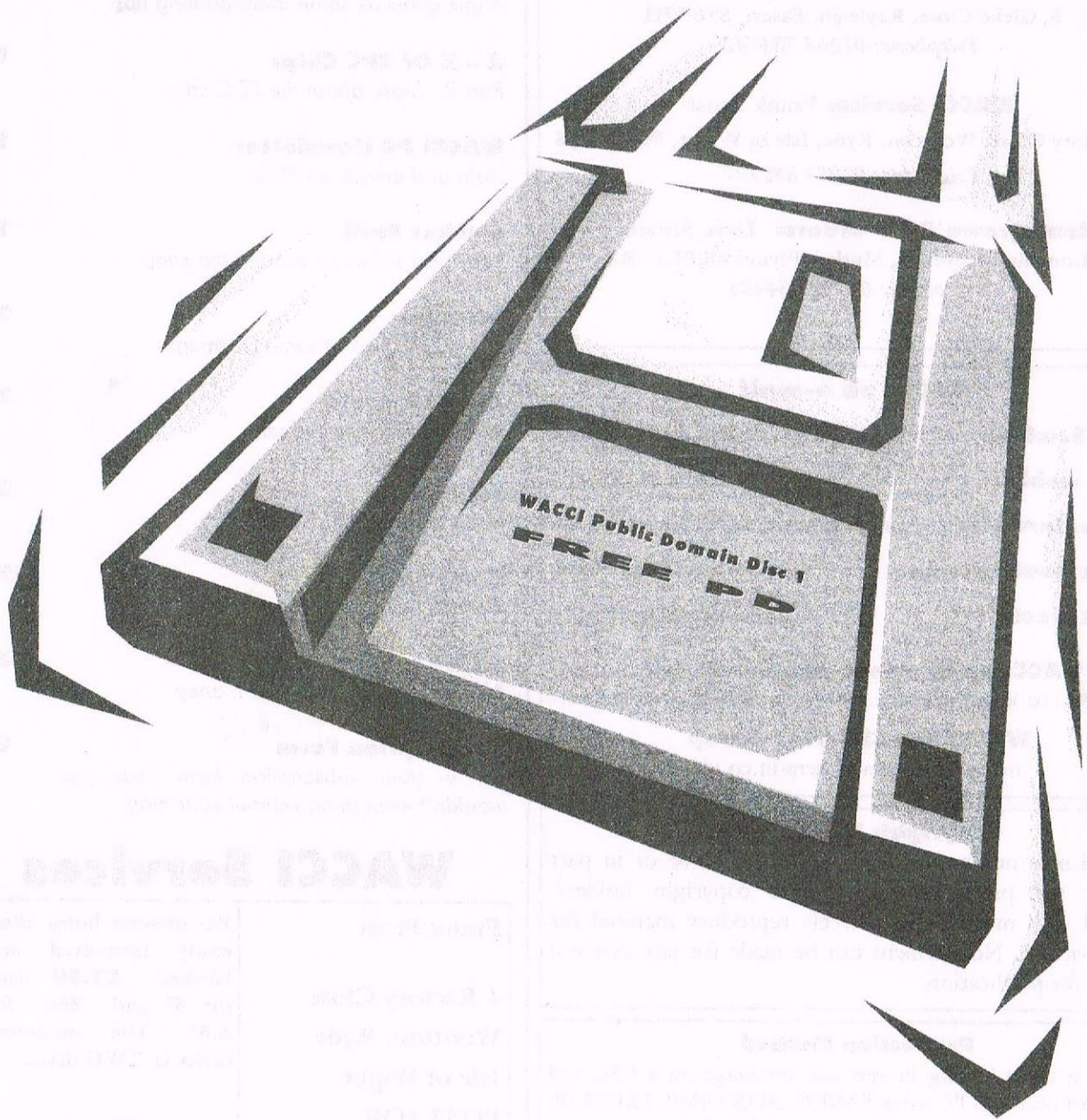


A Magazine For CPC Users And Members Support Club

WACCI

Issue 129 May 1999 £2.00



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free PD just turn the page.**

WACCI

a magazine for CPC user's and members support club

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WACCI The CPC User Group

<http://www.wacci.demon.co.uk>

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Thanx & Stuff

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In: October 1986

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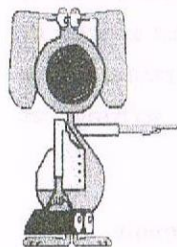


Hi all and welcome to another issue. What's been happening here at WACCI you may ask! Well first of all. I've started on a new web-site for WACCI. This web-site is not meant to replace the site that Matthew Phillips maintains but it does give me a chance to keep it fully up-to-date.

WACCI The CPC User Group

This is the name I've called the new web-site. The URL is:

<http://www.wacci.demon.co.uk>



On this site you will find files that can be freely downloaded and used in your emulators. All these files come in DSK format. So if you have got Internet access why not have a look and tell me what you think of it.

Free PD

To the end of June you can have FREE PD. Please order your PD from Dave Stitson. The only catch is you have got to supply your own discs and postage for their return. Maximum order is TWO discs per person.

For a full listing of the PD and Homegrown discs please look at the back of issue 128.

Firmware Guides

The excellent book is a must for any serious programmer. To order your copy send a cheque payable to WACCI to me and I will send you a copy as soon as I can. We only have a limited supply so first come first served.

The price is £2.99 and if you want the disc that comes with this book please include your own disc. *Ta*

IEBA and WACCI Convention

If you have not booked your ticket or a stall please don't leave it to the last minute because you might be disappointed. The tickets are selling well so send your cheque for £2.00 made payable to the Convention Fund. **NOW.**

Members Input

It is vital for the future of WACCI that the support us by writing letters and articles without them WACCI will have to close. I have still got some articles that I have

not used yet but I need more and I need them NOW. You can review your favourite PD program or even send Carol a members profile.

Subscriptions

Until the end of July 99 if you re-subscribe for six months you will get **one** issue **FREE** and if you re-subscribe for a year then you will receive **three** issues **FREE**. When sending in your re-subscription please write on your form "**special offer.**"

Flat Rate

Since we do not have many overseas members I have decided that all members will from now pay the same rate of the UK membership.

Authors

When writing articles please claim your free issue when they have been published otherwise you will lose out. All that is left for me to say is Happy Reading. *John*

Fair Comment

with John



Please send all letters on disc (if possible) to:
Frank Neatherway, 3 Glebe Close, Rayleigh, Essex. SS6 9HL

AOL and Compuserve



Dear John, WACCI 2^7 (oh all right, 128) is splendidly laid out.

Don't know what you've done, but it looks lovely. But which klutz designed that horrid UK8 logo?

AOL do own Compuserve, it's true. General rule of thumb: steer clear of OSPs (Online Service Providers), who provide noddly "extra content", and go for plain vanilla Internet Service Providers who concentrate on the basics. And while I'm on about the Internet, a quick plug for the new disczine download site:

<http://www.systemed.u-net.com/trancentral/>

Richard Fairhurst
(who is honoured to have been mentioned in the same breath as Stuart Paterson) Kilburn

<<Hi Richard, Nice to hear from you again. Thanks for the remark about issue 128 layout. ;-).

The UK8 logo was done in haste, however at least it caught your eye and after all that's what really matters. As for Compuserve being

owned by AOL. Its plain to see that you don't like either of this two servers but why? I thought AOL was pretty good until I wanted to connect on to the IRC (Internet Relay Chat) and found I was kicked off very sharply as soon as I log on. I don't have that trouble now that I'm with Demon. - John >>

PC Newsletter



Dear John, WACCI is changing, one can only hope, for the better although I am yet to believe that the recent inclusion of the 4-page PC newsletter is a wise decision. Whilst I like the idea of such a page, I feel that it should only be a page or so long certainly no more than two pages, perhaps describing PC-CPC related topics such as file/graphic transferring etc or useful CPC-related internet sites.

The way I see it is that if people want to read PC-related articles in a style similar to that of WACCI then surely Wibble is the answer - perhaps the recent decline in membership to 250 has been a result of this? Again, WACCI needs to think about advertising and members need to

continue to advertise in computer-related literature so as to keep membership relatively stable. This proved fairly successful previously so I think we need to consider doing it again - what do you think?

Those of us who do have a PC and the Internet how about doing some browsing on CPC-related material? I for one have Internet access and have come across many CPC-related articles and, although I have written articles in the past time restraints have hindered me from writing as many as I would like.

I have come across many useful things, including how to build an infra-red connection for your CPC (to be controlled by your TV-controller) by David O'Shea, a program and hardware project to allow you to use a PC AT keyboard instead of your normal CPC keyboard case and also, another new operating system by Doc Bartoc allowing the usage of sub-directories. For 6128+ owners I have found a site that lets you download a ROM image compatibility chip that, when inserted into your 6128+, allows greater compatibility with all

those incompatible programs. The ftp internet site in Norway has thousands of CPC games, notably ones which I thought never came out for the CPC such as Xyphoe's fantasy (*stunning graphics, music and animation*) and Indiana Jones and the Fate of Atlantis.

The site could be a good subject of discussion perhaps merging with Angie's cheats page, I for one would be happy reviewing a game that we have not seen or heard of in this country before.

If a few articles were made up from the available information then there would no longer be a problem of article shortages. As the PC newsletter was partly set up due to the lack of CPC-related articles then I think the space denoted to WACCI PC needs to be reconsidered.

Finally, if anyone knows where I can buy an EPROM eraser, then please contact me at:

73 Palace Rd, Hampton Court
East Molesey, Surrey,
KT8-9DN,
or by e-mail: rjlucas@lineone.net

Richard Lucas

<<Good day to you Richard, I have also seen loads of stuff on the internet that I think would be of interest to the membership and I have asked a few if WACCI could publish it but as yet I've had no response, please feel free to ask them yourself you might have better luck than I did. Reviews about games not available in this country! Again go

for it. Or send me the Url of the Norway internet site and I'll have a look for myself. Also if anyone knows of any web-sites that supports the CPC could you please send them to me and I will publish them all in a WACCI near you soon.

Is having a PC Newsletter such a bad thing! I don't know to be honest I have always felt that WACCI should cater for the CPC only but times change and so do interests. I have not had anyone really objecting strongly about covering PC's within WACCI. A few members have also been delighted by it. So what do I do? Its really up to the membership to tell me if they like it or not.

Yes its true the PC Newsletter was started up mainly because of the lack of CPC related articles and I'm pleased to say I have received articles from John Hudson which I've still not published (please be patient John they will appear soon) and a few more besides.

WACCI PC takes up four pages (some like it some don't) which helps me to stock pile articles for future issues. While you are all enjoying your latest issue I've to think of the next issue and so on. For me it's a never ending task (I'm sure every editor that WACCI has had would agree).

Philip DiRichleau had some very difficult times and even thought about opening WACCI up to the PCW and when Philip sent letters out to various members it was rejected by all except Richard Fairhurst. I favoured the PC if WACCI had to be supplemented by

another computer but with hindsight Philip was right the PCW and the CPC have got more common grounds than that of the PC. So perhaps this should have been the course that WACCI took. But I cannot turn back the clock I have to look to the future.

In regards to your request about an EPROM eraser I have one if you send me the roms I will erase them for you. -John>>

Going Cheap



Dear WACCI, For those who said "please let me know when they're done" and whose details I lost the last time my system crashed, I've now finished recompiling the manuals of the ex-Arnor *CP/M* versions of C and Maxam 2 as ASCII text files.

They are now devoid of up-arrows symbols (*for example*) or embedded Protext printer and formatting codes.... In both cases, we're now saying that, although we retain the copyright (*in a legal sense, so that they don't get mucked about in a commercial or programming way*) the ex-Arnor *CP/M* (*only*) versions of "C" and "Maxam 2" and the associated manuals as text files can be copied and passed around without any grumbles or objections from us. ComSoft or I will still supply and support the Amsdos versions on the usual (*allegedly commercial!*) basis. *BUT* please, we ask that users make no changes to the program or text files without letting me know what's been done. The idea

being that if the changes are improvements we'd like everyone to benefit from them on a "free upgrade" centralised freeware basis. So, if anyone would like a "program and manual" set of either "C" or "Maxam 2" on CPC or PCW format 3.5" disks, send five pounds (*for the disks, the postage, and my lost weekend*) payable to "BA Watson",


39 High Street, Sutton
ELY, Cambs
CB6 2RA.

Please state which computer they're for, and contact me *first* if you'd prefer 3" discs. I can either supply them at 4 per pair, or will copy the programs onto *your* 3" discs at no extra charge. They will also shortly be in WACCI's PD/Homebrew library. By the way, if they're not already on an Internet site for downloading, they can be now. What *won't* be there yet are the manual's files. Anybody fancy uploading them? Next on the same basis if there's any demand - Arnor's version of BCPL.

Brian Watson

<<Hiya Brian, Many thanks for the information. As you know I've started another WACCI web-site and I'll be prepared to put them on the net for you. -John>>

A Message To Bill Gifkins


 Dear John, Thanks for another great WACCI. I'm just writing a little note to Fair Comment to pass on a message to

Bill Gifkins in New Zealand. I got the letter OK, and I am just putting the finishing touches on a disc full of MIDI and Advanced Music System stuff. I'll send Bill a copy in the next couple of weeks, and also a copy to Dave for the PD Library. Since it is a whole disc full, it should be available from the PD Library very soon. I'll make sure I announce the disc number in Programmers' Patch as soon as I know it.

Matthew Phillips.
Oxford

<<Hi Matthew, I'm glad you got the letter from Bill okay. The PD Disc number can be 131, will you also send Dave a copy of your Programmers Patch disk please the copy I had, got corrupted. Thanks. - John>>

Grammar and Spell Checkers

 While reading my WACCI issue 128, a letter in Fair Comment by Peter Rogerson made me sit back. It was the part on PC grammar checkers.

Now before I go any further I agree with Peter our language, English, is both complex and beautiful. It dates back to Old English or Anglo-Saxon (500-1050), Middle English (1050-1550), Early Modern English (1550-1700) and Late Modern English (1700-onward), to the one we use today Standard English. There is also a Great dialect variation, which remains today throughout Britain. (From Hutchinson's Encyclopaedia)

I don't wish to give a lesson on our language, but it is one I had to re-learn through illness and know to well. Its complexity can fool most of us. This brings me to stand up for the writers of grammar programmes.

These grammar programmes takes a long while to write and put together, not to mention the complexity of the subject. I use both grammar and spell checkers, when I work. I have one on as I write this. The aide it gives me is that it underlines wrong spelling in Red and grammar in Green. The spell checker has a wonderful vocabulary and gives you the user the choice of words. The decision to which is used is the user not the checkers.

Yes I have to admit it will underline words it does not have in its database. Lets remember to put every word in each of its contexts would take up memory on the hard drive as well as being to long to add in with a Word Processing packages.

This is generally the case but most Checkers will let the user build his or her own database as one works. Giving the added advantage of the user's own requirement of words and not ones that will never be used by them. Also the advantage of the underlining is you see at a glance if you yourself have made an error both in typing or spelling. Other advantages are that if you frequently make spelling mistakes it is corrected by the computer as you write after that.

Well mine does anyhow. I must say that the program has to be told to do these things in the first place. This is done on setting up the program.

Example: frequently made mistakes is corrected by the computer as you write. Rewrite: frequently make spelling mistakes it is corrected by the computer as you write. How can this type of help be a bad thing.

Grammar checker can be a god send. Lets look at the green underline grammar mark. The program has to have a way of telling you something is wrong. More times than not it is a comma missing in the sentence. The other most common I make is putting a verb, adjective, noun or pronoun etc out of context.

The checker will try to explain or tell you it has no alternative. Then again it is up to the user to make the decision how to proceed. Therefore the onus is on the user not the grammar checker as to what is written in any article. Grammar checkers also underline in green if have left an extra space between the words.

Giving you the chance to correct them. Again I would say this is a good thing, as it is so easy to do.

I believe I am correct when I say that all modern literature would be spell and grammar check as well as proof read before publication. Dialect is taken into account if the subject is in relation to it. This is such a large

subject and as previously stated complexed. Now we must take into account that we are writing for a magazine that is run by the members for the members and not for Commercial sales.

Anyone would expect an error or two so to speak. I don't consider that the human element is lost. It is enhanced by a prompted reminder that something is not quite right and can be corrected if one takes the time to consider an alternative reassessment of the sentence. I consider this a great help not only to help me write, but to use the context of words as they should be used in our language.

I feel credit must be given to the writer of these grammar and spell checker programs. I for one am most grateful. I have also spent two years encouraging people to write articles. Telling them that their work will be spell and grammar check before it was printed. This encouraged people that felt they had not the education advanced enough to write articles to do so. John is always asking us for more articles so we can keep the magazine going. I hope that someone's personal opinion, which they have the right to make, will not have undone all the work I did to try to get them to write in the first place.

<<Hi Christine, Many thanks for your letter. Spelling and grammar checkers do have their purposes. In most cases I always put an article or letter through one, sometimes the

authors of articles and letters occasionally miss spell a word and as you quite rightly said you are then given the option to alter the word. Its just a shame I don't use one more often on Thanx & Stuff. But there you go. -John>>

Well that's it from Fair Comment this month not many letters again. Please write in and tell us what you would like to read about and of course keep your articles coming. - John

Publicity

Richard Lucas mentioned about doing more publicity for WACCI and I agree with him we all should start by placing adverts in shop windows and even take an advert to car boot sales. This would also be a good selling point from the person who wants to sell his or her CPC. Then of course there are the Free Ads papers.

The only trouble is cutting your magazine to bits, but the solution is simple if you want to take part and don't want to cut up your WACCI just give me a quick telephone call or write and I will send you a page of adverts. Each page contains three adverts.

If in the event I'm not available would you please contact either Doug Webb or Angie Hardwick.

Please phone Doug before calling Angie since Angie is very busy at present getting the convention underway. (Taking orders for tickets and stalls.) Doug's and Angie's phone numbers are on page 2.

John

Programmers

Patch

by Matthew Phillips

If we wanted to generate numbers from the AI program, the function comes in our array of probability. You will generate numbers from the first letter in alphabetical order to put it in a function. Of course, as each word is, it needs to our words. Every time we store more often than not the user's sentences. Line 800 is quite complicated, but it has to store the words in order. Yes, it seems to tell us a birthday.

DON'T GO AWAY!

If you didn't follow that, don't worry - I didn't either. That introduction was generated by the AI program when I fed it the first half of this month's article. If you find the introduction easier to follow than the rest of the article, then write in to Fair Comment to ask John to give me the sack!

Last time we added a binary tree structure to the AI chat program in order to speed up the searching for words. Every time we type a sentence in AI, it has to search to see whether we have used each word already in order to add the new words and create links between them and the existing ones. In the original AI program, the searching accounted for most of the time taken processing the user's sentences. The binary tree system that we developed last month improved the speed considerably by storing all of the words in alphabetical order. This month's listing makes the searching even faster by storing the words in a totally random order. Yes, it does sound ridiculous. Let me explain...

NUMBER CRUNCHING

The concept we will be exploring this month is known as the hash

table. The idea is that when we store a word in the array we use a "hash function" which gives us a number based on the word. We use this magic number to tell us where to store the word in the array.

For example, we could have a hash function which just looked at the first letter in the word. If it was "A" the function would return 1, and so on up to "Z" which would turn into 26. If you wanted to store the word "Frog", you would put it in slot 6, and the word "Kermit" would go in slot 11.

There are several problems with this hash function. For one thing, if we wanted to store more than 26 words, we could have a big array of a thousand, say, but it is hard to adapt the function to give us bigger numbers. You will also get a lot of words ending up in the same positions as each other (known as a "collision" in computing theory). Moreover, there will be some slots which will largely go unused - the ones for words beginning with Q, X and Z. This is wasteful of array space.

What we actually want is a function which appears to generate numbers from the words we give it

in a random and unpredictable way. Of course it will not really be unpredictable as given a particular word the function will always churn out the same number, but it is unpredictable in the sense that if you gave me a word I would not be able to guess whether the number would be nearer 1 or 1000 without working the function out myself.

MAKING A HASH OF IT

Line 800 is where the hash function comes in our example program. It is quite complicated, but it needs to use a good spread of letters from all bits of the word. I just made it up yesterday, so there is nothing special about it, but it seems to work all right.

The calculation is done in several stages, using the ASC function all over the place to turn the letters of the word into ASCII numbers. I am using the RIGHT\$ function to get letters from different bits of the word. The important feature of the calculation is that c ends up smaller than 32768. This is because the last thing we do is set cword to c MOD mwords, and if c was bigger than 32767 the MOD would not cope. The MOD command makes numbers "wrap round". If you do a number

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

```

course, if you looked in space 543 and found it empty, then you would know that Kermit would not be found in the array at all, because it would have been put there if the space was free.

If Frog is in 543 and there is nothing in 544, again we know that Kermit is not in the array because it would have been put in 544.

This method is called "linear probing", but it isn't actually a very good method. The problem is that once you get a group of words in a row, they cluster together, and once you get a cluster, other words are even more likely to join them. We end up searching through the whole array one by one, like the original AI did.

What I have done instead of moving on one slot, is to move a number of slots based on part of the hash function. Line 810 is where this happens. The loop in the line repeats while the word in the array `w$` is not `word$`, the one we are looking for, and is not empty either. We then move on `cword` by `b`, which is part of the hash function from line 800, and look again. The `MOD` `mwords` part is to make it wrap round to the start of the array again if necessary.

If two words give the same value of `cword`, it doesn't mean that `b` will be the same for each one, so

very often we will avoid a double collision like this.

WHY 1009?

You may be wondering why I have increased the size of the array to 1009. The reason is that some aspects of hash tables work a lot better if the size of the hash table is a prime number. If you start at any position in the table and move a certain fixed amount, wrapping round using `MOD`, then you will eventually visit all the elements of the table. This will not work if the size of the table is not prime.

THE GORY DETAILS

I had better briefly mention the other changes in the program. Most of the lines are the same as last month, so I have asked John to print an asterisk by all the ones which have changed. Note that line 625 has gone completely.

A few lines near the start have changed to set things up differently. Lines 43 and 44 add two new commands which show the progress of the hash table. Typing `"*showhash"` will list all the words in the table, showing their position and the number of following links they have. Typing `"*hashgraph"` gives a graphical representation of the hash table, and if you do this from time to time as you type more sentences in, you will see how the hash table fills up. Line 160 is where we deal with adding a new word, and is much simpler than the binary tree

version, because the subroutine at 800 basically either tells us where the word is already, or where to put it. The other important alteration is line 435. Here we are putting in the dummy links explained in issue 126. In the old version, we just used the next space in the array, but we are now using the spaces in the array in a random way. The new line 435 moves on a certain amount, `j`, until a blank entry is found. To protect the position from being used for a word later, we change `w$(x)` to a space. That is also why line 31 is added.

With loading and saving, lines 620 and 720 have changed, and line 625 has gone. The lines from 800 onwards have all changed of course. Hash tables can be faster than binary trees, and in our example the program is shorter too. Hash tables do not work so well when they are full though, so you may find things clogging up if you spend too long talking to your computer. I have included a `PRINT CHR$(7)` in line 810, so it will beep every time there is a collision. When you have been talking for a while you will get a lot more beeps.

That's all until next month, when you will be asked to dust off your CP/M system discs (cue sound effects of Richard Fairhurst gnashing his teeth). See you then.

Matthew

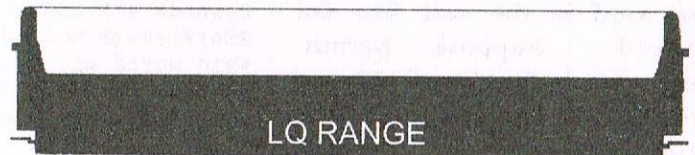
With the aid of slight modifications to the cartridge ribbon users can the enjoy a much longer ribbon life and "NOT" get a single drop of ink on their fingers ever!

The modification method used only works with cartridge style ribbons it is 100% safe and reliable I have used this same method on both a Star LC10 for three years and now an LQ800 24 pin printer for two years.



STAR LC RANGE

How long does your ribbon last? Mine lasts up to 3-5 times as long. I don't even get any ink on my fingers either.



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A mere £1.50 per conversion

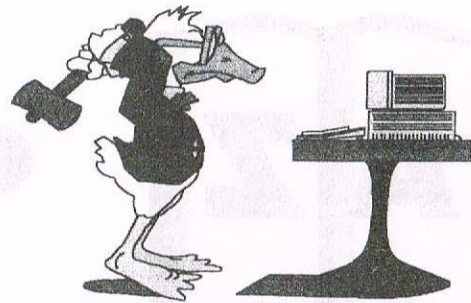
Cost includes return post per ribbon sent (Note: Same packing used at all times)

For more details or conversions write to

J. Jones 17 Beechway, North Seaton, Ashington. NE63 9TD

Please allow min 7 days for returns

Are You Game For A Game?



Welcome to the latest game page this month we continue to work through the alphabet with B. Hope you have fun. By the way if you want a printed copy of any of the instructions send me a stamped addressed envelope and the deed will be done.

BATTLE OF THE PLANETS

Battle of the Planets is a space adventure. Now you can join G force in their latest adventure to defeat their arch enemy Zoltar.

Zoltar had declared war on your Universe, which consists of five planetary systems which are.

1. XENATH
2. ELIAS
3. HORAF
4. OLIXAL
5. PETE

Alien space craft surround each planet and after a certain time lapse they will land on the planet and destroy the life of that planet.

Your performance in space will limit the count of alien craft landing on the planet in that system.

On the planets you will repair and fuel ships that you may dock with in order to replenish and repair your space craft.

Your space craft is equipped with a laser system, neutron torpedoes and a long range scanner. The long range scanner has three main indicators that appear on the screen edges.

There are also two other symbols displayed on the screen. Navigation cursor/laser sights and Neutron torpedo sights. If you are using the keyboard the controls are.

Q UP A Down

P Right O Left

Space Bar operates lasers

Z Operates neutron bomb

0 (Zero) to increase speed

9 Reduces speed

1 to 5 indicates status instruction.

If you have selected joystick control the joystick will replace the directional movement and "laser" fire. All other keys remain the same.

Whilst on the planet the long range scanner will show the repair ships by a spanner and wrench symbol and the fuel ships by a fuel can symbol.

Navigating your ship through a Hyper-space gate, alien craft or one of the planets move the navigation cursor/laser sights via the directional controls towards the craft in that direction.

When an alien space craft is located, the navigation cursor/laser sight enables you to direct your laser fire.

Excessive use of your laser system will cause a system failure until the temperature falls to an acceptable reading.

Well that's it for this month. Next time I'll be giving you all some tips on Biff. So until then happy game playing.

Angie

Axioms of Life - ain't it the truth

Everyone has a photographic memory. *Some don't have film.*

Save the whales.
Collect the whole set.

A day without sunshine is like, well, *night.*

Change is inevitable, *except from a vending machine.*

I just got lost in thought. *It was unfamiliar territory.*

Seen it all, done it all, *can't remember most of it.*

Those who live by the sword *get shot by those who don't.*

I feel like I'm diagonally parked *in a parallel universe.*

He's not dead, *he's electroencephalographically challenged.*

You have the right to remain silent. *Anything you say will be misquoted then used against you.*

I wonder how much deeper would *the ocean be without sponges.*

Honk if you love peace and quiet.

Despite the cost of living, *have you noticed how it remains so popular?*

Nothing is foolproof *to a sufficiently talented fool.*

If the entire world is a stage, *where is the audience sitting?*

He who laughs last, *thinks slowest.*



of CPC Chips

by James Hoskisson

The Execution phase flag is set if the FDC has entered the execution phase.

This involves the CPU either reading data from the FDC or sending data to it. The direction of the data is dependent on the command that is being executed.

The saga continues....

The FDC busy flag does just what it says really. If this bit is set the FDC is executing a command. Note that this doesn't just mean that it is in the command phase. This flag applies for all of the command and is reset when all of the result data has been read by the CPU.

The FDD 3 busy flag indicates if the 4th disc drive is busy doing a seek, but since this pin isn't connected on the CPC it is irrelevant. The same goes for the FDD 2 busy flag.

The FDD 1 busy flag and the FDD 0 busy flag indicate the state of drive B and drive A respectively.

If the drive is doing a seek, i.e. the drive head is moving, the bit is set. If it is ready for data exchange this bit is reset.

Although this byte is the main status register there are four

Status Bytes

Status Byte 0

Bit 7 } These two bits indicate what
Bit 6 } kind of error it is as follows:

| Bit 7 | Bit 6 | |
|--------------|--------------|---|
| 0 | 0 | There was no error. |
| 0 | 1 | The command couldn't be completed. |
| 1 | 0 | The FDC was sent an invalid command. |
| 1 | 1 | Command failed because the drive suddenly became 'not ready'. |

Bit 5 - If the FDC has finished a seek this bit is set.

Bit 4 - If the FDC detects a fault from the FDD this bit is set.

Bit 3 - If the FDC tried to execute a command and the drive wasn't ready this bit is set. This bit is also set if a read command was issued to side 2 of a single sided drive. This bit is also set if the drive motor isn't at full speed when the FDC tries to execute a command.

Bit 2 - The side of the drive that is being used. 0 for Single Sided drives.

Bit 1 - Is set if drive 1 is currently selected.

Bit 0 - Is set if drive 0 is currently selected.

Status Byte 1

Bit 7 - If the FDC tried to get a sector beyond the end of the track. On the CPC this is always set.

Bit 6 - Not used.

Bit 5 - Data error. The checksum failed for a sector.

Bit 4 - This is set if the FDC doesn't get the information for the CPU quick enough.

Bit 3 - Not used.

Bit 2 - The FDC can't find a sector or sector ID block specified in the command.

Bit 1 - Disk is write protected.

Bit 0 - Is set if the FDC can find the sector ID block but not the data for the sector.

Status Byte 2

Bit 7 - Not used.

Bit 6 - If a sector has been found that is marked as deleted this bit is set.

Bit 5 - The sector data is corrupt.

Bit 4 - The track value in the command doesn't equal the track value found in the ID block.

Bit 3 - If executing a scan command this is set if the data is equal to the sector on the disc.

Bit 2 - Scan command has failed.

Bit 1 - Tried to move to a track that doesn't exist.

Bit 0 - The FDC can't identify if the sector has been marked as deleted or not.

Status Byte 3

Bit 7 - There is a fault with the FDD

Bit 6 - If set the disk is write protected. If reset the disk is write enabled.

Bit 5 - If set the drive is ready.

Bit 4 - Drive head is over track 0.

Bit 3 - If set this indicates that the drive is double sided.

Bit 2 - Indicates the side that is currently in use.

Bit 1 - Drive 1 is currently selected.

Bit 0 - Drive 0 is currently selected.

FDC Commands continued:-

Read Sector ID: This command will read the first sector ID block that it comes across on the current track. This is especially useful when trying to copy discs that have been protected using non-standard sectors because it returns the numbers of all the sectors in the order that they are laid down on the disc, if it is continually repeated.

| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|-------------|---------------------------|-------|-------|-------|-------|-------|-------|-------|
| Byte 1 - 0 | MFM | 0 | 0 | 1 | 0 | 1 | 0 | |
| Byte 2 - 0 | 0 | 0 | 0 | 0 | Side | DS1 | DS0 | |
| Bytes 3 - 9 | There aren't any, hooray. | | | | | | | |

Execution: The CPU doesn't need to do anything here. The FDC just reads the sector ID automatically.

Results: The same as above. Note that the last four bytes give the sector ID of the sector that was read.

Format a Track: This command will format the current track. This involves writing all of the sector IDs, the checksums, the bits at the beginning and end of the track, and setting up the data fields for each sector.

| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Byte 1 - 0 | MFM | 0 | 0 | 1 | 1 | 0 | 1 | |
| Byte 2 - 0 | 0 | 0 | 0 | 0 | Side | DS1 | DS0 | |

Byte 3 - Sector size for all of the sectors to write to the track.

Byte 4 - Number of sectors per track. If this is too big the track won't be formatted.

Byte 5 - Formatting gap length. This is usually &52.

Byte 6 - Filler byte for the data sections. This is usually &E5.

Execution: The CPU has to send the sector IDs for each sector in the order that they are to be laid down on the track. The number of bytes to be sent is the number of sectors * 4.

Results: The same as all the others, surprisingly.

Recalibrate: This command moves the drive head to track 0.

| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Byte 1 - 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | |
| Byte 2 - 0 | 0 | 0 | 0 | 0 | 0 | DS1 | DS0 | |

Execution: There isn't an execution phase. The FDC just does it.

Results: Nope, ain't any of those either.

Sense Interrupt Status: This will return Status Register 0, and the current head position.

| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Byte 1 - 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | |

Results: The first byte is Status Register 0. The second byte is the position of the head i.e. the track that the drive head is over.

Specify: This command specifies the drive operation times, e.g. The motor on and off time, the head load delay, etc.

| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Byte 1 - 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |

Byte 2 - Bits 6-3 hold the step rate time in microseconds. Bits 2-0 hold the head unload time in microseconds. The head unload time isn't applicable for 3" or 3.5" drives.

Byte 3 - Bits 6-1 hold the head load time. The head load time isn't applicable on 3" or 3.5" discs. Bit 0 is for DMA or non-DMA mode. If it is set the FDC operates in non-DMA mode. It should always be set on the CPC.

other status registers. These are called ST0, ST1, ST2, and ST3 for obvious reasons. The bit significance of these is shown in the box over the page. I have only briefly summarised what they mean because they are pretty self-explanatory.

Armed with the knowledge of when to send the information and where.. Wait a minute I knew I'd forgotten something.

The FDC data port is located at &FB7F. This is the port where you can send and receive bytes from the FDC. Now, where was I....

You will now need to know what bytes to send, but first a little explanation of the FDC operation. The FDC has three phases, as explained above.

When the command bytes have been sent the FDC acts on them and then sets the execution phase flag, when it is ready to exchange data. After the execution bit is finished the execution phase flag is reset and the FDC puts the result bytes on port &FB7F one after another.

The result bytes are usually unimportant, unless something went wrong, but there are specific commands that return useful information in the result phase.

These are the Sense Interrupt Status command, and the Sense Drive Status command. These commands are explained in full below, along with the other commands.

How To Order Your FDC Around If you have been alert and constantly surveying the page you will have seen the box with the title FDC commands. Guess what they are?

Execution and Results: Non-existent with this command.

Sense Drive Status: This command returns status register 3 for the selected drive.

| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Byte 1 - 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Byte 2 - 0 | 0 | 0 | 0 | 0 | 0 | Side | DS1 | DS0 |

Execution Phase: There isn't one.

Result Phase: Status Byte 3 is returned for the selected drive. See box for explanation of status bytes.

Seek: This command moves the drive head.

| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Byte 1 - 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| Byte 2 - 0 | 0 | 0 | 0 | 0 | 0 | Side | DS1 | DS0 |

Byte 3 - This byte holds the track number that the head is to be moved to.

Execution: The FDC moves the drive head to the track. This isn't done instantaneously, it takes some time. The progress of the drive head should be monitored by repeating the sense interrupt status command. This is because it is possible that the drive head will end up on the wrong track.

There is no transfer between the CPU and the FDC.

Results: There aren't any.

The abbreviations used are as follows:

MT - Multi Track. If this is set the FDC will operate on the track on both sides of the disc.

MFM - MFM mode. This should always be set because the CPC isn't configured to work in FM mode.

SK - If this is set it skips sectors with deleted address marks.

DS1 - This bit is ignored on the CPC.

DS0 - This bit selects either drive 0 or 1.

Those are all the commands well the useful ones anyway. I neglected to add the scan commands because they aren't really very useful. They are used to compare a sector that is sent to the FDC with the ones on the

track. Note that if any command bytes are issued to the FDC which don't have a corresponding command the FDC will return status byte 0.

The End, Finally

That's just about everything you will ever need to know about the FDC (I hope.) If you want any more info just write in to Fair Comment, or something, and I'm sure you will get some help. Alternatively, if you have Internet access, you can have a look on the Unofficial Amstrad CPC WWW Resource. You should find the address in issue 118, I think. If it isn't in that one it's in one of those from around then. Well, next issue, we'll be having a look at the CRTC chip. I bet you can't wait!

James

KuTech

KuTech
25 Harrow Road
Linthorpe
Middlesbrough
TS5 5NT
(01642) 821681

If you want to store twice as much, on one 3.5" disc, the solution is here! The 1.44MB drive interface allows you to use High Density 3.5" discs with any CPC. In doing this the number of discs that you have to use is halved, thus saving money. The interface just plugs onto the expansion port at the back of the CPC. Once the software is loaded it takes over, and allows you to use 1.44MB discs as you would any normal 3.5" disc.

1.44MB drive interface

£39+£2 p&p

Please allow 28 days for delivery, as the interfaces are made to order. Make all cheques payable to KuTech. A 1.44MB drive is needed to use the interface with 1.44MB discs. If it is intended for use on a 464, a DDI-1 interface is required.

WACCI PC NEWSLETTER

Volume 1 Issue 3

Special points of interest:

- **Change Screen Background**
- **Installing Windows 95**
- **Using WINZIP**
- **Using PKZIP & PKUNZIP**

Grateful Thanks

My thanks this month go John Bowley for his help with Winzip. Many of you should benefit from these articles. John made life easier for me.

To Doug Webb for doing picture of the back of his computer. They will be handy in the future.

Nic Rayner for updating the files for us, these will be coming up soon.

Also to Angla Cook Editor of Wibble for her co-operation.

Last but no means least to Angie Hardwick for her help with How to's, comments and inspiration on articles.

Thanks to you all. Christine.

Notes to you all

Hi there, I've been busy I had to learn how to grab a screen, could anyone do a How To` for us on how to improve images so as to read the writing.

If you have a better way of doing anything printed here please send in your way of doing it. I need your help so please support us. Send articles on disc with S.A.E. (*if you wish your disc returned*).

WACCI PC NEWSLETTER

C/o Christine Raisin

117 Tilbury Rise

Cinderhill, Nottingham

NG8 6DE

Telephone: 0115 9133181

Changing Your Background

by Angie Hardwick

- 1) Click on Start. Go to settings.
- 2) Click on Control Panel.
- 3) Double Click on Display. In front of you will see on the screen a display box called Display Properties.
- 4) There are 4 Tabs at the top called Background, Screen Saver, Appearance and Settings. We are going to work with Background.
- 5) On the left of the screen is a list of patters and on the right is a list of Wallpapers. There is a scroll bar on the right of each box.
- 6) Scroll up or down the Wallpaper box, the titles are listed in alphabetical order, try one, click on Arcade, the screen on the display monitor should have changed, now try Argyle, it's now gone from a green background to blue.
- 7) When you have made your selection, Click On Apply at the bottom right of your screen, I've chosen clouds.

You have now changed your wallpaper

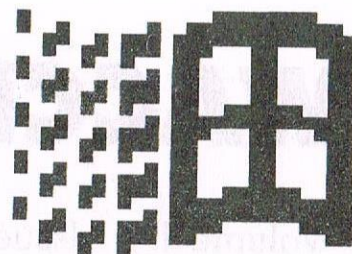
Tips

Computer Crashed try Ctrl-Escape This may bring up your Start Menu so you can shut down your computer safely.

Ctrl-Alt-Delete will bring up a window so you can End Tasks Highlight the one you are having trouble with and press End Task.

Documents Menu full clear it by: Right Click on a blank part of the Taskbar. A window appears choose Properties, go to the top and click the Start Menu Programs, then go down and click the clear button. Click Ok. Job done. Your document Menu will be empty.

Installing Windows 95



I must start this by saying that my experience may well not be typical, and also to take backups of all data before you ever try anything.

The first time I attempted to install Windows 95, it was the upgrade from Windows 3.11 version, and I worked through all the things that it said, removing all the exotic drivers from the CONFIG.SYS and AUTOEXEC.BAT files, scanners etc., and the running the installation program. It went through all that beautifully, copied all the files, made the recovery disc, went to the 'ABOUT TO RUN WINDOWS 95 FOR THE FIRST TIME' window, and crashed with a fatal exception error, which is what Windows 95 was supposed to do away with. The only good thing I can say is that the recovery disc almost worked as it should, at least it was possible to use the machine a bit, in fact I ended up reformatting the hard drive and reinstalling DOS and Windows 3.11 and keeping them. There are several advantages to me of this, first it works which is more than 95 ever did on this machine, secondly as more and more of the new software is only available for 95 I am saving money with every game I can not buy.

The next time I had fun with installing Windows 95, it started again with the upgrade version, this time on one of the machines at work. We installed the upgrade, and it mostly worked, the computer crashed a lot but it had been anyway, and it actually crashed a bit less under 95 than it had under 3.11, it turned out that most of the crashes were caused by a problem with the memory. The machine was still crashing every hour or so, maybe every couple of hours, and so we decided to remove 95 and reinstall it, in running the uninstall program it managed to delete the CD ROM drivers and it was at that point I discovered that we had been sent the wrong drivers for a completely different CD ROM, and there was no way to read the CD. At this point it became obvious that the only realistic option was to reformat the hard drive and install the full version of Windows 95, as we had got a copy of that with another computer, and it comes with a floppy disc which contains generic CD drivers, but you can not just install those. So I went in one Saturday and set about this job.

You start up the machine with the floppy in the A drive and put the Windows 95 CD ROM into the CD, the machine boots up from A and tells you that 'Windows is already installed on this machine, you should not do this', you press ENTER to continue, and it tells you that you need to reboot the machine and turn off 'CMOS virus detection' in the setup. Once you have done all that, it goes into fairly normal setup screens, asking for your name, company, and the ID number printed on the hologram thing that comes with the CD, it then offers you a chance to create an emergency boot disc, SAY YES. You are also offered the chance to auto detect things like sound cards etc., if you have Microsoft software to install as well say NO, (once the 95 installation is complete, you can install the software and then do an auto detect for the hardware, as I have found that the drivers Microsoft supply for some hardware, clashes with the installation program for Office 97 for example).

If the installation goes all right, you will spend about ½ an hour sitting watching screens telling you how it means you can do everything easier and better, these always make me laugh (see paragraph 2). At the end of the installation you will get the 'FIRST TIME' screen, and then hopefully after a few seconds it goes to the main Windows screen. I have now installed this about a dozen times in all and it has always seemed to work fine, except once when I was installing it over itself, without reformatting, and it went mad, but I have still had much more success with the full version than I have with the upgrade version. Do not forget to re-enable the CMOS Virus protection when you have finished the installation, as this checks for some of the very low level activity that viruses can do, and you really do need virus protection on a PC, I check every disc and every file before I ever do anything with it, and as a result I have on a couple of occasions discovered a virus, before it could infect any more machines.

Nic Rayner

Using Winzip and PKzip

Christine Raisin asked me for help a little while back when she wanted to create a zip file. So Bowley riding a white stallion rode to her rescue. Before you start it would be a good idea to create a working directory and copy or move all the files that you want to zip to that directory.

- 1) Start WINZIP classic. Move pointer to New, click New'. This opens up the New Archive box, where you create a zip file.
- 2) You will see a folder with an arrow on it click here to find the directory you have created.
- 3) Enter filename of your choice where the cursor is flashing. Press Ok.
- 4) This will then open another box called Add and will contain all the files in the directory (c:\zip).

There are other options opened to you at this point. First of all is the Action that you want to take.

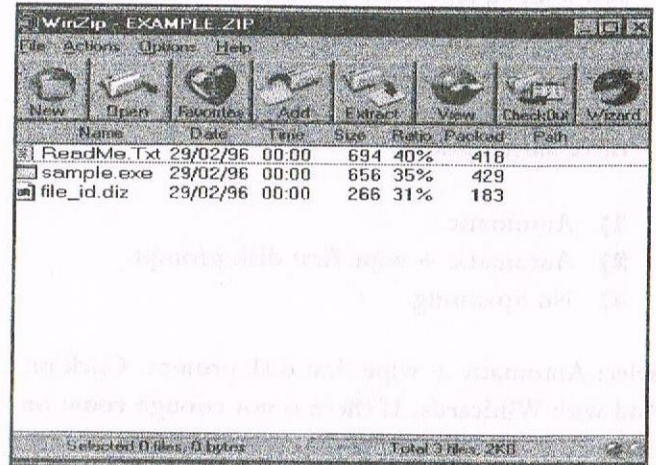
- 1) Add (and Replace) Files.
- 2) Freshen Existing Files.
- 3) Move Files.
- 4) Update (and Add) Files.

Next. The Compression that you want to use.

- 1) Normal.
- 2) Maximum.
- 3) Fast.
- 4) Super Fast
- 5) None.

I personally only ever use Normal Compression with Add (and Replace) Files. You can even password protect your zip file here, *but I never do*. So once you have chosen what Compression and Action that you want, just click on Add With Wildcards, this will then create your zip file for you and add all the files in the directory into it. (*Of course if you just want to add one file to your zip file then you just enter the filename in the Filename box and press Add*). The screen will then change and you will see a list of all the files that are in your zip file. With windows

programmes some of the files belonging to a program that you want to zip could be anywhere on your hard drive. *So be very careful.*



Extracting Normal Zip Files

Extracting zip files are very easy to do, be it on a 3.5 disk, a zip file you've downloaded from the internet or a zip file that you have stored on your hard drive. If the zip file is on the A: drive go to my computer select A: drive and double click on the Winzip icon.

Once Winzip has started go to Files and highlight (*or use Select All*) the files that you want to unzip, then press Extract you are then prompted where do you want to extract files to. Select the directory of your choice and all your files will then be extracted to that directory. If you have not got Winzip installed on your computer I strongly suggest you do so. There are a few other Zip utilities that you may like to get and they are: Zip Magic and Zip Pecker both view zip files, but Zip Magic views them as directories you can even run your programs without extracting them.

Disc Spanning

Another great thing that can be done with Winzip and that's Disk Spanning, this is very useful when you have got loads of files on your hard drive that you don't want to lose but you need the space for something else.

It is better to copy your zip files onto 3.5 HD disks. But what do you do if your files are more than 1.44mb? Good old Winzip to the rescue.

- 1) Open WINZIP Classic. Click on New.
- 2) Click on the button with an arrow on and select 3.5 Floppy (A:) making sure you have plenty of disks already formatted and don't forget to insert one into your disk drive. Enter file name.
- 3) Go to the yellow folder icon with an arrow on and click on it. Find the directory with the files that you want to zip. Once you have done this the Add Menu will be displayed and in addition to Compression and Action you will also see Multiple Disk Spanning and here you are given three more options.

- 1) Automatic.
- 2) Automatic + wipe first disk prompt.
- 3) No Spanning.

Select Automatic + wipe first disk prompt. Click on Add with Wildcards. If there is not enough room on this disk to archive all the files that you want to zip you will be prompted to insert another disk and so on until all the files have been zipped onto 3.5 disks. When prompted to insert the second disk click the box with erase and wipe before you proceed any further.

Note: Spanning Disks are not copied as normal zip files, the disks are labelled PKBACK#001 onwards and all have the same filename on.

Unzipping Spanned Disks

- 1) First of all create a directory to extract files to. Insert the first disk. Click on the zip file and WinZip will start. You will be prompted to insert the last disk of a Spanned archive set.
- 2) Insert last disk. Click ok. A list of the archive will now be displayed.
- 3) Click on Extract. Select directory that you want to extract the file to. You're now prompted to insert the first disk, so insert the first disk now. Press ok. Follow the prompts.

All the files should now be copied or unzipped to the directory you have chosen.

Using PKUNZIP in MSDOS

To create a working directory under DOS you type in MD zip at the c:\ prompt. Move or copy your files that you want to zip up to this directory. Go to c:\zip (*directory that you've just created*) and

type in: PKZIP "filename" *.* then press RETURN. This will then create a zip file and will add all the files from the C:\zip directory. To unzip the zip file you have just made type in: PKUNZIP "filename" and all the files contained within the zip file will then unzip.

Note: Of course if you unzip a zip file and haven't deleted the files that you copied or moved into the directory (C:\zip) the computer will then ask you "Are you sure you want to overwrite existing file" Y/N. So it would be much better and safer to either create another directory or copy the zip file to a 3.5 disc. To copy a zip file to disc. Go to the directory where your zip file is and type in COPY or MOVE "filename.ZIP" to A:\

When using PKZIP or PKUNZIP in DOS there are a load of other commands that you can use, for example spanning disc, adding files, deleting files and many more, but this is beyond the scope of this basic help file. But if you have got PKZIP or PKUNZIP that run under DOS type in PKZIP/? Or PKUNZIP/? For a complete list of the commands.

John Bowley

Both PKZIP and WINZIP have a lot more features to them. If anyone could write more about both these programs I would appreciate it and I am sure others members would be too.

Unless I get your help and Input I will not be able to continue these features as I am learning to use them too. The only knowledge I have is what I have learnt since I started on the computer. I taught myself with a little help from friends and family.

This is what has driven me into doing these pages. There is so much to learn and I found most manuals are too advanced to follow. Please help me to help others.

Send any articles or comments

to: WACCI PC

C/o Christine Raisin

117, Tilbury Rise

Cinderhill

Nottingham.

NG8 6DE.

Telephone 0115 9133181



Make me smile please.

Market Stall

May - already! Where's the time going. Tickets selling for the Convention, thanks for the support, I'll look forward to meeting old and new friends.

For sale: Offers please.

2 off Rombo Rom Boxes, 1 256K Ram for 6128, 1 256K Ram for 464 (note this can be used ok on a 6128 with a expansion connector).

Wanted:

Issues 2,4,6,11, and 12 of Amstrad Action with cheat mode.

Also Issues 4,5,11,12,13,14 of Amtix and ACU the two issues pre Jan 1985.

Please contact: Peter Curgenven, The Hollyar, Bay Road, Trevone Bay, Padtone, Cornwall PL28 8QZ Tel: 01841-520875.

For sale: Amstrad CPC 6128 Plus, Amstrad DMP 2000 Printer + 2 spare ribbons, Epson LX 400 Printer, Multiface 2, Brunword MK4 ROM, 26 Various programming books, 100 Discs loads of games, serious utilities and PD, all with Manuals. Any reasonable offer considered.

Please contact: Graham Swithenbank, 17, Swift Way, Wakefield, West Yorkshire WF2 6SQ. TEL: 01924-258047.

For sale:

10 off Brand New Amsdos 3" Discs. £ 1.50 each.

Please contact: Doug Webb, 4 Lindsay Drive, Chorley, Lancs PR7 2QL. TEL: 01257-411421

For sale:

Issues of Amstrad Action from issue 63 (Dec 90) to 117 (June 95). Issues of Wacci No's 66.70 & 72-102 50p each. Formatted 3" Blanks discs (used & unlabelled) at £1.50 each. Formatted 3.5" DD Discs (used & unlabelled) at £3.50 for 10.

Please contact:

Richard Avery, 60 Pitreavie drive, Knights Manor, Hailsham, East Sussex BN27 3XG Tel: 01323-844371 or e-mail: richard@averyd.freerve.co.uk.

Wanted:

CampurSoft Comsoft Rombox or expansion boards.

Please contact:

Craig Harrison, 112 Brownspring drive, New Eltham, London SE9 3LD. Or E-mail craigster@amstech.freerve.co.uk.

Wanted:

Rombo Video Digitiser reasonable price.

Please contact:

Andrew Osbourne Tel: 01923-333014 after 7.00pm.

Pipeline Tutorals

Yes, yes, I know it's a thinly-disguised advertisement, "Having spent (apparently) forever re-editing and then reprinting the

excellent Pipeline Tutorals series about a year ago, Brian Watson now finds that he has too many Tutorals and too little space in the office which doubles as a computer room. So he's selling them off (strictly while stocks last) at £2 each or £7 for 10; that's "buy six, get two more free".

A self-addressed envelope sent to Brian with four first class stamps lightly attached to a piece of paper with your name and address on will get you a copy of the Pipeline Tutorals list *and* a sample Tutorial. Only one per applicant, though. He will also include a list of the other stuff he is keen to get rid of.

Brian's address is:

"Harrowden"
39 High Street
Sutton, ELY
Cambs
CB6 2RA

UK 8-Bit Convention 99

Don't forget to book your ticket soon if you want to come to this years convention in Walsall. The prices are £2.00 per person and £5.00 for a stall.

Please make your cheques or postal orders made payable to the Convention Fund and not to WACCI. Contact Angie for more details. Her telephone number is:

01922 449730

DISCZINES—AND WHAT THEY'RE ALL ABOUT

PETER ROGERSON

It's time for a change, brothers and sisters of the Waccihood. This month I'm looking at Disczines which, for the uninitiated, are magazines on disc and mostly the province of young wild and winsome CPCers, if we're to believe every rumour that comes our way. But what are these crazy mags like? And are they as blasphemous and libellous as they're made out to be? And have their most vociferous critics all actually read them with the kind of concentration they give to their dose of WACCI each month? So many questions, sweet friends, and so little space in which to answer them.

Look, you wouldn't believe it if you could see me right now. In front of me is the CPC I'm writing this missive on, to my left a 6128 attached to a green monitor, sitting on the arm of a chair, with BTL-2 displayed and to my right a 664 on the arm of the settee with BTL-1 resplendent in bright colour. I hope nobody calls - it's embarrassing

Right, then. Let's establish the boundaries of my investigation. I've got eight disczines in my little collection of discs - the first three EuroWaccis, ATM-3 and the first four BTL offerings. I'll leave the Eurowaccis if I may because in substance they're largely disc reprints of WACCI articles. So what of the rest? Let's start with BTL (which is Better Than Life, for the uninitiated)

THE BOYS' BRIGADE

The Better Than Life brigade are those who attend WACCI conventions invariably sporting the kind of personalised tee-shirt which manages to teeter on the verge of being offensive but doesn't quite succeed, if that makes sense. They're the brains behind an awful amount of the latest software - CRTC (Richard Fairhurst), a true programming genius as Route-Planner testifies, Rob Scott of hardware fame and Richard Wildey amongst many others.

The whole thing is cleverly programmed (by CRTC), the screens being overscan, the forty-odd articles and snippets of libellous gossip are accessed in more different ways than there are holes in half a dozen donuts, and if that isn't good enough they can be printed out for close inspection later (I rather suspect this feature is included to facilitate the easy examination of some of the contents by teams of lawyers). Scrolling is smooth and swift (Sugar never intended the machine to scroll like

this) and loading of the various articles quick and trouble-free. At the same time there are a variety of tunes created by Richard using his CharleyTracker program. And to complement each sweet melody there are graphical representations of its beauty at the top of the screen. Use of colour is good and the layouts on each of the four discs are clear and wholesome.

CONTENTED CONTENTS

So what of the contents? Well, to be honest, it's pretty sound stuff. There's a decent mix of technical material, reviews (games as well as serious* software), gossip, and well-directed tongue-in-cheekish bile aimed at those who have transgressed against the team. And as the articles and reviews have been written by real CPC experts they're of the highest standard and have about them an aura of credibility.

Take the Parados review in BTL-1. By Richard Fairhurst, it efficiently and accurately outlines the development of a variety of high-capacity operating systems, pouring deserved scorn on some (Rodos, for example) and praise of a kind on others (Rodos-XL) before examining Parados and its predecessor (S-Dos) in satisfying detail. And, being by Mr Fairhurst, the article is extremely well written in a style which is both efficient and readable. It may be a touch biased towards what is fundamentally an in-house product, but if that product is actually the best of its kind, then who can blame them?

On the other hand there are supposed reviews in which the slant is at odds to the apparent intention, such as the Zap't'Balls article by Akira. This is more a discussion on ways and means of cracking the game in order to provide friends and allies with copies they haven't paid for,

justified by the argument that because piracy always happened then it's okay now - and this in BTL-1, which was released when there may still have been remnants of the CPC commercial market struggling for survival.

PIRATES AHOY!

Akira misses the point. Piracy is now and always has been theft. Theft has always been part of human society, but when someone steals from me I don't pat him on the back and tell him it's okay because he's quite naturally responded to a native urge. Some say that piracy killed the CPC. I don't wear that, either. It's a dozen generations of better machines with wildly improved capabilities that killed the CPC, though Akira's preferred piracy may have hastened that end. I wonder how CRTC feels about bootleg copies of Routeplanner? Or the BTL crew about ripped-off bundles of Xexor? And that's a bit of a joke, too: Xexor's main use is copying protected discs, and its producers do tend to indignity when illegal copies start circulating.

The vitriol in issue one is aimed at Phil Craven who, from all accounts, has experienced more than the usual amount of difficulty when it comes to customer relations. Maybe he deserves it, and anyway the bile isn't that loathsome.

Issue Two announces the demise of the last Newstand magazine for the CPC, Amstrad Action. This, of course, dates the Disczine. Richard Fairhurst is rightly bitter as he sums up the attitude of Future Publishing - but then, it was they who contributed to the demise of their first title by reducing it to a nonsensical few pages of poor quality paper and putting the price up beyond all reason.

The issue also contains a great deal of news that was at the cutting

edge of CPC knowledge when the disc came out but is now relatively uninteresting. But that's true of all news and BTL can hardly be held responsible for that! There's a lengthy look at demos in which the word "cool" sticks out like a sore thumb. But then, I don't see the point behind demos so maybe they are cool.

The NC100 notepad is examined (before the bugs called attention to themselves and destroyed many an undergraduate's labours). In it the sainted Richard Fairhurst admits that he prefers BBC basic to the Locomotive variety and that the NC100 is an All Round Good Machine.

There's lots more, of course, music reviews, a roundup of independent software houses, an article regarding the decline of the CPC scene in which "freax" figure and a look at fanzines in which WACCI is treated generously although more than one reference to the age of its membership sent me to the undertaker's to put a down payment on their Economy coffin before it all gets to be too late.... and so on.

Issue Three has a fascinating introductory screen in which BTL takes a huge amount of pleasure rubbishing by pseudo-imitation some of the worst features of continental demos. A long scrolling message means precious little to me but probably a great deal to those at whom it was targetted.

Dosses are looked at (again) and this time Phil Craven's MS800 is rubbished - justifiably, I suppose. After the inevitable praise for Parados there's gleeful examination of Windows '95 in which it is described as "complete wee-wee". BTL can get some things right, then.

Simon Forester (ex staff writer of Anstrad Action) bemoans the effort involved in the production of that magazine's cover tape. And Nicholas Campbell (not the radio personality!) gets the bile treatment. And so does WACCI, bless it.

Moving swiftly to BTL-4 (two pages is totally inadequate for the task I've set myself). Sprites are dealt with in a detailed article (first of a planned series) by Ratz, and Richard Fairhurst sheds enlightenment over the dark world of undocumented Op codes. So there's neat here for the carnivores amongst us. There's also a spoof hardware

review of the Dartsma disc drive in which it compares unfavourably with a Fray Bentos steak and kidney pie. Mind you, the Microstyle 3.5 inch drive fares little better!

A great deal of the rest of the disczine is in-joke tittering, though we are introduced to the now famous "Freddy" drive, which comes out well. But that's enough of BTL, except to conclude that if you:

- a) need an extra CPC read,
- b) have a penchant for CRTIC's taste in music, or
- c) enjoy a snigger from time to time, then you could either invest in the above reviewed 'zines or, alternatively, get a life. Or both.

AMSTRAD TECHY MAG

I only have the one ATM disczine, ATM#3, which is just as well bearing in mind the constrictions of space. It is what it claims to be, a disc full of information and technical know-how for CPC enthusiasts to wallow in.

Firstly, the physical side of it. Scrolling is rocket-powered. I had no idea the old CPC could zip along so quickly. Text is in a refreshingly non-default font and excellent use is made of colour. Moving about the disc is less easy than with BTL, every article having to be accessed via the Contents screen (which is enhanced by a drawing of an attractive wench, so even a drawback has its advantages).

Content is largely neat, though the emphasis appears to be on reviews of other CPC publications. When it comes to Eurowacc#2 someone had the time (and grace) to count the spelling errors. Other than that evaluation is on the tepid side of warm.

Several issues of CPC user are examined, though the piece is more a catalogue of the contents of the issues covered than an opinionated critique. A bit like this article, I suppose. The conclusion seems to be that they're a decent enough read and they come out on time.

CPC South West is next. Similar treatment, with the almost familiar conclusion that it's a good read and it comes out on time.

Then it's WacCI's turn. The question asked is whether WACCI has enough serious contents and gitty technical material, maybe not, but other than that it's not a bad read and ... it doesn't come out on time!

On the technical side the

disczine has articles on Brunword, Sanko (the program in its latest incarnation is on side two), emulators (the CPC on a PC), Roms, even Rom-blowing and a project for making a rom-blower complete with layout diagrams. They're all authoritative and seem to a technical dullard like myself to be comprehensive.

To be critical for a moment, ATM#3 makes a point of criticising such inaccuracies as spelling errors and the like, and WACCI for its tendency to lateness from time to time. So why does it say that issue 118 of WACCI should have been out in January 1988, and issue 119 of February that same year, errors that touch on both of its apparent obsessions? But woe upon me for entering such a pointless debate. Of course magazines and disczines should aim for accuracy but they're usually compiled by enthusiastic well-intentioned amateurs who may find that spelling and grammar are not the easiest things to master.

All-in-all ATM#3 is excellent. It may have its faults - what publication hasn't? But it sets out to educate the discerning CPC public in an entertaining way, and succeeds. In terms of presentation it deserves full marks and my final hope is that Roy Everett and co (Richard Fairhurst's there again) produce many more issues.

IN CONCLUSION

Right, then. Conclusion. I've looked far too briefly at five of my collection of disczines. They're basically magazines but made a little more cumbersome by the medium on which they're displayed. Paper is still that bit more convenient than discs, though I'm sure that's rapidly changing even as I write. Both BTL and ATM are aimed at a specific readership (themselves and like-minded CPCers), and that's where they differ from WACCI. Over the years our own magazine has evolved to being a broad church with readers from every branch of humanity, which may or may not have made it the least bit bland.

PETER ROGERSON.

* Serious software ... a term that is as meaningless as Classical music or Dairy Produce. Supercaldrion is serious software, Bohemian Rhapsody is classical music and margarine comes from factories, not dairies.

Arnolds Basic

by Paul Fairman

Carrying on from where we left off last time. I have repeated last months introduction to remind you all what we are doing. There is BASIC 1.0 and there is BASIC 1.1. My Amstrad CPC 6128 uses 1.1, the improved version of BASIC. There are a few useful (and some not) commands available under BASIC 1.1 that are not on BASIC 1.0; the CPC 464 uses BASIC 1.1. and the 6128 uses BASIC 1.1. Those commands only in BASIC 1.1 are tagged with "6128 only"

TEST - Is a jolly spiffing command to detect the PEN colour at the specified graphics location which is useful if you are writing a little game that requires such detection (*to see if the player has crashed or something*).

PRINT TEST(320,200) would look at the centre of the screen and report back the PEN number of the pixel held there.

TESTR - Similar to the above command but the graphics cursor is moved by the amount in brackets and then the PEN reported.

VPOS - See description of POS earlier on, except this returns the vertical position.

WIDTH - Sets the amount of columns for printing on a printer. The range is from 1-255.

WINDOW - Prepare for a more lengthy description. A window on the Amstrad looks a bit like a window. I mean it's a square or rectangle placed in the screen that can be treated as a separate screen. You are referred to this section from part three of this text where a window is used to place the main menu of my telephone

directory program. Up to eight windows can be splatted onto the screen at once and text etc is directed to them as discussed in part 7 on the subject of printing, using streams. It is important in BASIC that you understand streams, and how they work so here we go.

Stream zero is the default stream and refers to the screen. When you are typing something like `PRINT"Hi"` you are using stream zero BECAUSE YOU ARE NOT SPECIFYING the stream. Therefore #0 is the default stream. The above is the same as `PRINT #0,"Hi"`. Streams always have the prefix of the hash sign (#).

Stream eight is the printer and stream nine is the disk drive or tape deck. Streams 1-7 inclusive specify the extra seven windows that can exist, stream 0 being the norm. The format of the WINDOW command is:

`WINDOW [window],left,right, top,bottom`

The "window" is put in square brackets to show that if it is not used, 0 is assumed. So let's say for an example that we want the top right hand corner, exactly a quarter of the full screen used as a separate

screen. First of all it is not possible due to the fact that there are always 25 lines down the screen and so half of this is not possible so 12 is going to be used as the middle line as it has before.

`MODE 1:WINDOW#1,21, 40,1,12` will do this but nothing actually seems to occur.

The window has been set but it is not always visible. Not only can text be sent to windows, but also PAPER and PEN settings can be directed to the windows. And by doing this we can make the window visible.

`PAPER #1,1` sets paper 1 to window 1 but still no joy. Now all needs to be done is to clear the new screen with `CLS #1`. Hurray! The window has been seen.

Now as a little exercise try (in MODE 1) to complete the other three "screens" all in different colours; use a program not doing it in direct mode. Try it yourself but if you must cheat here is my effort.

```
10 MODE 1:REM What does
that do?
15 BORDER 0
20 WINDOW #1,1,20,1,12
30 WINDOW #2,21,40,1,12
40 WINDOW #3,1,20,13,25
```

```

50 WINDOW#4,21,40,13,25
60 CLS#1:PAPER#2,1:CLS#2
70 PAPER#3,2:CLS#3
80 PAPER#4,3:CLS#4

```

This program uses four windows other than the normal one so once the small program has finished you are returned to the default window. However, there is the WINDOW SWAP command which, as its title suggests, swaps between windows.

WINDOW SWAP 0,2 would flip to window 2 from window 0, so you are now in the top right of the screen. Various of the other commands in BASIC allow you to specify streams.

XPOS - PRINT XPOS returns the value of the horizontal axis of the graphics cursor.

YPOS - PRINT YPOS returns the value of the vertical axis of the graphics cursor (haven't I heard that before somewhere?)

ZONE - Is to do with the TAB spacing. Pressing the TAB key from BASIC doesn't do what I thought it would when I first bought my CPC 464; it just prints an arrow pointing to the right. However on my word processor pressing TAB produces a tab space. But BASIC does have a TAB command.

PRINT TAB(3) will give a TAB of 3 spaces. Anyway this is not really connected to the other TAB which is performed by using: PRINT a\$,b\$ This line will print the contents of two variables a\$ and b\$, but the comma between the two means to produce a TAB.

The default TAB settings can be over-ridden using the ZONE command. ZONE 12 would set 12 spaces to be produced instead of whatever the normal setting is.

DATA, PRINTING, MULTITASKING and LOGIC

One of the most boring, irritating, painful thing in entering a BASIC program listed in a computer mag or something has to be numerous lines of DATA statements. These are used most of the time when a machine code program is required but has to be entered in from BASIC. Something like this is used:

```

FOR a=&4000 to &4023
READ a$:b=VAL("&"a$)
POKE a,b
NEXT
DATA 3e,01,cd, ...
DATA fe,ff ...

```

This actually creates a machine code program in the memory using BASIC but how does it do it? DATA statements can be bunged into the program anywhere. Throw them at the beginning, toss them to the end, or just slam them in the middle; it's up to you.

The DATA statements are read into a variable using the READ command. In the above example READ a\$ stores the DATA statement "3e" into the variable a\$. The very next command does a jolly useful operation, in converting the number to hexadecimal, but just forget that bit for now. Remember throughout that we are within a FOR NEXT loop. The variable "a" begins with the value &4000 (hexadecimal again) and continues until it equals &4023 while the

variable b changes each time depending on the DATA statements. The information held in the variables is then actually used with the POKE a,b bit.

To take an easier example, consider this silly piece of music that I have written totally at random. The DATA statements hold the notes to be played.

```

10 FOR q=1 to 10
20 READ note
30 SOUND 1,note,50
40 NEXT
50 DATA 304,307,344,233,
126,422,40,34,123,345

```

I call it a piece of music but it is just a load of jumbled sounds slammed together. The "READ note" takes the first number in the DATA list and stores it into "note". note=304.

Then SOUND 1,note,50 plays that very note, and this continues for ten silly sounds. The program then finishes. Type it in and each of the DATA statements which hold the note will be played.

Dual-data reading is also possible which means that the DATA statements contain two (or more if you want to be a show off) parameters which are READ into different variables.

Say in our above example that all of the notes do not want to have the same duration of 50 (the third parameter), and this duration must be varied. Replace line 20, 30 and 50 with:

```

20 READ note,dur
30 SOUND 1,note,dur
50 DATA 304,40,307,35,344,
44,233,12
also add line 60 as:
60 DATA 126,67,422,48,40,
99,34,50,123,20,345,10

```

You may be wondering what difference it makes having different

lines of DATA. None whatsoever, if you exclude the fact that it looks better and is easier to read (not as in READ).

Every other DATA parameter chucks the note into "note", as in the previous example, and the other, every other, if you understand, stores in variable "dur" the duration of the sound to be played. Even though the "music" still sounds like a load of waffle.

CHECKSUMS

In a magazine listing with a significant number of DATA lines, a facility is thrown in by the programmer, if he or she is feeling generous, that doesn't really effect the overall performance of the computer program, but makes it a lot better for the poor sod typing in the program.

Consider the below program, which was written by myself and just to be a big face was published in January 1992 of Amstrad Computer User.

The program simply plays a tune "Auld Lang Syne" which took me around 5 minutes to write. It demonstrates the features of DATA discussed above along with a checksum system that adds up all the DATA numbers and then "checks" them against the number 15402 in line 30. If the total doesn't equal 15402 then one of the DATA lines is wrong, so you have to go searching for the mistake that sometimes sticks out like an alive sheep in France, but sometimes take twelve years to discover. (These figures are of course exaggerated, nothing is as rare as an alive sheep in France).

The program is short, but also features a demo of the GOSUB RETURN system which was discussed ages ago. The GOSUB RETURN system is bunged in to save me rewriting the DATA

statements that are needed more than once, as the tune "Auld Lang Syne" is a repetitive one. To read DATA again the RESTORE command is needed, and the DATA reading "pointer" can be set to a specific line like at the end of line 70 where there is a RESTORE 150.

```
10 REM Programmed by Paul Fairman - 6.7.91
20 REM SHEEPSOFT 1992
30 REM hum ... potato waffles!
40 '
50 MODE 2:INK 0,0:BORDER 0:INK 1,26:PAPER 0:PEN 1:CLS
60 FOR e=1 TO 96: READ l: k=k+l: NEXT: IF k<>15402 THEN
PRINT"Data error!":END
70 RESTORE: FOR r=1 TO 32: READ a,b: SOUND 1,a,b: NEXT:
GOSUB 120:RESTORE 150
80 FOR t=1 TO 9: READ x,y: SOUND 1,x,y: NEXT: GOSUB 120:
RESTORE 170:FOR q=1 TO 9
90 READ a,b:SOUND 1,a,b:NEXT:GOSUB 120
100 RESTORE 150: FOR a=1 TO 9: READ b,c: SOUND 1,b,c:
NEXT:RESTORE 180
110 FOR r=1 TO 8:READ a,b:SOUND 1,a,b:NEXT:END
120 FOR as=1 TO 100:NEXT:RETURN
130 DATA 478,50,358,50,379,40,358,50,284,50,319,50,358
,40,319,50,284,50,358
140 DATA 50,0,5,358,50,284,50,239,50,213,90,0,50
150 DATA 213,50,239,50,284,40,0,5,284,50,358,50,319,
50,358,50,319,50
160 DATA 284,50,358,50,426,40,0,5,426,50,478,50,358,70
170 DATA 0,20,213,50,239,50,284,40,0,10,284,50,239,50,
213,90
180 DATA 0,20,284,50,358,50,426,40,0,2,426,50,478,50,
358,200
```

PRINTING

BASIC gives a good control over a printer, that is if you have a printer connected up to your Amstrad. The following text deals with Epson FX compatible printers. Most software is written with Epson FX "control codes" in mind, and it is the only system that I know about.

A control code is a code sent to the printer to control a certain feature of the printer. My Panasonic KXP-1170 9 pin dot matrix printer has a host of superb features attached to it, to enable you the programmer to use printer control within a program where an output to the printer is necessary. Selection of fonts, print styles, size of print, length of paper etc can all be set via "software commands". Software commands is just a silly posh word that printer manuals use to describe these codes that you send to the printer.

In the manual of your printer should be a list of all the Epson FX control codes that you can send to the printer; if it doesn't then your manual's dead crap, and a list of the more useful codes are below. All codes must be directed to the printer. If you recall the telephone directory program in part three of this text, it directed text to the disk "stream" by using programming commands such as PRINT#9,name\$(x) and the command to bung the data to the printer in the printing routine used something like PRINT#dump,name\$(x). As explained before, this system was introduced to make the program more compact. Dump is a variable that when the program begins is zero, which is the normal stream to send data, and if the print option is selected then dump is set to eight; the printer.

<<More about printing commands next time. Bye for now. -John>>

SCRIVENER

Reviewed by Hilary Phillips

I was looking through the PD library catalogue for a disc to review, when my eye was caught by Disc 87, as it only contains one program, which sounded as though it might even be useful.

"Scrivener - the complete database and spreadsheet program complete with documentation that will ensure endless hours of enjoyable reading and complete mastery of the program."

I discovered after several hours that while it isn't exactly a spreadsheet or a database, it would certainly take many more hours for me to completely master the program!

THE DOCUMENTATION

The documentation is in 14 sections and took a bit of wading through the first time round. However, it is difficult to use a program until you have got some idea of how it works, so I ploughed on. On the second reading it was a lot easier to pick out the bits I needed to know, as I now had a vague idea of how it worked.

The first section is a potted history of Scrivener which is quite entertaining but too long to reproduce any of here.

What does Scrivener do? Let's see what the authors say: "We see it as a sort of panacea for small

businesses, accountants, engineers and scientists. At its simplest, it will produce letters, memos and documents; hence its name. It will also do more complex calculations that traditionally require a spreadsheet.

It will not do interactive financial modelling, where one plays about with figures onscreen and sees the figures change before ones eyes, but for delivery notes, statements, quotations, estimates, acknowledgement slips, form letters and so on it is extraordinarily useful."

THE BASICS

Scrivener runs under CP/M 3.1. (As it has a 9-letter name you have to remember to type SCRIVNER at the CP/M prompt, not SCRIVENER.) It inputs Scrivener "task" files, which are plain text files, and outputs to screen, printer or another text file.

This means that you can write the Scrivener task in your favourite text editor and then format the resulting file nicely in your favourite word processor before printing it out.

With many things you can put suitable formatting commands into the Scrivener task file so that no or little extra formatting is required later. A Scrivener task file typically includes prompts for information, macro definitions, calculations (which are enclosed in double square brackets to indicate that you want them processed) and the text which you want to incorporate every time.

Non-calculator functions to be executed by Scrivener begin with a #, and contain double commas to separate the parameters.

THANK YOU LETTERS

I still haven't written all my Christmas thank you letters. As a sample Scrivener task file for generating thank you letters is included in the documentation, I thought I ought to try it out.

#input who_to,, Who is this letter to

#input from_who,, Who is it from

#input what_for,, What are you thanking them for

#input use_for,, What would you use it for

#input a_comment,, What comment will you make

`#input end_it,,` How will you end the letter (Yours sincerely etc.)

`#random thank_1,,` thank you for,, many thanks for,, It was kind of you to give me,, How generous it was of you to send me,, I was most pleased with

Dear `who_to,` `thank_1` `what_for` that you sent me recently. I will use `_for` a lot. `a_comment`

`end_it`

`from_who`

On running this task through Scrivener, it prompted me for the information in the `#input` expressions, and then substituted the answers in the letter template, producing the following:

Dear Uncle Keith,

How generous it was of you to send me the Amazing Coaster Waste Roller that you sent me recently. I will clean my bicycle with it a lot. We haven't yet opened the packet, though.

Love from

Hilary

Hmmm. Perhaps I'd better sit down and write the letter properly.

One problem I found was it didn't format the text nicely: there were line breaks all over the place where I didn't want them. This is because with this sort of thing Scrivener expects you to be

editing the file again before you print it.

POETS' CORNER

Side 2 of the disc includes lots of sample Scrivener files in addition to the Scrivener program.

Running `POEM.SCR` through Scrivener generated a randomly-produced ditty:

You like a pretty maiden reclining on a chair and when You put some specs on You find it isn't there it couldn't have my mistake. You think it such a crime but any way, I have to say, I do it just to rhyme.

Well, who suggested a computer had any soul? Entertaining as all this may be, Scrivener isn't just designed for manipulating text.

`NUMBERS` is what it's good at. Let's have a look at that...

CALCULATIONS

Scrivener's calculator can do just about anything you could dream of throwing at it. The documentation lists 46 mathematical functions in addition to the normal stuff like `+*/`, some which you might expect to find on a calculator e.g. `sin(x)`, `log(x)`, etc. and even A-level maths sort of things like `cosec(x)` and `cosh(x)`.

It can also do functions on two variables like `max(x,y)` and logical functions too. And it has stack handling capabilities so that you can calculate averages and all that sort of stuff.

A simple two-line Scrivener task is included on side 2 of the disc which enables you to type in a calculation which you want performed and it will give you the answer. However useful this calculator might be, the calculating powers of Scrivener are designed to operate on numbers in text files rather than on the odd sum you feed it.

ACCOUNTING

I thought I ought to see if I could make Scrivener do something which I might be able to use myself.

Form letters are all very well, but I don't often have call to use them at home, and I have moved jobs since the days when I used to have to write lots of letters to publishers to demand missing issues of journals.

This looks a rather cumbersome way to keep accounts, but all you would have to do is edit the text file, adding a new entry on the end of the list of income and expenditure and putting the figures in double square brackets in the appropriate columns.

It took me about an hour to get this to work, as until I put in the `#overtime` instruction things didn't line up properly and the totalling calculations were not directly under the numbers they were supposed to be adding up, so the sums came to 0.

It didn't help that as I haven't learned how to use VDE I had to keep going out of CP/M to use

define DATE,,5/2/99

[[def 7.2t]]

#overtime

| Date | Details | Cash | | Bank account | |
|----------------------------------|-----------------|-----------------|----------|-----------------|----------------|
| | | In | Out | In | Out |
| 1/2 | Carried forward | | | | [[BC=103.50]] |
| 1/2 | Baker's | | [[0.6]] | | |
| 3/2 | Supermarket | | | | [[13.42]] |
| 4/2 | Cash machine | [[20]] | | | [[20]] |
| 4/2 | Canteen | | [[3.2]] | | |
| <hr/> | | | | | |
| Total income/expenditure to DATE | | [[t CI]] | [[t CO]] | [[t BI]] | [[t BO]] |
| <hr/> | | | | | |
| Balances at DATE | | [[TOTC=CI-CO]] | | [[TOTB=BI-BO]] | |

Total assets [[ASSETS=TOTC+TOTB]]

Net increase [[INCREASE=ASSETS-CC-BC]]

This produces the result:

| Date | Details | Cash | | Bank account | |
|------------------------------------|-----------------|--------|------|--------------|-------|
| | | In | Out | In | Out |
| 1/2 | Carried forward | 2.50 | | 103.50 | |
| 1/2 | Baker's | | 0.60 | | |
| 3/2 | Supermarket | | | | 13.42 |
| 4/2 | Cash machine | 20.00 | | | 20.00 |
| 4/2 | Canteen | | 3.20 | | |
| <hr/> | | | | | |
| Total income/expenditure to 5/2/99 | | 22.50 | 3.80 | 103.50 | 33.42 |
| <hr/> | | | | | |
| Balances at 5/2/99 | | 18.70 | | 70.08 | |
| <hr/> | | | | | |
| Total assets | | 88.78 | | | |
| Net increase | | -17.22 | | | |

Protect to edit the file and then back into CP/M to test it. I'm sure that if I put in lots more hours of work I could get it to analyse my total expenditure on food, computers, etc. but the WACCI copy date isn't far away and this review is quite long enough already.

IN CONCLUSION

Is it a spreadsheet? Is it a database? No, it's Scrivener. It can do lots of things which one might use a spreadsheet for, and lots of

things which one might use a database for, such as sending out letters to all the customers whose details you have stored in a file.

Scrivener is the ultimate customisable package, as you have to write all the tasks yourself. It is good for doing repetitive clerical tasks such as those I listed earlier, if you haven't got a "more advanced" computer which has modern user-friendly software which does all of this already.

I think it's an interesting example of 1980s business software. If you run a small business and your only computer is a CPC or PCW, this mightn't be a bad piece of software to try out.

After all, it's PD so won't cost you an arm and a leg, just a lot of precious working hours to get to grips with it.

Hilary

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BASIC Compilers

Sir Charley de Charlbury (aka Richard Fairhurst) rambles on about the second best way to speed up your BASIC programs, despite the fact he hasn't switched on his CPC in two months. Sorry about that. The 664 finally gave up the ghost, then Peter F Campbell wanted his ROM-board back ('cause it's the business), and the replacement is currently with the divine Mrs Scott - sorry, Ms Cook. So this one will be written from memory.

Error codpiece

Mr Stuart Paterson, a very talented guy who engineered the first few Mouth Music recordings (possibly not the same bloke), wants to know about BASIC compilers. He has correctly surmised, in *Fair Comment* 127, that compiled BASIC - that is, BASIC translated into machine code - runs much faster than your standard BASIC because the computer doesn't have to translate each statement every time it's executed.

And there is another reason why machine code, or compiled BASIC, is much faster than standard interpreted BASIC. To take a random example, the first thing that BASIC's GOTO command does is check that you want to go to a line that actually exists in your program - anything else would be silly. Yet this checking takes time.

With a compiler, this sort of thing is checked before you even get to run the program. As the compiler scans through your BASIC program, laboriously translating it into lovely speedy machine code, it looks out for such obvious nonsense. If it finds

any, it objects on the spot, and stops the translation process. This means that the actual machine code doesn't need to run up the overhead of error-checking.

In many compilers, the third reason provides the most significant speed increase. By only choosing to support some of BASIC's functionality, many compilers can produce simpler, faster machine code than that contained in the BASIC ROM. The classic example is floating point, or fractional, numbers. Strange though it sounds, few BASIC programs actually need to use non-whole numbers: and coping with fractional numbers is famously hard work in Z80 machine code, which only really understands whole numbers from 0 to 255. So many compilers just doesn't bother with floating point numbers.

If it's that easy...

With this in mind, it's perhaps surprising that there aren't hordes of great BASIC compilers out there. There aren't. There's one. It's called BC.COM, and it's twiffic. It emulates nearly every aspect of BASIC, floating point

numbers included: feed a typical BASIC program in one end, and speedy machine code comes out of the other. It's that easy.

There isn't much else to say about it, except that it runs under CP/M (bizarrely) despite compiling standard Locomotive BASIC programs. And as John mentioned, there was a teensy problem with the copyright.

Many moons ago, I exchanged a load of Robot PD stuff for programs from a German PD library by the name of PDI. One of the programs that came back in return for delights such as MacII, Worktop, Crossword Compiler, Malcolm Smith Software Database etc. etc. was this great BASIC compiler. It was in a PD library. It ran under CP/M. Its documentation was a text file. All of which pretty comprehensively points to it being a PD program, you'd have thought.

Nope. A few months later, I was flicking idly through a German CPC magazine (PC Amstrad International), and there's a lovely full-page ad for a marvellous BASIC compiler. Said compiler does the same things as

BC.COM, is written by the same people, and glory be, is actually the same program. Ooops, says Charley (in stronger language), and the program promptly vanishes from PD libraries the world over. Except PDI, I shouldn't wonder.

Of course, since no-one gives a, erm, soapy bath on a jet ski for copyright any more, you can probably have as many copies as you like. Did I ever tell you about Karl's Treasure Hunt...?

The others

There is also a Real PD Compiler, whose distinguishing feature is that it's crap. It's a BASIC compiler written in BASIC, which kind of begs the question... never mind. Anyway, it doesn't do floating point numbers, or much else, to be honest, but you can probably find it in Robot somewhere.

Worth a mention is Laser Compiler, which was one of Ocean's short-lived range of serious software. It was designed to run with Laser BASIC, a comprehensive set of RSXs (bar commands - you all know that after fifteen years, right?) to give you sprites and things like that. You could compile Laser BASIC programs, so that any RSXs would speed up not a lot, 'cause they were still the same routines. Ah well. I bought it from the Home Computer Club (I was young and stupid then. Yeah, ok, point taken) and was moderately impressed for a while. It didn't do floating point numbers.

SPM Software did something called Power BASIC, which Tim Blackbond didn't like (and that's good enough for me). There were a couple of others, neither of which I ever used. Sorry.

Carrying it dashingly

Despite all of this, anon-floating-point BASIC compiler wouldn't be *that* hard to write.

Think of a BASIC command. INPUT, PRINT, and the like are pretty simple at heart. FOR... NEXT and WHILE...WEND loops aren't difficult to replicate in machine code. The supposedly complicated stuff - EVERY, WINDOW, SOUND, you get the idea - is in fact just BASIC's way of making the firmware a little more friendly. The routines are already there for machine code programmers. No hassle to compile.

Keeping track of variables would also be elementary, although memory management for strings (which can change in length during the course of a program) would require clever thinking. Program flow, line number handling, would be a matter of minutes.

What I wouldn't like to code is the arithmetic/logic processing. Working out $5+3$ is easy, even for you lot. Working out $5+3*2$ is more difficult (and no, it isn't 16). $5+24/(3-a)$ starts to hurt the average human brain, never mind something as primitive as a Z80. Now think of a line like

```
IF 5+24/(3-a)<=b^6 AND NOT c THEN ...
```

and you get to see, perhaps, why so many programmers have been put off at the thought of writing a BASIC compiler.

Danny Heapley ate my hamster

At this point, the idea falls down slightly. BASIC programs might have a hundred such logic calculations: writing a separate machine code routine for each one would be extremely wasteful of space. So BASIC compiler writers typically wrote a catch-all routine that could handle any equation thrown at it.

The most extreme example of this is BC.COM. Compile 10 PRINT "Hello world" with it, and the resulting machine code program is 9k long. This is because BC.COM has 9k of such general-purpose (or 'library' routines) to emulate BASIC functions, and includes them no matter whether your program uses said routines or not.

At this point, you might ask what the difference is between a library routine and interpreted BASIC. Effectively, there is none: and this illustrates the danger of compiling BASIC programs. Almost any compiler, when faced with $a=a*3$, will whack 'a' and '3' into a complicated multiplication routine of many many lines. The right answer will come out. Hoorah.

Except that if you were writing your own machine code program, you wouldn't even consider using a multiplication routine for such a simple task. Instead, you'd do something like this.

Continue>>

```
ld d,h: ld e,l ;Store original
add hl,hl ;Multiply by 2
add hl,de ;Add the stored
value, so 3 times
the original value
```

Much simpler, therefore much quicker. There is, sadly, still no substitute for learning to code in assembler.

The Right Way!

But in the absence of a competent BASIC compiler, a chap called Chris Morgan wrote into *Techy Forum* with these suggestions for speeding up your programs. I think he was a real person, at least. I don't recall making that one up.

1 Most programs use integers (whole numbers), but are treated as floating point numbers, taking longer for the computer to calculate them. By using the command DEFINT a-z at the start of the program, you can tell the computer that all variables are integers.

2 If using a formula to work out several values within a program, these values can be calculated at the start, increasing the running speed. To do this you must use an array. For example, if several circles the same size are needed, the appropriate values can be calculated, put into an array and used.

3 Graphics can slow a program down. When you want the character to move a pixel at a time, define the character with an empty border, to avoid deleting

it (assuming there is no background).

4 Make a note of the resolution of the screen mode. In mode 0 you can move 4 pixels horizontally, 2 pixels in mode 1 and one in mode 2. You can move two pixels vertically in any mode.

5 An easy way of vertical scrolling is by using ASCII characters 10 and 11. When using these, avoid scrolling windows, as opposed to the whole screen, as it makes a noticeable speed difference.

6 The control codes are useful, and can save time. They are listed in the manual. *(For example, if you want to change to pen 2 in the middle of a line of text in a PRINT statement, type CTRL-O followed by 2 -Richard)*

7 REM statements slow a program down, so avoid them within the main loop, and make sure you always GOTO or GOSUB the next line.

8 Try to use short variable names.

9 Make use of all the commands. *(I think he was running out of ideas at this point.)*

10 Finally, there are occasions when there is more than one possible solution to a programming problem. Testing to find the quickest routine is easy. At the start of the routine, insert t1=TIME/300, and at the

end t2=TIME/300: END, then run the routine, and in direct mode afterwards type PRINT t2-t1 for the time taken for the routine. Do this for alternative routines, and then delete these lines.

*Richard Fairhurst,
who sadly does not
live in Charlbury (yet)*

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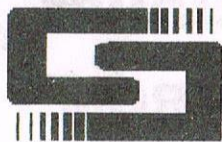
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