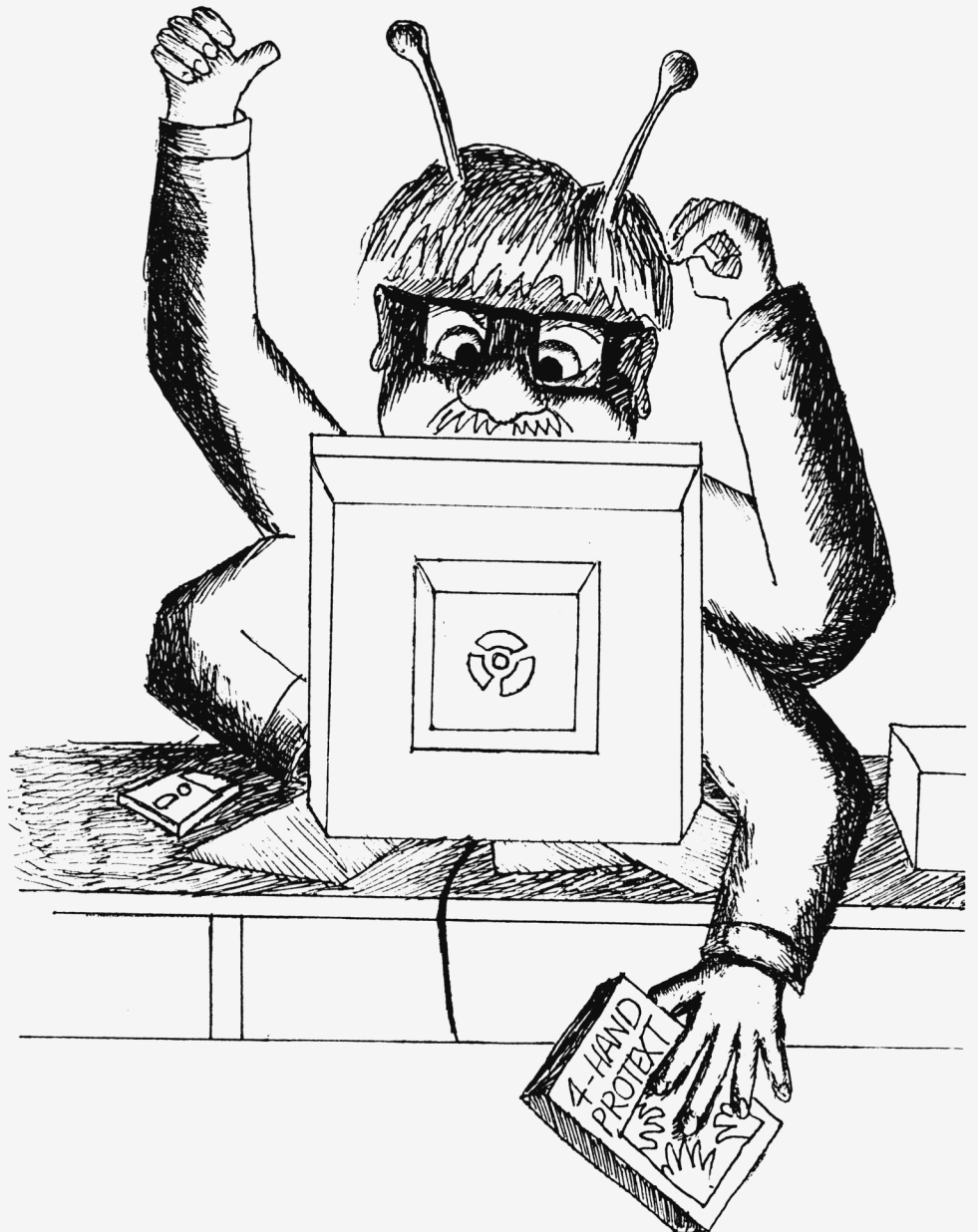


WAAAGG

THE UK'S ONLY SERIOUS CPC MAGAZINE

Issue 59 £1.50
October 1992

WACCI PROBE:
MONITOR RADIATION :
ADVANTAGE OR HAZARD ?



IN THIS ISSUE :
Beginners Basic, Letters, Competitions, Machine Code,
dBASE, Help-Line, Discounts, Book and Tape Libraries,
Public Domain and Homegrown Software and much more...

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The Telephone Help-Line

Tony Walker, (0772) 651698, Preston, 10.00am to 10.00pm, Comms, Protex, Prospell, Tape to disc, CP/M on ROM.

Brian Norris, (0832) 273973, Peterborough, a specialist on MasterFile III (no less) plus general advice.

Norman Buxton, (0260) 223257, Macclesfield, Basic and farming? <<Control codes a speciality -Ed.>>

Stewart Peppiatt, (0245) 353903, Chelmsford, Basic and Machine Code, DMP2000, VDE, Scrivener and general problems. <<A Tech-Head -Ed.>>

Peter Campbell, (041) 554 4735, Glasgow, OCP Art Studio, Vidi, Basic, Micro Design & Art Programs, CPC plus machines. <<A Comms Guru as well -Ed.>>

Frank Frost, (0983) 882197, Isle of Wight, 4.00 to 10pm, VDE, CP/M and Protex. <<He LOVES a chat but nobody seems to call him up -Ed.>>

Peter Ceresole, (081) 878 0391, London, Protex, Promerge, Utopia and Nukes (amateur status) <<Total nutter to be avoided at all costs -Ed.>>

Paul Graves, (0304) 812342, Ash, All varieties of Pascal (inc Turbo, JRT & Standard). Phone between 5.00pm and 9.00pm Weekdays.

Paul Dwerryhouse, (0244) 534942, Deeside, Clwyd, Basic, Bank Manager, WACCIWORD, WACCISPELL (ISPELL), and a sympathetic ear. <<He's pretty good at accounts. -Ed.>>

Rob Scott, (081) 552 8900, East Ham, any & all hardware problems plus tape to disc, disc to disc etc. << An electronics genius, -Ed.>> Now with extra Bonzo.

Nigel Mells, (0784) 250763, Ashford, Tape to disc problems, Basic programming and a general natter.

Mike Lyons, (0942) 59942, Nr Wigan, Basic, Stop Press, Dk,tronics Speech Synth, rodos and general help.

Clive Bellaby, (0602) 725108, Nottingham, 8.00pm to 9.00pm, Basic, Cobol, Forth, VDE CP/M, Protex, Promerge. <<Dominoes a speciality. -Me.>>

Chris Smith, (0252) 24721, Aldershot, Comms, BB's, Protex, Promerge, Prospell, Utopia, Brunword and general programming problems.

Please Note: This help-line is provided on a voluntary basis by club members to assist other club members. This service is provided to help you. Please call help-liners between 7pm and 9pm (unless stated otherwise.)

If I receive reports of this service being abused by software pirates I will close it immediately.

W A C C I

Edited by 'The Management'

0602 725108

Owned By

The Club Members

Conceived and Founded by

JEFF WALKER

Developed and Expanded by

STEVE WILLIAMS



THANK & STUFF

HAPPY BIRTHDAY?

Or is it? The very first WACCI came out in October 1986 so, happy birthday we are six ... On the other hand issue 60 is also a birthday, (60/12=5 years) so next month issue is a birthday as well, confused, read on, you will be, because when issue 62 comes out (in another 2 months) it will be a year since the re-launch of WACCI, so that's yet another birthday.

Now even I know that you can't have three birthdays in 4 months (the queen only gets two) so I have decided that one of them will be the real birthday and I have chosen, wait for it, issue 60, so practice your singing, you've only got a month

REGULAR OR WHAT?

If the very first WACCI came out in October 1986, 6 years or 313.07 weeks ago, and this is Issue 59, so there has been an Issue every 5.31 weeks (37 days) throughout its life. Considering the trials and tribulations that must be considered a very good record.

GOING UP AND AWAY?

The number of PD discs has risen yet again, we have added another 6 discs to the library bring the new total to a massive 54 complete discs. (That's around 18.36 megabytes of top quality programs, artwork and games.)

By the time you receive issue 60, we will have increased the library size (again) and Doug Webb will by then, be running the fourth library section. It gets bigger everyday

IT'S FOR YOU

We still have loads of goodies for you to buy yourself for Christmas (or a birthday) including

Blank discs (Maxel) ... £ 14.80 per 10
Blank discs (Maxel) ... £ 1.50 each
Firmware Guide& disc .. £ 7.95 each
PD Software disc £ 3.00 each
MicroDesign plus £ 27.99 each
2-In-1 £ 20.00 each

All goods are fully guaranteed and are usually despatched by return of post.

IT'S AN IDEA

We've had many requests to move the PD Disc list in the centre pages (so it can easily be removed) as well as lots of requests for more details about each disc. So we've talked to each other about the problem and we come up with a better system, but first ...

In issue 58, there were 5 pages that were virtually the same as issue 57, they were: The Lending Library(1), PD Library(3) and Who Who(1). And they'll probably be almost the same in Issue 59 and so on

As the libraries grow they will need more space space which we can ill afford to lose. I always have more to put in the magazine than I have pages to put it in so

We thought that we would put all the standard material onto A4 loose sheets that could be built up into a complete detailed set of information. Each page would be updated and re-issued every 2 or 3 months, so if you lose one, don't

panic, there will be another one along shortly We need to know what you think, so get writing and let us know.

ALL FORMATS COMPUTER SHOWS

There have been a quite number of new shows added to the list and WACCI will be at the following:

Glasgow 11th October
London 17th October
Haydock Park 24th October
Leeds 1st November
Birmingham 6th November
London 14th November
Leicester 24th November

OH DEAR, WE WAS WRONG ... SORRY ...

Mrs Harris, who owns Avatar, wrote to say that Phil Craven has no connection with the company and asks that we make this clear to correct an error we made in issue 57. Mrs Harris is the sole proprietor of Avatar and Phil Craven has no connection with the company, (other than as a supplier of goods to the organization.)

Avatar are a very reliable supplier of good quality CPC products, who are able (and do) to provide a top quality service to customers.

We apologise for any embarrassment caused to Avatar by linking them with MicroStyle, and we are always happy to correct any mistakes we make ...

OUTRO

Bye bye for now, so until next month, keep practising the singing

**** COMPETITION SPOT ** COMPETITION SPOT ** COMPETITION SPOT ****

GET YER WINNERS HERE

We lots of winners this month, so without further waste of paper it's on with the prizes

David Carter - Woking

Wins a copy of MicroDesign for his designs for issues 59 & 60.

Mike Lyons - Hindley Green

Wins 3 PD discs in the 'write a page for WACCI' compo and his entry, "The Problem With" is on page 21.

Tony Williams of Camberley

Wins 3 PD discs for his entry in the 'Solve the 464/664/6128 compatibility problems' competition.

Congratulations to all our winners, hard luck and better luck next time to those who almost made it onto the winners stand. The results of compos

Numbers six and seven will be in WACCI 60, which will be out on (or around) the 14th November 1992. Sorry about the delay, I could not arrange an impartial witness to ensure that the draw was fair meanwhile

THE RADIO NOTTINGHAM QUIZ

Not many people know this but Radio Nottingham (BBC that is) runs a 'top firm' quiz each year, and for my sins I was invited (told) to be part of The Nottingham Chamber of Commerce team, and we did very well - in the first round, after that it was all downhill and we crashed out in the second round to a load of bankers. Yes, Bankers.

Credit for our first round win went to Michael Brosch, who scored 55 of our 90 points, whilst I scored a super duper 18 points. Anyway, to cut this short, this months compo uses some of the questions from the quiz. (This bit gets to be more like Ronnie Corbetts armchair spot every week.) Meanwhile back to the quiz.

WACCI COMPO NUMBER EIGHT

Please stick your answers on either a postcard or in a letter and send them to WACCI before the 30 November 1992.

Q1. What travels at 741 miles an hour?

Q2. What is the most widespread religion in Japan?

Q3. Which gas makes up approx 80% of the air which we breathe?

Q4. At what distance did Seb Coe win his gold medal in the 1980 Olympics?

Q5. Which famous historical character apparently travelled about with a pet owl, was it.

- A) Dick Turpin
- B) Ann Boylin
- C) Captain Cook
- D) Florence Nightingale
- or E) King Richard III ?

*** DISCOUNTS ** SAVINGS ** DISCOUNTS ** SAVINGS ** DISCOUNTS ***

SIREN SOFTWARE, Wilton House, Bury Road, Radcliffe, Manchester, M26 9UR (Tel: 061 724 7572)

10% discount on all their CPC products: including 3.5" disc drives, software and blank discs. They will also supply a copy of their 3.5" disc drive utility FREE with each disc drive ordered.

BRUNNING SOFTWARE, 138 The Street, Little Clacton, Essex, CO16 9LS (Tel: 0255 862308)

Get a generous discount on Brunning products. Access or Visa cards are allowed 10% discount, but those of you who order by post enclosing a cheque are allowed 14% discount.

CAMPURSOFT, 16 Slatefield Street, Gallowgate, Glasgow, G31 1UA (Tel: 041 554 4735)

Campursoft discount both MicroDesign and MicroDesign plus for WACCI members. Save £3.00 on Micro design plus, yours for only £11.99. Or you can buy both packages for only £27.99 (saving over £6.00 on the individual prices.)

SD MICROSYSTEMS, PO Box 24, Holbeach, Lincs, PE12 7JF (Tel: 0406 32252)

10% off all Software and Consumables, whilst Hardware items will be post free. Software includes: Home Finance £14.95, Kwikfile £12.50, General Ledger £29.95, Stock Accounting £39.95, Small Trader's pack £29.95, Payroll £52.50 and more

MJC COMPUTER SUPPLIES, 2 The Arches, Icknield Way, Letchworth, Herts, SG6 1UJ (Tel: 0462 670301)

Mike Cooper the big white chief and a keen CPC follower (and is a computer buff at heart.) We can expect "Special Offers" on certain items in the form of an "on-going" list of discounted products. More news on this when details have been worked out.

GOLDMARK SYSTEMS, 51 Comet Road, Hatfield, Hertfordshire, AL10 0SY (Tel: 0707 271529)

Specialist software for the CPC's. Willing to give members of WACCI 10% discount off all Software and Hardware (But NOT off special offers or on disc prices). There should be an insert in this issue from GOLDMARK and please refer to same.

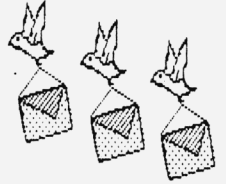
PROPAC COMPUTER GROUP, 153 Pickhurst Rise, West Wickham, Kent, BR4 0AG (Tel: 081 777 6241)

Offer you an extra £20.00 off their prices. Give Alex Kinch a ring. (Their new catalogue will be issued shortly.)

Fair Comment



Mike Lyons
85, Leigh Road
Hindley Green
Near Wigan
WN2 4XF



PS-SED AGAIN

Dear Mike, PS Before I go any further, please tell whoever needs to be told that there is a typo in my article on page 27 of issue 57. There is a minus sign missing from the refund value in line 20 of the program in column 1; it should read:-

20 spent = 1.99 : refund = -1.99

Hooray for modern word processors. You can put PS's at the beginning. Now for the S itself.

Fair Comment: I've just read Clive's piece in the big box, page 14, issue 57. How extraordinary, Transparent Ink. Many years ago I had trouble trying to get transparent ink to work properly when I was writing a dominoes program on my CPC464. I can't remember how I solved the problem.

How extraordinary. Compatibility Problems. I've resumed work on the teach square roots program, which I am developing on my CPC6128 with colour monitor and thought I would try it on my CPC464 which I still have. It was the green screen which I wanted to look at, rather than the machine I wanted to test. The shades of green on the screen were OK, but the CPC464 wasn't. In my case, the control codes were the cause of the incompatibility, not the cure.

The text of one of the program's messages printed on the screen ended with a dot. If such-and-such, then the dot needed to be replaced by a comma and more text. I used a control code in the Basic: PRINT"H, more text".

The H in that string stands for CHR\$(8), which is obtained by holding down [CONTROL] and pressing [H]. That control code moves the cursor back one character. On my 6128 it moved back; on my 464 it didn't. I avoided the snag by leaving out the dot and using IF..THEN..ELSE command to print a dot or the "comma more text" message.

That bug doesn't always bite; it depends on the location of the cursor when the PRINT command is made. In my program the text is printed in a WINDOW and the bug likes that.

George Ho-Yow's suggestion of a "Brain Teaser" is one I support, especially if the CPC is involved. The trouble is that you can get hooked on a teaser and stay up till all hours worrying at it. Strange that his letter, with its doubts about the CPC's calculating ability should appear in this issue along with my article which was prompted by it. Yours,

Tom Betts
West Wickham

PS A real one. Please give a very many thanx to Clive for the sub-heads in my article; they're not my own. I like them. They made me smile. The three bottom Protex stored commands at the top of this letter on the disc are an easy way to print to the screen a page at a time when you do a Protex command mode PS - that is, Print to Screen, not another post script.

<<Hello Tom. Didn't your mum, (or english teacher) tell you it's rude to go "PS" at someone? I saw the typo, did anyone else? Of course you did, didn't you? Just testing, that's all.

There's nothing extraordinary about club members thinking alike. WACCILites are like-minded people. We all think in a similar vein. The fact that several people are all thinking in the same vein at the same time is just plain old synchronicity, (it could, of course, be plain old congestion.) Great minds think alike and all that, (or is it fools seldom differ? I'm never terribly sure.)

I've read somewhere, that the 464 responds differently to screen control codes than the 6128. I should imagine the effect would also be different on a green screen than on a colour one.

I'm sure George is grateful for your support. As soon as he's finished with it he'll wash it and let you have it back. -Mike.>>



SEVENTEEN AND WRINKLY

Dear Mike, This is the first time I have written to our favourite magazine so I am hoping that sending it in on disc is a help. It is in standard Protex document format although you probably know that already if you're reading it. Anyway, a bit about me:

I am 17 and very much of an old-fashioned WACCI-ite (is it possible?) and I am just about to start my second year Design and Technology, Chemistry and Maths "A" levels at school. At the moment I am busy filling in my UCCA and PCAS application forms, (yawn.)

On the subject of WACCI, I would like to say what an excellent job everyone has done to revive our user-friendly magazine. The quality and humorous style has continued to make the magazine the best Amstrad read. AA and especially Attack have nothing to compete with this.

I have recently bought MicroDesign Plus which is excellent. I look forward to the next major release from Campursoft. May I add what a pleasant chap Peter Campbell is? He phoned me all the way from Glasgow, (I live near Ascot), to reply to my letter and listened to all my comments on the program. If only all software houses were like this. (Erm, Microstyle?)

If you're reading this Peter, could you possibly drop me a line about my last letter concerning S-Print III? If, on the other hand, you are too busy then don't worry about it.

Back to Mike now, (sorry): On this disc I've also enclosed two articles, called ARTICLE1 and 2, which I hope you'll pass on to Clive (should they be of interest.) They cover some problems I encountered with Romdos.

I am currently writing a program called The Disc Surgeon which I have described in more detail in one of the articles but basically it provides a directory editor, sector editor, general disc utilities and a system of corruption recovery. It is written entirely in Machine code, (sorry Pat Love - it's no hybrid), and all loads into memory at the same time. The most important bit, it's Romdos compatible.

It may be quite some time before it is finished, I have only written the directory editor so far (this is the hardest part, believe it or not) and hopefully it may be of use to some of the WACCI readership eventually. There will also be some more articles for you, (really a series - there's eight of them), on how I am going about writing the program from start to end.

I was going to enter my articles into the Issue 56 competition but they were unfortunately too long. I hope they may still be of use to you or Clive or someone at some point.

Looking back at my collection of WACCI's, I started reading Clive and Alan's series on Forth from the beginning, (it usually helps to start there). It amazes me how anyone can write a quality series of articles for such a long time and one every month! It takes me about three months to write just a short article. They must be natural journalists. <<Er, No, I'm just a natural waffler. -Clive.>>

Anyway, thanks for the issues since number 50 and I hope it all continues as well as it is now.

I've received issue 57, (today), and as usual it makes very interesting reading. Well done to all those new people who are sending in articles - I know how difficult just getting started! TTFN. (I know what it means Clive and I'm only 17.)

I am slightly stuck on ITMA though, but I do like OMG's, (or someone's), RTFM! - useful advice but I rarely do it. (Bet that's got some of the newer WACCI-ites really confused now!)

Graham Denyer
Ascot

<<Hello and welcome Graham. It's nice to hear from our younger viewers. Sending things in on disc is a real help. It saves much time and effort. Instead of spending ages and ages typing letters in I can get right down to answering your queries, insulting you and being insufferably patronising about your age, gender and so on, though not necessarily in that order.

We've just bid a fond farewell to our current lot of 'A' Level students and, thankfully, all of them have done reasonably well. Keep at it. Form filling's a pain in the gluteus maximus, but bureaucracy doesn't run without it. Think of all those

poorly-paid, over-worked secretaries working through your applications to earn their crusts. Doesn't bear thinking about, does it.

Thanks for the flattery. It's always welcome. (St.) Clive and I were only discussing the state of the commercial efforts yesterday and we agree with you, they can't hold a candle to WACCI for user friendliness and readability - and we don't use bright, garish colours and naff language either.

MicroDesign is one of the best page design programs around. (St.) Clive swears by it (and occasionally at it) and uses it to produce WACCI what better recommendation could it have?

I await the completion of your ROMdos compatible disc surgeon with anticipation. I had cause for near panic only last night due to my 1992 letters disc becoming corrupted. It took hours to sort the beggar out, even with a back up copy, (it was 3 months out of date.)

Uncle Clive is dealing with the article(s) and will do as does with such things. As to other authors it seems, (on the surface at least), that people are taking my, and George Ho-Yow's, exhortations to heart. Keep 'em coming in folks. -Mike.>>

<<Hi there Graham, Clive here, ITMA, ask yer grandparents. Once upon a time there was a Radio programme, called, 'Its That Man Again' which among others featured Flanagan and Allan who probably sang 'Underneath the Arches' in it. I can't be sure I wasn't around until 1952 - and I don't remember much about that year either.

Back to the story, several years ago I had two letters published in WACCI and the never to be forgotten Joolz titled the second letter, you guessed it, "Its that Man Again", and the legend was born (in 1952.)

If my history is accurate, then TTFN came from the same series. Oh well Tah Tah For Now. ITMA. -Clive.

GETTING BETTER ALL THE TIME

Dear Mike. Glad you are back in the driving seat and hope you are fully recovered. Congratulations to all on the best issue, (57), yet. Now a few comments on the contents. I endorse your mention of MJC as good suppliers and would add Siren Software. I have always had good service from both.

Doug Webb's problem with ROMdos on his Plus machine raises a wider issue. I use an expanded 464 and I have always understood that anything written for it was upwardly compatible i.e. programs written for the 464 would work on the 664 and 6128. Doesn't this apply to the Plusses? The only trouble I have had with ROMdos was when the ROM took it in mind to jump out of it's socket in the ROM box.

I wasn't in the least interested in programming but if Alan Tilling and Pat Love carry on in the manner that they have started, I may be converted.

The techy articles by George Ho-Yow and Steve Hammond were just what the doctor ordered but I was mystified by Tom Betts' article on square roots. My solar powered freebie calculator does them perfectly. In my school, if you were clever you did 'maths'. If you were not, you did 'sand pit'. I did maths. We did square roots by the long method, taught in all schools; them we did it by logs which meant dividing the log of the number by 2 and looking up the antilog.

In the early days when calculators were only four function jobs, we learned the iterative method. This entailed making a guess at the answer, dividing the number by the guess, adding the quotient to the guess and dividing the lot by 2. This gives you your next approximation. Repeat the process three or four times and you have the answer.

Finally, a question. I've heard that CPM+ works on the 464 without changing the ROM to that of a 6128. Would someone kindly explain? Best wishes.

Ron Hobday
Bedford

<<Hello Ron. It seems a long time since we've heard from you. I did mention Siren in my answer to Doug's letter. I've not had any problems with them, and they fulfilled my order in reasonable time. Simon Cobb is also very nice man to talk to.

Upwards compatibility is becoming something of a fable these days. Old Aesop couldn't have done better. It is true that programs which run on a 464 will generally run reasonable well on a 664 or 6128. I don't know of any exceptions to this, but I'm sure someone could probably name six. There are a large number of programs which

will only run on a 6128, because they either use the extra memory or use some of the BASIC 1.1 routines, (e.g. FILL, FRAME, GRAPHICS PEN etc.)

Now, the Plus machines were said, at launch, to be able to run most 464 and 6128 software. This is largely untrue. Software producers will try to get the most out of a machine, even if they have to do it by fair means or foul. When the CPC's were having their hey-day this is what happened. As a consequence, much CPC software will not run, or not run properly on a Plus machines. ROM software also causes a lot of problems on the Pluses. I certainly wouldn't 'upgrade'.

I know the method you describe well, having used it, within the last ten years, at college. If you reduce the method to a formula it will also, with slight modification, calculate the nth. root of a number, but I'll leave that to someone else to talk about. Any offers on the CP/M+ thing? -Mike>>

<<Hi there Ron, when the Amstrad CPC version of CP/M+ is loaded, it checks which Rom is in the computer, if it does not find the 6128 Rom it crashes and will not load.

The 464+ has the latest Basic Rom fitted (v1.2 I think) and therefore it is compatible with the 6128 Basic Rom and so CP/M+ will load.

The 464+ will still need the extra 64k of memory to run CP/M+ correctly.

I understand CP/M+ can be patched so that it will check for a 464 Basic Rom (instead of the 6128 Basic Rom), when the patch is in place CP/M+ will only load from a 464. I don't own a 464 or 464+ so I can't check this out, but I'm sure that there's a 464 owner who will give us the answer. -Clive.>>



DOES THE MUSICIAN'S UNION KNOW?

Dear Mike, First of all, welcome back to the Fair Comment chair. I hope that it is comfortable enough for you, and hadn't got too cold while you were away having your throat cut.

I recently ordered a third drive switch from Avatar, by telephone on a Friday afternoon and the switch was in hands the following Friday afternoon. I received the goods I ordered on time

as this is not the sort of service I'd expect from Microstyle, are you sure of the facts? On the same subject some club members seem to have trouble with WAVE. Well, in the dealings that I have had with them I have always received the goods within two weeks, usually sooner. Maybe I'm just lucky?

<<Hi there Steve (and all), after Mike's letter was printed in WACCI 57 I received a phone call from a Mr Phil Craven of Bradford - who pointed out that he has no financial interest in Avatar and that he has no control over the running of Avatar. Phil also tells me that his only connection with both Avatar and GVL Bagform is that he supplies both 'companies' with goods.

So to summarise, Phil Craven (the man who owes Mike Lyons and others either their money back or the goods they ordered) has not control over the running of Avatar or GVL Bagform - and both Avatar and GVL Bagform are both honest and reliable companies. I wish we could say the same about Microstyle and Phil Craven. -Clive.>>

Regarding your answer to George Ho-Yow, last time that I went to Reading I headed for the A1, turned left and eventually found it in Berkshire. Maybe it's moved since - Yorkshire is a much nicer part of the country!

Andy Frame might be interested to know that Rob Baxter's music files, some for The Music System but mostly for The Advanced Music System, are already available in the Public Domain. I negotiated this with him about 18 months ago. They are available from the UAUG library and Domain PD, (ex Scull SL), that I know of, and probably from other sources as well by now. I did offer them to Steve for the WACCI PD library when he was still at the helm, but he never took me up on them. I'm sure that Clive could do a bit of swapping with someone and obtain them for WACCI if required. They really are superb, especially if you use a decent stereo system to really do them justice.

To Stuart Gascoigne - I have all WACCI's up to the present, except no's. 4,5,7 & 8. If you would like to borrow any to help you in your gargantuan task of compiling the index then do feel free to ask. I think that the index is a wonderful idea and I am sure that your effort will be ecstatically welcomed by a large

proportion of the club members. On the subject of back issues, is there anyone out there in WACCI-land who would be able to lend me issue 4,5,7 & 8? I promise that I will look after them very carefully while they are in my possession. I am very keen to see, (and possibly copy), these remaining issues that are not in my set.

Finally, a few words about the book library. This is doing a steady trade, with a dozen or so books out on loan at any given time. Two questions - is there anyone out there willing to borrow a book for free, in return for writing a review of it for inclusion in the magazine, to let others know if a particular book is of any use or not. Lastly, has anyone got any books that they no longer require that they would be willing to donate/lend to the library to expand the range of topics covered, or even to duplicate volumes we already have so that I can avoid making people wait if the book they want is already out on loan?

Steve Lee
Huntingdon

P.S. I see you have the Protext Suite and ROMdos What do you recommend as the order for insertion of the ROMs in the box? (I believe that ROMdos ought to go at no.1.)

<<Hi there, Steve. Nice to hear from you. Thanks for the good wishes, they're appreciated. Since last month's letter, I've been informed that Avatar that I was wrong, and that Avatar are not Phil Craven trading under another name, but they separate company in their own right.

One of the things which got me annoyed with Phil Craven was his unreliability. Another one was the 'coincidence' which occurred with my last order from him. As I explained in my letter I thought it a bit odd that my cheque was only cashed four days after I wrote asking for it back, (having waited three months for the order.) I am still waiting, almost 10 months after the event, for the return of my money.

Clive also tells me that Phil wanted to advertise in WACCI, but he has assured me that that will not happen until Phil has paid all off all his outstanding (and long overdue) debts to club members

Phil 'phoned me three weeks ago or so to promise that the debt would be paid "in the next week or two." I am *still* waiting. I expect to be *still* waiting on the anniversary of the order.

Some other people who are still waiting are J.C. Franey, who's daughter's school paid for a drive, and who has suffered a great deal of embarrassment because of it's non-arrival, our very own Chris Smith has been waiting longer than I have, a Mr. Court from New Zealand and I'm sure there are others who've probably given up by now.

My next step will be to take him to the Small Claims Court and probably have his name published in his local paper in the hope that it will shame him into doing something.

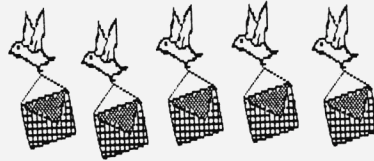
I'm glad you've had good service, and I'm sure the kit you bought is of good quality but it will be a long cold day in hell before I'll ever buy anything from a company in which I know he's involved. Once bitten, twice shy, (as they say.) as for WAVE, I too have had reasonable service from them in the past. However, enough people are having problems for me to worry a little. We'll just have to wait and see what happens.

You know, I was never very good at Geography. I sometimes get lost going to the bathroom. If you say Reading is in Berkshire I'll believe you. Since all the counties got changed around no one knows where anywhere is anyway. The thing is, Steve, does anyone really care? I'm sure the people in Berkshire would rather write YORKS on their envelopes than BERKS.

Now that we know where they are I'm sure St. Clive will do the right thing and get some music discs to boogie on down alongside the picture discs. How about it, your holiness?

ROMdos and the PROTEXT suite. when I first started collecting ROMs I was told that it was quite important for ROMs that use other ROMs to have a higher number. I have the chip out of the DKT Speech synth in 1, (usually turned off), ROMdos in slot 2, PROMERGE+ in slot 3, PROTEXT in 4, UTOPIA in 5, PROSPELL in 6, MAXAM in 8, BCPL in 9, Micro Music Creator in 10 and 11 and ADLAN in 12. I only switch on the second board if I'm ADLAN-ing or MAXAM-ing. It seems to work well. I have few problems.

Anyone with books or those missing issues to offer can send them to Steve's address, which is on the back page. -Mike.>>



THANKS A LOT

Dear Clive, I am writing in thanks for the prize which I was sent, (Microdesign and Microdesign plus). I have been using this now for about 2 days, and it is probably the best 'serious' piece of software that I have ever used on my Amstrad.

I was amazed to see my design on the front cover of WACCI, but also very pleased. I have started working on converting some pictures to work with Microdesign, which you will find on the opposite side of the disc.

Microdesign is very easy to use (now I've got the hang of it.) I hope you think the pictures are okay and you can include them in a collection, if you wish to do so.

WACCI 58 will be the last I will get to read for a couple of months, as I start my Royal Navy training, I'll catch up when I get back.

Anyway, thanks for the great prize, and I wish WACCI and it's producers, all the best, so bye, (until the sequel, that is!!) and all the best.

Mark McIntyre
Bolton

<<Hi Mark, Thanks for the thanks and whilst I think about it, thanks for the clip art - it'll be on a PD disc near you shortly. The very best of luck with the Royal Navy training (can you swim? - I understand that ships are in short supply after the latest cutbacks.) Have a good time. -Clive.>>

YOUTH MOVEMENT

Dear Mike, I wonder if you could help me? I have just got a brand new Amstrad Notepad Computer NC100, which I will be using mainly for school work but it is also good for writing letters like this.

My dear old dad, <<the infamous Paul Dwerryhouse>>, tells me that the word processing software which the computer uses is PROTEXT, PROMERGE & PROSPELL.

They have been specially adapted for the notepad computer but it's still the PROTEXT which we know and love.

Will WACCI be supporting this new machine? Bye for now.

Jennie Dwerryhouse
Hawarden, Clwyd

<<Hello Jennie. I'm glad your dad has got you onto the computing road, even if it's by a back door. Whatever you do, don't let him talk you into loaning him your PC unless you charge him a reasonable rental for it. As for supporting the PC? The short answer is - I don't know. -Mike.>>

<<Hi Jennie, Clive here, if it fits into the CPC family of computers we'll support it.... I haven't seen one, yet, when I have, I'll let you know. Bye for now, will we see you at the Haydock Park Computer Fair? You could bring your notebook along. TTFN.>>

DEJA-VU?

Dear Mike, I have never written to you before and, being an old-fashioned senior citizen of 69 summers, I find it a bit strange referring to you by your Christian name. Still, it seems familiarity is now the order of the day, so who am I to contradict it?

Two items in your lead letter in the latest issue have promoted this reply.

Ken and Margaret Fairhurst, the proprietors of K. & M. Computers did supply, as you have stated, absolutely first-class service. We were on Christian name terms and, in spite of the long distance between us, 'phone calls were fairly frequent and time-consuming. Never did they let me down.

Then, there was a gap of a few months before I required anything more from them. I 'phoned them, only to receive no reply. Attempts were made to contact them many times over the next two or three weeks, without success. I had noticed, by then, that their adverts no longer appeared in any magazines, so I wrote a letter which was never answered. 'Phone calls to AA and ACU revealed that they were as much in the dark as I.

Obviously the business has folded, so I wonder what has happened to these good people? Is there anyone out there who can tell us?

Following on from this you mention Phil Craven. In the early days of my

dealings with Microstyle, I found this particular gentleman to be warm and friendly - and I was reasonably satisfied with his service. As with Ken and Margaret, we had fairly long and stimulating conversations: it was always a pleasure to talk to him.

I was so taken in by Phil Craven, (as I am always ready to believe the best of my fellow homo sapiens), that I wrote a letter praising a number of firms and individuals, and included our dubious friend. The missive was published in AA.

Unfortunately, to cut a long story short, our Mr. Craven spoiled things by failing to make a refund of £30. Messages on his answering machine were ignored as were letters sent by Recorded Delivery. Then complaints began to appear in the magazines.

The sum involved is far too small to take him to the Small Claims Court, otherwise I would have done so long ago. However, if you and other victims are able to work out something, you can count on me for support, (short of physical violence).

Now, I would like to make a comment concerning a remark made on Page 26 under the heading, BLANK 3 INCH DISCS. You state that when parcels arrive, one should be in to receive them, or "*...be prepared for a trip down to the post office to collect them.*"

Not in Windsor. Packages are dumped on the doorstep, come rain or shine, whether you are home or not. Apart from that, if a package is returned to the post office it means a visit, not to Windsor post office, but to Slough. For me, that means public transport, as I do not drive. Perish the thought!

Finally - and purely as a matter of interest - I have found 110 spelling, grammatical and punctuation errors throughout the magazine, including two split infinitives.

Sorry about this, but on the subject of the English language I am an old stick-in-the-mud. I truly deplore the appalling drop in standards which is prevalent everywhere. Yours sincerely,

Wm. A. C. C. Smith
Windsor, Berkshire

<<Hello again, William. "What's this?", you say. I say "Hello again, William." You have written to me before, at least once - though your letter was, in fact, addressed to

Joolz. Unfortunately the letter was too long for Fair Comment but not quite long enough to make an article. We couldn't really have edited it without spoiling it and we were hoping that you would make it into a complete article. Oh well, c'est la vie.

Please don't be shy. We like to be friendly to our friends. I much prefer a less formal communication mode - I like to think that I'm an approachable sort of chap and reinforce this with a semi-casual, chatty style. Besides which, I'm called Mr. Lyons or Sir, (to my face), all day at school and I find it irritating to be addressed that way by my peers. (No Clive, that's definitely not a rude word.)

I will be very sorry if K & M Computers have gone to the great shopping mall in the sky. As I have stated elsewhere they provided an efficient and friendly service.

Phil Craven is a warm and friendly person. He is also, with the best will in the world and in my humble opinion, incompetent as a business man. You have hit the nail on the head when you mention his lack of communication. One of the things which has most annoyed me about Phil is that he refuses to tell his customers what is going on. You would be surprised how many people have said that they would feel better about a situation if only they had known that there was a problem.

As you may have noticed from other letters in recent months the Royal Snail has come in for a severe bashing recently. Not that it isn't deserved, mind you, but it is at least partly due to their recent claims of improved service. I don't know where they get their figures from, but it must be from somewhere other than here. Our large parcels are usually dumped in the greenhouse, rather than at the front door, (I suppose we ought to be grateful that he's got that much sense), but it's hardly a secure spot.

As to the use, or misuse, of English in the magazine. I firmly believe that the actual letters which I receive from you should be largely untouched. Except for spelling errors, extremely poor grammar or syntax, irrelevant digressions and swear words.

Punctuation is a difficult matter due to house rules on what is permissible and the rather tedious and time-consuming task of locating all

the many possible types of error, (even using search and replace.) You will notice that I have only left one exclamation mark in your letter and that the word order has been edited, (usually to make it fit onto the page more neatly.)

As far as I'm aware our only proof readers are our contributors and Clive as he puts the pages together. If you fancy taking on the job of proof reader I am positive that Clive will send you some copy for checking. I hope that, of those 110, Fair Comment had only a few. -Mike.>>

<<Hi there William, considering that I failed the English 'O' Level exam on 5 occasions and had to settle for a CSE Grade 2 - I don't think I going that badly

The real killer is time. It waits for no man. I'm out at work from 8.00 to 6.00, I teach 2 hours per week at college, I am the league secretary for a 64 team domino league, I like to watch Startrek, the Prisoner and one or two films, I usually visit a couple of computer shows per month, my wife insists (demands) that I talk to her (occasionally) and of course I need to sleep at least once per month.

I agree, the spelling could be a lot better and as for split infinitives, we only did verbs, adverbs and nouns at school and I haven't seen any of them around here for quite some time.

We do have members who will happily proof read the pages, however, often I don't have the time needed for spell checking and proof reading to take place, unless of course, I delay the publication date. Sorry. -Clive.>>

A PLEA FROM THE HEART

Does any member have a manual for the DMP2000 which I could borrow or buy? And does anyone have the modification in AA28, (pin 9 of the printer port to pin 12 of the 8255 chip), and the program from AA26 for that mod? I believe this gives an 8-bit printer port on the 6128. Yours Hopefully,

M. W. Flower
48a, High St
Warmley, Bristol
BS15 4NF
(0272 604303)

<<Hello M. and how are you doing? It was nice of you to drop us a line and

say hello. As to your queries. May I suggest that you would do far better to save up and buy a proper 8-bit printer port than to try this modification. It's a risky business to open up your CPC and 'have at it' with a soldering iron. It's definitely not something I would recommend you to do. Meanwhile I'm sure that someone will be able to find the material for you and they might even donate the DMP2000 manual to the library. -Mike.>>



NORTHERN RANTINGS

I would like to take this opportunity to thank Paul Dwerryhouse for his balanced review of MicroDesign Plus. In response to two points that were made in the review:

1. A 24 pin/ink jet printer driver for the program is now available from Goldmark Systems.

2. I believe that the disc copiers DISCOLOGY and NIRVANA will allow backup copies of MicroDesign Plus to be made. Owners of the program who do not possess either of these utilities will find that Campursoft will backup corrupted discs on request. All our programs carry a lifetime guarantee, a point which, I agree, we have so far failed to make in our documentation, sorry Paul.

Moving on to another subject close to my heart, the GREAT WACCI MEETING. Will it ever take place? Where will it be? What will be on display? Who will be there? Is anyone interested? If anyone is interested, write to Fair Comment and let me know that I'm not merely letting my fertile imagination run wild.

Finally, have you ever encountered computer snobbery? <<Yes, I have>> I have. The argument usually presented, (with pitying looks), goes something like this: "My IBM PC/Amiga/Atari/IBM PC with it's 1/2 Meg, 1 Meg, or 5 Meg of memory, (delete as applicable), is better than your 8 bit Amstrad and its 128k memory". Well if you do, respond thus: "It's not the size that counts it's what you do with it!" Not the

most elegant of counter arguments, I will agree but essentially true. Each machine has good and bad points but how many Amiga owners really make use of all that memory? Damn few. Having used Wordstar on a PC, I'll stick to Protext on ROM, thank you very much.

Peter Campbell

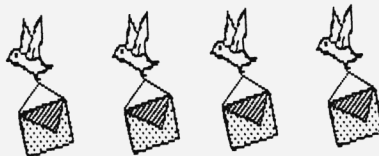
<<Hello Peter, nice to hear from you again. I'm glad you liked Paul's review of MD+, he was so, so proud of it. There's no need to apologise for the lack of support for 24 pin/ink-jet/laser printers. Mine works fine without any. I'm dead chuffed, as they say round here.

What meeting? Clive, have you heard about some meeting or other? Clive, can you hear me? Why haven't I been told? What do you mean I'm not invited? Oh, I see. Cellar V.

I'm always coming up against computer snobbery at school. I keep getting pitying looks from the I.T. staff. However, I try to ignore them as much as possible. Having taught a bit of I.T. last year I know just how often these fantastic systems crash and leave everyone in the muck. Our stunning, brand new, top-of-the-range network system, which was supposed to help solve untold millions of problems in school, recently locked out the systems manager.

All he'd done was to ask for a print out of current users, a normal task which a systems manager might want to do. After he'd done it he couldn't get any more access to the system. God help us when the rest of the staff try to use it.

My own favourite saying about such things is "It's not the size of the prize, it's the heat of the meat", whatever that implies. -Mike.>>



OUTER MONGOLIAN BRICK-BATS

Dear Mike, I found your comments regarding mail-order companies very interesting, in particular those about MJC Supplies. Like you I have received my 'phoned orders the very next day. I must also agree with you, that Arnor deserve a mention for both helpfulness and speed of service.

I would also like to mention Rombo Productions who, when I contacted them re my Rombo board not working with my 6128 Plus, told me to send them the board as it required a modification to work. I not only received it back within three days, but the mod was carried out free of charge.

You mentioned K & M Computers of Skelmersdale. It was from them that I bought my machine. Their courtesy and response time was beyond reproach and if, as seems likely, they have ceased trading I, for one, shall miss them. I have tried ringing their number three or four times. From not getting a reply and not seeing any of their adverts in any magazines I assume that they, like many other small businesses lately, have ceased to trade. Does any other member know whether they are still in business?.

You mention Phil Craven of Microstyle. I was unfortunate enough to order a 'Widgit' expansion port adaptor from him for my Plus. It must have taken two months or more to arrive - and that for £8.50.

It was at that time that I purchased the disc version of PROTEXT as a back-up to the ROM. Coincidentally, my 3.5" drive was purchased from GVL Microform of Preston, of whom the big chief is John Craven - the brother of the 'infamous' Phil, no less. John is an extremely helpful person to deal with and, as Preston is not far away from Chorley, (Outer Mongolia), I can just pop over in the car to get what I want and have a natter. There is no tie-up - business wise - with his brother and he will place orders in the post on the day of ordering, so I have no hesitation in recommending him to all WACCI members.

Picking up the remarks Clive made about keeping clear of possible legal action, if comments such as these in this letter are made within our magazine, where the emphasis is on the better traders to do business with, then there can be no harm done. People, (hopefully), will then quote WACCI as having or not having made a comment about a trader as a measure of an acceptable level of service.

I have been reading about ROMDOS XL from Siren and I must admit that I still feel more than disappointed at being unable to get ROMDOS working on my Plus with the PROTEXT suite. I

still hope that some WACCI member will come up with a solution. Meanwhile, I'm looking forward to seeing many WACCI members at Haydock Park in October. Till then cheerio, Yours,

Doug Webb
Chorley, Lancs

<<Hiya Doug, Good to see you've not been put off computing altogether by your fiasco vis-a-vis ROMdos. It's a shame that you couldn't get it all together. Still, Sela vee. Let's hope some solution does come up, (as it were), soon.

RODOS XL it seems may be what you are looking for - I haven't tried it myself, yet, so we'll have to until we get the full report. Hello, Simon Cobb. Any chance of a review copy?

<<Good old Stamper is working on a review of ROMDOS XL, which should be in WACCI 60, subject to all the usual provisos. -Clive.>>

Up to a point I do agree with Clive about avoiding possible libel action, but if a number of members are having problems with a particular company then it's up to us to provide a forum for information and to make it known that certain companies are behaving in a dubious manner. It is also incumbent upon us to provide a 'right to reply' for those companies to inform you, their customers, of any problems and to apologise, where necessary, for any

undue delays. <<I find the hard bit is deciding where to draw the line. When do genuine errors become poor service, when do delayed orders indicate a company is likely to fold, I don't know and I/we don't have the resources to do so. Meantime we'll continue to print good and bad stories, provided you remember that one swallow does not a summer make. -Clive.>>

We would also much prefer to be able to send bouquets rather than brickbats to traders. We are, hopefully, their friends as well as yours but, if they let you down and you tell us about it, then other people need to be aware of the problems.

Of course, Fair Comment isn't meant to be an 'agony aunt' column either, but a forum of Amstrad-related ideas and information. Talk to us. -Mike.>>

COMPATIBILITY

Here is my entry for competition five, overcoming compatibility problems.

```
10 PRINT "SELL THE 464"  
20 PRINT "SELL THE 464 PLUS"  
30 PRINT "SELL THE 664"  
40 PRINT "SELL THE 6128 PLUS"  
50 PRINT "BUY A 6128. BUY A 6128."  
60 GOTO 10
```

It may not be what you wanted to hear, but it'll work. Anon. Chester.

YOU'VE BEEN FRAMED

Dear Mike, As I have just received Issue 58, (dead on time), <<as opposed to dead on arrival I suppose>>. I was very interested to read Paul Dwerryhouse's article on MicroDesign Plus - a very good program and I wonder if WACCI readers would find the following comments helpful.

When using the BOX option from the DESIGN page, it is often difficult to locate the cursor at the correct place but this can be done by first using RECTANGLE, (from DESIGN), to locate the cursor and then immediately using BOX which will now have the cursor at the correct starting point.

Also, in saving from the FILE page, the cursor seems to always start at the lower L/H corner of the whole screen so that a lot of the screen is wasted if, for example, the drawing is near the top of the screen. To deal with this, first store the drawing from BOX and then GLUE this in the lower L/H corner so that the SAVE then takes up the minimum amount of screen.

A further point is that the Icon sets, (particularly Set 3), are not much use to me and I have therefore designed a replacement set with Icons for drawing frames and borders.

The new Icon set can be substituted for any of the standard sets by SAVE, SAVE 123 or (better still) as 800T.IC on the Master Disc although the latter

V I D E O M A S T E R

DO YOU REMEMBER THIS PAGE HEADER FROM WACCI 58?

I DID IT ALL WRONG, THIS WAS NOT BY TOM BETTS

IT WAS BY REG TABB

REG PLEASE ACCEPT MY APOLOGIES FOR RUINING YOUR FIRST ARTICLE

PS: it was very very good : dare I ask you to do some more

obviously needs the protect tabs to be taken off and replaced. This Icon set is on the enclosed disc as SCSFRAME.IC together with a sample page of frames (SCSFRAME.DR) which gives an idea of some of the possibilities.

I am now eagerly awaiting an up-date of M/D, including £ signs and other useful 'normal' characters.

S.C.Snell
Stathe, Somerset

<<Well done S.C. Thanks for the deeply wonderful frames. I've printed a few of them out and they do look very impressive. Clive will be adding to a PD Clip-Art disc very soon. -Mike.>>

<<Hi there, Clive here, you can save any part of a page to disc. The cursor start at the bottom left hand side of the screen, use the cursor keys to move up or right. You can then press the Spacebar, and use the cursor keys again to move the bottom and right hand side of the area to save. (This works equally as well for boxes.)

Thanks for the update icon set, very neat. I think the icon sets are one of the most useful features, they make my life much easier. -Clive.>>

DESPERATE MEASURES

Dear Mike, I find myself short of cash going into a new term at university and would be grateful if you would print the following advertisement.

FOR SALE - FOR SALE - FOR SALE

AMSTRAD ACTION MAGAZINES
numbers 1 to 52 inclusive
Reasonable offers

Call (0905) 772824

As I won't be residing at this address callers are requested to ask for my father, Tony Green, who will make any arrangements. Yours Sincerely,

David Green
9, Foxhunter Close
Droitwich, Worcs

<<Hi David. I'm sorry to see you're short of a bob or two, but pleased that you're selling off your AA's rather than your WACCI's. If anyone is interested give him a call or send a letter. Help out a student. -Mike.>>

I WANT MY HONEY

Dear Clive, could you please put the following advert in the next edition of WACCI for me don't panic it's not my 6128 that's being sold, it is a friends <<phew!. -Clive.>>

FOR SALE - FOR SALE - FOR SALE

AMSTRAD 6128 with COLOUR MONITOR

plus

DMP2000 PRINTER

plus

Mini Office 2 (disc)

Contact: Dave Pratt (0732) 357474

Many thanks in advance. PD disc sales are continuing to go well. For those who prefer to write (and not to phone) my address is in Who's Who at the back of the magazine. Cheers. Dave Pratt

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MicroDesign
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CampurSoft

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GLASGOW G31 1UA

THIS AD PRODUCED USING MICRODESIGN PLUS AND A STAR LC10 9 PIN PRINTER

... AND THERE'S MORE YET TO COME...

THE EXPANSION SLOT

Steve Hammond delves into his bag of chips!

Hello again, Steve here. Last months' episode left you with a half finished story about how to control the 8255 I/O chip. This month I shall finish the story, relating to the CPC wherever possible.

As mentioned last month, the Z80 CPU as used in the CPC range of computers can address up to 64K of I/O in the same way that it can address 64K of RAM/ROM. The first thing to do when designing an I/O port is to decide which address we would like the port to reside at - we have over 64 thousand possible locations and require only 4 of these (see last months WACCI if you have forgotten why). It is at this point that it is necessary to consult the incredibly good value for money 'Firmware Guide', available from WACCI at only £7.95 inc p&p.

READ THAT GUIDE

A scan through page 73 of the guide will show that our choice has already been narrowed down by those awfully nice Amstrad people.

The address we choose is limited to certain addresses in the range &F800 to &FBFE. I have chosen to use addresses &F9E0 to &F9E3. The top 14 address lines, along with the IORQ line, are decoded by electronics on the 8255 I/O PCB and fed to the 'Chip Select' pin of the 8255 IC itself.

The two least significant bits of the address bus (A0 and A1) are fed directly to the 8255.

A LATE THOUGHT

And I do mean late - You really do need to read 'The Expansion Slot' article in WACCI 58 - If you don't then this will not make a great deal of sense to you.

This sentiment will apply to the whole of the series as each of the articles builds upon the knowledge gained from previous articles.

WHERE'S THE ADDRESS?

With the Input/Output port connected to our CPC, any commands to output information to or read information from the I/O addresses at &F9E0 to &F9E3 will activate the 8255. You will already know the 8255 chip has four

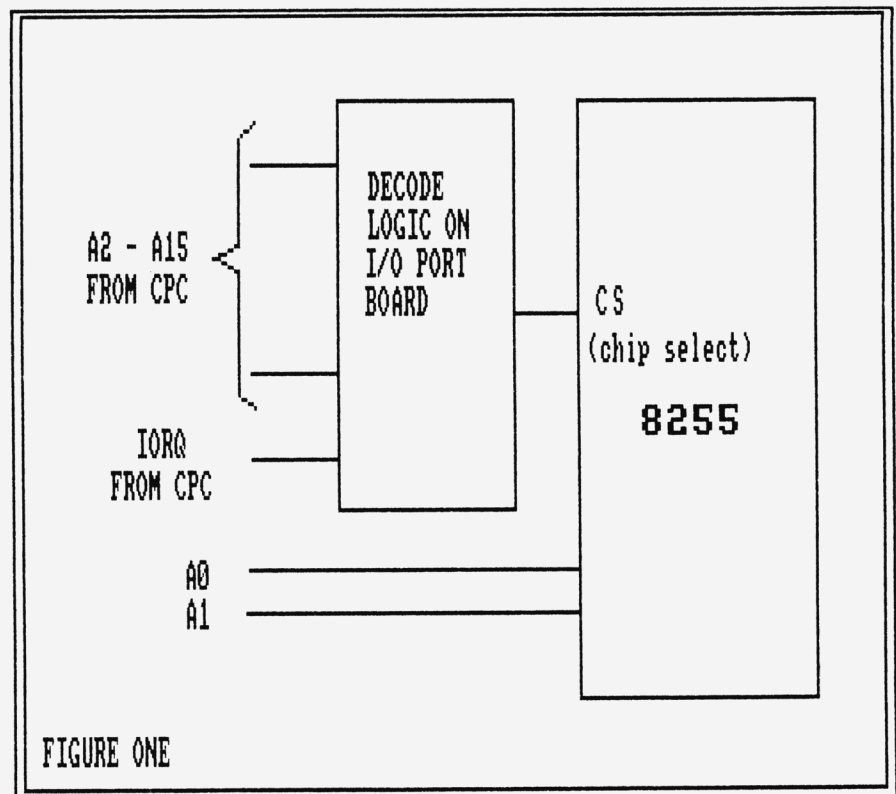
addresses. The first of the addresses we must use is the control register. The control register tells the IC which of its' ports is input and which is output. The control register is at location 3 on the IC, that is we must put a "3" on the address lines of the chip. In binary this is 11, so A0 and A1 must both be high.

KNOW WHICH PORT YOU'RE IN

The correct memory addresses of the ports are as follows:

Port 'A' - &F900
Port 'B' - &F9E1
Port 'C' - &F9E2

It should be noted that if other address are chosen for the 8255, then, although each individual address will change, the relative offset will remain the same. For example, if we chose &FB00 as the base address, then Port 'A' would be at &FB00, port 'B' at &FB01 and so on.



The actual full address will be &F9E3, as previously mentioned, the top 14 address lines will be decoded to select the chip. Figure 1 shows this.

The data which can be used with these ports is 8 bits (one byte) wide, so can be in the range 0 to &FF, or 0 to 255 in decimal.

The 3 ports are divided into 2 groups, which can be programmed independently. Port A and bits 4,5,6 and 7 of port C are referred to as group A and port B along with bits 0,1,2 and 3 of port C are group B.

SAMPLE OF SOME MODE 0 SETTING				GROUP A		GROUP B	
D4	D3	D1	D0	PORT A	(UPPER) PORT C	PORT B	(LOWER) PORT C
0	0	0	0	O/P	O/P	O/P	O/P
1	1	0	0	I/P	I/P	O/P	O/P
1	1	1	1	I/P	I/P	I/P	I/P

CONTROL BYTE DETAILS

D0 Pt C Lower - 1=I/P, 0=O/P
 D1 Pt B - 1=I/P, 0=O/P
 D2 Group B mode select - 0=mode 0, 1=mode 1
 D3 Pt C Upper - 1=I/P, 0=O/P
 D4 Pt A - 1=I/P, 0=O/P
 D5 } Group A mode select-
 D6 } 00=Mode 0, 01=Mode 1, 1x=Mode 2
 D7 Mode set flag - 1= active

FIGURE TWO

The 8255 has three modes of operation 0,1 and 2 (please don't confuse these with the screen modes on the CPC). Modes 1 and 2 allow handshaking and interrupt control. Mode 1 is rather simpler and allows basic parallel I/O, this is the mode we will use. The mode is selected by writing a control word to address 3 of the 8255, the control word also telling the IC which of it's pins are output and which are input. Space does not allow me to list all 256 the available control words, but figure 2 gives a few examples and demonstrates the control code. I will list other control words in future articles as and when required, and perhaps include a complete list for reference.

UNDERSTAND THAT PORT

As an example, and referring to figure 2, if we required the IC to operate in mode 0, with all the ports used as output, The the control word required will be as described in figure 3. We now have enough basic knowledge to configure the 8255 for use. Unfortunately, the 8255 ports are only TTL compatible. In a nutshell this means that they can only be attached to other devices which are TTL compatible. It is this subject which I shall discuss next month, along with the first additional project.

Please remember that you cannot jump straight into the middle of this series - you'll need to build up you knowledge and understanding of the subject on a month by month basis as you understand each stage.

GET YOURSELF A DO IT YOURSELF KIT

In order to get the most out of this series you will need an Input/Output port..... To ensure you have an Input/Output port WACCI will market a 'Build It Yourself' Input/Output port kit designed by Steve Hammond for only £25.

WACCI and Steve will also market a twin, seven segment display module for only £10.

If you don't have a 7 volts (or greater) 500 milliamp power supply, then WACCI (via Steve Hammond) can supply you with a suitable power supply for only £6 each.

Steve Hammond will be putting the kits together and selling them to club members only, through WACCI, at cost price

IT'S A LETTER

Dear Clive, I was very pleased to see the two articles on discs and on hardware projects in issue 57 of WACCI. Congratulations on having persuaded the two authors to contribute to the magazine. Regarding other hardware projects which might be covered, may I suggest to Steve:

1. A Ram/Rom unit
2. A Rom box (4 Roms minimum)
3. 8 bit printer port
4. A light pen that actually draws and colours directly onto the screen.
5. A speech synthesizer
6. A mouse interface for a PC mouse
7. A 256k memory expansion unit

These projects need not costs to much, except perhaps, the last two, thank in advance,

Patrick Boyle, Brooke, Norfolk

OUTRO

Please keep your ideas for projects rolling in, the more the merrier, I'll provided a hardware solution for all the problems, provided one exists. Best wishes, keep on soldering

TO DESIGNATE ALL PORTS AS OUTPUT, MODE 0, THE FOLLOWING WORD IS WRITTEN TO THE CONTROL REGISTER-

BIT	DATA	COMMENT
D0	0	PORT C (lower), 0= OUTPUT
D1	0	PORT B, 0=OUTPUT
D2	0	Mode Select, 0=Mode 0
D3	0	PORT C (upper), 0=OUTPUT
D4	0	PORT A, 0=OUTPUT
D5	0	}00=Mode 0 for group A
D6	0	
D7	1	1=MODE SELECT

FIGURE THREE

VERY

basic

Written by
Alan Tilling

Letters to:-

Very Basic Basic
65 Lawrence Rd
Altrincham
Cheshire
WA14 4EL

SAVE PETROL, USE FIRELIGHTERS TO BURN DOWN YOUR BUSINESS

Hello everyone, 'tis I.

As I often do I'm starting off with an apology. There was an error in line 115 of the fuel program of issue 56. It wasn't far wrong but the GOTO 240 should have been a GOTO 191. I don't know how it happened, sorry. You know, if you ever get stuck with one of my listings you can always phone me between 6.00 and 7.00 in the evening on 061-928 7260.

ON WITH THE SHOW

In the issue, I'm going a lot further with the Fuel program, so we'll start by making the correction as above and re-saving the program. Change the REM in line 10 to refer to this issue. It is also useful to add these lines.

```
1 goto 3
2 save"fuel2":stop
3 on break gosub 10010
10000 end
10010 ink 0,14:ink 1,0:border 14:
mode 2:list
```

You will find that lines 1,2 and 3 will put themselves before the program and 10000 will add itself on at the end. Notice also that I have typed it all in lower case letters. It's easier and it allows the Basic interpreter to turn all keywords into capital letters, a very handy dodge. When the blinking program goes wrong a quick look at the listing will show any keywords that are misspelt. (They are still in lower case letters as typed, a dead give away.)

These lines can be useful tacked on to any program especially in the development phase. The lines work as follows. When run[RTN] is typed Basic goes to the first line in memory and starts there. In this case it is told

to goto line 3 and to skip line 2. When you are developing a program and something goes wrong, you end up hitting the escape key twice then listing the program to see where the cock-up is. Pressing [ESC] twice is known as breaking the program and so if you do hit the escape key twice, Basic whistles off to line 10010 and does as it's told and changes all the inks, clears the screen putting it in to mode 2 and then listing the program all automatically.

Once a program is being executed, control goes naturally enough from the first available line (not necessarily line 1) and keeps going until it gets to the finish so the END at 10000 is to stop the program blundering into line 10010. With line 2 being a save command, all that is needed every so often is to enter goto 2 [RTN] and



your masterpiece will be saved quite conveniently. If you are using disc then this should be done fairly frequently, tape users should still do it but you have good reason to space your saves out a bit more.

For any body who can't find issue 56 shame on you but to save you fighting

Granny, the listing is reproduced, (disguised as fig 2.) The first change (after the error correction mentioned above) is to move line 192 like this:

Type edit 192[RTN] and when the line is displayed, use the DElete key and erase the 192, type in 198 and press [RTN]. If you now list the program you will find that there is line 192 and line 198 both identical.



SHOPPING LIST

To speed things up a bit you can list just a few lines or all the lines from the beginning to a point or all the lines from a point to the end. The method to use is at the ready prompt type list as normal for the full list. Remember that [RTN] must be pressed each time. The first alternative is list (first required line number) - (last required line number) like this;

```
list 100 - 200 [RTN]
or
list - (No. of last line reqd)
or
list (No. of first reqd line) -
```

The hyphen means "from the start to" or it means "to the end" depending on where it is placed.

BACK TO THE STORY

Type 192 [RTN] then list 180 - 200 and lo and behold line 192 has gone and line 198 is now the REM message. So by editing, changing a line number and deleting the original line, you can in

effect move lines about within a program. To make the REM stand out place colons on either side. ie.

```
180 GOTO 400
190 :
200 REM *** HOW'S ABOUT THIS ***
210 :
220 IF A=B THEN GOTO 0
230 and so on .....
```

RINGING IN THE CHANGES

The program can be improved. We could add a print results option, like so:

```
191 INPUT "Do you want the output to
the printer Y/N ";output$ [RTN]
192 IF output$="Y" OR output$="y"
THEN GOTO 240 [RTN]
193 [RTN]
```

We repeat the Display Table routine but direct its output to the printer. See fig 174. <<Why fig 174? -Ed. 'Cos I'm fed up with using fig 1 or fig 2. I want to be adventurous. -Alan.>>

INCIDENTALLY

Compare fig 174 with fig 2 and you'll notice the only difference is that #8 has been added to the print commands and the line numbers start at 240.

THE LAZY WAY

I'm always on the look out for short cuts so as before edit the line you want to reproduce and change the line number (and if it contains a PRINT command add #8) but this time DO NOT delete the original line.

While we're talking about being lazy the printer version works in the same way as the screen version. The only difference is that #8 directs the output to the printer whereas #0 directs the output to the screen but being lazy we left out the #0 and let the computer default to the screen.

THE END IS NIGH

Notice that there are now two END statements, and the one at line 233 seems to be stuck in among the listing in the wrong place. It is in the correct place because it is at the end of that particular sub-routine. If it were left out, each time the screen table was displayed, the printer would burst into life.

That's all for this month, so until next month, Bye for now. Alan.

THE REVISED, COMPLETE ALL SINGING ALL DANCING FUEL CONSUMPTION PROGRAM

```
10 'Fuel Consumption by Alan Tilling for WACCI issue 59
20 DIM date(100)
30 DIM pres(100)
40 DIM prev(100)
50 DIM miles(100)
60 DIM litres(100)
70 DIM galls(100)
80 DIM consg(100)
90 INK 0,13:INK 1,0:BORDER 14:MODE 2
100 INPUT "Please enter PREVIOUS mileage";prev(x)
105 WHILE x<99
110 INPUT "Please enter PRESENT mileage";pres(x)
115 IF pres(x)=0 THEN x=99:GOTO 191
120 miles(x)=pres(x)-prev(x)
130 INPUT "Now enter amount of fuel used (in LITRES)";litres(x)
140 consl(x)=miles(x)/litres(x)
145 consl(x)=ROUND(consl(x),2)
150 galls(x)=litres(x) * 0.22
155 galls(x)=ROUND(galls(x),2)
160 consg(x)=miles(x)/galls(x)
165 consg(x)=ROUND(consg(x),2)
170 PRINT "Fuel consumption is"consl(x);
175 PRINT "miles per litre or"consg(x)"miles per gallon"
180 INPUT "Please enter the date";date(x)
185 PRINT
186 x=x+1
187 prev(x)=pres(x-1)
190 WEND
191 :
192 REM ***** DISPLAY TABLE *****
193 :
200 ZONE 10
210 PRINT "Date","Present","Previous","Miles","Litres","Gallons","Miles/Gallon"
220 PRINT
230 PRINT date(x),pres(x),prev(x),miles(x),litres(x),galls(x),consg(x)
231 IF pres(x)=0 THEN x=99
232 NEXT x
233 END
```



Fig 2

```
240 '
250 REM ***** PRINT TABLE *****
260 '
270 ZONE 10
280 PRINT#8,"Date","Present","Previous","Miles";
285 PRINT#8,"Litres","Gallons","Miles/Gallon"
290 PRINT#8
300 FOR x=0 TO 99
310 PRINT#8, date(x),pres(x),prev(x),miles(x),litres(x),galls(x),consg(x)
320 IF pres(x)=0 THEN x=99
330 NEXT x
340 END
```



Fig 174



Inspiration

George Ho-Yow converts Basic commands into machine code routines.

It was four o'clock and the cockerel had not yet crowed. As for me? There I was sitting on the throne in my small room, rubbing my stomach to ease the agony of having an extra helping of stewed prunes and custard which I had had the day before. A flush of inspiration escaped me as I pondered on the magnificence of the CPC as a machine for learning all about machine code programming.

I stumbled back to bed, restless with thoughts of how best to write about programming techniques. How best to avoid going over the top in complexity or be patronising in simplicity. Those were among the last things I remembered as I started to fall asleep, giving Pat Love a few kicks in the process. She had rolled over to my half of the bed as her wont to do.

WHERE ARE WE NOW

Pat pointed out (Letters WACCI 58) that you need to be aware of strategic techniques as well as tactics to succeed in mastering machine code programming. There is usually a grey area between any two related topics.

I would like to bridge the gap by introducing grey area ideas on higher tactics or lower strategy depending on which way the wind is blowing. I must not forget that I originally intended to show the equivalence between BASIC and Machine Code programs. I hope I don't confuse the issue by killing the two birds with one article.

TACTICAL RUNNING

Okay! Go for a quick jog around the room to charge up the brain cells with oxygen. Put on some background music and your thinking cap. Now we're ready for some higher tactics. You are familiar with BASIC commands, right? When you look at the commands, you find they can be broken down into three principal types. These are:

- A) Statements
- B) Conditionals
- C) Loops

IT'S A STATEMENT

Statements are simple commands, such as GOSUB 120 : X%=20 : INPUT "",A\$ and

the like. They are contained within themselves if you know what I mean. Statements are the building blocks from which large structured programs are constructed.

NO, IT'S A CONDITION

Conditionals are the IF...THEN...ELSE type of command. They use statements as part of the command. Do you know where they do it. Oh dear patronising.

NO, IT'S SUPER LOOP

Finally we come to the Loops. There are two main types of loop ...

- a) FOR... NEXT
- b) WHILE... WEND

again commands of the statement type are used within the body of the loop. For that matter you can use any of the

THE MACHINE CODE AND BASIC EXAMPLE PROGRAM

Copyright, George Ho-Yow

```
5 REM BASIC : REM CODE
7 ' : '
10 IF n%>9 THEN 20 ELSE 30 : REM LD A,(N%) 'get contents of n%
12 ' : REM SUB 10 'zero sets +ve flag, always add 1.
15 ' : REM JP P,line20 'IF n% = 10 or more, ie > nine.
17 ' : REM JP line30 'ELSE goto line30.
20 STOP
30 STOP
40 IF p% THEN 50 ELSE 60 : REM LD A,(p%) 'get contents of p%
42 ' : REM CP 0 'to see state of p%
44 ' : REM JP Z,line60 'IF p% is zero it's FALSE
46 ' : REM JP line50 'ELSE it's TRUE.
50 STOP
60 STOP
70 IF a%=b% THEN 80 ELSE 90: REM LD A,(a%) 'get contents of a%
72 ' : REM LD HL,b% 'point to address of b%
74 ' : REM SUB (HL) 'take away contents of b%
76 ' : REM JP Z,line80 'IF zero IE a%=b% goto 80
78 ' : REM JP line90 'ELSE goto line90.
80 STOP
90 STOP
```

Fig 1

three types within the body of a loop. By body I mean the code you would use between the actual WHILE and WEND commands. The "... " in other words implies it's the body.

There are correct words for these bits, but I don't want to blind you with science. He writes lying through his teeth, too lazy to look it up in the text book really.

You can also classify the types into simple or compound. 'Simple' simply means a one-off use of IF..THEN..ELSE for example; whereas a Compound Conditional is: IF...THEN IF...THEN IF...ELSE...ELSE..., that is many occurrences of the same type. You can of course have compound Statements and compound Loops also.

COMMAND STRUCTURE

By recognising these three type of commands and really understanding how they work you will have a better idea about chaining your program together. In technical lingo- how to STRUCTURE your program. Now for the piece de resistance. Pardon my French. Machine Code equivalence.

Let's look at a typical Conditionals in BASIC and the equivalent Code. To help you out I've prepared an example programs, it's on page 17 as Fig 1.

PYRA(MANIAC)DEV

I don't expect you'll be familiar with the semantics of my Compiler, but from what I've seen of other compilers the difference isn't too great. I use a product written by Discovery called

PyraDev. When brackets surround a variable eg, (a%), this tells the command to use the contents contained in the variable a%. Whereas a% used neat, generally means use the memory address where a% lives at in RAM.

Hence in Line 72, we use LD HL,b% to get b%'s address into the HL register, so that in Line 74 we can subtract the contents of b% from a%, thus the brackets around the HL registers.

There's no SUB (a%),(b%) command you see, hence the round-about way of preparing the variables for this conditional test. Brackets around the HL registers have a different meaning. (HL) means that the value held by the HL register is the Address in RAM which must be operated upon. Whereas HL neat, means use the value contained in the register pair.

Well I think that's enough for today folks. In the next article I will have a go at Loops. Then everything else following should be Statements.

Machine code programming looks hard, but after a few weeks of practice it gets easier. The pleasure of seeing your program running like the clappers is a real joy.

ERROR CORRECTION

Finally some errors crept into my two previous articles on Disc Directories. Disc Tracks range from zero to 39 not 40 as was stated. Secondly, IBM sectors are numbered from one to eight not nine. Thirdly, when you look at the display of track zero sector 1, from READSECT.BAS, the penultimate field of three pairs of zeroes in the first row isn't always zeroes.

In large programs, you will find that the first pair of this group increases in each of the duplicated row-entries for the program.

OUTRO

We're out of space so that's it... Bye everyone. See you next month. George.

IT'S GETTING BETTER

Finally, here's a neat modification to the READSECT.BAS prog, many thanks to Ian Parker. LINES 210 and 220 can be replaced for a big improvement in user-friendliness as follows:

```
210 OPENOUT "d":CLOSEOUT:firstsec%=PEEK(&A89F):sector%=firstsec%+sector%-1
220 REM FORMAT DETECT from a program by T Middelkamp of Holland
221 REM submitted by Ian Parker of Bognor Regis, England
```

Many thanks Ian, for the gem, it really makes my prog glitter.

* Adverts * * Adverts * * Adverts * * Adverts * * Adverts *

THE NEW ALTERNATIVE FIRMWARE GUIDE

Here at WACCI we have long mourned the passing of the good old Soft968, known to many as the Firmware Guide. Finally there's a worthwhile alternative that that's almost as good You get 80 full A4 pages, in a slide binder with card covers. The pages are full of 280 instructions, the firmware jumpblocks, maths routines, the CPC memory maps, output port addresses, 464-6128 conversion addresses, Bios and Amsdos calls and much more You also get a 3 inch that's full of useful machine

codes routines (and includes a monitor and machine code assembler.) This is what you have been waiting for. This great new CPC product can easily be yours. It's not £30, it's not £20, It won't cost you £10, it's yours for:

£7.95 including p&p (and the disc)

Got a 464? Don't panic, there's a tape version. Once you've purchased the new firmware guide and disc you can borrow the tape from the tape library.

BLANK DISCS

They are still available. Boxes of 10 branded (Maxell) three inch discs, at the incredibly low price of £14.80 per box. (The price includes p&p.)

Alternatively

You can order, loose Maxell three inch disc at £1.50 each. (This includes p&p and a free jiffy bag.)

We have a minimum order quantity of two discs cos this keeps both the cost and our paperwork down to a minimum.

dBASE II

dBASE II

dBASE II

dBASE II - GOOD, BAD OR UGLY? - JOHN HUDSON SPILLS THE BEANS

dBASE is one of the larger CP/M programs (mainly because it has a 60k HELP file.) This is best left off your working disc to free up space on drive A. You cannot then use the 'help' command or respond with a 'Y' when asked by dBASE if you want any help! However, as it is an alphabetical text file of every command or function, you can print it out and refer to your printout rather than call 'help' from within dBASE. The help file is called DBASEMSG.TXT and came out at 25 pages with my word processor; so have plenty of paper handy when you come to print it!

SET THAT DATE

When entering dBASE from the A> prompt you'll be asked to enter the date (before you are presented with the title and copyright screen. Many of the UK versions preserve the standard US MM/DD/YY format. Don't panic, this can be changed, using INSTALL.COM, to the 'European' DD/MM/YY format.

However, if you want to change to 'European' DD/MM/YY format and don't have a copy of INSTALL.COM, do not despair. dBASE has its own SET DATE function which, unlike the opening prompt, does not check the validity of dates since, as so often with dBASE, the author assumed that people who are going to use the programming language are intelligent enough to know what they are doing.

THEN YOU'RE READY

Once you have entered the date and pressed <RETURN>, the copyright screen appears followed by a full stop in column 1 of the next line. This is the dBASE prompt - or the equivalent of 'Ready' in BASIC! From here on you can enter direct commands as in BASIC or ask it to run a program. Until you enter 'QUIT', it will always return to this dot prompt once it has carried out your instruction.

If you have a version which has the option of selecting 'DO PROGRAM' or a similar command after copyright screen, ignore it as the CPC versions do not normally come with this extra suite of programs.

dBASE uses the date you entered to log when files were last changed and to record the date when a report was printed. It is well worth changing it

to DD/MM/YY format for UK use. The program described below does this as well as introducing some aspects of the dBASE programming language. Using it you will still have to enter the date in US format at the opening prompt but, after you have run this short program, dBASE should behave as if it were a UK version.

THE LONG AND THE SHORT OF IT

When dBASE was written, few people could afford monitors - most relied on the single line glass teletype - and there were no function keys on keyboards. So most dBASE commands are words which can be combined into very powerful single sentences. To save typing, all dBASE commands can be shortened to the first four letters of each word but I will show them in full to identify them at this stage.

EDIT THAT TEXT

dBASE has its own text-editor which is perfect for short files but anyone thinking of developing more detailed programs is better off with an ASCII text editor such as VDE266 or a word processor which can load and save ASCII files (such as CP/M PROTEXT.)

To enter the dBASE text editor, use 'MODIFY COMMAND' followed by the name of the program which becomes the filename - if you give a program name longer than eight letters, dBASE simply chops off the extra letters and saves the file with the extension .CMD. You never need to add .CMD in dBASE but you will need to if you use another word processor.

I have included a typical example, it's around 2 and a bit inches further on down this page.

THERE MUST BE A CACHE

dBASE has what it calls 'memory' but which might today be called a 'cache' in which intermediate calculations and manipulations can be done very quickly. You use the cache by first creating the 'memory variables' you wish to manipulate and then performing

A TYPICAL SERIES OF dBASE COMMANDS

COMMANDS (Please Enter)

ACTION

MODIFY COMMAND BRITISH <RETURN>

The screen clears, you are presented with a line in inverse video, this identifies the line you're working on.

STORE DATE() TO mdate

STORE \$(mdate,4,3)+\$(mdate,1,3)+\$(mdate,7,2) TO mbritish

SET DATE TO &mbritish

Press <CONTROL>-W.

Save the program, return to the prompt.

DO BRITISH <RETURN>

The screen will be covered with different bits of the date and you will be returned to the dot prompt.

Fig 1

the manipulations. So the first line creates a memory variable in which to store the date this variable is then manipulated by the following commands.

UNDERSTANDING THE COMMANDS

The date is accessed with the function 'DATE()'. I called the memory variable 'mdate' because normally one takes variables from database files for manipulation and putting 'm' in front of the name of the variable being manipulated in the cache helps you to remember which memory variable corresponds to which file variable.

In the second line, a new memory variable is created which now has the date in DD/MM/YY format. To do this we use the dBASE sub-string function (\$). It does many things but, amazingly, one of the most powerful - searching for a sequence anywhere in a field - was left out of dBASE III and IV.

So there are things we humble dBASE II users can do which others cannot. But, in this case, we are using one of the features which was carried on in dBASE III and IV, the ability to extract part of a variable.

\$(mdate,4,3) means 'the sub-string of mdate which starts at the fourth character of mdate and which is three characters long'. This is the 'DD/' of a US format date.

Add 'the sub-string of mdate which starts at the first character and is three characters long' (MM/ in the US format date) and finally add 'the sub-string of mdate which starts at the seventh character and which is two characters long' (YY). This gives us a british DD/MM/YY to store.

Finally, the contents of mbritish are used to set a date. The ampersand (&) is used where there is ambiguity about whether the variable or its contents are to be manipulated. Unlike assembler or LOGO, dBASE is not strict about this. Where it is obvious that the contents are to be manipulated the ampersand is not needed.

Check the date dBASE is going to use by entering ? date() <RETURN> and, like BASIC, dBASE will reply with the date on the next line followed by the dot prompt on the line below that.

TIDY UP AFTER YOU'VE FINISHED

We can now begin to tidy this up by getting rid of the clutter and putting in some 'user friendly' features. If

A TYPICAL SERIES OF dBASE COMMANDS

Used to edit the BRITISH.CMD file created earlier

COMMANDS (Please Enter)	ACTION
MODIFY COMMAND BRITISH <RETURN>	Your program reloads, Ready to start.
Press <Control>-N twice	Create two new text lines. dBASE always 'overwrites' whatever is there; you can change to 'insert' mode with <CONTROL>-V but only one line at a time. So the only way to get a complete new line is with <CONTROL>-N (<CONTROL>-T deletes complete lines).
SET TALK OFF ERASE	SET TALK OFF tells dBASE not to tell you what it is doing all the time; ERASE clears the screen. (dBASE uses 'DELETE' rather than 'ERASE' for files. Later versions of dBASE use ERASE for files and CLEAR for 'CLS' but dBASE II is stuck with 'ERASE' instead of CLS.
Press <CONTROL>-X @ 12, 20 SAY 'The date today is ' @ 12, 38 SAY mbritish @ 14, 20 SAY 'Press any key to continue ...' WAIT	To go to the bottom of the file and add the new commands
Press <CONTROL>-W	Save the changes

Fig 2

you enter MODIFY COMMAND BRITISH and follow the example in Fig 2 to amend the BRITISH.CMD file created earlier.

CHECK IT OUT

When you've completed the alterations enter: DO BRITISH at the dot prompt, the screen will clear and none of the calculations will appear on the screen. Instead, after a very short delay you will be told the date and instructed 'to press a key to continue', press a key and the dot prompt will reappear.

MORE OF AN EXPLANATION

The lines at the end introduce dBASE's Page Description Language - contrary to what many people will tell you, the first PDL on micros was the dBASE PDL. It works with both screen and printer, the origin 0,0 is the top left hand corner of the screen or printed page.

It is purely text based and uses the ROW,COLUMN convention; so '@ 12, 20' means 'at row twenty, column twelve'; 'SAY' means the same as 'PRINT' in

BASIC - put it on the screen. If it is text, like BASIC it has to be surrounded by something - which can be ', " or [in dBASE. So you can have any two of these in the text and the third as the character surrounding the text. This gets round the problems people have in BASIC when they want to use the " character in text.

After 'Press a key...' has appeared, dBASE displays a message to say it is WAITING until you press a key.

WAIT is a powerful function with many useful options; in this case we have simply used it to pause the program until the user has had time to take the screen in.

OUTRO

Over the next issues I'll demonstrate the dBASE commands by developing a user-friendly and reasonably idiot-proof membership database. This will demonstrate the principles behind dBASE programming and its flexibility.

Jahn R Hudson.

◆ THE PROBLEM WITH..... ◆ ◆ BY ◆ ◆ MIKE ◆ ◆ LYONS ◆

COMPUTERS DON'T COMPUTE, THEY MANIPULATE - ACCORDING TO MIKE

The problem with computers is they don't compute. They manipulate ons and offs in, (to us), complex ways, but they can't do anything else. We try to use their manipulations to give the results which we desire, but how often have you said to yourself "That can't be right." or "I didn't want it to do that."?

INTRO

Our basic understanding of the way these simple, (in the truest sense of the word), machines work is even more limited than the machines' ability to manipulate what we feed in. By *we*, in this context, I mean the ordinary end user who actually has to get the machine to appear to perform a task.

The Question:

Why does a certain combination of input signals produce a certain combination of output effects?

The Answer:

Because we say it does!

If you get right down to the simplest level the combinations of ons and offs can mean anything we want them to.

IN THE BEGINNING CAME BINARY ...

A good example is a binary number. This is simply a series of '1's and 0's and we have, arbitrarily, decided that 1 stands for ON and 0 stands for OFF. We could just as easily have decided the opposite and in some applications this is exactly what happens, (printers use inputs which are described as "Active Low" and a 0 at one of these inputs effectively turns something on.) Let's look at an actual binary number.

1 1 1 1 0 0 0 0

What does this tell us? Not a lot. Quite a lot, something and nothing and all at the same time. Depending on

what you are (or I am) doing, it could represent any of the following:

F0, 240, 360, Times-Roman, ρ, ∑, BBC1

or any of a large, (though probably finite), set of possibilities. The programs which run your computer, (or calculator, watch, washing machine, CD player etc.), are all variations of these simple ons and offs and in each case the ons and offs mean something slightly, (or entirely), different.

AND IN THE END

The end results of the manipulations are often very similar, (at least in so far as a particular combination of ons and offs will cause an action of some kind to occur), but very often the only actual difference is in the context in which the ons and offs exist. We know, (expect, believe), that if we type the number above into our faithful Arnold it will not start to wash our clothes. However, if we were able to feed that number into the processor in our washing machine it might very well do just that.

Do you know what a particular combination of ons and offs will do inside your CD player? What note will be produced if the laser detects that particular combination? What instrument will play the sound? In all probability a particular combination of ons and offs will perform several tasks depending on the *exact* context in which it occurs in a given environment and at a given instant in time. What's the point of this discussion, you may ask? (But then, again, you may not.) Depending on where you put the stress in this question I may, (or may not), decide to answer you. I might, arbitrarily,

decide that a certain combination of stress patterns and tonal combinations will determine the kind of answer, (if any), that the questioner might receive. Who's to say if the pattern might, (or might not), legitimately correspond to 1 1 1 1 0 0 0 0?

THE LANGUAGE BARRIER

Any language, be it visual, verbal, tactile or electronic must be able to facilitate communication effectively and must be comprehensible to both parties, (language cannot exist if there is no one to communicate with.) What does the sequence 1 1 1 1 0 0 0 0 mean, it may be as incomprehensible to another communicator as "The gostak distims the doshes", or ..-.-.

What matters is the context in which the language exists for all the participants in the communication.

This is also true of any everyday language. How easy it is for people to mistake the meaning of a sentence when it is taken out of context. Even then such ephemera as tone of voice, frequency of pauses, stress patterns and the context of each and every word or syllable can drastically alter the way in which an utterance is received.

AND IN THE END

The written word is even more prone to error because all of the stresses are missing and punctuation is usually inadequate to compensate for lack of pauses. Human beings generally get by because they can interpolate from the bare bones to arrive at the actual meaning. Computers are unable, as yet, to do this. Until they are able so to do programs like language translators will be of limited value - as the famous case of the translating program demonstrates - when instructed to translate "The cat sat on the mat" from English to Russian and back again it produced the following profundity on the return journey: "The tiger was sitting in trouble." *Mike J Lyons.*

BrunWord

Elite ROM Module £125

This is the ultimate addition to a 6128 computer. Word processor, spelling checker, 33,000 word dictionary, relational database, 9 pin print enhancer, 24 pin 'type setting' routines and 10 superb fonts, all programmed into one high capacity ROM (256K bytes). Massive memory, small size and includes our latest innovations, the As You Type spelling checker and our System 2 simplified printer control.

We fit the ROM into a small ROM board and give it a thick coat of protective resin, making a neat module which plugs directly onto the expansion socket of the CPC6128 or 6128 Plus. The price includes our 8 bit printer status port.

Great Power

Plug on the module, switch on, type !BW and the whole system is immediately ready for use. Type into the word processor, if the computer beeps, press <f3> and ask for help, transfer the correct spelling and resume typing. Use the database to print labels, search for an address, transfer it to the word processor and print it out, all without a single disc operation to slow you down.

Exciting Features

The Elite ROM has a host of exciting features including 5 high quality high speed screen dumps for 9 pin and 24 pin printers. These are special routines using the 8 bit printer status port and they print incredibly fast compared to desk top publishers. Every dot of ink on this page, including the drawing, the large 'BrunWord', our name & address, credit card symbols and Teddy, was printed in one operation using the BrunWord Elite ROM module and an Epson LQ1070 printer (wide carriage LQ570).

For simple layouts, System 2 can be set to Auto-formatting which enables micro spaced printing to be used without any layout instructions even when using proportional fonts.

Any Printer ?

All ROM modules work with any Epson compatible printer. All 24 pin printers can make full use of BrunWord Elite. Older designs of 9 pin printers (Amstrad DMP2160 etc) are limited to whole space justification but modern 9 pin printers (Star LC10 etc) can use micro justification.

Free ROMDOS

If you have a second 3.5 inch disc drive then you need KDS ROMDOS. We can supply this programmed into your ROM at no extra cost. (Not 6128 Plus). BrunWord ROM solves the frustration of disc drive confusion by always using whichever drive has the disc in it. Using a 3.5 inch disc drive with BrunWord ROM is simplicity itself and the ROM manual now covers our 'undocumented' command which enables a 3.5 inch disc to import and export text to a PC.

Remember.... No ROM box is needed.

BrunWord 6128 £30

Complete word processing package (disc) with word processor, spelling checker, 30,000 word dictionary and card filing programme. Type RUN "BRUNWORD" to load the word processor, spelling checker and the dictionary. BrunWord 6128 out performs all other word processors for the 6128. A fast screen response, extensive editor commands and the 4000 words per minute spelling checker, make it a joy to use. On the disc is a tutor file which takes even a complete beginner straight into word processing and demonstrates the powerful editing and formatting features of BrunWord. The 40 page manual includes step by step instructions to produce and print a simple letter.

6128 ROM Module £46

The same as BrunWord 6128, without the card filing programme, but supplied as a ROM module, with free ROMDOS (not Plus) and our fabulous As You Type spelling checker. (6128 Plus - add £12). Don't forget.... no ROM box to buy!

Info-Script ROM £79

The Info-Script ROM module is a complete data processing package, including all the features of the 6128 ROM. Even with 1000 names and addresses loaded into memory for instant reference, you can type a 10 page document in the word processor and your spelling will still be checked while you are typing. Stop anytime, use the database to search for a reference (typically taking 1 second for the search) and return to your typing. You could, if you wish, leave a marker in your text and transfer the data. Each programme remains just as you left it, with instant access. Can be upgraded to the full Elite ROM.

Comparisons

We have tested BrunWord 6128 and Protext with the same file of 3366 words.

The first test was to compare the scrolling speed of the screen, using line by line scrolling. This is a vital performance test as the CPC6128 tends to be naturally slow at this task. BrunWord scrolled 40% faster than Protext.

Protext was the fastest to justify but used a simple process that added spaces at the centre of each line, giving the middle of the text a bulging appearance. It did not display as it went along and so needed a separate operation to see the result. BrunWord displayed as it justified and produced a balanced appearance.

Our simulated typing test achieved 218 words per minute. Both BrunWord and Protext had no trouble at this speed.

The spelling test checked all 3366 words. BrunSpell took 52 seconds and needed no disc changes. Prospell took 6 min 24 sec and needed 8 disc changes.

The find and replace in Protext is confused by words starting with a capital letter so it always requires two separate operations. BrunWord is more sophisticated and automatically handles both variations in one operation.

Quotes

"It's totally brilliant..... carries on the extreme user friendliness of Brunning Products to a very high standard..... I have one of these little gems plugged into the back of my CPC right now..... The BrunWord ROM has performed in an exemplary fashion on all fronts."
Chris Knight (ACU Editor) - ACU August 1991.

"....(BrunWord) in itself is quite uncomplicated and easy to use. That's the beauty of the system - you can just sit down and start typing..... the fastest most efficient spell checker anywhere..... Info-Script is a formidable piece of software engineering. The fact that it's instantly available from BrunWord makes you realise just how powerful this whole package is..... The BrunWord ROM is a truly excellent product."

Rod Lawton (AA Editor) - AA September 1992

"Two weeks ago today I received my copy of BrunWord 6128 and would like to say how delighted I am with it. Although I am a qualified touch typist, I expected to take ages to get used to my first professional word processor and could not believe that only after a few short hours, I was using BrunWord as if I had had it for years, it is so well thought out and user friendly. I often have very difficult documents to type, lots of centring, underlining, indentations and numbered paragraphs. Four days after receiving BrunWord I typed eleven letters, an agenda and a set of complicated minutes in just two evenings."
Miss Veronica Petter (Bristol) 20th Aug 1992.



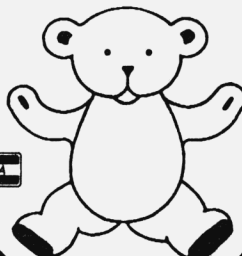
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HARD COPY

PRINTERS : MIKE LYONS TELLS YOU ALL YOU EVER NEEDED TO KNOW

Welcome back to the second part of our short series about printers. Last month we took a general look at printers, including the history of printers and industry standard (or lack of them) and I generally filled up two pages with useful data.

In last month's WACCI I included the 'Ascii Code to Name to Action Guide' which outlined what the ascii control codes do. I don't actually know how these codes were chosen. The first ones, (0-31), were named after the functions they perform. The later ones were, I think, just chosen in an arbitrary manner, which is why there are such differences between different makes of printer. I don't think Clive's printer has it's codes in precisely the same order as mine, for instance, and my old Star certainly didn't. Nor did it have as many features to chose from - not that I ever complained about it. I never found it limiting at the time.

CODEMASTERS

Some of the commonest escape codes for Epson compatible printers are listed below and most printers should accept these codes. The codes are given with "s" to represent the on/off switch. Unless told otherwise, assume <1> = ON and <0> = OFF. n means a number between 0 and 255. I'll leave you to ponder the imponderables. The standard control codes are shown in Fig 1.

THE STANDARD EPSON CONTROL CODES

Code	Action
<15>	Condensed print On
<18>	Condensed print Off
<ESC> "2"	Set 1/6" line space
<ESC> "4"	Italics On.
<ESC> "5"	Italics Off.
<ESC> "-" s	Underline.
<ESC> "E"	Bold.
<ESC> "F"	Cancel bold.
<ESC> "G"	Double Strike.
<ESC> "H"	Cancel Double Strike.
<ESC> "M"	Elite, Pitch (12cpi)
<ESC> "P"	Pica Pitch (10cpi)
<ESC> "R" n	Select language set.
<ESC> "S" 0	Subscript.
<ESC> "S" 1	Superscript.
<ESC> "T"	Cancel Sub/Superscr.
<ESC> "W" s	Double Width.
<ESC> "w" s	Double Height.

Fig 1

For IBM users (or sufferers), the same control codes do the following:-

THE STANDARD EPSON CONTROL CODES

Code	Action
<15>	Condensed print On
<18>	Pica (10cpi).
<ESC> "2"	Execute <ESC> "A"
<ESC> "4"	Set Top of Page.
<ESC> "5" s	Set/cancel Auto Lfeed.
<ESC> "-" s	Underline.
<ESC> "E"	Bold.
<ESC> "F"	Cancel bold.
<ESC> "G"	Double Strike.
<ESC> "H"	Cancel Double Strike.
<ESC> "M"	-----
<ESC> "P" s	Fixed/Prop. Spacing.
<ESC> "R"	Reset all Tabs
<ESC> "S" 0	Subscript.
<ESC> "S" 1	Superscript.
<ESC> "T"	Cancel Sub & Superscr.
<ESC> "W" s	Double Width.
<ESC> "w" s	-----

Fig 2

PRINTER DRIVER v SEX DRIVE

Welcome back to what was going to be the start of the second instalment of my waffle on printer driving, however I ran out of space last month so the start is not the start no more. What have you gleaned from my wibble-ing so far? Not a lot. Read on for less.

GETTING IT INTO PRINT

I'm often asked how do you send control codes to the printer, so I scratch my head, pretend to think and then say something witty like ..

You asked me:

How do I send codes to the printer?

My answer must be

Just like you send strings of numbers, characters or anything else to your printer. From BASIC you can type:-

```
PRINT#8,what_ever_it_is
```

Any code which your printer will accept can be sent from BASIC by using the PRINT #8 command in a program. However, if you are using a lot of codes, the extra work involved could be prohibitive.

Having said that, though, if you assign your code sequences to strings at the beginning of your program then you can simply print the string(s) you want before you send the text. As an example look at the next few lines:

```
D_height_on$=CHR$(27)+"w"+CHR$(1)
D_height_off$=CHR$(27)+"w"+CHR$(0)
D_width_on$=CHR$(27)+"W"+CHR$(1)
D_width_off$=CHR$(27)+"W"+CHR$(0)
draft$=CHR$(27)+"x"+CHR$(0)
nlq$=CHR$(27)+"x"+CHR$(1)
```

By giving the strings meaningful names it's easier to send the correct set of codes to the printer with a line like:

```
PRINT #8,draft$;
```

Notice the semicolon, (;), after the print statement. This is to stop unwanted line feeds from occurring. Most computers will automatically send a <LF>, (CHR\$(10)), after a complete line, and if you don't include a ";"

before you press [ENTER] then that is what you are telling the printer to do. A complete line is recognised when you press [ENTER] on the keyboard, which then sends a <CR>, (chr\$(13)), and <LF> to the current stream.

Stream 8 is the printer. The normal text stream, (#0), is the main screen. If you don't believe me try pressing [RETURN] a few times, (switch the machine on first), - each one causes a new line to be started. As far as the CPU is concerned there is absolutely no difference between the printer, the disc drive(s) and the screen, they are just different devices.

The differences arise, (and the problems), when the different devices behave differently to the same codes.

DRIVING ME ROUND THE BEND

People who use printers a lot tend to wax lyrical about printer drivers. What is a printer driver? Is it a computerised Nigel Mansell? A horribly complex collection of numbers? No. It's nothing more nor less than a set of instructions to the printer to set it up with a certain set of control codes. These could be anything from choosing a character set or typestyle to setting up margins, tabs and line spacings. The earlier bit about `draft$=CHR$(27):blah` etc. is a very simple kind of printer driver for use in BASIC programs. It just sets up the codes which will be useful during the current print run.

People who use word processors will already know, (particularly Protex users), what a printer driver does. It allows you to store the printer's control sequences separate from your document, so that they don't take up badly needed space.

Most word processors contain some means of including control codes *embedded* within the text. When the WP finds these special codes it looks in it's printer driver for the set of controls it should send and posts these off instead of the character.

Protex uses [CTRL]x to insert a control code into a document and comes with a ready-made basic printer driver which allows up to 27 sets of codes to be stored. Most people will never use that many in one document, which is just as well as I've occasionally found myself with an 'OUT OF MEMORY' error after re-defining a few fresh

codes for my printer. A new set of codes can be created and saved using SetPrint from PROTEXT command mode. This allows you, very simply, to include a goodly number of control codes, (loading them in as necessary with ">pr"), and also to re-define characters so that your screen can more nearly resemble your printout.

Those of us lucky enough to have Promerget+ can re-define control codes from within a document using the ">cc" command. I find that I generally use a combination of printer driver plus extras. We can re-define characters with the ">rc" command. I use the following loader for my work discs. I'll explain what each bit does first:

Line 10 makes sure the DATA pointer is at the right place, collapses the SYMBOL table, (in case I want to change some screen characters), and lowers HIMEM by enough to accommodate the code.

Lines 20 to 60 poke the code for my KDS 8-bit printer port into memory and lines 70 and 80 set my favourite colours for working.

Line 90 is for Utopia users only. It increases the tokens buffer space to allow me to set up the function keys to hold line characters, and sets key 0, (f0), to allow me to add any other character if I need to.

Line 100 actually sets up the keys, whilst, line 110 sets up certain function keys to repeat, (to make boxes and lines easier to draw.)

Line 120 is obvious and from line 130 onwards is a menu program, (not shown), which allows me to chose a user area and load a file into PROTEXT ready to start a session, but it could be anything. The final line of this program, (which isn't shown), CHAINS in a very short program called DISC2 to automatically load in the named file and enter PROTEXT. This came to me courtesy of dear ole Peter Ceresole who, in spite of working for Auntie Beeb, is still alive and kicking. This little trick allows more space for text by getting rid of the vast amount of unnecessary BASIC code left after DISC has done it's jobs.

IT'S BEEN TESTED

Old Uncle Clive has tested the loader on both his printers (the Epson LQ400 and Epson LX800) and it worked so you should not have any problems.

THE BASIC LOADER - PART ONE

DISC.BAS

```

10 RESTORE 50:SYMBOL AFTER 256:
   MEMORY HIMEM-30:m=HIMEM+1
20 FOR q=m TO m+25:READ a:
   POKE q,a:NEXT
30 m=m+4:FOR i=0 TO 2:
   POKE q+i,PEEK(&BDF1+i):NEXT
40 h=INT(m/256):l=m-h*256:
   POKE &BDF2,l:POKE &BDF3,h
50 DATA &fe,&0a,&37,&c8,&f5,&07
51 DATA &30,&11,&06,&ef,&af,&ed
52 DATA &79,&cb,&c7,&ed,&79,&cb
53 DATA &87,&ed,&79,&cb,&c7,&ed
54 DATA &79,&f1
60 POKE &BD31,&C3:POKE &BD32,&2B
61 POKE &BD33,&8D:CALL &BD58
70 INK 0,4:BORDER 4
75 INK 1,26
80 !TOKENS,300:
   KEY 150,"Q"+CHR$(13)+"input a$:
   key 1,chr$(val(a$)):|p"+CHR$(13)
85 KEY 10,CHR$(149)
86 KEY 9,CHR$(156):KEY 8,CHR$(158)
87 KEY 7,CHR$(150):KEY 6,CHR$(157)
88 KEY 5,CHR$(159):KEY 4,CHR$(151)
89 KEY 3,CHR$(153):KEY 2,CHR$(155)
90 KEY 1,CHR$(147):KEY 0,CHR$(154)
91 KEY DEF 15,1:KEY DEF 11,1
92 KEY DEF 12,1:KEY DEF 14,1
95 MODE 2

.....rest of menu program
??? CHAIN "DISC2"

```

THE BASIC LOADER - PART TWO

DISC2.BAS

```

10 |p,f$|p

DISC2 is CHAINED so that the file
name, (in f$), doesn't get wiped.
This is a very useful wheeze for
Promerget+ users. DISC2 could be
longer, but why waste space?

```

OUTRO

In the next exciting installment we'll add the same control codes to Protex and you'll be able to draw a box

or bye for now,
 two Mike Lyons

THE GREEN GREEN GRASS OF PROGRAMMING

PAT LOVE TAKES A LOOK AT COMPUTER BASICS

You may not believe this, but at the recent intergalactic flower show, I was the centre of embarrassment. One of the delegates from Earth on being introduced to me, addressed me with the now immortal words "Hello Flower, how are you?"

Everyone froze. Imagine me, Pat, absolute ruler of Hybridland and Bullsh-it, spoken to as if I were a common daisy. Fortunately I saw his predicament, he had selected an incorrect dialect on his mega-language translator. Everyone relaxed as he got it right finally with "Greetings, Most Exquisite Bloom!" I quite liked his rose coloured cheeks at the time.

GOOD EVENING SIR

In this article I wish to point out the correct manner in which to address your RAM. It may turn its nose up at you if you say "Hello Flower!" to it.

So if you want to write a byte of eight bits to memory, you have to shout "Oi!" to the CPU, "Here's a byte for location &4000." The CPU looks around and replies "Who's Oi!" You say "It's me the A-register, mate." All of this boils down to: LD (&4000),A - in Z80 mnemonics. The contents of the A-register will be written to location &4000 in RAM. By the way, there's lots of jargon in computer lingo.

Memory and store are similar beasts and for that matter RAM. Technically they are different from each other, but in this context, they are all storage devices. So if I inadvertently slip into using the word store or memory instead of RAM you'll know what I mean, won't you.

DON'T FORGET TO REGISTER

Conversely if you want to read the contents of a location from RAM, say &4001, you use LD A,(&4001). You always have to read into a register.

The A-register is also known as the Accumulator. There are quite a number of registers at your disposal and I'll be covering them, in much more detail, in another article, at a later date okay? So for now, it's on with the show as we move on to labels

LABELS, STRING AND ADDRESSES

You can't carry on using numbers for your addresses, writing programs would be too painful and long-winded. So the clever programmers developed Compilers or to be more accurate, assemblers.

You write your program in machine code mnemonics, using meaningful labels (in plain text) to identify locations in RAM where required.

OUR FIRST PROGRAM

Let's look at a simple program, and see how the compiler figures out the value for each symbolic address.

However, before I do let me briefly mention a few points about editors and compilers. You will not make progress in the way of learning how to write machine code programs if you don't use a text editor and a compiler.

Unfortunately your CPC does not have an ASCII text Editor. So you would have to acquire VDE266 from WACCI PD if you don't have one already. I use a little development package called Pyradev, which has an editor and compiler among other utilities. You shouldn't have too much difficulties understanding my source code listing.

THE VERY SIMPLE MACHINE CODE PROGRAM

```
ORG 5000H ;prog starts @ &5000
LD HL,text ;address of label for a text string
loop: LD A,(HL) ;label this command for a return and get char
CP &FFH ;check for &FF
JP Z,fini ;if it's &FF jump to fini to quit prog
CALL 0B85AH ;else write to screen
INC HL ;point to next char
JP loop ;go back to loop for more text
fini: RET ;label the exit point
text: DB 12,"Hello all",&FFH ;label the text string
END
```

This little prog writes the string labelled as text: to the screen. The first char (12) clears the screen, then the string 'Hello all' is written a char at a time. When the &FF char is detected the loop is stopped by the 'JP Z,fini' command. The &FF char is known in the trade as a terminator or sometimes a delimiter. Some programmers like using a zero char instead of &FF. You choose whichever takes your fancy. It may be that you want to output an &FF char, therefore you would use a zero char as terminator. Anyway having typed up the source code you save it as a text file, "PRINT.TXT" for example. You then run your compiler to convert it to machine code and save this as "PRINT.BIN"

The differences are very very small from what I've seen of other compilers compared with Pyradev.

So all you need to do is type in and compile the program Go on, I'll wait here whilst you do the work, tee dum, tee dum, dee dum dum dum Oh, done it all ready? great.

CHECK THAT LABEL

Now back to the compiler and how it matches RAM addresses to the labels. It does a first pass over the source text to spot silly mistakes like incorrect mnemonics, eg LA D,40 instead of LD A,40. It also builds up the directory of labels, symbolic addresses and variables.

So it finds ORG 5000H first of all and after reading the next command, knows that LD HL,text must be put into &5000. It recognises "text" as a symbolic address and puts it into the directory as text:?? as it doesn't know as yet where text resides in RAM.

It reads the third line and finds the label loop:, it can shove this in the directory as loop=&5003 as LD HL,text took up three bytes in RAM.

It then reads on to JP Z,fini counting the number of bytes used so far. Well it doesn't know where fini lives so it puts fini:?? in the directory. The next command with a symbolic address is JP loop. no problems here, it already knows about 'loop=&5003.' On to the next command which is fini: RET. The compiler puts fini=&5010 into its directory.

The next command reveals the address of text, so the compiler can finally update its directory. So there are no missing or extra symbolic addresses or labels. No duplicates neither. And the first pass will be successful. The

second pass converts the mnemonics and replaces the symbolic addresses with the absolute values recorded in the first pass from the dictionary giving you the machine coded program.

WE ALL STAND TOGETHER ?

You will find that programs written as a standalone machine coded progs can be loaded from &100 to about &A600, the upper limit can be found from BASIC. Do a PRINT HEX\$(HIMEM,4) to see the value. However if you like using hybrid progs like me, you'll probably need room for your BASIC front end processing which restricts your m/code prog to start from about &4000.

DON'T FORGET TO RE-REGISTER

Okay, lets have a quick recap. We have seen how to write to RAM. You put data into a register, which can be anyone of A, B, C, D, E, H or L by using the command LD A,20 for example. Generally this command is shown as LD r,n in the text books, where r is one of the preceding registers and where n is an eight-bit byte.

You could store a 16-bit number by using a pair of registers. These are BC, DE, HL or SP. Ermm SP is a special register pair, I wouldn't muck about with it unless you really know what you're about.

LOAD THAT REGISTER

Anyway having loaded your register or registers, you then use: LD (nn),r or LD (nn),rr or LD (addr),r or LD (addr),rr to write the data into RAM. See you have a quite a few options depending on your requirements. In the latter commands nn is a 16-bit integer and addr is a 16-bit symbolic address. You remember symbolic addressing? This

is a compiler function. You write an address in the form of a meaningful text-string. The compiler then replaces it with the real value during the second pass of compilation. If you look at RAM, you will find your data appears to be stored in reverse order. For example if you write &1234 into RAM, this will occupy two consecutive bytes and if you do a PEEK you will find them stored as &34 and then &12. Always confuses me, but not to worry, the computer isn't. Reading from RAM is the reverse, you use LD rr,(addr) or LD A,(nn) or LD A,(addr). LD A,(BC) or LD A,(DE) will read the contents of RAM at a location which is contained in the BC register. Ermm... mind bending, mull over it for a while, it will come to you. Finally there's LD r,(HL). So you can write a piece of code: LD HL,text and LD A,(HL) - to read the contents of text to the A-register. Remember this from our nobby program example earlier on?

IT BEGAN WITH A BOOK

When you start writing code, you find yourself looking through Z80 mnemonics looking for suitable commands. It can be quite a challenge when there isn't one to meet your needs and you have to combine commands to get a result.

OUTRO

There are more facts about machine code and RAM about which I would have liked to mention. However more details may be too much to take in now and you may find them irrelevant as well. If you particularly want more info about RAM and associated commands please don't hesitate to write to me, I'd be delighted to be of help. Bye for now, got a few planets to run you know.

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29	LOGO for Micros. (Intro to Logo programming) ...	0.72
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PUBLIC DOMAIN DISC 1 - CP/M 2.2 ONLY
Forth Programming Disc: Forth & intro to the language.

PUBLIC DOMAIN DISC 2 - CP/M 2.2 and CP/M 3.1 (plus)
Utilities: NSWP, Print, BD04, Rasmb, Zmac, Zlink & more.

PUBLIC DOMAIN DISC 3 - CP/M 2.2 and CP/M 3.1 (plus)
MBasic Programming Disc: MBasic, Compiler, Instructions etc

PUBLIC DOMAIN DISC 4 - Amsdos (128k CPC's only)
Includes: PD Planner, Powerpage, Rambase3 & Ramdisc.

PUBLIC DOMAIN DISC 5 - CP/M 2.2 and CP/M 3.1 (plus)
CP/M Games & Adventures. (Base, Island, Colossal Caves etc)

PUBLIC DOMAIN DISC 6 - Amsdos
Games Disc One: 37 CPC games (inc. Splat, Hangman & more)

PUBLIC DOMAIN DISC 7 - CP/M 3.1 (plus) ONLY
Utilities: Superzap, Form3, Crunch/Uncr, Andybase & more.

PUBLIC DOMAIN DISC 8 - Amsdos and CP/M 3.1 (plus)
Comms disc: contains, ZMP, TERMS048 and loads of help files.

PUBLIC DOMAIN DISC 9 - CP/M 2.2 and CP/M 3.1 (plus)
CP/M Utilities: LT29, Nulu15, Unzip, MFT, Rescue, and more.

PUBLIC DOMAIN DISC 10 - CP/M and Amsdos
Word processor (VDE266) and spell checker (ISPELL.)

PUBLIC DOMAIN DISC 11 - Amsdos
Adventures Disc 1. Two full adventures & Eschers crazy mill.

PUBLIC DOMAIN DISC 12 - CP/M 2.2 and CP/M 3.1 (plus)
COBOL Programming Disc: Compiler, Series and Examples.

PUBLIC DOMAIN DISC 13 - Amsdos
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PUBLIC DOMAIN DISC 14 - Amsdos
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'Flags of the World' and David Carter's 'Animator Demo'.

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Lots of MicroDesign format pictures and clip art.

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PUBLIC DOMAIN DISC 21 - Amsdos
Even more MicroDesign format pictures and clip art.

PUBLIC DOMAIN DISC 22 - Amsdos
Forty six screen pictures (Art Studio, Basic, P-Shop etc.)

PUBLIC DOMAIN DISC 23 - Amsdos
Forty nine screen pictures (Art Studio, Basic, P-Shop etc.)

PUBLIC DOMAIN DISC 24 - Amsdos
Forty one screen pictures (Art Studio, Basic, P-Shop etc.)

PUBLIC DOMAIN DISC 25 - Amsdos
Another disc full of MicroDesign pictures & clip art.

PUBLIC DOMAIN DISC 26 - Amsdos
Many more MicroDesign pictures & clip art.

PUBLIC DOMAIN DISC 27 - Amsdos
Mini Paint Shop: Page header & screen design program.

PUBLIC DOMAIN DISC 28 - Amsdos
Needs some more MicroDesign pictures & clip art ?

PUBLIC DOMAIN DISC 29 - Amsdos
A bit more MicroDesign pictures & clip art.

PUBLIC DOMAIN DISC 30 - Amsdos
G-Paint, a good art program and RSX-LIB.

PUBLIC DOMAIN DISC 31 - Amsdos
Dave Carter's second collection of 47 screen pictures.

PUBLIC DOMAIN DISC 32 - Amsdos
Some more MicroDesign pictures and clip art.

PUBLIC DOMAIN DISC 33 - Amsdos
Some more MicroDesign pictures and clip art.

PUBLIC DOMAIN DISC 34 - Amsdos
Some more MicroDesign pictures and clip art.

PUBLIC DOMAIN DISC 35 - Amsdos
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Amsdos Adventure Disc 3, more top quality adventures

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The new improved ISPELL (v6.0) modernised plus extra words

PUBLIC DOMAIN DISC 43 - Amsdos

Picture Disc Five. Another 37 high quality screen pictures.

PUBLIC DOMAIN DISC 44 - Amsdos

Demo's Disc 2. Super demo's, plus the Vorspann Demo Creator.

PUBLIC DOMAIN DISC 45 - Amsdos

Demo's Disc 3. The Paradise Demo: Superb quality demo.

PUBLIC DOMAIN DISC 46 - Amsdos

Demo's Disc 4. The Logon Demo: Another superb quality demo.

PUBLIC DOMAIN DISC 47 - Amsdos

Amsdos utilities disc. Loads of great utilities.

PUBLIC DOMAIN DISC 48 - Amsdos

Amsdos Adventures - Disc 4. Loads of top quality adventures.

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***** NEW IN *****

Picture Disc Six, loads more high quality screen pictures

PUBLIC DOMAIN DISC 50 - Amsdos

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Picture Disc Seven, loads more high quality screen pictures

PUBLIC DOMAIN DISC 51 - Amsdos

***** NEW IN *****

Picture Disc Eight, loads more high quality screen pictures

PUBLIC DOMAIN DISC 52 - Amsdos

***** NEW IN *****

Picture Disc Nine, loads more high quality screen pictures

PUBLIC DOMAIN DISC 53 - Amsdos

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Picture Disc Ten, loads more high quality screen pictures

PUBLIC DOMAIN DISC 54 - Amsdos

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Parrot Plus demo and loads of MicroDesign clip art .

SELECT-A-DISC

PUBLIC DOMAIN DISC 7 : CP/M 3.1 Only

FORM3 Read & write to PCW format discs.
MIKEDIT Easy to use line & text editor
SUPERZAP Super track & sector editor
ZDEBUG17 Z80 interactive program de-bugger.
UNZIP Unpacks library files created by PKZIP.
NEWCCP Adds lots of new commands to the CP/M
ANDYBASE Superb Database, v1.1, now shareware
WCOUNT Counts words, lines and chars in a file.
UN33 Unerase erased CP/M files
ARK11, ARC24 Creates *.ARK archive files, Version 1.1
DC-CPC Spreadsheet, similar to Supercalc 2.
UNARC UN-ARCHive files created with ARC24.COM
ADRIVE Switch between normal and 80 track drive A
ASSIGN Redirect disc commands, drive A to drive B
CRUNCH28 Crunch archive files to save disc space.
UNCR28 UN-CRunches *.??? files.
EXTDISC Changes the drive parameters
FORMAT Format discs to the new parameters
MENU Simple & easy to use Menu program
QTEXT21 Speeds up screen handling

PUBLIC DOMAIN DISC 8 : AMSDOS & CP/M 3.1

ZMP The best CP/M Comms program (ZModem.)
TERM5048 The best Amsdos Comms program (XModem-1k.)
plus reverse phone lists, help file and much more

PUBLIC DOMAIN DISC 9 : CP/M 2.2 and CP/M 3.1

CLEANUP Improved version of CP/M's ERA command
DIRCHK Check the disc directory and locate files.
DISPLAY Improved version of CP/M's TYPE command.
FILECHOP Splits up large text files
LRUN23 RUN a .COM file from within a .LBR file.
LT29 Easy the use library file unpacker.
NC NewCopy, improved disc to disc file copier
NULU15 Super disc utility, similar to NSWP
UNZIP Unzips archive files created by PKZIP.
ACOPY21A General purpose, super fast, file copier.
DU Superb Disc utility. Fully documented.
GREP Scan text or programs for keywords.
LIST Improves the appearance of printed output.
LOOKAT View text or program files.
MFT Easy Multi-File Transfers on CP/M.
RESCUE Rescue programs from corrupted discs.
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