Arnor programs graced the back cover of WACCI #95.

Meanwhile, behind the scenes a great deal was going on. The printing of the manuals was costing Peter and I a lot of up front money, especially the one for the CP/M version of Protex.

This one is **much** thicker than the Amsdos Protex manual, as it has a lie flat, loose-leaf, format in an A5 binder. This is **very** non-standard in the print trade, and it took a while to find a commercial printer who could handle the job at all, let alone at anything like an economic rate.

This was the start of the support costs treadmill, and was largely why Peter and I settled on the price structure we did. We **had** to have cash flow to get back the money for the manual printing, and if the prices were set too low it would be years before we recouped the hundreds of pounds involved **after** the initial purchase of the rights etc.

**Is Protex a money pot?
I don't think so!"**

We could have put the programs into the WACCI library, I was really not at all sure I wanted to be a software tycoon, but Paul, Peter and I **all** felt that we should "do the decent thing" and re-launch and support the programs properly as commercial

releases, with proper on-line user support for the price of a normal phone call, printed manuals supplied with the programs, and the ability to purchase them by credit card, if required. It all costs money to do that.

**NEXT ISSUE:
THE COMSOFT DAYS.**

Brian Watson

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of CPC Chips

by James Hoskisson

This months thrilling instalment is all about the CRTC chip. There were several different versions of it implemented on the CPC, and guess what, they were all different. How's that for awkward?

The Carphone Bay Whatsit

As with most computer things this chip has an over complicated name, and come to think of it, a long one at that. CRTC actually stands for Cathode Ray Tube Controller. I think that it probably got that name because it controls that thing in the monitor which displays all those lovely graphics, which just happens to be called a Cathode Ray Tube! Exactly why they still call it a tube I don't know. Answers on the back of a twenty pound note to

The CRTC chip scans the part of memory (usually &C000) where the screen data is stored, and translates this into separate bits, which are then sent to the monitor, via the VGA (explained in the next issue.) The monitor then displays a lit pixel if the bit is one, and displays an unlit pixel if the bit is zero.

This is a generalisation of the operation of the monitor because it doesn't take into account the different shades on a green screen monitor (or the different colours on a colour monitor.)

The monitor scans the screen from the top left down to the bottom right in horizontal lines across the screen. When it gets to the end of a row it moves back to the left and commences on the next row. The exact length of each row and the number of rows down the screen is

determined by the CRTC settings (explained later.) What has to be kept in mind is that the monitor still scans the screen, even if no data is sent to it.

The CRTC chip that Amstrad put in the first CPCs was the HD6845SP (or something very similar.) This chip wasn't actually designed for the Z80 and so Amstrad had to employ a few tricks so that it would work with the Z80. This, of course, caused problems when Amstrad decided to use other manufacturers of this CRTC chip, owing to each chip being slightly different.

In the years that the CPC was in production Amstrad got through three different types of CRTC chip. The first one was the HD6845SP, then there was the UM6845SP, followed by the MC6845SP, these are usually identified using a type number, which refers to the characteristics of the chip. Type 0 is the HD6845, type 1, is the UM6845, and type 2 is the MC6845, it should be noted at this point, that these are just generalisations, some of the chips can act like the other chips in certain respects.

Chip Problems

The first chip was designed for use with the 680x range of processors, which had one line for enable and one line to indicate read/write. If you read the first article you will

know that the Z80 actually has two lines to indicate read/write, which caused Amstrad a problem when it came to using the HD6845. Their solution was to have different addresses so that bit 9 of the address could be used to select the direction. This was a neat solution, but like all solutions it didn't actually solve anything, it just put off the inevitable.

When Amstrad switched to the UM6845 chip their previous solution caused another problem. The designers of the UM6845 decided to use the Intel convention, which has a line for RD and a line for WR. Although this may seem better, because of the way the Z80 uses the RD and WR lines, it actually caused Amstrad another headache.

The CPC already had software, which made use of the different CRTC addresses for reading and writing, so they couldn't change to the new system, otherwise the old software wouldn't work with the new CPCs.

The only solution, without adding any extra hardware to the CPC board, was to make the chip write only, by making sure that the RD line was always high, and attaching A14 (A14 is low in all the CRTC addresses) of the address bus to the WR line. This meant that any access of the CRTC was treated as a write and when a byte was

supposed to be read an indeterminable number would be returned from the CRTC. This meant that all light pens, and light guns, were nigh on useless, because they relied on information from the CRTC to figure out where the light pen was supposed to be on the screen. It wasn't the best solution to the problem, but I suppose it got Amstrad out of a bit of a hole.

Some of the early UM6845 chips used the 680x convention, which meant that they could be read from, and hence were a type 0 CRTC, even though they weren't the HD6845. There are a few other differences between this and the HD6845 but they aren't really significant. I have one of these types of chip in my CPC, and it seems to have a problem when certain conditions are met.

This causes the data bus to be corrupted, which can cause problems when using certain types of program. I found that I couldn't load up Demoniak 6 because of this. If you have an inexplicable problem with some programs this could be the reason. If you do, write in to Fair Comment, as I am interested to learn of the extent of this problem.

The last type of chip was the MC6845. These chips have the same hardware conventions as the type 1 chips, but have slight internal differences concerning the horizontal sync position. The maximum distance that the screen can be offset to the left is three mode 1 characters, from start up. If the horizontal sync position (explained later) is set to greater than 49 characters this chip doesn't like it and does all sorts of weird and wonderful things.

It is possible, using the data above, to write an algorithm, that would find out the CRTC, for the CPC

that it is operating on. This requires the program to set up certain conditions where the different types of CRTC won't work, and then, by analysing the results, deducing what kind of CRTC it is. This isn't fool proof, because some of the CRTC chips work like others, but it is accurate 99% of the time. Some demos have CRTC detection at the beginning. Two that I know of are The Demo, and Voyage '93.

Programming the CRTC

Thankfully, all the CRTCs have 17 registers, and they all do the same things, so there aren't any problems as far as programming is concerned (unless you want to read back from a register!) The CRTC has two ports for output and two ports for input, although the input ports only give sensible readings on type 0 CRTCs (otherwise they will always return &FF.) These ports are:

BCxx - Register Select (Output)
 BDxx - Register Data (Output)
 BExx - Status Register (Input)
 BFxx - Register Data (Input)

where 'xx' can be any digits.

Writing to a register is fairly simple. The register that is to be written to is outputted to &BCxx and then the data to be written to that register is outputted to &BDxx, e.g. To output &28 to register 1:

```
LD BC, &BC01
OUT (C), C
LD BC, &BD28
OUT (C), C
```

Reading from a register is equally simple. The register is selected as before and then the data is read from &BFxx, e.g. To read the value of register 16 into A:

```
LD BC, &BC10
OUT (C), C
LD BC, &BF00
IN A, (C)
```

The status register wasn't implemented on all CRTCs, so you may not be able to read it back. To read the status register the following code can be used.

```
LD BC, &BE00
IN A, (C)
```

The status register is bit significant as follows:

Bit 7 - 1 if the CRTC is accessible.

Bit 6 - 0 when register 16 and 17 have been read. 1 if the light pen has been detected.

Bit 5 - 1 if it is in frame flyback
 The other bits are unused.

They're fairly self explanatory, really. The status register is only available on the S version of the CRTC chip, though.

Register Summaries

There are many different demo effects that can be accomplished by changing the CRTC registers at specific times, but in order to explain all of them I would need about 15 pages, so I am just going to summarise the operation of each register (the numbers in brackets are the start up values of the register.)

I should add a warning at this point. If some of the registers are altered too much they can cause damage to the monitor. If you do change the values of these registers make sure you turn off the computer immediately if something goes wrong, i.e. if the screen scrolls uncontrollably, goes totally black, if the computer crashes, or if anything else unexpected happens.

0. Horizontal Total (63) This register tells the CRTC how many mode 1 characters there are across the screen in total, including the ones that aren't displayed i.e. the border.

1. Horizontal Displayed (40)

This register tells the CRTC how many mode 1 characters to display across the screen, before the border is to be displayed.

This register is changed for overscan, so that the whole screen contains data ie. there isn't a border.

2. Horizontal Sync Pos. (46)

This register is used to synchronise the output of data to the screen, with the start of a new row. If this register is increased the screen will move to the right, and if it is decreased it will move to the left. Be warned, though, that the screen can become unstable if it is moved too far in either direction.

3. Sync Width (142)

This register determines how long the synchronisation pulses will be for each horizontal and vertical sync. The minimum length of pulse that is needed varies from monitor to monitor. This register should not be altered, because if the value is set too low it can damage the monitor.

4. Vertical Total (38)

This register is the vertical counterpart of register 0. It dictates how many mode 1 characters there are down the screen, including the borders.

5. Vertical Total Adjust (0)

This register is used to make sure that each frame takes 1/50th or 1/60th of a second by adding a small delay between each frame. It can also be used to scroll the screen smoothly.

6. Vertical Displayed (25)

This register is the vertical counterpart for register 1 and controls how many characters are displayed vertically. This register is also changed when doing overscan, so that the bottom and top parts of the border are covered.

7. Vertical Sync Pos. (30)

This is the vertical counterpart of register 2. It controls the positioning of the data, vertically, on the screen. If it is incremented the screen will move up and it will move the screen down if it is decremented.

8. Interlace and Skew (0)

This is a two bit register that isn't used on the Amstrad. It is used for some demo techniques on type 0 CRTCs, due to an error in the operation of the chip.

9. Maximum Raster Addr. (7)

This describes how many rows there are per character and should be left as 7, otherwise the lines will start repeating, due to the way the CRTC is wired in the CPC.

10. Cursor Start Raster (0)

This register can't be used on the CPC due to the way the CRTC is wired in the CPC.

11. Cursor End Raster (0)

Ditto.

12. Start Address (High) (48)

This is a 6 bit register which controls the screen length (16k or 32k (used for overscan)), the start address of the screen, and bit 9 and 10 of the offset. It is laid out as follows:

Bit 5 - Start of screen.

Bit 4 - Start of screen.

Bit 3 - Length of screen.

Bit 2 - Length of screen.

Bit 1 - Bit 9 of screen offset.

Bit 0 - Bit 8 of screen offset.

Bits 5 and 4 dictate the start address of the screen memory, as follows: Bits 3 and 2 control the length of the screen. If the screen length is set to 32k there will be enough screen data to fill the whole of the screen, so by altering the position of the screen, with respect to the border, and by

increasing the vertical and horizontal characters displayed, the whole screen area can be filled. The screen length is changed as follows: Bits 1 and 0 are bits 9 and 8 of the screen offset.

13. Start Address (Low) (0)

This register controls bits 0-7 of the screen offset i.e. the second byte of the screen address. This register can be used in conjunction with register 12 to make the screen start almost anywhere in memory, except bits 10-13 of the screen position aren't accessible (they are presumed to be 0.) If this register is incremented it will appear as if the screen is scrolling to the left.

14. Cursor Register (H) (192)

Isn't used on the CPC, although it is still set to &C0!

15. Cursor Register (Low) (0)

Ditto.

16. Light Pen (High)

This provides bits 15-8 of where the light pen is on the screen. This requires the lightpen to be attached to the CRTC, via the expansion port. It is only readable with CRTC type 0, though.

17. Light Pen (Low)

This provides bit 7-0 of where the light pen is on the screen. It is only readable with CRTC type 0.

The End

There are many other effects that can be accomplished by clever timing and changing of the registers, like horizontal/vertical splitting, superposition, pseudo 640x400 pixel screen, overscan, smooth scrolling, and loads more.

In the next issue we will be looking at how the VGA fits into the picture.

James

Arnolds Basic

by Paul Fairman

This month we continue to look at printer streams and software commands then we shall have a look at CP/M. So get you CP/M plus disc ready.

Streams simply mean where to send data. There are ten possible values ranging from zero to nine. Zero is the default stream set when you turn on the computer, which sends the data to the screen at the present cursor position.

Select stream eight for the printer, and stream nine for the disk drive/tape. Options 1-7 inclusive are covered in the part 6.

Software Commands

Below is a list of the more useful codes that you can send to your printer to access some of the features:

- 1) ESC w+1 *double height printing*
- 2) ESC W+1 *double width printing*
- 3) ESC a+1 *centre text*
- 4) ESC a+3 *auto justification*
- 5) ESC E *emphasised print*
- 6) ESC F *release emphasised print*
- 7) ESC x+1 *select NLQ font*
- 8) ESC k+? *select font*
- 9) ESC g *micro printing (15 cpi)*

NOTES:

The different features are numbered 1-9 in the first column, followed by the codes to be sent and then the description of the code. Options 1,2,3,4, and 7 can be released by replacing the number afterwards from 1,3, or ? for a zero.

Option 8 has a question mark (?). The value of this can vary from 0,1,3 to 6. The NLQ fonts are listed below on my Panasonic printer.

- 0 Courier font (default)
- 1 Sans Serif (my favourite font)
- 3 Prestige (least favvy)
- 6 Bold PS (bold)

Before this command is effective you must set option 7. Number three will automatically put the text in the middle of the paper, while option four (looking very similar to number three; the "a" commands are all to do with the actual text), will justify the right hand margin, to create that professional effect.

Option 5 sets emphasized print which can be used as a better quality print than normal draft, at a reasonable speed. ESC g goes into tiny little letter mode.

Great. But how do you send these codes. First of all the ESC bit has nothing whatsoever to do with the ESCAPE key. It involves sending the ASCII code for ESCAPE to the printer (code 27). To set micron printing use:

```
PRINT #8,CHR$(27)+"g"
```

This sends ESC followed by the "g". To set the Sans Serif (IBM NLQ font) without touching the pad on the actual printer use two commands:

```
PRINT #8,chr$(27)+"x"+"1"  
PRINT #8,chr$(27)+"k"+"1"
```

Sans Serif is not available on the pad on my printer anyway so the software command is vital if you want that font.

Right me old kipper moving along to the multitasking capabilities of the Amstrad. These are often referred as interrupts from the Z80 and are made available to BASIC via the commands AFTER, EVERY, and REMAIN. The units are measured in 50th of seconds, so if the number 150 is encountered within these commands then it means 3 seconds.

We want to design and write a computer program that slams a very basic timer on the screen, that goes from zero to infinity, and this will require the EVERY command. The format of the commands AFTER and EVERY are:

```
AFTER "length", "timer" GOSUB  
routine line number.
```

```
EVERY "length", "timer" GOSUB  
routine line number.
```

You will notice cunning similarities between the two commands. If you recall the lengthy details on routines yonks ago you will know what one is; just a section of programming within a program to perform a specific function. The length refers to the 50th of seconds, and our timer can be of four thingies, 0-3 inclusive. So our program should clear the screen, do all the stuff that will become automatic eventually. Then we issue an EVERY command, so that every single second the program GOSUBs to another bit.

This program is very short, but could be incorporated into a bigger one. The timer does not have to be specified if you are only using one of them.

```
10 CALL &BBFF: CALL &BC14:
MODE 1: INK 0,0: INK 1,26:
BORDER 0: PAPER 0: PEN 1:CLS
15 tim=TIME-TIME
20 EVERY 50,GOSUB 100
30 GOTO 30: REM PROGRAM
BLOCK
99 REM ROUTINE
100 LOCATE 19,12:PRINT
tim/300
110 RETURN
```

The two CALL commands in line 10 show some useful routines built into the computer. The first resets INK, MODE and BORDER colours and the second just clears the screen. You should be used to CALL &BB18 which is the best.

Also it is bad practice to GOSUB or GOTO a REM line, so take note of what has been done at line 99 and 100.

LOGIC

Logic is a complex business. Boolean algebra and all that. Even if you do A Levels you don't come across it, and you touch on it if you do a degree! But the system that BASIC uses is not hard at all. You probably have already used some logic before; it is based around the following commands: AND, NOT, XOR, and OR. Take a look and some programming examples:

```
IF a$ = "AMSTRAD" AND b$ = "EXCELLENT" THEN GOSUB 4000
```

```
IF a$ = "AMSTRAD" OR b$ = "DIAMOND" THEN GOSUB 5000
```

```
IF NOT(n=45) THEN GOSUB 6500
```

```
IF XOR(q=23) THEN GOSUB 7030
```

Right, the first example uses two variables a\$ and b\$.

If a\$ = AMSTRAD AND b\$ = EXCELLENT THEN go to line 4000. Both "arguments" must

be true. Example two means one of the arguments must be true. Either a\$ = AMSTRAD or b\$ = DIAMOND THEN go to line 5000.

The next one means the argument must be false ie if n doesn't equal 45 then go to line 6500.

And finally XOR. If arguments are different then result is false, which I never use.

CPM PLUS

It was my original intention to keep CPM Plus out of this text, but due to unforeseen circumstances (realised I'd left out a part), I have decided to give an introduction on the best ever operating system for the Amstrad. At least 128k memory is vital, and a disk drive is also needed, so you'll have to upgrade to CPC 6128 specs to run this fab OS (operating system).

There is software supplied on the "CPM Plus master system disk" that runs under CPM and there is also much extra software around, in the public domain for instance. A lot of the public domain software for CPM is of superb quality. The word processor this text was written with is public domain and runs under CPM Plus. Software writers released their previous commercial software into the public domain when the IBM PC came along and took over the worlds business computers.

Until then CPM was in great use, and as such thousands of programs were created for CPM. The inclusion of CPM Plus with the Amstrad was the best decision Amstrad ever made.

Supplied on side 1 of the CPM Plus system disk is an excellent little proggy under the name of PIP. It stands for Peripheral Interchange Program, which translated into English means that it is capable of loading in files and bunging them

somewhere else for instance the printer or to another disk. It fully accepts all the wildcards (see Chapter 5, page 5 in 6128 manual for details) of CPM and includes many special options. To add to this when PIP is copying files that have been erased, resaved and all sorts of things on the same disk the file is usually all higgledipiggledee on different sectors of the disk, PIP will "tidy" up the disk by copying to the nearest sectors or something.

This has the advantage of actually speeding up the loading of files, and if a file should be slightly corrupted then always use PIP to copy it before passing it off for just another ruined file; there is a good chance the file can be saved.

You load PIP by just typing its name at CPM's "A>" prompt and it gives you the * to show that PIP is ready for input. The construction of the command to PIP is basically:

```
destination:=source:filename.ext
[options]
```

Possible destinations are: A, B, LST, CON, PRN which mean drive A and B, printer, screen and any other device attached to the computer. Sources are just A and B for the drives and the filename.ext is the filename and extension (remember you can use wildcards), followed by a string of options which must be in square brackets [].

A list of options is included at the end. And one other point is don't panic if you haven't a second disk drive (drive B), CPM+ allows you to swap the disks when needed. Let's take an example:

```
B:=A:SAUSAGE.BIN[V]
```

Right, the source is drive A and the filename is SAUSAGE.BIN, so the file is loaded from the disk in the

disk drive A and then copies it onto drive B. The option V verifies the copy has been successful. Incredibly simple!

The destination instead of B could be LST which means the file SAUSAGE.BIN will be dumped to the printer which if it is really a binary machine code file as the extension .BIN suggests, is not advised.

More complicated (but still easy) examples are when you want to copy from different "users". To copy SAUSAGE.BIN from USER 5 to USER 1 use:

```
SAUSAGE.BIN[G1]=SAUSAGE
[G5]
```

You can also modify the first filename to be anything (within the disk restrictions) and the file SAUSAGE.BIN will end up being copied from USER 5 to USER 1 and also renamed as whatever you want.

WILDCARDS

The wildcard is an asterisk (*), not to be confused with PIP's * prompt. Let's say for an example a disk has the following files on it:

```
VDE.COM
PIP.DOC
DREYFUS.DOC
VDE.DOB
```

We want to copy both PIP.DOC and DREYFUS.DOC so we can use:

```
B:=A:*.DOC
```

This instructs PIP to copy ALL files with the extension .DOC We now want to copy both VDE.COM and VDE.DOB so:

```
B:=A:V*.*
```

will do the trick. This tells PIP (or CPM) to copy ALL files that begin with the letter V and have

ANY extension. Our two files VDE.COM and VDE.DOB fit into that wildcard perfectly.

MERGING FILES

Using ASCII text files such as those produced by word processors (well most word processors) can be merged together with PIP using a comma like this:

```
MASTER.LEX=MASTER.LEX,
NEW.LEX This merges NEW.LEX
with the file MASTER.LEX.
```

OPTIONS

A Copy files that have been changed since the last copy.

C PIP asks for confirmation before copying each file.

D This option must be preceded with a number which is the column of which to ignore any characters when copying ASCII files.

E Print what is being copied to the screen.

F Filters form feeds from data.

G Used in examples above to GET or GO to a specific USER.

K Doesn't print the filespecs on the screen.

L Convert file to lowercase letters.

N Give numbers to the output lines.

P Like option D this must be followed by a number which sets the page length when printing files.

Q A more complex option here. Followed by a string and then a ^Z which means to stop the copying procedure when encountering the string.

R Read hidden files (set to SYSTEM, not just DIRECTORY).

T Sets the tab spacing to the number followed by the option.

U Opposite of L, converts to uppercase letters.

V Verifies the data has been written properly.

W Save over READ ONLY (RO) files.

All the above is based upon CPM Plus and users of CPM 2.2 have to use the PIP program on that disk. Whether or not all the features detailed are available under CPM 2.2 or not I don't know; I can't get PIP to run properly as it keeps moaning about disk drive B missing, its not my fault I can't afford one.

CPM 2.2 is rubbish when compared to the superb CPM Plus so 464/664 owners should buy some extra memory and get the Plus version, it's worth it.

Also given with the main disk is SET.COM. This program is used to set attributes to files, which is discussed in part ten, such as READ ONLY.

It also is used to set password protection systems to files. To set all these cunning password systems to disks you must re-format your disk using INITDIR which is on side two of your master system disk.

Type INITDIR and when asked to specify a drive type A with the disk you wish to set passwords to in the drive.

The disk will be formatted suitable for these settings. Instead of the usual 64 entries into the disk directory, 48 is the maximum.

<<This is where we have to leave it this month. Arnold's Basic is available from Dave Stitson PD Disc 112. -John>>

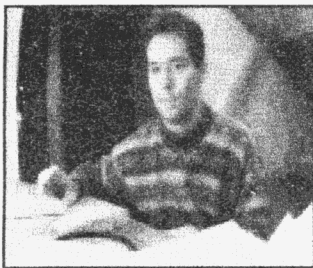


Surfin The Net

By Simon Lucas

I've got lots of nice info for you on the Amstrad front after browsing on the internet so here it is:

JRM45 from DBT has this news from the CPC scene: The "FUTURS" group is actually preparing a new operating system for the CPC. This system will be able to drive a hard disc and others hardware extensions.



Siou (picture above) has released his CPC-ISA interface. If somebody here wants to have new extensions on his CPC, this interface allows you to connect SoundBlaster cards, SVGA cards, etc... However, others graphic and sound cards have been developed for the CPC.

Those extentions for the CPC are the video acquisition card by Siou (connect a camera on your CPC) and the SoundPlayer by Zik allowing you to create and listen up to 96 Khz 4 bits sounds.

Basically, this guy Siou has made lots of nice stuff that has been around for a while that enables

you to connect all sort of extra goodies to your CPC and the software is included on the web page. <http://www.geocities.com/CapeCanaveral/1044>

Boxon 4, the DBT disk magazine will be released this summer too. There will be a Byte '99 around September (exact date again I can't remember but I'll find out soon)

Eliot has just released a new demo coded on 21,22 and 23rd of Feb which is quite good.

'Jack' has made a demo also, coded last year which is quite impressive. A very good music compilation called Ecstasy has just been released, another one is coming soon.

The music is techno but is very good for the old CPC but is best heard through an amplifier or something as the CPC speaker is very tinny and doesn't give a good representation of the music.

A demo released in 1996/7 called Epsilon's Anthology includes no less than 66 songs in the CPC memory at one time (no loading) and is good quality.

Richard Wilson has released a CPC emulator that emulates the Plus range but actually emulates it at the right speed (still in beta version but functional). It is called WinApe and can be downloaded from the French ftp site. Two other emulators have been released: MultiMachine (emulates CPC/Plus and other 8-bit computers) and Yage that claims to have the most accurate graphic emulation for an emulator and can run all the complex demos but, again is still in beta mode.

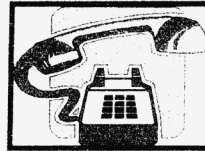
Hopefully I will get round to reviewing all of these things after next issue or in 3 weeks time when I have finished my exams as I have the whole holiday to write articles!

Finally my thanks goes to the person who sent me an e-mail about the company who sells EPROM-erasers?

He sent it to rjlucas@lineone.net but my name is not Richard Lucas - that's my dad!! I formatted my hard drive and lost his name and address.

Simon

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25-6	MicroDesign Art 4-5	100	WACCI index
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28-9	MicroDesign Art 6-7	102	Utilities 9
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36	Teach Yourself Pascal	111	Pictures 12
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44	Demos 2	119	Cribbage, Blackjack
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Simon Lucas 0181 9795250
e-mail: rjlucas@lineone.net. I can offer help on emulators, games, Apple Maes etc.

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Frank Frost 01983 882197
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