

WACCI

**A Magazine For CPC Users
And Members Support Club**

ISSUE 123	£2.00
JULY/AUG	1998



**Make a date in your diary
and come along to the
WACCI convention**

WACCI

a magazine for CPC user's and members support club

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Front Cover: *Yep me again.*

Benefits of Membership

The best magazine for serious CPC users.
Index covering issues 1-104.
Telephone helpline (indispensible)
Bargain buys/wanted list from Market Stall.
Discount off goods from advertisers.
List of PD discs, tapes, library books and services.
Above all the advice, assistance and friendship from other WACCI members. Benefit List: by *Ernie Ruddick*

WACCI on the web: Matthew Phillips.

The URL, is: <http://users.ox.ac.uk/~chri0264/wowwww.html>

WACCI Post Room: John Bowley

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Thanx & Stuff

Edited By: John Bowley
Owned By: The Club Members
Chairman: Doug Webb

Conceived and Founded

By: Jeff Walker
In: October 1986

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

Copy date: 20th August 1998
Membership: 268



Hi everyone welcome to another cracking issue of WACCI. First of all this issue is very special for me. I've nearly completed my first year editing your magazine. This issue is for July and August and WACCI will be back in September. Why the break? You may ask, well its simple! I don't have enough articles at hand to complete another issue so unless I received some soon WACCI will have to be late yet again.

Don't Panic

I don't want to cause a panic with what I said in my intro, but I do need more articles lots more, since without any articles there cannot not be a magazine.

So come along everyone and please put pen to paper and write something.



Bi-Monthly

Although we have no plans at present to go bi-monthly this will now have to be considered or we could even reduce the page count due to lack of articles.

I don't want to do either of these things but what choice do I have? Well what do you think? After all its your magazine we're talking about.

Regular Authors

I would like to thank the following friends without their contributions and support I would be up a gum tree!

Matthew Philips, Jonty Jones, Angela Cook, Paul Fairman, James Hoskisson, Peter Rogerson, John Hudson, Richard Fairhurst, Simon Matthews and Angie Hardwick all these people are still willing to write articles for us all to enjoy. If any of you Guys and lasses are going to the convention I'll buy you a drink.

Lift To The Convention

Two members who would like a lift to the convention both of which lives in Nottingham and they are

Peter Rogerson. 83 Vale Road, Mansfield Woodhouse, Nottingham NG19 8DW Tele: 01623 469661

and Robin Choudhury, 131 Harlaxton Drive, Lenton, Nottingham, NG7 1JD phone number: 0115 9242620. If you can help them please get in touch with them directly.

Convention 98

If you have still not got your ticket yet please don't delay any longer get in

touch with Angie her telephone number is on page 2. Price £2.00 made payable to WACCI. A map of where the convention is on the back of the ticket, but if you are still unsure then please give Angie a call. For more information on the convention please either give Angie, Angela Cook, Doug Webb or me a call and we'll help you all we can. Or dig out issue 122.

Market Stall

There is no Market Stall this month, Angie will be back in September. In last months WACCI, I made a few errors for which I'm very sorry about. Anyway here they are:

Richard Latham, phone no. is 0121 7706041. and Simon Brunsten, who lives in Orpington, and not what I put, plus you need to add postage to the wares he has for sale (issue 122) their adverts will be in September issue to make good my errors. Okay?

Last thoughts

All what's left for me to say is WACCI will be back in September so please please send me your articles. John.

The News Desk

with Angela (ITGA) Cook



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After being sadly missed last month by the magazines parrot <<But we don't have a parrot? -John>> I'm back with a vengeance. Well, back anyway. And don't forget that issue #3 of my PC magazine Wibble is due out soon, so just send an A4 stamped self addressed envelope for a sample copy....

TRADING ON-LINE

John Thackeray at the Trading Post has a quantity of Phazer Guns with 5 games on cassette for the Amstrad 464 at £9.99. Also Amstrad 464 Tape Head Alignment Kits at £9.99. Both prices include postage and packing UK. Contact John at

Trading Post,
Victoria Road,
Shifnal, Shropshire
TF11 8AF.
Or e-mail:

Tradingpost@btinternet.com

SD Micros also now have a website. Steve Denson says that they have "a record of over ten years experience in supporting Amstrad computers". Steve adds: "We generally cater for most disc-based Amstrad models from CPC 6128, through the PCW range to the PC XTs and ATs and still offer a wide selection of software and supplies."

Visit the website at:

<http://members.aol.com/sdmicro>

DOMONIAK NEEDS YOU

Anthony Nevo (Orphee) from Arkos is about to release a new issue of Demoniak, the English written CPC related disczine. Tunes, artwork and code are done, and lots of articles are already written. Some of them are bit old though, so if you would like to contribute to issue #6, please send articles (whatever topic you want to

deal with - demos, coding, games, cracking, emulation - preferably using Word on a PC).

Orphee is now in Ireland for an industrial placement and will be back in France by the 15th of August, which is also the deadline for your contributions. To get in touch with him, e-mail

nevo/yves-rocher@yrmail.yrnet.com

You can also visit Arkos website:
<http://www.chez.com/arkos/>

EMULATION

The first version of YAGE, a new CPC emulator for Ms-Dos has been released. You can download it from:

<http://www.stud.enst.fr/~pitrou/Yage/yage.zip>

This version doesn't support disk write operations, nor sound emulation. They should come with the next release. Also, though it's not mentioned in the readme file, you'll need a VESA driver on your PC to get YAGE working properly. Perhaps if someone downloads this and plays around with it they could let other WACCI readers know what they think of it.

STS

In the last News Desk I told you that STS were reforming as a PC based company - building, repairing, upgrading and servicing PCs. Paul Fairman and Rob Scott have now found what looks to be their future premises and are working hard on

getting that up to scratch. By next issue I should be able to tell you for certain where they are and how they're going.

HAVE A BYTE

Byte 98 is a CPC "celebration" - a CPC meeting in a town called Marck, approximately 10km from Calais. It's being held on the 31st July, 1st and 2nd of August. And in case this issue gets out in time, you can find more information at the Byte98 webpage (<http://www.mygale.org/~byte98>) or by e-mail: byte98@mygale.org

From the background information on Byte: "It's one of the rare meetings for all kinds of computers. Indeed, we, members of the CocOOOn SySteM, are proud to gather many different machines from 8 bits to 32 bits."

OUR OWN BASH

John tells me that lots more tickets have finally been sold for the convention and that it's definitely going ahead. Hooray. If anybody has any questions about the convention the best thing is to try and get hold of Angie (01922 449730), though she's on holiday soon. So after that you could try either myself (contact details at the top of the page) or John (01733 702158). Remember, it's 20th September 1998, held at the Bescot footie Stadium in Walsall, Birmingham. It's about 9.30am (9.00 for people setting up) until 5pm.

THAT'S IT FOLKS

Fair Comment

with John



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

BACK TO THE FUTURE

Dear Uncle Clive, Having a large number of Amstrad games on tape and disk which never really get played any more I endeavoured to sell them via The Market Stall (all at ridiculously low prices - see my most recent Ad) and at the request of another member I sent him five games which he wanted.

Some days later my "purchaser" telephoned to say that three of the games (all of which were on tape) would not load, and if he sent them back would I please replace them with three alternatives. Of course I said I would be only too pleased to do so.

On the return of the games I tried them on my own CPC464 (also currently for sale - see my most recent Ad!) and found that they all loaded without any problems.

I sent my "purchaser" his alternative choice games and suggested that it might be his CPC464 which was the problem and explained how one can adjust the tape head if necessary when games appear reluctant to load. <<Er, in view of your two previous plugs, selling tapes and a CPC464 respectively, I'd thought that you were going to suggest he needed a replacement CPC464 - and you just happened to have one for sale!. Clive.>>

Whether he tried this or not I do not know, but it did occur to me that other members might have difficulty with loading programmes from tape,

and they also might be glad of some simple technical advice on how to adjust tape heads when necessary.

I am **not** a technical bod, but this is how I endeavoured to explain the procedure:-

"There is a very small hole just in the middle, and at the front of the opening edge of the tape deck and by inserting a very small screwdriver into this and making the smallest of adjustments either to the left or right you can bring the tape head into alignment with the cassette. This can only be done when the PLAY button is depressed."

Do you think that this explanation was clear enough and correct?

Kind regards

Maragret Schofield

<< Hiya Margaret, Just to distract you from the point in hand for a second - do you live anywhere near David Beckham, he needs a woman's touch - sorry. I mean a good slap.

I found your explanation to be both clear and accurate, and it will probably stop one or two members from tearing their hair out.

I seem to remember that the club owns or owned a tape head alignment kit which could be borrowed by members, (of course at my age I could just be dreaming,) but I haven't seen it mentioned in the recent

past. I'm sure that the "purchaser" in question will write and let us know if the solution works, or at the least write and let you know, so that you can write and let us know. I hope that you are able to sell the tapes and CPC464 that you have for sale, see Margarets latest Ad in The Market Stall for full details.

Just to fill a bit of space, David Beckhams' surname spell-checks as Becks (a well known lager) when spell-checked by Microsoft Word. Now if Gascoigne had spell-checked as Becks I wouldn't have been surprised. Many thanks and best wishes. Clive.>>

Leaking Disc

Dear Editor, Here follows a few comments in response to Issue 121 followed by a couple of almost technical queries. I'll try to be brief, though brevity was never my best suite. Firstly, the bit about PC contents in the mag. Don't you think it would be best if it just happened, an odd page here and there like a kind of mutation.

Then a publishing variant on Darwin's theory of evolution would come into play and if that column or page or whatever was widely accepted it would stay for as long as writers abounded to create it. Maybe there's no need for any long and convoluted debate on the matter.

We are a fickle breed, us computer owners, and like nothing better than slagging off the owners of superior machines when really we maybe ought

to accept the cretinous morons (sorry-withdrawn!) into our midst.

Secondly, Lawrence Grundy's comments regarding an intro to an article on disc drives in issue 120. I'm a middle-aged male and quite look forward to odd moments when my jaded senses can be stirred by the odd irreverent reference to discs and drives and the like.

But I don't look forward with any pleasure to an age when prurient censorship modifies harmless little comments and the whole world turns even blander than it is now.

And it's my experience, gathered over many a long year, that the female of the species is equally entertained by the odd burst of quirky humour and unlikely to be offended by Jonty's innuendo, and thus needs no Chief Censor and Tippex Wielder to protect her innocence from corruption or worse.

Now for my techy queries. Firstly my 64k RAM pack. It leaks. The symptoms of its malaise are as follows.

To start with everything seems okay. Suppose it's plugged to my 664 and MicroDesign or Powerpage are run.

They're both programs that use the extra 64k of memory for storing page data. Well, everything seems fine until the page is scrolled away from the screen, and then, when it's scrolled back again bits have gone missing, more bits the longer it's been out of view. The other day I made some labels, simple things for kitchen jars bearing the legend *SUGAR*.

I printed three of them (three jars) and the first two were perfect but the third looked as you might expect a label to look if a couple of pins on the printer had suddenly and unexpectedly become stuck. Some of the label had clearly and obviously leaked away. So I cleaned the edge connector on the 664 as thoroughly as I thought necessary and tried again. Same problem. My

theory is that either a) the RAM pack has a fault, but my experience of computer components suggests that they either work or don't work and hardly ever merely leak.

Or b) the edge connector is still playing up, but if it is I'm at a lost as to how to clean it further and anyway my observation about things either working or not working (but hardly ever leaking) still applies. Any ideas anyone?

Secondly (on the technical front) I've got a copy of the disc version of Brunword. As members of reasonably long standing will know, I'm a Protex man, body and soul, but I do like to have other software available should I develop dementia or some other mind-numbing condition. (Actually, that's not fair, Brunword's not as bad as all that.)

Anyway, I also have a Mannesmann Tally MT81 printer that I acquired cheaply from an Amiga owning chum because he couldn't get it to work on his strange computer whilst I could on my less strange machine.

Now, my little Technical chums, why will Brunword not run on my CPC 6128 when that printer is connected to the machine even though it is switched off and unplugged? All that happens is the program loads, dictionary and all, and then informs me that it is formatting, and the disc whirls interminably and nothing happens.

Try again minus the printer or with my Citizen 120D attached and all is well.

It's just that one unplugged, switched off printer which seems to get in the way and I'd love to know the how and why of it. In every obvious respect that printer works perfectly on my CPC, even when under the control of programs like Prototype, which operate in a different way from ordinary text-printing programs. Right, brethren and members of the sisterhood, if you

hate me for my views or can help with my queries, drop the Editor a line so that he can pass it on to me via these splendid pages.

Peter Rogerson

<<Hiya Peter, Nice to hear from you again. Many thanks for the articles I'm sure members have been enjoying them.

Now your remarks about the on going debate about having PC articles within WACCI, I agree with you completely with what you wrote NO MORE TALK and get on with it.

For my part I want WACCI to continue mainly to support the CPC firstly -that's what I feel members want, however our members have the last say to be honest, after all you are the people who subscribe and write the articles for others to enjoy and what I wrote in Thanx & Stuff last month, about opening WACCI up to other computers that members have seems a good idea to me.

Now regarding your RAM pack problem it is possible that it is on its last legs, try cleaning the edge connector with a rubber might help, in any case by the time you've read this you would have received a replacement one, which I hope works okay.

Regarding Protex and Brunword what are you trying to do start another war!

When I receive letters from members who use Brunword I'm amazed at the quality of the print-out.

I was speaking to Ray Neal and I mentioned your problem to him and he said it is possible that your printer is not Epson compatible, you might need to adjust your dip switches to emulate Epson, but you also said that it works when using Protex and Prototype together.

Is it possible that the codes that Brunword sends to the Mannesmann Tally MT81 printer differ that of Protex sends, but again Brunword don't work even if you have not switched the printer on. Gee! Peter I can only suggest that maybe the printer inner workings might be faulty or it uses a different connection method and

Brunword is picking up a busy signal or something like that. Other than that I've no idea so hopefully a member out there will write in and put us out of our misery.
-John>>

Martin has trouble with IC's

Dear John, Referring to Robert Olsen's letter (WACCI 122), I also had a chip failure in my 2nd CPC 6128 that I had purchased in case anything went wrong with my main one. The similarity ends there though as instead of disc missing I had the opposite, Arnold thought there was a disc in all the while.

This was especially a nuisance when formatting discs using DISCKIT3 running in CP/M as after formatting was complete the computer tells you to remove the disc, which I did but Arnold kept insisting I had not removed it. This resulted in the CONTROL SHIFT ESCAPE routine to reset the computer and a reload into CP/M. Luckily I have a repair manual which shows the circuit diagrams.

With the computer opened up, the keyboard top half propped up vertically using a selection of reference books (so that's what they are for) Arnold was powered up. A disc was inserted into the drive and on reading the circuit diagrams this brought me to the same three IC's that Robert had looked at.

The left hand and middle ones (IC206 and IC208) are quad two input NAND gates (74LS38), and are wired up to work like NOT gates. The right hand IC (IC203) is an octal NOT logic schmit trigger buffer (74HC240); since these IC's are powered from 5V I could check their operation using a logic probe.

This tells you if a signal into or out of the IC is high (near 5V) or low (near 0V); so I could check if the IC was switching properly. I checked out the READY signal which goes to IC201 which looks like the disc drive data controller; on removing the disc the ready signal was still at 5V. Further

checking revealed that the READY signal had gone off from the disc detection part of the circuit, thus indicating a problem with the logic switching IC's between the floppy disc controller and the data control IC, which I deduced to be IC203.

The input (pin 15) had changed to low but the output (pin 5) had not switched to high. Unfortunately the IC was soldered directly to the main circuit board, so it was destructive removal time!

After powering down and removing all connections to the main circuit board, keyboard, LED, speaker, disc drive etc... the board was removed from the bottom half of the case. Side cutters were then used (nervous people may wish to sit down) to chop out IC203 leaving its' legs still soldered into the board. Applying as little heat as possible each remaining leg was warmed up and pulled out with pliers; the leg holes were cleaned up with aid of a solder sucker and a small drill.

Next I installed an IC socket (in this case a 20 pin DIL) and soldered this onto the board, the new IC then just has to be pushed into the socket- the correct way round of course! I prefer using IC sockets as you do not have to worry about overheating the IC.

This saves WSIS (wobbly soldering iron syndrome), as you are trying to rush the job to protect the IC; resulting in a poor joint, burnt fingers and damaged components as you invariably slip with the iron when rushing. After re-assembling the circuit board back into the computer base and reconnecting the many leads it was test time.

Power was gingerly switched on and then a quick visual was had of the new IC area. The IC was checked for coolness just in case a short circuit elsewhere caused the original IC to break down.

Next CP/M was loaded and DISCKIT3 program run, after

formatting a disc it was then removed and hey presto (big relief!) the remove disc message disappeared and DISCKIT3 returned to its' menu. Power was switched off again and Arnold was put back together, one fixed computer and one relieved operator. Referring back to Roberts' disc missing problem since it was the middle IC in his case (IC208) the READY signal may have been kept low due to failure of this IC.

I had my new IC from Maplins some time ago which was a 74HC240, the current catalogue shows a 74LS240 (is this the same?) and does not list the 74LS38 at all. All has been well since the IC was changed which must be at least two years ago since I changed it, why it broke down is anybody's guess- age? Overuse? or spikey electric? etc..

Yours Faithfully,

Martin Beddall

<<Hi Martin, Many thanks for all the info and I'm glad you got you CPC up and running. Members should take care if they decide to undertake the task that you mentioned, maybe a more in depth guide would be good with plenty of diagrams etc. What do you think Martin, fancy doing an article on this subject.

I know you've gone into great depths with this letter and in fact this letter could quite easily have been an article. Just one word of advice to other members who are having DISC MISSING or similar messages always change the drive belt first before even thinking of changing any of the IC's.

Maybe Martin would consider helping other members if they cannot do it themselves. What do you think Martin? Please let me know. -John>>

WACCI the best

Dear Editor, I am a new member of WACCI and the first thing I have to say is that in my humble opinion WACCI is absolutely brilliant and to keep up the good work. << Many

thanks Robin, but the credit must go to all the authors who writes the articles. My job is the easy part, I just put it all together and try my best to make it look good. -John>>

It's absolutely amazing to think WACCI has gone on and still going after 12 years. I myself own a 464 Plus which I have had for just over a year. I first heard of WACCI when replying to an advertisement placed by Christine Raisin. When I rang her she was extremely friendly and willing to help and on this basis I decided I should buy a copy, 117 I think. I was extremely impressed and decided I should take out a subscription.

Unfortunately due to unforeseen circumstances, which I will not go into, I lost contact and it was not until a sample issue sent to me by John in response to a query regarding WACCI's existence that I remembered how good my first experience with WACCI had been.

I am in favour of WACCI opening up the pages to accommodate other formats but not at the expense of the CPC I hasten to add.

By doing this WACCI could go on for another 12 years! Having ordered a number of back issues from Frank Neatherway who was brilliant <<I agree, Frank>> <<You would. -JB>>

I flicked through them. They seemed quite serious and not very humorous apart from Auntie John whom I found to be utterly bizarre and not that funny to be honest. <<Personally I thought Auntie John was very funny, well he made me laugh anyway. -John>>

I think you need a jokes page or something of similar ilk; what has happened to Clishmaclaver?

<<Carol my lovely wife used to do Clishmaclaver and sole purpose of it was to poke fun at each other, but sadly there wasn't that much support and that's why it was dropped. -John>> I am not a very technical person and being

relatively new to the Amstrad scene I was wondering whether anyone has done or considered doing a problems page for 464Plus owners on which disk drives are the best?,

Which printer gives you the best quality? <<Without a doubt a laser Jet would give better results unfortunately the CPC wouldn't be able to use all of its in built features and that goes for a bubble Jet. Basically speaking all you need to worry about in regards to printers is that they are Epson compatible.-John>>.

Also, I would like to know if WACCI has considered holding the Convention in Nottingham? <<No, but we will think about it. -John>> It is a beautiful city and very easy to access, I should know as I live here! Everybody who I have spoken to regarding WACCI has been extremely helpful, polite and very friendly and I would especially like to thank the following people: John Bowley (no, I'm not a member of his family writing in!), Frank Neatherway, John King and Alan Cresswell.

I love playing games on my Amstrad and would appreciate any tips or cheats on Cabal, Burning Rubber, R-type, Joe Blade and Lord of the Rings.

I have two passwords for anyone interested: Freddy Hardest code for part II 897653 and for part two of Game Over 10218.

It might be interesting if WACCI included a retro page and devote that page to everything that happened to WACCI and Amstrad in that particular year including game releases and what hardware was released as well: 1984 would be a perfect start!

<<WACCI already as a retro page and it is called "Blast From The Past" which covers most of what happened to WACCI over the previous year and its normally printed in January. -John>>

I'm sorry to everyone if this letter seems very 'demanding and I want this and that': it isn't meant to be, I am just giving some ideas for articles WACCI might like to try in order to

be even better. I hope someone out there is interested in any of the articles I have proposed and if not I hope they have better ones! <<Articles can be on anything members want to write about, suggestions are always welcome. -John>>

Yours sincerely

Robin Choudhury

Learning Curve

Dear John I write with reference to Frank Cosgroves letter in last months WACCI. I echo what Frank has said in wanting a page to answer our PC queries and hope that someone has in fact answered many of Franks points in the next issue.

I am quite new to the PC scene although I do not own one myself I often see my sons work and wish I could do that too! Unfortunately my son is not able to spare the time to help me along with anything I would wish to know, so it would be of great comfort to know that there are people out there, within the WACCI circle, who could and would spare me their precious time.

Thank you to you all at WACCI HQ for giving us another splendid issue. <<You're welcome. -John>> I spent ages reading and re-reading it through. My wife says its the best thing for keeping me out of her hair while she's busy!

Joe Langley

<Hi Joe, One of the good things about WACCI is that we all like helping other members that's what belonging to a club means. -John>>

Thanks Everyone

Dear WACCI Editor, I write to say a big thank you to you and your very talented team of writers. I very much enjoyed Peter Rogersons in depth and sometimes amusing advice on writing reviews (WACCI 122), Jonty Jones' controversial Love at First Sight (WACCI 121) and not forgetting Matthew Phillips for his regular series Programmers Patch. I am sorry I can't name everyone but I don't think you

would have enough pages for me. Referring to Peter Rogerson again for just a moment, I was impressed by his Microdesign Plus review. Peter seemed to have done a very thorough job in describing all the programme contains and is.

Also what amazes the reader and the eye is looking at the print out done on a CPC. boy you can certainly tell the difference. Not that I am putting down the CPC at all, obviously it has its limitations and printing quality is one of them.

Thank you Mr Editor for allowing me to let my keyboard run away with me but I felt that I really should give credit where it is due.

Yours sincerely
Mark Barrett

<<Hi Mark, It's very good of you to thank them for all their hard work and I'm sure they are also glad you've wrote in to tell them that you like what they write. In regards to Peter Rogerson articles using the CPC..

The CPC is very capable of turning out excellent work after all WACCI was once produced entirely on CPC.

Clive Bellaby only used a CPC to do the magazine, Paul Dwerryhouse also use a CPC at the earlier stages and slowly introduced the PC to do the headlines and include adverts of commercial software houses.

Then Philip DiRichleau came along and again he used a CPC to do the magazine with a little help from Paul to use his PC to do some of the headings and adverts.

It was only until Richard Fairhurst did a spoof issue using a Mac (#111, I think) that set the scene for the future.

Paul did the very next issue using a PC and then I came along and from the very beginning I used a PC to produce WACCI, but this also created problem that I had to overcome and besides I only use a PC because I'm lazy. -John>>

WACCI Late again

Dear John, What are you playing at may I ask? Firstly my WACCI was late again then when I do finally get it I open the envelope and what do I see. A very stupid and childish picture on the front. Not very imaginative was it.

Could you not have found some better pictures to choose from. As you use Win95 I am sure there was a wealth of clip-art you could have used. Right, now that part is said I go on to say that the content of the magazine is much improving and I look forward to receiving it.

Keep up the good work but please try and improve on your front cover pictures. They are the first thing we members see and sometimes they can make the magazine look a trifle naff.

Yours
Gavin Smith

<<Hi Gavin, Well! What can I say, you are right about the front cover it was pretty naff. WACCI late again! I have only got one defence and that is I don't have a good mixture of articles that I can use at present. Mainly because the writers are not sure what to write about and this is a problem that we all must make an effort and tell them what we all want to read about.

I have even thought about going bi-monthly or reducing the amount of pages you have in WACCI at present there is 32 pages that need to be filled, 5 of them are to promote WACCI services and that leaves another 27 pages to worry about. It not an easy task getting a good balance I can tell you, but I try my best to give you a magazine that you'll enjoy.

If I did any of the things that I mentioned above I'm pretty sure members would complain and not re-subscribe and WACCI would have to close. -John>>

Finally

Please keep your letters coming in, your views or ideas are needed in order to keep WACCI going in the future. Till next month. Happy reading. John.



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Arnolds Basic

EXERCISE ONE. Take a look at the code below for the first exercise. The variable a\$ contains the string "SAUSAGES" (without the inverted commas) from an INPUT a\$ command earlier on in the program that is not listed. What will the program print on the screen?

```
100 IF a$="BAKED BEANS"THEN
GOTO 500 ELSE IF a$=
"SAUSAGE"THEN GOTO 1000
ELSE GOTO 50
500 PRINT:PRINT"I like them
as well":end
1000 PRINT:PRINT"Oh yuk!"
```

NOTE: The END command does just that; you could also use the STOP command. Try the question (it's easy!) and then take a look at the exercise answers section.

AUTO

In Amstrad BASIC (or Locomotive BASIC as it is also known) there are some excellent features built in to help the programming. One key word is the AUTO command.

This word generates line numbers AUTOMATICALLY and if the line number actually contains a statement then the line is printed on the screen for you to edit it, OR if you have a CPC 464 not a 6128 then an * is printed instead. The AUTO command has one or two "parameters" which means things after the key word.

Examples: AUTO 50 would start at line 50 and go up in multiples of ten. AUTO 505,7 would start at line 505 and go up in 7's. Try using the AUTO command yourself.

TRON and TROFF

Another set of programming tools are the TRON and TROFF commands, which, when entered switch on and off tracking, TRacking ON and TRacking OFF.

Tracking is where BASIC will tell you in brackets the line number it is carrying the instruction out from.

FOR TO NEXT

And now to another important system the FOR, TO, NEXT family. This system uses variables as well, which must be a numeric ones, which doesn't have the dollar sign after it (\$). First type NEW to clear the program from the memory.

WARNING: Don't use the NEW command if the program in the memory is wanted by you and hasn't been saved to tape/disk. You cannot recover the program afterwards.

```
10 FOR j=1 TO 12
20 PRINT j;"X";"12= ";12*j
30 NEXT
```

Type it in, type RUN and you should see the 12 times table on the screen.

This demonstrates the FOR NEXT loop as well as the Amstrad's mathematical functions although much more complex maths can be done than multiplication.

Study the code. The variable is "j" which increases in value throughout the loop from 1 to 12. The value of j is printed in line 20 followed by usage of the semi-colon again to print 1X12= on the screen. What follows is the mathematical side of the program. 12*j. Computers use the * for the times sign as the X is a letter and confusion will occur.

So the value of j is multiplied by 12 and the answer is printed by the PRINT command at the beginning.

The NEXT command to terminate the loop so it goes back to the FOR command INCREASING the value of j by ONE. You could type NEXT j, but on the CPC it is unnecessary to do

so unless you are going into deep "nesting" with lots of FOR NEXT loops where specifying which variable the NEXT is for will be of help to you.

EXERCISE 2

Design a program that is capable of accepting input from the user then prints the times table of the number typed in by the user. It should be similar to the example before using FOR and NEXT. More hard than exercise one before but still quite easy when you think about it, and it becomes even easier when you now the answer. The answer section includes a clue before printing the full answer.

LOCATE

Moving along swiftly to presentation. The presentation of a program doesn't effect the actual result but it does make it a lot better and more pleasing to use, especially if the program is designed for other people, not just yourself.

Instead of jamming up things in corners, it would be better to have them located somewhere in the middle perhaps. Located I said, and LOCATE is the command.

Two parameters MUST follow LOCATE and they specify the horizontal axis followed by the vertical axis. Remember back to the screen modes 0,1 and 2 explained earlier and you will notice that the horizontal axis varies between modes, although the vertical always remains 25. The cursor (the little block the size of characters) is placed on the location you put but it is not usually printed on the screen.

LOCATE 20,12 would place the cursor approximately in the centre of the screen in MODE 1. It is not possible just using the LOCATE command to place it in the centre of

the screen as there are 25 lines and LOCATE 20,12.5 doesn't work.

The TAG command could be used as explained much later on in part six.

VARIABLES

We have used variables a bit before such as j, a\$, and name\$. Remember that they can be anything you want as long as they are not keywords and aren't too long and have the right suffix a\$ all of these on the left are "legal" variables, legal meaning that a the computer will accept them, but each is used for different circumstances. The dollar sign denotes a STRING variable, nothing and the ! means normal numbers NOT letters etc and % means an integer number. An integer number is a whole number such as 50 or 463 NOT 4.734 or 23.1.

You can do mathematical operations with all variables except the STRING variable such as adding q to r and storing the result in s. There again the string variable can contain a mixture of numbers and letters and funny symbols which can be manipulated in their own way.

You can easily assign a value to a variable without actually using a programming keyword which destroys my theory that all line numbers are followed by keywords. For instance, if you wish to give the variable "ant" the value of 34.5 and hi\$ the string "Has anyone seen my potato waffle?" then use:

```
ant=34.5
hi$="Has anyone seen my
potato waffle?"
```

LET
However, in earlier versions of BASIC a keyword was needed, LET

```
LET ant=34.5
LET hi$="Has anyone seen my
potato waffle?"
```

could be used but as BASIC developed it got dropped. The LET command is provided with Amstrad BASIC for compatibility with early BASIC's for learning purposes.

And now to the use of variables in program:

```
10 CLS:REM this CLears the
Screen
20 a$=INKEY$
30 if a$=""then 20 ELSE
PRINT a$;:GOTO 20
```

INKEY\$

The purpose of this program is to show INKEY\$. Now if you were thinking that INKEY\$ is a variable then that is a perfectly sensible mistake to make. Variables CAN be in upper or lower case as can keywords, but INKEY\$ is not a variable, but a keyword. Not such a self explanatory one here but type in the above program, RUN it and the type away at the keyboard and you will see your text on the screen. Press ESC twice to abort the program and return to BASIC.

The INKEY\$ command accepts a single character from the user. The a\$=INKEY\$ tells BASIC that the variable a\$ is from now on, unless otherwise said later on in the program is the same as INKEY\$. This may seem pointless but modifying line 30 to:

```
30 if INKEY$=""THEN 20 ELSE
PRINT INKEY$;:GOTO 20
```

would result in a SYNTAX ERROR. The way to get around this is by using a\$ for INKEY\$. Note also the CLS command which just clears the screen BUT doesn't set any MODE.

VARIABLE MANIPULATION

Variables are of great use to the programmer. Without them life would be impossible, the power to hold information in the memory is vital for other usage within the program. The variables can be altered using a suite of commands that don't use keywords, although you could use the LET command as shown in the introduction to variables towards the end of page six.

The variable x equals 2. Let's say that we no longer wish that x does equal 2, and think how it could be

changed to 5 for example. Easy you say. Just give a x=5 command and x is changed is a flash. True, but what if the value of x wanted to be changed but not to a specific number but an actual alteration of it. We want to add something to x, subtract etc etc.

x=x+3 will take the variable x and tells BASIC that it equals x (which it obviously does already) plus 5. Instead of x=2, x=x+5. x=8 not 3 anymore. The same can be done to subtract numbers from a variable.

x=x-3 will subtract 3 from x. You will notice that there is no divide sign on the keyboard although it is part of the ASCII character set, and the multiplication sign is "X" usually but BASIC uses different symbols to indicate such signs. An asterisk (*) means times and a / is divide.

As discussed previously there are other variable types. The string variable such as v\$ can have another string added to it.

v\$=v\$+q\$ will add the string q\$ onto THE END of the variable v\$.

On the Amstrad CPC 6128 there is an advantage of a few more BASIC programming commands. They are CLEAR INPUT, COPYCHR\$ (not a variable), CURSOR, FILL, FRAME, GRAPHICS PAPER, GRAPHICS PEN, and MASK, so 464 users will not be able to use those commands.

CURSOR

The CURSOR command is a 6128 only command and if we added the line at the beginning of the program would print the block cursor on the screen. 15 CURSOR 1 will do the job and CURSOR 0 will turn the cursor off. A similar key word to INKEY\$ is INKEY. Again 6128 users have the upper hand (good programme) as on the disk drive of the computer at the top is a diagram of the keyboard with lots of numbers in place of the letters and numbers etc. These are the numbers used by

INKEY. Now, all the keys on the keyboard have a status. When none are being pressed down they all have the status of -1 but if you should hold down on key then the status will no longer become -1.

```
10 IF INKEY(47)<>-1 THEN 20
ELSE 10
20 PRINT:PRINT"YOU JUST
PRESSED THE SPACE BAR"
```

The key number you are referring to must be in brackets (SHIFT and 8/9) and those characters after the "<>" is the opposite of the equals sign "=", so the program looks at the status of key 47 (the space bar) and if it doesn't equal -1, in other words the key is pressed, then jump over to line 20 ELSE GOTO 10.

You could write ELSE GOTO 10, or in previous programming examples IF a\$="SAUSAGE" THEN GOTO 10 but the GOTO's can be dropped if you are a lazy sod like myself. To cut the explanation down, the program above tells you that you pressed the space bar, if you did. You can test for all the other keys in the same way.

SAVING AND LOADING

Now if you should come to the stage of actually wanting to save your program to tape or disk, then a command or two are provided by BASIC. First of all it is advised that the reader flies over to part 10 to read about specifically tape and disk, and the differences between the two.

The commands are cunningly titled **LOAD** and **SAVE**. To save the program use **SAVE"filename"** where filename is a name of your choice. A suffix can be added to give other functions as listed below:

,P - will protect the file. **MUST** be RUN not **LOAD**ed. Upon returning to BASIC the program deletes itself.

Do not use on programs that you wish to edit in the future unless you have a program that will de-protect such files. There are programs available that will override this simple protection system.

,A - saves the program as an ASCII text file (see part ten).

,B - saves the program as a binary file. By using:

```
SAVE"filename",b,&c000,&4000
```

the entire screen will be "dumped" to the disk (see part ten again).

```
LOAD"filename"
```

will load in the program under the filename specified in inverted commas. The **LOAD** command automatically deletes the other program (if any) before loading. It must be run with **RUN** although you can automatically **LOAD** and **RUN** a program using **RUN "filename"**.

GOSUB and RETURN

Next on the list is **GOSUB** and **RETURN**. The **RETURN** command has nothing to do with the **RETURN** key on computers (not 464) as I thought for a few weeks on first encountering this command. You may remember the word **ROUTINES** mentioned when discussing the **REM** command. Routines are jolly good things to learn creating in BASIC, especially because the mentioned before machine code uses them a lot.

Structured programming is what you should be aiming for, not programs that render themselves impossible to follow through and use bad programming techniques to obtain the results quickly, routines help this.

Imagine you have a program. This program is a telephone directory which is used as an example in the next part. You have lots of different things, tasks even, that the program must perform. Entering names and numbers, searching the files, listing the files, and as much as you want, or can, put into the program. It would make the program a lot easier and more "clean" if these operations to be performed were carefully planned out and written down on paper as working (or maybe not) routines. Then the bone of the program could

be designed and programmed, and afterwards add in the working routines, which, considering I mentioned bone before, would be the flesh and blood vessels and even bacteria to the program.

It may sound pointless and a waste of time doing this but believe me, it does make everything a lot better for you, the computer programmer. But didn't I say that I was going to discuss **GOSUB** and **RETURN** you cry. Yes I did, and these two commands are used for routine creating.

GOSUB is similar to **GOTO** in the fact that by saying to the computer **GOSUB 5000**, would instruct BASIC to jump to line 5000. The code from line 5000 and afterwards would then be acted upon and when the **RETURN** command is seen, BASIC jumps back to the very next command directly after the **GOSUB** one. **GOSUB** means GO to a SUB-routine. **GOSUB** and **RETURN** are two statements that have saved a lot of typing in the past because the same routine was needed for many different parts of the program, and so by **GOSUB**ing to this part and then **RETURN**ing from it (see the Horse Race program in part 10) proved a great help.

For information concerning the **GOSUB** and **RETURN** commands the user must consult part 3, the telephone directory, which shows the two commands within a program.

More next month until then happy programming.

Paul Fairman

<<If you can't wait until next month and would like to get a copy of this tutorial then look no further than your very own PD Library, this disc is available from Dave Stitson, your friendly PD Librarian, the PD Disc number is 125. - John>>

Writing The ROM

by Ratz

Ratz recovers from the A&E exam and gets down to some hard coding

Hi again. I've no idea what issue this article will wind up in - I've had exams y'see and you kind of lose track of what day of the week it is, let alone what the copy date is. So if you've had to wait an extra month, sorry! Anyway, let's get to work.

Firstly, I've got the order codes for Maplin Electronics, (01702) 554000:

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1 x Wire	BL00A @ 60p = 60p
	Total = £9.81p

So far, we've got our RamRom built, typed in the loading program and we have some idea of what makes a rom tick. Mr F has also kicked off his coding series with an example routine to print "Hello World!". Three guesses what our first rom is going to do.....

That's right. Text routines. Love 'em or hate 'em, you just can't do without 'em. Whilst Locomotive Basic is versatile and easy to learn, it falls down on the text display front.

Bold text? Nope. *Italic?* Uh-uh. Underlined? 'fraid not. Well, fear not, because this rom is just what you've been looking for.

Listing 1 is the assembly program which should hopefully give your CPC 4 new commands - |RHELP, |RUNDER, |RBOLD and |RITALIC. You need to type it in, save it and then assemble it - the assembler should generate the file "TEXTROM.ROM" which can then be put onto the RamRom with last month's loading program. The new commands will then be accessible from

basic. The first part of the program consists of the header, the command table and the name table, all as documented last time. Following this, there is the initialisation routine, which prints the rom name when the CPC is reset, and reserves 32 bytes of memory. Now we come to the commands - the first is a "help" screen which details the commands.

For this, the simple text print routine from Richard's article in WACCI 120 is used to print text and control codes.

Following this are the text commands. I'll describe the underline routine in detail; the others are more or less identical. Firstly, the routine checks that there is only 1 parameter, and returns to basic if this is not the case.

Next, the routine "get_params" is called - this gets the length and address of the text to be printed. If the string is empty, it returns to basic; if all is well, it carries on.

Now, we take the first character of the string and get it's matrix from the lower rom with the routine "get_params", storing it in the first 8 bytes of our workspace.

We then alter these bytes to give the underline effect, before redefining character 255 with this new matrix with the routine "new_matrix".

Finally, we print the new character 255 and repeat all over again for the remaining characters in the text. The 8 byte matrix for each character, which is stored at &3800 in the lower rom is worked out in exactly the same way as

a basic "SYMBOL" command. Smart bunnies will now be able to work out how we can alter these values to give different text styles. To give underline, we just set the bottom line to 255. To give italics, we shift the top 4 lines 1 pixel to the right. To give bold, we take a copy of the matrix, shift the copy 1 pixel to the right and then overlay this back onto the original matrix. *Easy peasy!*

Once you've got the commands loaded onto the RamRom, you can use them as follows:

```
|RBOLD,"This is bold text" (for 664/6128 users)
```

```
tS="This is bold text":|RBOLD,@tS (for 464 users)
```

For example:

```
10 MODE 1
20 LOCATE 5,5:|RBOLD,"Bold text"
30 LOCATE 5,7:|RUNDER,"Underlined text"
40 LOCATE 5,9:|RITALIC,"Italic text"
50 GOTO 50
```

OK, that's enough for now. In the next article, I'll talk about some other commands we can do - in the meantime, why not try adding a "speckle" command? (Hint - get the matrix, AND the 1st, 3rd, 5th and 7th rows with 85, AND the other rows with 170. Easy when you know how!)

If there are any subjects you want me to cover, drop me a line at the usual address. See you next time!

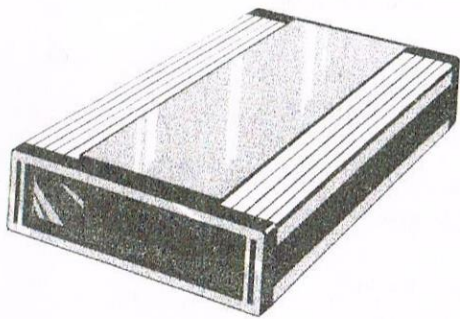
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Why Use A PC?

by John Hudson

Fifteen years ago most micro-computer users would have gone into raptures over a CPC 6128; It had 128K RAM - the same as the first PC and the first Macintosh - was expandable - unlike the first Macintosh - and could run all the top of the range business software like a dream.

Of course, it didn't come out fifteen years ago but two years later and, by then, the PC had begun its long march to dominance. But, until the late 1980s, the CPC could still match the quality of output of most PCs and its serial port was up to the highest speeds used on most PC modems.



So what has changed? Essentially, the quality of output - to screen, to printer and to modem. Screen quality is perhaps the least significant as the CPC's Mode 2 screen used the same resolution as many PC screens up to the mid-1990s though, unlike them, it lacked colour.

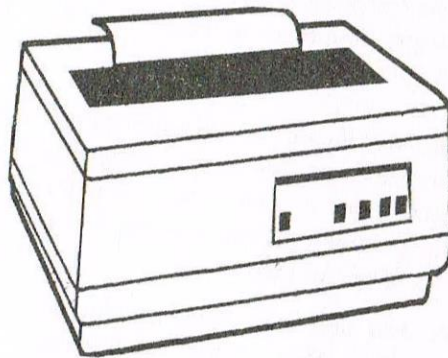
You don't need a colour screen for most serious applications except art packages and, in any case, it is only in the past few years that affordable colour printers have come onto the market. You do need a good colour screen for games but the Plus, which was intended to plug this gap, never sold enough to sustain the rest of the CPC market.

The most important shift over the past six or seven years have been to laser and inkjet printers. Stop Press was

designed to work with the earliest inkjet printer but its printer drivers were never modernised to take account of later developments.

All the CPC word processors, except Newword, assumed Epson 9 or 24 pin output though you could buy extra printer drivers for Protext. The only colour printer, the Star, used the Epson JX standard but no CPC programs used it until Colourdump was developed for Advanced Art Studio.

However, even if you have a laser or inkjet printer driver, you are limited to fixed space fonts or the proportional fonts that come with the Epson 9 pin printers; you cannot use the proportional or scalable fonts available with inkjet or laser printers.



Initially, Hewlett Packard sold its Deskjet printers with an optional Epson 9 pin printer emulator (at extra cost) so that people could use Epson printer drivers with the Deskjet. Several laser printer manufacturers did the same but Epson only offered 24 pin emulation on its laser printers!

If you use your CPC as a typewriter substitute and have no need for graphics or desk top publishing, there is absolutely no point in abandoning your CPC. If your word processor relies on an Epson 9 pin printer driver you may have difficulty finding a suitable printer but, if it has an Epson 24 pin or a Laserjet printer driver (*which will also work with the Deskjet series*), you can use a modern printer though you may need to be selective to get the best match.

You will, in any case, pay far less in real terms than you would have done for a DMP2000 in 1986.

If you do not have a suitable word processor, try VDE; there is a steep learning curve if you have never used a heavyweight word processor before but it is easy to write new printer drivers for it if you have the printer codes. I sent several new printer drivers to the library several years ago but I am not sure if they got onto WACCI Disc 10.

For graphics on the CPC, you can use Advanced Art Studio, Stop Press or MicroDesign Plus but the quality will always be limited by their printer drivers. Even DR Draw and DR Graph - which can in theory produce pin-sharp graphics - cannot do so even on a modern inkjet because the printer driver is set at the highest printer resolution available in the mid-1980s.

However, you don't need a Windows PC or a Macintosh to produce decent graphics; if you can pick up an old

DOS PC and add MicroDesign PC, you will get very satisfactory printer output.

If you need to run a spreadsheet or an accounting package, the CPC can offer you all you need for a small business or a club. With databases, disc space becomes a limiting factor but anything up to 300 records is normally feasible on a CPC - even more if you are storing numerical data. Mario de Pace, who wrote many of the handbooks on dBase in the 1980s boasted that an entire merchant bank had relied on a dBase program running under CP/M 2.2 in the early 1980s!

With spreadsheets, accounting packages and databases, a simple fixed space font is often essential. So the CPC is not at a disadvantage over the PC in this area. The only limitations come if you want to take advantage of the more complex statistical, financial or scientific functions available on PC spreadsheets. But, again, it is possible to obtain these on an older DOS computer running DOS versions of the software.

The real crunch for the CPC, and most DOS computers, has been the Internet. While email is possible at 4800 baud, you need a browser and a modem running 6-12 times faster to be able to use the Internet. Here you aren't confined to Wintel PCs; Macintosh has just announced the iMac which comes Internet ready at a price comparable with Wintel PCs. It isn't as cheap as the cheapest Wintel PCs but its built in software is far superior to what you will get with most cheap PCs.



So, to sum up, if you use your CPC as a typewriter substitute or if you use a spreadsheet, accounting program or database in connection with a small business, as I do, buy a modern printer and keep the CPC.

If you need to use graphics or desk top publishing, think about using an old DOS computer. You can also use CPC friendly programs like Protex, MicroDesign and Supercalc on such a computer and you can pick up perfectly satisfactory desktop publishing packages for them.

The main point to check is that they are Year 2000 compatible - many more of them are than you might think - particularly if you are going to use them with a spreadsheet or accounting program. If you go for a 386 you can also run the CPC emulator on it.

If you need the Internet, then a Wintel PC or Macintosh is your only real option. You can run DOS programs in a DOS box under Windows or you can go the whole hog and learn all about the software they offer.

What about using a CPC and a PC side by side as I do? Essentially, you can only do that easily if you use text based software such as a word processor, spreadsheet or database. Desktop publishing, drawings and paintings are, if not impossible, not worth transferring.

All PC word processors, spreadsheets and databases offer ASCII options (though they are not always called that) which enable you to transfer text and data in ASCII format to the CPC; only WordStar/VDE, Supercalc and dBASE offer you file compatible transfers between PC and CPC in which you lose none of the formatting information.

The problem with VDE and Supercalc is that the files transferred have to be less than 50K or 27K respectively as neither will load files bigger than this on the CPC. So, if you want to transfer data from larger files, you

need to split the files on the PC before transferring them.

Another use for a CPC is to crack Microsoft's file protection. Microsoft tries to prevent you using files created by a Microsoft program with any other software. You can get round this by loading files of up to 50K into a CP/M program which will ignore the Microsoft code. Seeing CP/M deal with a Microsoft file also exposes how bloated Microsoft files are. I recently received a 46K mailmerge file for Word 95 which was reduced to 4K after CP/M had stripped out all the Microsoft rubbish.

I have also been able to use VDE to read an Acorn file which had been sent to me and convert it to ASCII; later I sent it in Word format on an IBM disc along with other files created on the CPC to form part of a book.



Finally, if you really want to learn programming in assembler, C, LISP, PASCAL, FORTH or even COBOL (titter ye not, a PC training company is training 20 new COBOL programmes a quarter to cope with the Year 2000 problem), the CPC has an unrivalled set of assemblers and compilers. Of course, you won't get all the modern extensions you get in C++, DELPHI, JAVA or VISUAL BASIC but you will get a solid foundation from which to understand all of these languages because DELPHI is PASCAL in disguise and JAVA is just another version of C.

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Hacking Without A Multiface

by James Hoskisson



As the title suggests, this article is all about hacking games and utilities, without using a multiface. If you ever wanted to find a cheat for a game or are just curious about how a program works you may need to use some of the techniques mentioned below. It might also be a good idea to get a copy of the 'Alternative Firmware Guide', if you are serious about doing this.

Introduction

It's a rainy day (not hard to imagine with the British weather) and you decide that the jobs that you have to do can be put on hold for a little while, (everybody has things they should be doing, it's a rule of life.) So you decide to dig out an old CPC game, to pass the time in between putting off what you're supposed to be doing and when it can't be left any longer.

You push the disc into the drive and load up the game. As you start playing the game you realise why you haven't played it in years, it's just impossible for any mortal (who doesn't have the reflexes of a fighter pilot) to complete.

This is where you start leafing through back issues of CPC magazines looking for a cheat just to get you on to the next level. After searching for an hour you decide that you haven't got one. In this case you have three options. You can either:

- a) Give up and do that job you've been putting off for the last hour.
- b) Keep persevering, hoping you'll get lucky,
- c) or try and make your own cheat for the game.

If your choice would be either a) or b) please turn the page now. Look, come back, it's interesting, really! Okay, now for the shock, if you want to write a cheat for most games you will have to

have some knowledge of assembly language, and have an assembler/disassembler (I can recommend Maxam 1.5).

If you are missing the first element, Richard Fairhurst's excellent beginners' series is a good place to start.

If you are missing the second element, I'm sure Brian Watson (or one of his associates) would be happy to supply you with a copy of Maxam.

Where do I start?

The best place to start, in my experience, is always at the beginning i.e. the loader for the program. The loader is the program that is executed when you want to play the game or use the utility. Loaders are executed in either of two ways (or in both in some cases.) Some are executed by running a BASIC or binary file from the command prompt i.e. RUN"file. This is the most straightforward and most common way of executing a loader; sometimes however, the loader is a machine code file disguised as a BASIC file.

When BASIC saves a file it saves anything that is in the program file workspace of &170 and upwards. If the BASIC interpreter is fooled into thinking that the BASIC program is longer than it actually is, by changing the parameters that control the length of the program, a machine code program can be incorporated into the

BASIC file by tagging it onto the end of the BASIC program. These types of loaders can be distinguished from normal loaders because they seem to execute code that hasn't been loaded into memory. The BASIC part usually consists of a few REMarks and then a CALL command to a low address, usually in the range of &189-&220.

The other type of loader is even cleverer. It uses software in the AMSDOS ROM, which was originally intended to load up CPM, to execute the loader program. In this case, the loader program is saved to the first sector of the disc, where the loader program for CPM is usually stored.

When the |CPM command is executed the AMSDOS software thinks it is loading up a disc with CPM on it, so it loads the first sector of the disc to &100 in memory and then executes from &100. In this way the loader program can be loaded a lot quicker and doesn't have to take up as much disc space.

Anyway, if we want to hack the program we have to be able to load the code, for the main program, into memory and then alter it in such a way that when that part of the program is executed it will do something it's not supposed to do.

A typical example of this would be making the program not decrement the lives counter when you die, therefore giving you infinite lives.

Is that all there is to it?

The main thing that stands in the way of the commercial software hacker is copy protection. This is code, which is written into the loader program, which is designed to stop people from copying the software. It works by encoding the data so that people can't just copy the software by getting the loader to load the main program up and then, instead of executing the program, save it to an easily copyable AMSDOS file on another disc.

You may be asking how the processor executes the program if it is encrypted? The answer lies in the first part of the program. At the beginning of the loader is a piece of code, which decrypts the rest of the loader.

This isn't as simple as it might sound, because not all of the program has been decrypted fully. As soon as the program is decrypted once there is another piece of code, which can now be executed because it has just been decrypted, which decrypts the program again. This can continue for up to a hundred times, on some software protection systems, before the program is entirely decrypted and the loader program starts to load the main program up.

The idea behind this lengthy process is that anybody who wants to crack the program (cracking is where the software protection is stripped off a program and then the program is saved to another disc in an easily copyable form) will give up before the whole program is decrypted. There are variations made on each piece of decrypting code, so that a program can't be easily written that will decrypt the loader automatically.

The software protection systems aren't completely foolproof; if someone has enough patience and knowledge they can go through each piece of decrypting code executing it bit by bit until the loader is decrypted. This is a long way of going about it though. There are several ways to decrypt the loader file, without having to resort to such drastic measures.

Hacking the easy way

I am now going to explain four different methods, which can be used to decrypt loader files. These aren't the only ways to do it but they are the main ones. The four methods are as follows:

Patch a jump block, so that when the loader is decrypted, and tries to execute a firmware command, it will return control to the user.

Load the code into the second bank of memory (if you have 128k) and then patch a jump block so that it will reset the computer.

Write a program, which will run each section of decrypting code a bit at a time, until the loader program is decrypted.

Construct a piece of hardware which is plugged onto the expansion port, which only runs one instruction at a time, so that it can be stopped when the loader program is decrypted.

The first method is the simplest. Many loaders use the firmware to set up the screen colours, or print text, because the code needed to do these jobs would be too large to fit into a loader program. We can take advantage of this, by patching the firmware jump blocks, so that when they are called they either return to BASIC or save the file to disc. You have to be careful to patch the jump blocks that reset the firmware jump blocks (such as the jump block at &BD37), as well, otherwise the patch could be overwritten.

If the loader program is going to mess up the BASIC variables, or change the stack, then it will have to be saved to disc before it can be disassembled. To do this you have to patch the jump block so that it jumps to a pre-prepared program which saves the code out to disc. You may also need to reinitialise AMSDOS, because a lot of the time the loader code clears the rest of memory except for the part containing the loader.

It is a good idea to store the code that saves the decrypted loader somewhere high in memory, like at the lower end of the stack (about &BE80.) This area is least likely to be cleared by the loader because the jump blocks and code stored at about &B900 are needed if firmware calls are to be made by the loader.

The next method is very crafty. It relies on the fact that when the processor is reset it only clears the first bank of 64K. Provided the computer isn't turned off, the data in the second 64K can then be retrieved. The only problem with this method is that it isn't always easy to get the loader program to reset the computer, so you don't have to turn the computer off.

There are some loaders that store the address of the routine to handle interrupts in memory before decrypting the loader. It is then a simple matter of providing the address to reset the computer here, i.e. &0000, so that when the loader program tries to restore interrupts the computer will reset, therefore allowing you to examine the code in the second bank of memory.

If the loader doesn't do this, you could always try entering a load of random 'rubbish' bytes near the end of the loader. When these bytes are decrypted and the processor tries to execute them they will cause weird stuff to happen, because they aren't part of the original loader program, and if you are lucky the computer may reset itself.

Then, when the loader information is retrieved, you will have most of the decrypted loader, which you can then use to try and decrypt the original encrypted loader program, without having to overwrite part of it again. I'd only do this as a last resort though.

Method c) will require an investment of a lot of patience and time if you want to write it from scratch. This may involve having to decrypt the loader manually so you can make the program distinguish between the bit

that loads up the program and the bit that decrypts the file. A good idea would be to get the Bonzo series of tape to disc copiers and then modify one of those so they will decrypt disc protection loaders rather than tape protection loaders and then rather than saving the program just save the loader so it can be examined later.

The last method isn't really viable unless you happen to know a lot about how the Z80 works. This would require interrupting what the processor is doing every time it completes a command and then checking whether it has decrypted the loader yet.

If you fancy doing this you'll have to set it up so that when the processor has completed an instruction the NMI line goes low and some ROM software is paged in over the first 16K of RAM. It can then intercept the jump to &66 and check whether the loader is decrypted fully, before returning control to the main program. I did say it wasn't really viable!

If you want to find other ways to get around speedlock loaders, and the like, I would advise you to study the cheats that are in the old CPC magazines where you have to type in some code. These usually find ways to decrypt the loader, alter it, to change the main program, and then execute it.

So what now?

So, by now, you should be able to decrypt the loader file, for the program you have selected to hack. If you have the loader, fully decrypted, you have basically done all the hard work. The last thing that you have to do is find out how to make the program do what you want it to do. To do this we have to find out which commands do what, so we can change them.

The easiest way to find cheats for programs is to look in old magazines for multiface cheats. These are basically a list of the bytes you need to

change and what you need to change them to. The good thing about these is that someone else has done all the work for you with a multiface, and then all you have to do is alter your now decrypted loader so that it will change the relevant bytes before executing the program. This should be a doddle. In the unlikely event that you can't find a multiface cheat, for the game you have selected to hack, you will have to roll up your sleeves and find the bytes for yourself.

What am I looking for again? What you are looking for, in the main program code, depends on what kind of cheat you want for the game. If you want infinite lives, for example, you will have to look for the part of the program which decrements the variable that holds the number of lives you have. The easiest way to do this is to use a program, like Maxam again, which will search for a string of bytes in hexadecimal.

The problem is knowing which hexadecimal numbers relate to which commands.

To find this out you need a list of all the commands and their hexadecimal representations, such as the list of Z80 opcodes in the 'Alternative Firmware Guide'. Once you know which bytes you are looking for, you have to look at the code, which precedes these bytes, to decide whether it is the bit you are looking for. The more experience you have at this, the quicker you will find what you are looking for.

Once you know which bytes to change, and what to change them to, you can alter the loader so that it alters the main program once it is loaded up. You then save the loader again to a different disk with a message at the beginning to tell you to put the game disc in and you're away.

You should now be able to cheat as much as your heart desires and finally find out what waits for you on the next level of that impossible game.



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POWERPAGE 128 REVISITED

Peter Rogerson

At the serious risk of boring those of us who know everything there is to know about CPC software into an early grave, this month I'm examining that glorious old chestnut, PowerPage 128. And in line with my policy of using the program under the microscope to produce the article, this little piece is being written, laid out and printed using nothing but my CPC6128, Powerpage 128 and an elderly dot matrix printer called Cyril. Oh - And Protext for some of the raw text.

The first thing the discerning reader might notice upon examination of this page is the strange and almost unearthly font. There's a reason for this, fellow members. You see, I am sworn to upholding the Bowley house style and that dictates that each page (whenever possible) should have a banner headline, italicised banner introduction and the main body of the text in three columns.

But this is PowerPage we are dealing with, and PowerPage was created as a DTP for A5 (half the size of this page) print-outs. To produce A4 pages on a program dedicated to the 80 column screen would mean using only two columns (at the most) and having print of a huge size - witness the italicised banner under the main headline of this particular page. Unless, of course, one used the font called, intriguingly enough, #tiny. But friend #tiny has two problems. One, his name starts with # and two he is still created on an 8 x 8 grid. This latter problem means that if he is going to be as tiny as his hashed name suggests then he is going to have to come from just part of the grid, and that's going to leave no space for fancy serifs or squiggly tails.

So What Does It do?

Right. Explanations out of the way, let's take a detailed look at the program.

It's a dedicated DTP package, which means it's sole function is the laying out of pages, making the production of leaflets etc easy. But it runs on an elderly 8-bit, so there are bound to be limitations - go on, admit it!

To start with, it's not fair to compare it feature-by-feature with such delights as Microdesign Plus or Stop Press because they cost pounds whilst PowerPage 128 costs pennies (100 of them if bought from the WACCI PD library on a 3.5 inch disc). Yet the temptation is to make such comparisons because - and here's the joy of the whole thing - PowerPage stands up very well when scrutinized in such a way.

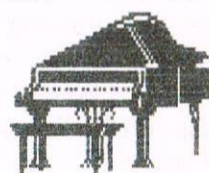
You see, it has all the main features. It even beats MicroDesign (the only real contender for the throne of Currently Available DTP Software - CADS from now on) with text handling. Let's take this article as a case in point. I'm using Protext in order to produce the raw text, saving it paragraph by paragraph, but I could almost as easily enter it directly into PowerPage because that program has the tiniest text-editor in the Universe. The bottom line of the screen, to be precise, doubles as a text editor, so if you like you can type your text into that line and watch as the program sets it out on your page line-by-line. Magic!

But PowerPage is more than a vehicle for creating pages of text. Clip-art (which is plentiful) is a cinch. It can be created by cutting snippets from screens, maybe even from commercial games screens. I used some of this kind last month - those of you familiar with this little character:



may remember those I mean - a fairy-tale castle and a moon setting over a secret lake blatantly cut from the loading-screen of the game called Dizzy!

And there's no secret to how to perform such miracles, either. Find a screen which will load into the program, mark your chosen snippets of it using the rubber-banding technique I'm about to discuss, and



(oops - wrong keyboard)

hey presto, using the file menu you can save the clip-art in .CUT format!

Shift/copy produce the rubber-band. They outline a block which can be manipulated via the BLOCK menu. It can be wiped, rotated, copied - but not actually moved as such, which is a bind. You see, the careful DTP-er might want to make tiny adjustments to his page and that might involve moving a block from one place to another. With PowerPage you must COPY that block, then go back and wipe the original. But you might have COPIED it onto part of the original and wiping what you've left behind can be a fiddly affair.

The Big Bonus

What, you might ask, do I mean by THE BIG BONUS? What can be so delicious as to merit a sub-headline as absolute as that? Well, I'll tell you.

I'm writing this as I go along, sometimes producing a block of text using PROTEXT and sometimes entering it by the afore-mentioned tiniest text editor in the Universe. And the Big Bonus is that I can soft-reset the computer with a page in memory, instal PROTEXT, write a paragraph, reload PowerPage, and my page is still there, intact and beautiful!

You see, the page is in the second 64k of memory, which is unaffected by a soft reset and doesn't get so much as tickled by PROTEXT and its code!

CONFUSING?

CONFUSING OR WHAT? Here's a thought. In my little billet-dous on the subject of MicroDesign last month I bemoaned the fact that a MicroDesign page just isn't long enough to look decent on an A4 print-out if you don't require huge top and bottom margins. And what have we with PowerPage 128 but the opposite problem! The bottom couple of inches or so slip off the bottom of a PowerPaged Page if you use 'em. As the sub-header says, confusing or what?



THE
DRAMA
OF
IT
ALL...

LINES & FINES

And there's more. Powerpage goes beyond merely setting our your page according to your tastes. It has features found in art packages, line and circle drawing, rectangles, various patterned fills and so on. In fact, you can produce a fair picture using the program, especially when you incorporate use of its zoom facility to edit at the pixel level. There's no doubt in my mind that a page of serious text looks what it is - serious, but it can be enriched and lightened by the use of illustration. MicroDesign (the other member of the CADS group) is a fraction more user-friendly when it comes to drawing and because of its use of icon sets has a vastly more comprehensive range of patterns that can be used for filling, but PowerPage ain't that bad.

I suppose the truth of the matter is that if you're a half-way decent artist you'll make good use of whatever tools you have at hand, but if Leonardo just ain't your middle name, then you might produce more creditable work with better tools. Maybe, then, like me, you'll find it heavy going producing anything of real quality with PowerPage, but hey, it never pretended to be an art package.

Believe it or not I have a couple of moans, though, and it's only right to air them or the reader might be led to believe that the program's perfect. But before I lash out I'd better explain. I've got a very old version of PowerPage 128 and I suppose it's possible that the venerable, noble, talented and virtually unbewhiskered Richard Fairhurst in whose saintly steps we all dream of treading but can't, has put them right in later upgrades of the program. But whatever the case, here goes.

Firstly, there are instances when I find myself inadvertently entering one of the options and can't get out without resetting the program. Fortunately, as already noted, a soft reset doesn't lose your page, but it does lose all those delicious settings you opted for a couple of hours ago when you started your masterpiece. It's all a bit wearying, having to remember this, that and the other when all you really want to do is put the final full-stop and have a cup of tea.

Secondly, the damned COPY key! You use it for starting and ending a line. Very useful until the thing decides to operate all on its own and you end up with spurious lines all over the place. So you can back-track until there's hardly a line left at all, then use ZOOM to eradicate the last little stub of unwanted line, but it is a hassel. But never mind, I suppose, it's the imperfections that turn the glorious into the great. Or something like that.

PRINTING

So you've produced your page or leaflet or whatever it was you set out to produce. It's there on the screen, beautiful and pristine and exactly how you wanted it. All that's left is to print it out. But first, you can have an overview of the whole thing, the kind of overview most modern DTPs give you. The detail is reduced to a grey blur and the whole page occupies but a fraction of the screen. Use the PAGE menu for this. It's worth it because you've spent the last goodness-knows how long working on single screens and haven't as yet seen the whole. After all, you may discover that you've got two pieces of clip-art virtually next to each other and the rest of the page is a monotonous monochrome of endless text.

Print quality is determined by the Settings menu, and if it's A4 you're printing you need at least setting 3: anything less gives a poor output. A5 isn't so fussy. Having set this quality you can go to the Page menu again and ask it to print A5 or A4. The higher the setting for quality the longer it'll take. Time for a cup of tea or pint of cooking. The printer can manage without you watching it.

TO CONCLUDE...

They say that the price of the pudding is in the eating, whatever that piece of nonsense might mean. I'm taking it to suggest that there might be some validity in writing retrospective reviews like I am about software that's been around for years beyond count because what you see in this issue of WACCI is precisely what the software does. This page, oh best beloved, has been nowhere near a PC and the only software besides PowerPage 128 itself that's been involved is Protex, for about half of it. So look at my pages, and judge. The CPC may be a.....



.... but it might still have a part to play in the drama of things. Or something like that. Here's a list:

- ▶ Leaflet
- ▶ Visiting/ business card
- ▶ Advertisement
- ▶ Thousand carat diamond necklace

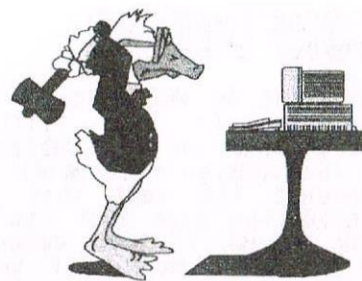
All of these can be produced on your CPC, using very little capital, a smallish amount of your time, and a great deal of love. Oh - I lied about one of them.

I'm not going to give PowerPage childish marks or percentages. It's too long in the teeth for that. Instead I'll remind you of its pedigree. Coded by Richard Fairhurst, a gentleman who looks disgustingly youthful bearing in mind the fact that he's occupied centre-stage in the CPC world just about for-ever. It was he, remember, who wrote WORKTOP and who has, therefore, been paying penance ever since.

Powerpage is available in the PD Library, disc No. 4

Peter Rogerson

Are You Game For A Game?



Well dear friends, once more into the realms of fantasy or relaxation and sometimes in my case sheer frustration anyway forwards.

BUBBLE BOBBLE

Meet Bub and Bob our bantamweight brontosaurus who are bent on battling big bullies by blowing and bursting bubbles. Before battling these brazen bullies, beware that bubble blowing is better than blasting with bazookas, or better than bouncing bombs from biplanes and even beats boxing these brainless barbarians. So now that we briefly belayed the Buz and Bob biographies begin by browsing the playing instructions below and becoming the best Bubble Bobble bubble blower on the block!

CONTROLS

Player 1	Left
O Right	P
Jump	Q
Bubble	Space
Player 2 Joystick F1	Pause
ESC	Quit

HOW TO DESTROY

- 1 Blow Bubbles
- 2 Box up bullies
- 3 Burst them!!!

By bursting bubbles containing fire, thunder and water that appears in the previous stage, you can quickly destroy the bullies. Fire Thunder and Water flow in the direction in which you stretch yourself. You can even bounce on the bubbles (by keeping the joystick pushed up). Points are given for bursting bubbles. Bonuses are given for destroying bullies. Clearing a stage quickly allows for high point targets in the next stage. Magic targets mysteriously appear. Destroy them and power up. It's best to destroy several enemies at the same time. Can you reach the "True Ending" by clearing

all 100 stages? A "Sudden Reversal" awaits you there. A player can join any time by pressing the fire button. You start the game with an extra 8 credits. To keep playing after you have lost all your lives, just press the fire button quickly.

EXTEND.

Get all the letters. They appear when destroying several enemies at the same time.

Barry Maguigans Boxing.

Characters. Sony Robinson - The No 1 contender is a flamboyant fighter with a dangerous left jab. He's been training heavily for the rematch with MaGuigan so he won't be easy to beat.

Thunder Thompson - A newcomer to the circuit. He picked up an easy gold in the star rank games and joined the pros with the metal still swinging around his neck. A tough fighter to hurt.

Lucky Lou Lyndon - Another newcomer to the circuit who has such tremendous strength that most of Luck Lous opponents are still nursing their bruises from their fight with him. Supporters say he has flawless style and execution.

Flash Fenwick - an extremely quick fighter, likes to put the 'magic' on his opponent, (definite proof that his hand is quicker than the eyes).

Bashin Bill Snow - a powerful fighter with many years of experience in the ring, weakens other fighters by incredible body blows. Boom Boom Barnett - Another powerhouse with a wicked right cross. Boom Boom is an imaginative fighter who often outwits better boxers, quite unusual for a powerhouse!

Boxing Styles. Dancer - likes to 'stick and move' rapidly goes inside.

Boxer - sometimes moves inside, but prefers to keep his distance, an excellent style if you like to flurry. Mixed - very unpredictable, hard for your opponents to 'read'. Slugger - no nonsense style doesn't tire quite as easily because he doesn't do much dancing, goes inside quite often. Bulldog - likes to slug it out toe to toe. Can sometimes trap a dancer against the ropes.

Getting Started.

The first player is asked to select keyboard or joystick. Use the cursor up and down keys to indicate your choice and press enter to select it. Choosing the joystick option takes you straight to the No Of Players selection screen, otherwise player 1 is asked to choose which keys he wants to use for controlling his boxer. If player 1 selects joystick, then player 2 must use keyboard.

The keyboard selection menu allows each player to choose which keys represent up, down, left, right and fire. Press the keys corresponding to your choice for each one and then press Y to confirm your choice. Pressing N takes you back to Stage 1 to begin again. You are not prevented from choosing the same key for more than one function, but obviously this is rather pointless. You cannot choose the shift key.

When player 1 has made his selection of control method he is asked to choose a one or two player game. Player 1 uses up/down and fire buttons/keys to select and enter the required game.

Programmers' Patch

by Matthew Phillips

The sun beat down on the wide desert plains of Mexico. The sound of horse's hooves had faded as Flaminguez disappeared into the distance, as swiftly as he had arrived. Juan Carlos scanned the pages of the vital document intently. He frowned as he tried to grasp the hidden meaning of the words before him. Was there no other way? He had feared it might be so, but now he was certain. He would have to ask Flaminguez to bring him a CPC as well next time.

Last month we started looking at the differences between BASIC 1.0 as found on the CPC 464, and BASIC 1.1 on later machines. The Programmers' Patch disc (*which you can order from Dave Stinson, PD disc 98*) includes some RSXs to help you to identify which lines of a program will cause problems for 464 users.

I hope that 464 users will find these articles useful when trying to convert programs to run on their machines, and all you 664/6128 users should have a read too, as it is worth being aware of what will cause problems on the 464. In many cases you will only need to make a few alterations to enable your programs to run on all the Amstrad CPCs.

We have printed a list of all the commands which have been added or altered for BASIC 1.1 in Table 1. We covered FRAME, CLEAR INPUT, and ON BREAK CONT last month.

GRAPHICS COMMANDS

Many of the enhancements added in BASIC 1.1 relate to graphics handling. The MOVE, MOVER, DRAW, DRAWR, PLOT and PLOTR have had extra optional parameters added, which you will need to remove in order to get programs to work on the 464.

On the 464 the MOVE command takes only two parameters, the x and y coordinates of the point to move the

TABLE 1

CLEAR INPUT

Clears the keyboard input buffer.

COPYCHR\$ (#<stream expression>)

Function returning the character found at the current cursor position in the screen window specified, or a null string if it is not recognized.

LOCATE 1,1:a\$=COPYCHR\$ (#0)

reads the character from the top left corner of window 0.

CURSOR [<system switch>][,<user switch>]

Sets the switches that control the display of the cursor blob on screen. The parameters are 0 for off and 1 for on. The blob is displayed when both switches are on. The system switch is turned on automatically for the INPUT command, and the user switch is on by default.

Either switch parameter may be omitted, but not both.

DEC\$ (<numeric expression>,<format string>)

Function returning a decimal number formatted according to the format string, which is specified in the same way as PRINT USING

```
a$=DEC$(47,"###.##")  
will set a$ to be " 47.00"
```

DERR

Returns the last disc error number. For example:

```
x=DERR  
sets x equal to the last disc error number.
```

DRAW

DRAWR

As on the 464 but with an extra optional parameter of <ink mode>, from 0 to 3. 0 is normal, 1 XOR, 2 AND, 3 OR.

FILL <ink>

Fills the screen with <ink> starting from the graphics cursor position, filling a region bounded by the current graphics pen ink and the ink being used to fill.

FRAME

Waits for the frame flyback in an attempt to avoid flickery display of changing graphics. Not really much use for BASIC.

GRAPHICS PAPER <ink>

Sets the graphics background ink, used for the background of characters printed with TAG, and the gaps in dotted lines drawn with MASK.

GRAPHICS PEN [<ink>][,<background mode>]

Chooses the ink used for drawing lines and printing characters with TAG. The <background mode> is 0 for opaque and 1 for transparent, and affects whether the backgrounds of characters printed with TAG are displayed, and the gaps in dotted lines. Either parameter may be omitted but not both.

MASK [<integer expression>],<first point setting>]

The integer expression should be from 0 to 255, and allows you to draw dotted lines. 255 is the setting for ordinary lines. The first point setting should be 1 if the first point of a line is to be plotted, and 0 if not. It is normally 1. Either parameter may be omitted, but not both.

MOVE

MOVER

As on the 464 but with two extra optional parameters of <ink> to change the graphics pen, and <ink mode>, from 0 to 3. 0 is normal, 1 XOR, 2 AND, 3 OR.

ON BREAK CONT

Prevents the program being broken into when ESC is pressed twice.

PEN

As on the 464, but with an extra optional parameter to select the background mode for text printing: 0 for opaque, 1 for transparent.

PLOT

PLOTR

As for DRAW and DRAWR

Table 2

BASIC 1.1 BASIC 1.0

CURSOR 0 CALL &BB84

CURSOR 1 CALL &BB81

CURSOR ,0 CALL &BB7E

CURSOR ,1 CALL &BB7B

CURSOR 1,0 CALL &BB81:CALL &BB7E

CURSOR a,b CALL &BB84-3*a:CALL &BB7E-3*b

graphics cursor to. With BASIC 1.1 you can specify a third parameter to select the graphics pen, much as you do with PLOT and DRAW. For example:

```
MOVE x,y,3
```

will move the graphics cursor to (x,y) and also change the graphics pen (the colour to plot in) to 3. This facility is most useful when you are printing characters at the graphics cursor using TAG.

How you remove this extra parameter depends on the situation. Sometimes people use it when it is totally unnecessary. For example, a line saying:

```
10 MOVE x,y,2:DRAWR 23,50
```

could simply be changed to:

```
10 MOVE x,y:DRAWR 23,50,2
```

The graphics pen setting has been moved from the MOVE command to the DRAWR command. If the DRAWR command was on the next line though, it might not be safe to use this approach. It may be that that line is reached from elsewhere in the program where the graphics pen is set to something different. The following approach will always work:

```
10 PLOT -8,0,2:MOVE x,y:
DRAWR 23,50
```

We use the ability of the PLOT command to change the graphics pen by plotting a point which is off screen, and then do the MOVE command. Of course, if ORIGIN has been used to move the graphics origin, then (-8,0) may lie on screen - adjust as necessary. The MOVER command has also had this third optional parameter added, and can be dealt with in the same way.

GRAPHICS INK MODE

All six commands, DRAW, DRAWR, MOVE, MOVER, PLOT, PLOTR, have had a fourth optional parameter added in BASIC 1.1.

This parameter selects the ink plotting mode. It is 0 for normal, 1 for XOR mode, 2 for AND, and 3 for OR mode.

There are a couple of ways to cope with this on the 464. Suppose the command was `DRAW 100,200,1,3`. This can be replaced with

```
PRINTCHR$(23);CHR$(3);:
DRAW 100,200,1
```

Be careful to include the semicolons, or you might get unwanted linefeeds happening. This method will not work if TAG has been used to redirect text characters to the graphics cursor. You could also do

```
CALL &BC59,1,1,1:
DRAW 100,200,1
```

This sneaky method uses the firmware call SCR ACCESS which sets the ink mode. It does this on the basis of the contents of the A register.

When we do a CALL from BASIC, the A register is set to indicate the number of parameters after the CALL, so putting three parameters (it doesn't matter what they are) gives ink mode 3, the OR mode.

```
CALL &BC59 - chooses Normal mode
CALL &BC59,1 - chooses XOR mode
CALL &BC59,1,1 - chooses AND mode
CALL &BC59,1,1,1 - chooses XOR mode
```

This is no good if the DRAW command has a variable for the fourth parameter. For that you should use the PRINT CHR\$(23) method.

AS CLEAR AS CRYSTAL

An extra parameter has been added to the PEN command too, in order to select the text background mode, which is 0 for opaque and 1 for transparent.

For example, `PEN 1,1` will select pen 1 and set the background to transparent.

The strange looking command `PEN ,0` will select opaque background mode but not alter the pen selected. To deal with this parameter on the 464, you need control code 22.

```
PEN 1,a can be replaced by
PEN 1:PRINT CHR$(22)CHR$(a);
```

or you can use a similar firmware trick, and do `CALL &BB9F,1` for transparent or `CALL &BB9F` for opaque.

THE CURSE OF THE CURSOR

While we are on the subject of text printing, another command has been added to control the display of the text cursor. The CURSOR command takes two parameters, each of which should be either 0 or 1. Either parameter may be omitted. To show how to deal with this command we have a series of examples in Table 2. Which is on page 24.

Usually the CURSOR command is not used with variables, as in the last example, but if it is, this is one way to deal with it. Note that horrible things may happen if a or b are any value other than 0 or 1.

GRAPHICS PEN AND PAPER

Two more commands introduced with BASIC 1.1 are GRAPHICS PEN and GRAPHICS PAPER, which are used to set the graphics pen and graphics paper (no, really...). Setting the graphics pen can be done by plotting off screen in that colour. For example, `PLOT -8,0,a`

can be used in place of GRAPHICS PEN a. However, this does have the side effect of moving the graphics cursor, which may be inconvenient if you cannot work-out where to MOVE it back to! Another way round it is to use the firmware routine GRA SET PEN. If the parameter to GRAPHICS PEN is an absolute value you can use the same trick as before and do `CALL &BBDE` followed by the right number of parameters.

Using this method `CALL &BBDE,1,1` has the same effect as `GRAPHICS PEN 2`, because there are 2 parameters after the CALL.

If your parameter is a variable and the PLOT method is inconvenient, then a little bit of machine code can work wonders. Just insert the following line near the beginning of the program, after any SYMBOL AFTER command if there is one:

```
1 gpen = HIMEM-5:
MEMORY HIMEM-6:
FOR g=0 TO 5:READ d:
POKE gpen+g,d:NEXT:
DATA &DD,&7E,0,&C3,&DE,&BB
```

You can then replace GRAPHICS PEN x with `CALL gpen,x`. You may notice that the last two bytes of data in that line are the firmware routine address for GRA SET PEN, but to get the address into the form the Z80 likes it has been chopped in two and the second half (the least significant byte) is put in first.

We can use exactly the same technique for all of the other firmware routines mentioned so far. To set the graphics ink mode we could put the following line in:

```
1 inkmode=HIMEM-5:
MEMORY HIMEM-6:
FOR g=0 TO 5:READ d:
POKE inkmode+g,d:NEXT:
DATA &DD,&7E,0,&C3,&59,&BC
```

Then commands like

```
DRAW 100,200,1,x can be
replaced by
```

```
CALL inkmode,x:
DRAW 100,200,1
```

We can deal with the command GRAPHICS PAPER in much the same way. The firmware routine GRA SET PAPER is at &BBE4. An alternative method, which was very popular in listings in the magazine Computing with the Amstrad, was to use the CLG command which clears the graphics window, but first redefining the graphics window so that it was off screen.

```
GRAPHICS PAPER x
```

would be replaced by

```
ORIGIN 1000,1000,1000,
2000,3000,4000:CLG x:
ORIGIN 0,0,0,640,0,400
```

The only problem with this is that it doesn't work quite as intended, as a small piece of the top right of the screen changes colour!

READING FROM THE SCREEN

The COPYCHR\$ function can be quite useful, but fortunately it is contained in the 1.0 firmware and so we can do it quite easily on the 464. It needs a bit of machine code again, and the syntax is a bit different.

Put the following line at the start of the program (after any SYMBOL AFTER command):

```
1 copychr=HIMEM-17:
MEMORY HIMEM-18:
FOR g=0 TO 17:READ d:
POKE copychr+g,d:NEXT:
DATA &DD,&6E,0,&DD,&66,
1,&7E,&B7,&C8,&CD,&60,
&BB,&23,&5E,&23,&56,&12,
&C9
```

If you have a command such as

a\$=COPYCHR\$(#0) you can replace it with

```
a$=CHR$(0):CALL copychr,@a$
```

Because COPYCHR\$ is a function, you could get it coming up in all sorts of awkward situations. For example, you might have

```
x$=x$+UPPER$(COPYCHR$(#0))
```

in which case you would have to do something like

```
a$=CHR$(0):
CALL copychr,@a$:
x$=x$+UPPER$(a$)
```

You would have to make sure that the variable a\$ was not being used for anything else in this case.

The machine code I have just given differs in two respects from the COPYCHR\$ function. If the character read from the screen is not recognised, the COPYCHR\$ function returns an empty string, whereas the machine code will return CHR\$(0).

If you need to test for this, it will not cause too much trouble, as CHR\$(0) is very rarely printed on screen, so you are not likely to jump to the wrong conclusions. Also, COPYCHR\$ allows you to specify which window

to read from, while my machine code always reads from window 0. If you come across COPYCHR\$(#3), for example, just pop in a WINDOW SWAP 0,3 before and after the call to the machine code.

LOCOMOTIVE FAILURE

The DEC\$ function is quite an interesting one, because it is actually present in 464 BASIC. The reason it isn't advertised in the manual is that there is a minor bug in it.

You simply have to include an extra left bracket after the name of the function when you use it! Try

```
PRINT DEC$(4567,"####,")
```

and you won't get a syntax error.

The format specifier works in the same way as that for the PRINT USING command. There is another small difference between BASIC 1.0 and 1.1 here, as BASIC 1.1 allows you to use the pound sign in format specifiers as an alternative to the dollar.

If you want the program to work on all of the CPCs, you will have to avoid the DECS command and rewrite it some other way.

MISSION A BIT HARDER

The FILL and MASK commands, the DERR function, and the background mode parameter of the GRAPHICS PEN command are rather harder to deal with, as there is no support in the 464's firmware for these features.

You may find that the program works reasonably well if you just chop them out! Even without these, you will be able to get a good number of 6128 programs working on the 464.

There are a few more subtle differences between BASIC 1.0 and 1.1, which are mostly fixes for bugs.

We will have a look at some of these next month, as some of them make quite a big difference to how certain commands work.

Matthew

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Family Ties

by Ian Waugh

<<My thanks goes to Terry Ward for passing this article onto me.- John>> Ian investigates a genealogical database. This review was originally printed in 'Computing with the Amstrad' in April 1988, published by Database Publications Ltd.

The Registrar General's office receives a huge number of visitors each day, all eager to discover if they have any famous - or infamous - ancestors.

Genny is a specialised database which reflects this rapidly growing interest in family history.

First surprise on loading is a few bars of the tune which begins: it was in Baghdad where my mother met my dad... that's as many printable lines as I can recall. Very appropriate, too. The database can organise and store records on up to 1,000 individuals.

It holds their name, sex, date and place of birth, and date and place of death or burial. It also stores the names and birthdates of parents, up to 10 spouses (more than enough for Henry VIII) plus marriage dates and the names, sex and birthdates of up to 19 children.

There is also room for comments such as place of marriage, occupation, documentary references and so on.

Genny is disc-based and your data files are stored alongside the program on the system disc.

Owners of dual drives can use separate data discs, and there are utilities to copy data files from one disc to another, although the system disc backed up without any problem.

Because of the amount of processing and data storage required, Genny is divided into four sub-programs. Geninit sets up and initialises the system, Genwrite lets you write and edit subject entries, Genread is used

to read, display and search the files, and Genchart lets you trace male or female lineage and produce generation and tree charts.

All options are menu-driven and it's easy to find your way around. There is a lot of disc access and programs can take several seconds, possibly minutes, to process and sort data. It may take even longer on the CPC464 while it performs a garbage collection. There is a vacate memory option, however, to speed up the job.

The 21-page A4 manual begins with a run through of all the options. There's no way you're going to take all this in (the manual admits as much but suggests you browse through it anyway) and it's not until you hit page 12 that you get down to using the program. I gather I'm one of the few computer users (and reviewers) who actually like to read instructions, and I think the manual should have started with the tutorial section.

Apart from a little juxtaposition, it's quite helpful, although I would have expected the producers of such a program to have a knowledge of English grammar.

When referring to relationships they insist on writing Georges father. Irritating. First steps involve playing with the sample database. It contains more than 170 cards so there is plenty to cut your teeth on before starting to enter family trees in earnest. It is quite easy to find your way round, and I was quickly able to enter a new database containing several generations of the royal family. Genny is designed to sort

on surname, and typical royal family trees lack such information. I suggest, therefore, that you experiment with something less blue blooded.

When you enter subjects' details, cards are automatically created for their parents and, if they have any, their spouses and children. Care must be taken when deleting a card to ensure that there are no links between it and any existing cards. It would have been nice if the program checked this, but again it's not something you're likely to do very often.

As you might imagine, there is a considerable amount of cross-referencing. As far as possible, changes made to subjects' details are automatically reflected in the records of their relatives. However, changes of marriage dates, for example, must be made on the cards of both partners.

Many of the options ask you for a reference number, so it's a good idea to write down the card number for each subject as you go. If you don't you'll be forever flipping between modules. It's not the sort of program you'll be using every day, however, and data once entered will tend to remain static, so it shouldn't cause any problems.

In order to save as much memory as possible, Genny tokenises commonly used words. You construct your own lists, one for forenames and the other for placenames. Each can hold 127 words and you can extend the lists as you go. Initially I thought that a genealogical database can't be very complicated - but it is and Genny

makes its operation as easy as possible. However, you do need to take great care with entries, and preparatory work is very important.

I did have a niggle or two. For instance, you can't break out of a search routine and it could take several minutes to search from one end of the database to the other. Thumb twiddle time.

You must be careful when editing a record, too. I made a complete mess of one. I couldn't exit from the edit routine and I couldn't get the original card back.

This is where careful preparation and a little familiarity with the program comes in. The generation chart prints out brief details of a subject's descendants over a four generation span, and the tree chart prints out a

four generation lineage chart. I was looking forward to seeing the complete family tree of all 170 subjects in the sample database, but I suppose that is asking too much even of the CPC. You'll have to construct your own tree should you want to hang it mural-like in the front room to impress the neighbours.

There are several stand-alone utilities on the disc: Setkeys lets you program the function keys with commonly-used words, Printset offers a selection of typefaces, and Genlist prints out numerically and alphabetically sorted lists of all subjects on file - a full file could take an hour to process.

Genbrief will produce a birth brief covering five generations and may be of use to family historians and genealogical research agents. Other

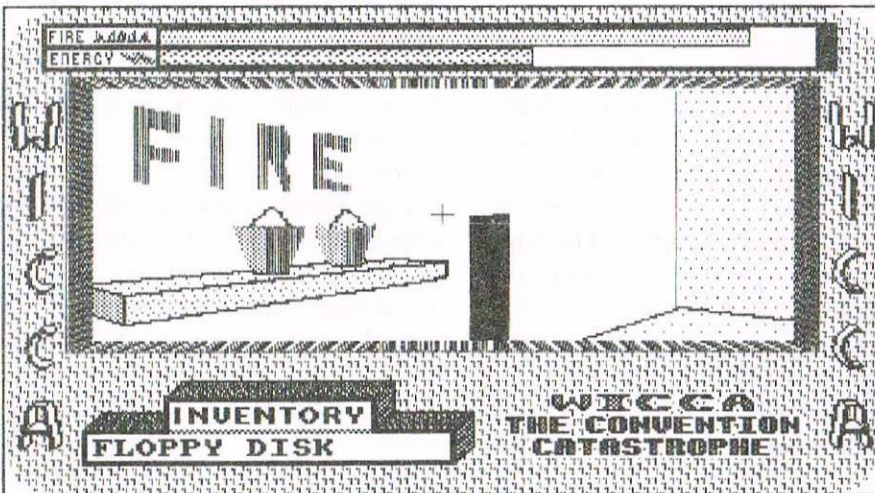
versions of the program are available to run on the Amstrad PC and PCW computers, and a utility supplied with these allows Genny data files to be ported between PC, PCW and CPC.

If you are already busy tracing your family tree or if you are thinking about doing so, it will pay to join a family history society. Not only for the help it can give you but because Genny is available to such societies' members at the reduced price of £27. As far as I know this is the only genealogical database available for the CPC so there is nothing to compare it with. GENNY is the copyright of David Computer Software of Stockport.

UP-DATE

Since this article was written Genny, will be available from WACCP's PD Library soon. Thanks to Terry Ward.

W.I.C.C.A.: The Convention Catastrophe A new Freescape game for Amstrad CPCs



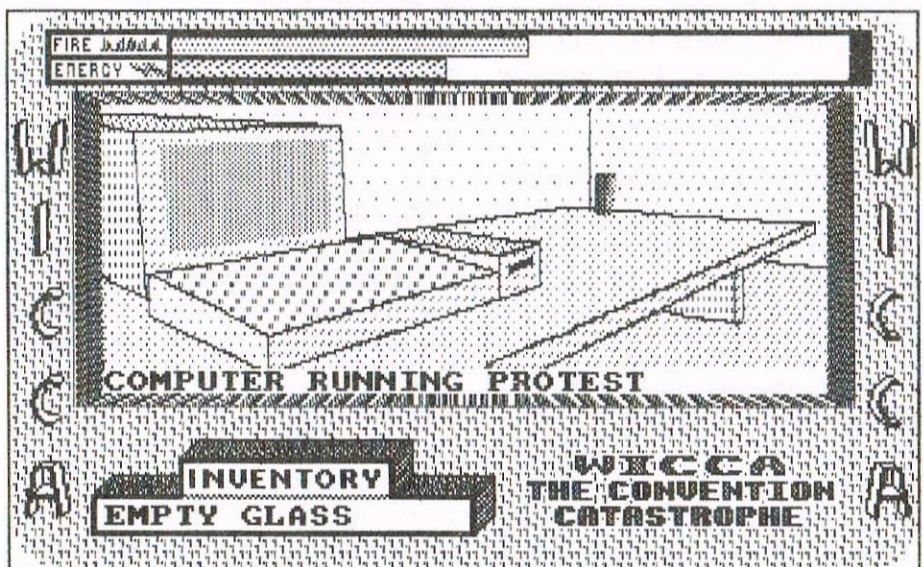
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BrunWord Re-Re-Visited

Via various Fonts and Formats

By Ray Neal

First let me admit that the article on PROTYPE in WACCI issue 121 by Peter Rogerson gave me the idea for this article, so I hope that our illustrious editor, (although this page has nothing to do with Prototext) can do the same to show you just a few of the fonts and formats that the BrunWord Elite Rom is capable of. This paragraph is using the Midtype font.

It is possible to print out the IBM box characters and text together as shown here. I have changed to condensed and uni-directional printing to print the box and text. This is exactly as it appears on the screen. So we have a little of what you see is what you get, and not a PC in sight.

Now to illustrate the Computer font. This is not a true computer font but one that has been trimmed to give a pleasing effect for use as headlines or special wording etc. It is easily readable and quite clear in printing.



I was born at an early age in the back bedroom of a terraced house in Coventry. I have now reached the age, as my mother would have said, when asked, that 'I'm as old as my tongue and a little bit older than my teeth'. I don't know if this nonsense is getting us anywhere but at least it's filling the page. Of course it's only to demonstrate the graphics capability of BrunWord.

The stork is printed first of all then the paper is reversed down to print the text alongside the stork. By using the temporary margin command you can position the text anywhere you want. This is the Finetype font.



This is the Heavy font which is a general use font as you can see and it has been used in conjunction with an enlarged Old-English capital 'T'.

The paper was again reversed down to print alongside the 'T'. The graphics by the way were produced on the Advanced Art Studio, enlarged and edited, and saved as a screen file. They were then compressed by BrunWord for use in the programme, (down from 17k to 2k).

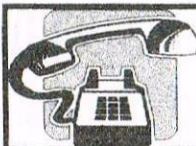
This complete page including the graphics and box characters, was printed in one operation using six of the available fonts resident in the Rom, there are ten altogether. This is the Fineline font. Eight of the fonts can be downloaded to a printer (provided the printer has enough memory to download a font) the other two namely Clacton which is a script font and Chelmer which has been used for the heading on this article, are too big to download but can be printed by using the Headline system of printing.

Equations such as $Y=ax+bx_2+cx_3+dx^4+ex^7$ are displayed on the screen exactly as printed out here. Another case of what you see is what you get. Another choice bit is the ability to search the database for a name and address and by pressing the letter 'T' key it is immediately transferred to the word processor ready to write a letter or send an invoice etc. These fonts along with the built in spelling checker can all be used in Info-script which is a database and invoice generator

All the above use standard fonts taken from the Rom. We are now using the Midline font. The same fonts can be used with the Headline system to enable a nine pin printer to use these high quality fonts. If the Headline system is used with a 24 pin printer the text will be printed about 50% larger, so in effect if you possess a 24 pin printer you can have available 16 different font sizes for use, plus two extra large fonts making 18 in all. Unlike other word processors you do not need any other add ons, just a small block about 2" square and 1/2" thick which protrudes above the keyboard for about 1/2".

In time values it has taken 4min 45secs to print out this page but remember that after each paragraph there has to be another font downloaded to the printer. If you were just printing an article or letter it would take a very much shorter length of time.

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Malcolm Brabbin 01502 716344
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Stuart Gascoigne 0117 9831361
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John Hudson 01484 423252
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John Bowley 01733 702158
Subscriptions, Distribution and WACCI in general.

Dave Stitson 01752 254404
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Arthur/Angela Cook 01903 206739
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Ernie Ruddick 01642 898091
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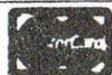
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