THE sixteenth

WACCI

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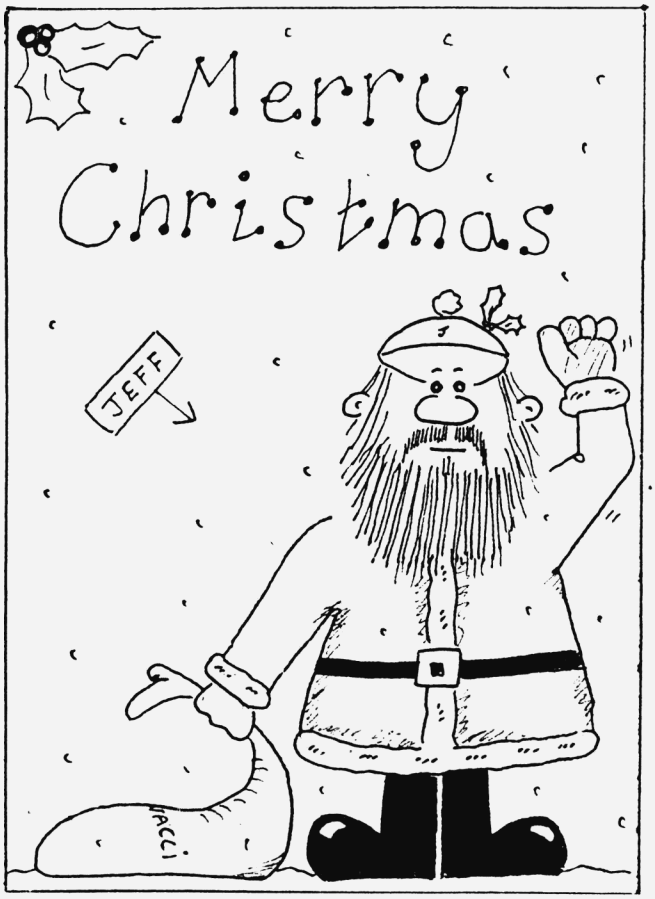

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WACCI Edited by JEFF WALKER

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Well, here we are at the first issue of a brand new year again, and what a difference a year makes! I remember being asked by Ken Walker, at the January '87 Amstrad Show, how many of us there were - "us" being members of WACCI, you understand.

"Twenty-seven," I replied gingerly.

"Oh," said Ken, adding almost apologetically, "Not bad I suppose."

We'd be going 4 months and, to be honest, the membership figure was a little disappointing. However, it was at that January show that we started the Big Push towards Stardom by handing out free copies of the new-look WACCI.

Now, not quite one year later, the membership figure stands at nigh-on five times, and the total circulation of WACCI is a touch under ten times, that January '87 figure. If the trend continues, this time next year there will be literally thousands of "us".

And while I'm on the subject of The Amstrad Show...

NEW AMSTRAD SHOW DATES

The 1988 Show that was to have taken place at Alexandra Palace on January 29-31 has been moved back a week because the venue for the show, The Great Hall, which has spent what seems like a decade being renovated, will not be ready in time. The new dates are February 4-6.

Note that this is Thursday, Friday, and Saturday. It's all been moved up a day because Database Exhibitions are trying to persuade exhibitors to make it a 4-day show, and there's more chance of getting them there for an extra Sunday than an extra Thursday. Sneaky, huh?

I'll be going to the show on the Saturday (6th Feb), and maybe the Friday too. If you're going, I'll be at the AMSTRAD COMPUTER USER STAND at noon, and again at 1pm and 2pm. I'll wait 15 minutes each time. If you miss me/us, try the Bar if it's open, or latch on to someone carrying a copy of WACCI. One of these days I'll might get those WACCI T-shirts organised.

THE BAD NEWS

For differing reasons, Richard Burton, Gary Burns, and Stephen Grainger all missed the copy date for this issue.

Richard, judging by the postmark, sent his offering in good time, but put too many stamps on the jiffy bag. This tends to confuse the Royal Mail no end, and can sometimes delay

delivery longer than putting no stamps on at all. *Foul Play* took five days to get here, arriving second post on the day after the deadline. No doubt the spate of Post Office Workers' strikes in London didn't help matters.

Gary Burns got bogged down with his studies, which obviously come first. Never fear, though - *Dr.Loco* returns next month.

After missing the copy date last month, our Scoop (Stephen Grainger) doesn't seem to be talking to me any more. I gather his tape recorder has packed up, so I guess he didn't fancy writing it all out longhand.

Alan Sugar, caught here in a shot exclusive to WACCI, seems to be enjoying himself immensely at the 1987 Computer Barons' Christmas Ball. To his right, Sir Clive Sinclair can be seen doing his well known impression of a man putting all his eggs in one basket.

THE VERY BAD NEWS

The competition that was being staged by *NEXT* on BBC2's Ceefax to find the Amateur Micro Magazine of the Year has been cancelled due to lack of entries.

Apparently only 10 magazines thought themselves good enough to enter, and Martin Cooper, Editor of *NEXT*, decided that being best out of 10 was nothing worth shouting about; I tend to agree with him.

The magazines that were entered - and WACCI is amongst them - have been passed on to Keith Hazelton, the Editor of the *Paper Round* column on *NEXT*, who will be reviewing each of them in due course.

AND THERE'S WORSE

Now I have to humbly apologise to all those members who are still waiting for the arrival of their 6128 chip. Nobody could have guessed that so many of you would want them - personally, the thought of playing about inside my computer scares the life out of me.

We have ordered more, and as such are totally in the hands of the supplier and the Post Office as to when they arrive. It goes without saying that as soon as they do arrive, they will be dispatched to you with all due haste.

In the meantime I have put your money into the club bank account; it's far safer there than it would be hanging around in my front room - I have a dog who puts his nose into everything, and, if it doesn't move, he eats it!

POSTAL CHESS TOURNAMENT

I see from this month's *P-K4* that Alastair Scott is trying to get a WACCI postal Chess tournament going.

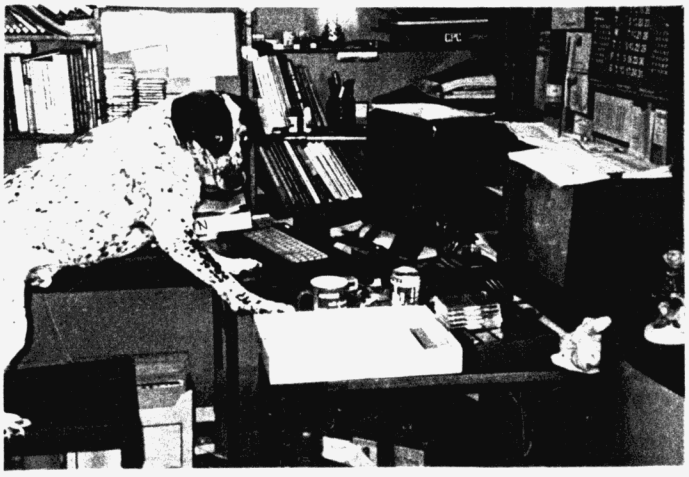
Response to things like this in the past has been very poor indeed. However, if enough members decide to join in I am willing to put up the money for a trophy of some kind.

If you're interested, don't write to me, write to Alastair.

PCW AND PC ARTICLES

I have been put under increasing pressure - well, perhaps that's a bit strong - I have been asked by both enquirers and some members, to include some articles in WACCI that deal with the PCW and PC ranges.

Now there's no way I'm going to let WACCI be taken over by our more



Just thought I'd show you the sort of thing I have to put up with here at WACCI HQ. Beats me how I ever manage to put the magazine together. Benji, the magazine's assistant editor, is seen here preparing to type his favourite keyword, CAT.

business orientated brethren, but I have agreed to a series of articles to do with programming on the PC, and some software reviews of business packages on the PCW. They should be coming at you soon, and I hope you enjoy them.

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YET MORE APOLOGIES

I dunno, all I seem to be doing is making excuses this month. This bit has to do with the fact that I once again under-estimated the monthly demand for FSW discs. I ran out just when the Post Office Workers, in an attempt to put the squeeze on their bosses, decided that London was a good place to bugger up. As I write this I am still waiting for my order to arrive. This time I've ordered a lot of discs. I never intend to run out again. (Famous last words).

Anyway, I managed to borrow a few blank discs from some of my local members and, thanks to Norman Champ, Steve Williams and Joe Casey, at least some of you got your discs, if a little late. By the time you read this, I should hope you all have the FSW you ordered (if a lot late).

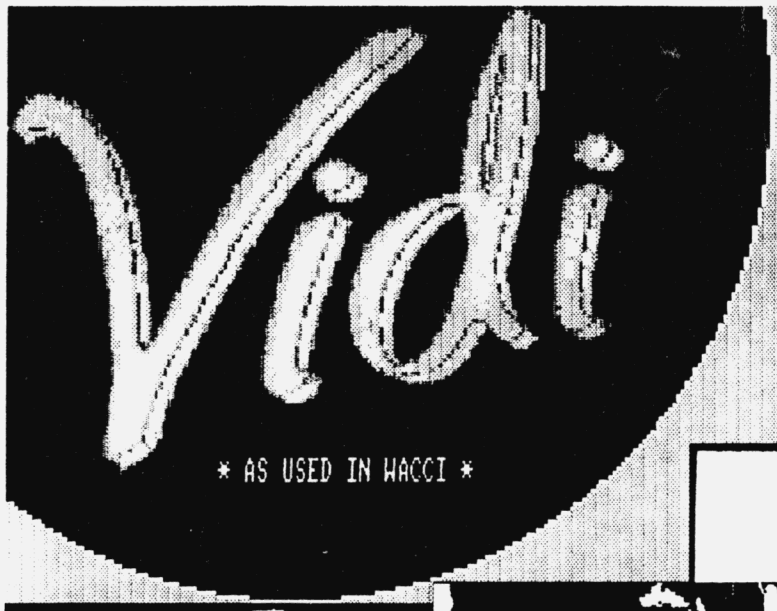
SO THIS IS CHRISTMAS

And what have we done? Well, we've fed Ethiopia and we've blown up Lybia, we've destroyed a few nuclear bombs in Europe and we've given some children leukaemia in Windscale.

The Future

The young boy stood looking up the road to the future. In the distance both sides appeared to converge together. 'That is due to perspective, when you reach there the road is as wide as it is here', said an old wise man. The young boy set off on the road, but, as he went on, both sides of the road converged until he could go no further. He returned to ask the old man what to do, but the old man was dead.

Merry Christmas, Spike.



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FAIR COMMENT

FAIR COMMENT
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CASTAWAY CLASSICS MAYBE?

I hope you may be able to include the following item of trivia in your letters page which may provide a useful addition to WACCI.

It is obvious that a growing number of old games are coming onto the market, either as discarded second hand games or when shops and mail-order companies decide to clear their shelves - many of them are classic games at a bargain knock down price.

Whilst WACCI endeavours to provide a review service of the new releases, I feel there is a place to mention some of the 'vintage' games which are frequently on offer. Indeed WACCI have on many occassions offered some fabulous bargains like Elite, Powerplay, and the INFOCOM adventures.

For those relatively new to computing, these games remain something of a mystery, and a regular review of the 'golden oldies' could be an interesting feature each month.

For what it's worth, I've discovered the following games, all of which beat most of the hits of today, selling for under £3 in my local shops.

BIGGLES: 3 arcade games and a flight simulation in one package.

SKYFOX: 15 battle scenarios of air to air or ground combat.

MOVIE: Icon driven arcade adventure of a private eye.

SWORDS & SORCERY: classic Dungeons and Dragons adventure.

TANK BUSTERS: Sci-Fi 3D tank combat simulator.

TAU CETI: One of the best space adventures to rival Elite or Mercenary.

DUN DURACH, MARSPORT: Classic animated adventures of search and escape.

There are many more which should rate and entry into the 'classic' slot. I'd be interested to hear of other favourites.

Ken Walker
Darlington

BYTES ON A PENSION

Thank you for your prompt reply to my request for a sample copy of your magazine. After reading it I find it the best one I have read so far, and am enclosing my subscription for 12 months and an order for the last 13 copies.

I am a pensioner, and I enjoy playing about on my computer. I have a 464 with two disc drives and extra memory. I am getting a DMP2000 this month.

I like the CP/M article in the magazine [CP/M TOPICS, Nov 87]. It is written so that it is easy to understand, which is more than most of the CP/M magazines are.

I look forward to receiving the back numbers of your magazine.

M.J.Menzies
Plymouth

<<You're not alone, MJ - we have quite a few senior citizens amongst our ranks. Perhaps one of you out there would like to start an 'Old Codgers' page? - Ed>>

MORE TIPS ON MACHINE CODE WANTED

I'm very impressed with the mag and am looking forward (hint hint) to some useful tips on machine code; anything to help an amateur get inside and poke around. Many thanks.

Mrs.J.Ball
Birkdale

<<Actually, the one thing I get told more than anything else is, "a lot of what's in WACCI goes way over my head".

I am trying to introduce some simpler articles on programming along with the more 'technical' ones. At the end of the day, however, I can only publish what members send me. Any budding writers out there? - Ed>>

464 6128

I have a 464 which I would like to upgrade to a 6128. Upon opening up the computer, which is Version B, I found to my suprise that the 40009 chip was in a socket, not soldered in.

This might be good news for the faint-hearted, and for the not-so-faint-hearted it is worth purchasing an inexpensive bulb-type Solder Sucker from the local Tandy shop.

Who sells memory expansions now? No-one seems to advertise them these days. Is there a hidden reason for this, something we should hear about perhaps?

Is there anything else needed for the conversion? Is a 6128 manual a vital accessory.

How about more in the magazine on how to blow Roms? Is it possible to put, say, 10 small progs onto one Rom? Is it easy, or are there some snags, menus, etc.?

James Hazeldine
Longbridge

<<DK'tronics were recently bought-up by RAM Electronics, whose first managerial act was to pull all the advertising out of the national press.

The Ram Packs are still available, though. WACCI can supply them at £39.95 for the 64K one, and £69.95 for the 256K. Both come with the necessary software to run them.

All you need for the full 464&6128 conversion is a 6128 Basic Rom chip, at least 64K extra memory, and at least one disc drive. The 6128 manual is not absolutely vital, although it will show you how the extra Basic 1.1 keywords work.

As for blowing Roms - don't ask me, I'm still learning how to blow bubbles. I know we have some Rom blowers out there, but not one of them seem willing to share their knowledge at this present moment in time - Ed>>

HOLE IN THE MIDDLE

Thank you for the tape of FSW which came a few days ago. It was very interesting to see what other members are doing. It was worth the money just for "Fruit Worm". This must be one of the most addictive games I have come across. I am modifying it to use two other keys before I wear out P and Q. Is that where "minding one's P's and Q's" comes from? <<Groan - Ed>>

Should the instruction page of "Bouncer" have a load of meaningless characters? And should the ball bounce off at an illogical angle at times? The game seems to work O.K. but I have a feeling that it is not quite right. I have not actually had a good look at the listing yet to see if I can spot any errors.

Thank you also for the December WACCI. Once again I am finding it very interesting. I was suprised to hear about CPC Newsletter. I was (am?) a subscriber, and this is the first I have heard about it. I now find myself in the rather peculiar position of paying two subs for the same magazine! Still, that's life. I wouldn't be suprised if there were several others in the same boat.

As I said, I find WACCI very interesting, but, like all the other magazines I have ever read, it seems to assume a measure of knowledge in what I would call the middle range.

I have mastered Basic, and understand the principles of machine code. Both these are well covered in print. At the other end of the scale, I am left mystified by some of the technical discussion, and horrified at the thought of poking about inside the computer. In between, there is an area I could understand if it were simply explained.

For example, in WACCI there is an advert for "The Rombo Rom Box". It is an 8-socket Rom Board and costs £27, but I have no idea what it is, what it does, or whether it would be of any use to me. Can it be used with a 464 without disc drive, and so on?

This seems to be typical, and I mention this advert simply as illustration. I don't even know if I can add memory capacity to my computer in the same way as I did to my old ZX81. I think I can, but any mention of add-on memory seems to be written on the assumption that I know all about it already.

In the Amstrad manual I am told I can obtain stereo sound by connecting to a Hi-Fi set. How? With what? I have never seen a lead advertised or heard of anybody doing it. Even programming sound is an area where I need educating. I can produce the individual notes, but am lost when it comes to SQ, "rendezvous with channel A showing at head", and RELEASE.

There seems to be so many things which could be explained to the likes of me.

Clive Blackmore
Paganhill

<<Firstly, let me re-assure you that your ourstanding sub to CPC Newsletter will be honoured.

Bouncer works perfectly on the 6128. Glancing through the code, I notice that Alastair has used some sneaky programming by POKEing code high into memory - this probably causes the meaningless characters on your 464. Maybe when Alastair sees your letter in WACCI he'll change it.

The trouble with an amateur magazine like WACCI is that it can only publish what contributors care to send. But, as you say, there is an 'orrible gap in the middle. Rest assured that I know it's there, and will publish as many articles as I can to bridge this gap - providing I am sent some.

Ah yes, Rombo Rom Boxes. These smashing bits of hardware plug into the expansion socket in the back of your computer. Inside the Rom Box are eight sockets in which you can place Roms.

On the Roms will be computer software. The beauty of having the software on Rom is that it is there as soon as you switch on your computer. To execute the program you would type in a bar-command. For instance, I am writing this with the Rom version of *Protext*. To get 'into' Protext I simply type |PROTEXT when I switch the computer on and - whoosh - one instant word-processor.

The other advantage of Rom software is that it takes up very little memory so much more room is left for other stuff like text files, etc. With *Protext* on Rom on the 464 you will have about 40K free space for your documents.

Yes, you can plug one of these Rom Boxes straight into the back of your 464, and no you don't need a disc drive.

The price of Rom software varies from between £20 and £40, but it really is worth the extra. Everybody who has a Rom Box says the same thing after a while: "I wish I could get everything on ROM." But you can't. There are a few companies who will 'blow' software onto a Rom for you, but they do charge for it (£15 to £20 is typical).

Having said that, the sort of software you'd want on Rom is usually a word-processor, an assembler, a toolbox, and another language perhaps. All these are readily available from various companies, although I think we all agree that ARNOR's stuff is the best.

As for extra memory: You can get either 64K or 256K Ram packs which simply plug into the expansion port - just like the Rom Box, and as well as the Rom Box if you like. They're not cheap though: WACCI can supply the DK'tronics RAM packs at £39.95 for the 64K one, and £69.95 for the 256K. Both come with the necessary software to run them.

Sound and HI-FI: Go to an electrical appliance shop - Tandys maybe - and buy a lead with, on one end, a jack plug that will fit into the small round socket socket next to the joystick port on your 464 - I think it's a standard 3.5mm jack-plug - and on the other end a standard 5-din plug that plugs into the AUX socket on your HI-FI. If the lead isn't long enough, take it to a TV/HI-FI repair shop and ask them to lengthen it - Ed>>

LETTERS

ILLUSTRIOUS?

Thank you for helping Chris Bryant out by honouring his outstanding subscriptions when his Amstrad CPC Newsletter had to close. I am sure that all the people who would have been otherwise let down appreciate your gesture and will make the switch to your illustrious magazine.

Carl Wright
Leicester

'ALLO 'ALLO. WOT'S ALL DIS DEN?

Je m'ennuie plus que jamais! Rien a faire - sept houre et demi. Je presente un lettre sur le francais. Lettre est le naff.

Alors, etonnez moi! Vioci enfin WACCI. C'est bon - je vais essayer.

Je suis regardez le "Auntie's Diary" - hau!!! Ainsi, je prefere "The Last Laugh" - formidable! Est vraie!!!

Moi regardez des illustres; Amstrad Action, Popular Computing Weekly et al. Je nas pas regardez le Simon Gookwin Weakly. Je prefere WACCI.

Je regardez WACCI. Ou est le Saffron? Les vacances? Tu le sais - ou est WACCI sans Saffron???

Vous regardez Floyd On France sur le television? Tu aimes Pink Floyd? On ecoute Dark Side of the Moon. Au revoir pour maintenant.

Fi Fi J'tor
Bolougne
France
TR96 6SY

<<Ahem. Le Saffron est done a bunk to le U.S.A with un homme from Electronic Arts. God bless America - Ed>>

COURSE ON COBOL

I have received a copy of your WACCI instead of the newsletter I ordered. Your fanzine stated that it was taking over the other and honouring the subs. Does this make me a member of yours, and enable me to obtain the FSW I have ordered?

Also, I started the other newsletter as it was going to do a course on COBOL. Is there any chance that you might do the same?

I am interested in learning most computer languages, including assembly language. Any hints or tips would be gratefully accepted.

If you could drop a reminder in with a copy of your fanzine when my subs are due for renewal, I'll send you a cheque.

Michael Madden
South Moor

<<What WACCI has done is to help a fellow fanzine out of a tight spot. The alternative was for you to lose the fiver you sent Chris Bryant. I want to make it quite clear that WACCI has received no money to pay for the issues you and over 50 others are receiving.

You are not a registered member of WACCI until I receive a subscription from you - the money you paid to Chris Bryant went down the same drain CPC Newsletter did. However, I shall not refuse any readers we have inherited from CPC Newletter access to The FSW Library; it's only the Homegrown bit that is meant to be 'Members Only' anyway.

A course on COBOL would be great. Whoever it was that was going to write about it in CPC Newsletter is more than welcome to wite about it in WACCI. I don't know who it was, though, so we'll just have to wait and see.

Assembly language features regularly in WACCI, although most of it tends to be fairly advanced stuff. If I receive simpler articles I will publish them. In the meantime, if you have any specific questions on programming in any language, write to Fair Comment and I'm sure we can get them answered somehow - Ed>>

LOOKS FAMILIAR

Has Steve Williams ever appeared on 'Jackanory'? That picture looks very familiar.

Anon

<<Looks like Buck Rogers to me - Ed>>

WOT'S THIS ^ THING

Could you tell me how I can find the symbol ^ that John Keneally indicated in his article on Setup, Nov 87 issue of WACCI. Viz, DISCCOPY^M.

I've searched the keyboard but I'm blowed if I can find it. Could be it's still at the manufacturers hanging about on someone's desk. Swine.

I know this sounds trivial, but we learners can easily be thrown when we come across a strange symbol. It took me 5 years to find out who the hell Kilroy was.

Wot a mess ctrl j causes.

Johnny One
The Old Codger

<<The ^ symbol is the up-arrow on the same key as the £ (pound sign). It resides on the top row of your keyboard between the equals sign on the left, and CLR on the right - Ed>>

MORE FACTS, LESS WIT

CPC Newsletter got my initials wrong. I'm human, not a computer. I like your mag, but would like it more if there were more facts and less wit.

"When a ship sets sail, what's the wake for?" I don't lack a sense of humour, but please make wit short and punchy? "The wake is for the Dead Sea."

P.C.Asbury-Smith
London EC1

<<I don't get this. In the November WACCI I can only count 4 pages (out of 36) that could be construed as either pure 'wit' or having nothing to do with computing, and in the December issue I can't find any - Ed>>

ROM FEVER

I have just received the latest issue of WACCI, and I have to say that I have enjoyed every page. At last I have found a mag that explains something in a way that even I can understand.

Just one item in last month's issue has made me very glad that I joined, the item being "46426128". I have for sometime been thinking of getting a 6128 as a lot of the software you have in the Homegrown library, and most of the software on Prestel, will only run on the 6128, but I find that being the wrong side of 50, and unemployed, I cannot afford £400. Anyway, I have a hell of a lot of 464 software that I do not want to get shot of.

On reading the article I had the 6 screws out of the back of my 464 in quick time, and was looking at the Rom chip. It is a 40009, but is soldered in, so I will have to get the local repair man to do it. Thank you for saving me a lot of money.

G.B.Wright
Ashford

<<Thank you, Mr. Wright, for your kind words.

The 6128 Basic Rom has proved an immensely popular item. If anybody is still waiting for the one they ordered, it's because we are waiting for the supplier to send us more ourselves - Ed>>

THE NUMBERS GAME

Regarding Mr. Godwin's letter in November's WACCI, a program written by Mads Dam-Larsen (whose name sounds Danish) for conversion between Roman and Arabic numerals appeared in Personal Computing World for June 1987 (page 205) with corrections in September's issue (page 182).

A program for conversion between denary number symbols and words might be marginally useful for someone with a speech-synthesizer, but what little logic there is in our verbal description of numbers is somewhat obscured by custom.

Logically, we should count: nine, ten, ten-one, ten-two, ten-three ... two-tens, two-tens-one, two-tens-two, etc. We do not because English, in common with many other languages, retains vestiges of a duodecimal counting system, so that we say eleven instead of ten-one, and twelve instead of ten-two.

The order of magnitude is reversed in the "teen" numbers, so that the unit values are stated before the word denoting ten. This survives from the time we counted that way. There is a reminder in the nursery-rhyme which describes the fate of four-and-twenty, not twenty-four, blackbirds.

Further, 10 becomes "teen" for 13 to 19 and "ty" for multiples of ten from 20 to 90. In compound nouns, 3 takes the form "thir". 20 is twenty (related etymologically to twain-ten) instead of two-ty. In some European languages, but not English as it happens, a word meaning "score" (20) is also tangled up in the system.

In addition to these logic-defeating irregularities there are two different conventions for describing very large numbers; one used in the USA and France, and the other in Britain and Germany.

NAME	USA	BRITISH
MILLION	10^6	10^6
MILLIARD	10^9	10^9
BILLION	10^9	10^12
TRILLION	10^12	10^18
QUADRILLION	10^15	10^24
QUINTILLION	10^18	10^30
SEXTILLION	10^21	10^36
SEPTILLION	10^24	10^42
OCTILLION	10^27	10^48
NONILLION	10^30	10^54
DECILLION	10^33	10^60
UNDECILLION	10^36	10^66
DUODECILLION	10^39	10^72
TREDECILLION	10^42	10^78
QUATTUORDECILLION .	10^45	10^84
QUINDECILLION	10^48	10^90
SEXDECILLION	10^51	10^96
SEPTENDECILLION ...	10^54	10^102
OCTEDECILLION	10^57	10^108
NOVEMDECILLION	10^60	10^114
VIGINTILLION	10^63	10^120

It all hinges on whether the "illion" element is taken to mean a thousand-fold or a million-fold increase in magnitude. "Milliard" is a term seldom used in either the USA or Britain.

The British journal, The Economist, seems to now favour the USA value for a billion, possibly in recognition of the fact that the US dollar is the international standard unit of credit, and US terminology for economics and finance is understood world-wide. Whether it is useful or even sensible to employ special words to describe values over a milliard is very doubtful. In practice they are best denoted by powers of ten.

John Ridge
Norway

A COUPLE OF POINTS

1) I notice the computer-printed label on the envelope in which WACCI was delivered had my surname in front of my forename. I greatly dislike this style, and may do something we will both regret if it happens again. I hate it! It reminds me of school reports.

2) To answer the query regarding earlier versions of my programs: The point of upgrading is to improve upon the original programs. In the case of Scanner this was to replace the original, which went missing.

Eddy was updated because the extra Ram was not being used to its full potential, and it was easier to re-write the program to make it 464/664 compatible than continue in the original vein. To adapt it to use the extra RAM it is onlt a matter of running Bankman and using the supplied string storage commands. If you really think it's worth it, I'd be happy to do it.

Kennedy John
Belfast

WACCI, UXBRIDGE, UB8 3QN
(it'll get here)

NEWS

ERGANDER ... PROPERGANDER ... PR

WHAT'S HAPPENING OUT THERE? THIS MONTH YOUR EDITOR HAS BEEN SIFTING THROUGH THE PRESS RELEASES.

FOUR SMASH HITS

Mega software house, HEWSON, are putting together all their 1987 smashes onto one crashing compilation in the New Year. Due out in mid January, *Four Smash Hits* has to be the best value arcade compilation of all time.

Top of the line comes *Exolon*, the awesome chart-topper complete with blasting birth-pods, rampaging rockets and shattering grenades.

Close in behind is the all-action asteroid storms and murderous aliens of *Zynaps*, "The game joysticks were invented for".

Third in the quartet is the labyrinthian *Ranarama*, complete with frogs, sorcerers, and evil spinning knives - the look-down dungeon game which brings your nightmare to life.

And to cap it all, the compo includes *Uridium Plus*, which has been called the greatest home computer game of all time.

HEWSON's *Four Smash Hits* should be out in mid January, £9.95 tape and £14.95 disc.

PCW FILE GOES ON

After the demise of *CPC Newsletter*, rumours have been circulating that it's sister magazine, *PCW File*, would be folding too. Nothing could be further from the truth.

PCW File claims to have a readership of around 800, and would like to see that figure increase to 2000. The group already has readers in Australia, New Zealand, West Germany, Holland, and the USA.

The newsletter is published about every two months, and includes readers' hints and tips, a helpline, letters, articles, software reviews, and details of a free Public Domain software library.

For the months of December and January, *PCW File* is entering subscribers into a free software draw. The winner will be picked out at the end of each month, and will win software of their choice up to £50. Not only this, but everybody who joins will receive a free *Pageboy* ruler worth £2.45.

Current membership costs £7 for six issues, and corporate membership is available for companies, etc. Further details from *PCW File, 11 Havenview Road, Seaton, Devon EX12 2PF.*

FANTASY WARGAME

The latest addition to PSS's exciting range of products is *Sorcerer Lord*, a solo fantasy wargame simulating the invasion of the ancient lands of Galanor by the evil ruler of the Northern Shadowlands.

Sorcery Lord is out now, and costs £12.95 tape, £17.95 disc.

IT'S A RACK-IT

Ocean Conqueror is the latest top value RACK-IT release featuring a fully detailed submarine battle simulation. Already out on the MSX, the Amstrad version is all set to follow in February.

Taking charge of your submarine, you must eliminate four convoys supplying the islands in your area. You have 18 hours in which to complete the task.

Featuring torpedoes, guided missiles, a combined radar and sonar, plus a host of other systems and controls, *Ocean Conqueror* sounds like the best submarine simulation to date, and at only £2.99, it should be very good value for money.

FLYING SHARK

Watch out for *Flying Shark*, FIREBIRD's latest coin-op coversion, and already a massive hit in the arcades.

Licensed from TAITO, *Flying Shark* is a fast and furious vertical-scrolling shoot-em-up. As a lone fighter pilot armed with an endless supply of bullets, and too few devastatng smart bombs, you must meet the challenge of a lifetime in a ferocious battle against enemy forces.

The gameplay takes place through five lethal levels, including attacks by squadrons of planes, frenzied fire from tanks and gun emplacements, plus deadly attacks from battle ships and patrol boats out on the high seas.

Flying Shark is 'coming soon', price £8.95 tape, £14.95 disc.

BUDGET-RANGE DISCS

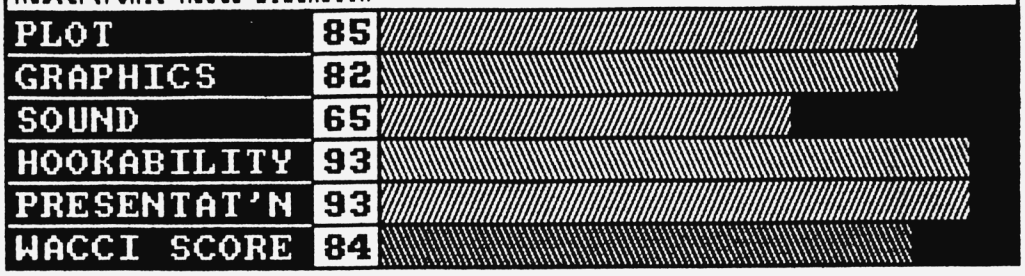
At last the opportunity has arrived for disc users to experience exceptional Budget software titles such as *Thrust* and *Ninja Master*.

For the Amstrad user, FIREBIRD offer a choice of 8 discs, with a total of 16 chart-topping titles, retailing at £6.99. Excellent value for 2-game, fast loading discs.

ANGLE BALL

Mastertronic Added Dimension

Wacci Price 2.99 tape ---- disc



Alastair Scott

A pool game with a difference, played on a hexagonal table that adds spice to rebounds and makes the game much more skillful. There are one-player and two-player options, plus the chance to play the computer, which has three skill levels. The easiest level is simple to beat - the other two are devastating.

There are 24 screens, each with different arrangements of the eight balls. If you get tired of them, you can rearrange the screens to suit yourself, and save your creations to tape.

The object is to either pot the eight balls, finishing with the black, or to make fewer missed pots than your opponent. The first to miss three times loses the frame. Matches are played as the best of nine frames.

Control is easy, using the joystick or redefinable keys. To make a shot you just move a cursor to where you want to play the cue ball, then select spin and strength of shot using other cursors.

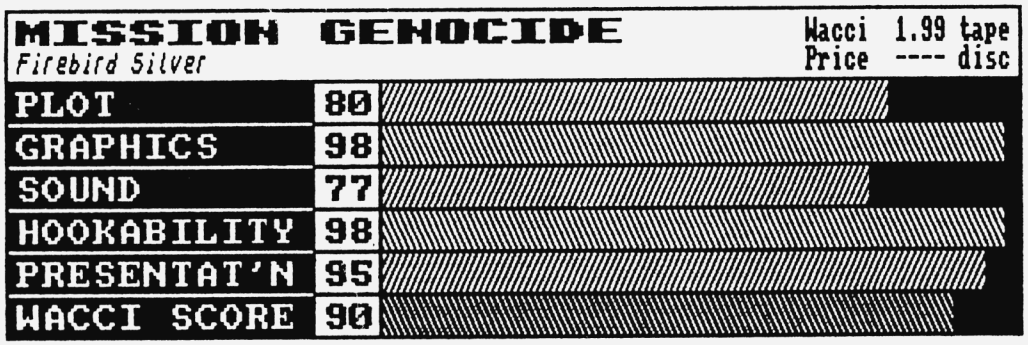
The beauty of this game is its enormous range of options, including the unique option *<<Unique? - Ed>>* to play the computer, and its realism - unlike other pool and snooker games, if you line up a pot correctly it will work - there are no peculiar effects, so skill is paramount. The large size of the balls helps you no end.

The balls and cursors move smoothly, albeit a little slowly. The main tune is one-channel Bach, during the game all you hear is the odd click. Nevertheless, a good game. Need I say more?

MISSION GENOCIDE

Firebird Silver

Wacci Price 1.99 tape ---- disc



Alastair Scott

You control a pyramidical spaceship which skims over a vertically scrolling landscape, bombing installations on the ground and shooting any alien craft which get in the way. You have twelve stages to go through, with only three lives to spare.

The plot may sound unoriginal *<<so why do you score it as high as 80? - Ed>>* but the game is completely mindless, addictive and brilliant.

Scrolling is both smooth and fast. The graphics use the whole screen, including the borders, and are very colourful and detailed. The animation is the best I have ever seen, there is not the slightest trace of flicker or jerkiness by the enormous variety of alien craft, which move in every way possible, from oscillatory-wave motion to formation flying and unpredictable bouncing.

The game is challenging, mainly due to its speed and the myriad alien craft - at any one time, you can expect to see about eight coming towards you. After the first level, both ground installations and aliens fire missiles at you, which adds to the general chaos.

As well as weapons, you can pick up deflector shields by flying over them, which quickly become lifesavers as hostile things just bounce off your spaceship for a limited time. Fortunately, you get an extra life every 10,000 points.

Control of your spaceship is achieved using either joystick or un-redefinable keys. Some people may find the chosen keys a little awkward *<<Why? - Ed>>*.

There are many nice touches; for example, a choice of three colour schemes, a much needed pause key, an autofire option which saves your joystick button from destruction, and unexpected humour (the third level is a clever parody of *Uridium*).

The only slight let-down is the sound, which consists of no more than zaps and explosions - no music. There is also no high score table, just a record of the highest score.

All this becomes slightly less surprising when you read that the author is Paul Shirley, whose previous work includes *Spindizzy* and *Confuzion*. *Mission Genocide* continues the legend, and is an outstanding shoot-em-up at an incredible price.

STOP PRESS ... DON'T FORGET THE AMSTRAD SHOW DATES HAVE BEEN MOVED TO THURS 4TH, FRI 5TH AND SAT 6TH FEBRUARY ... STOP PRESS

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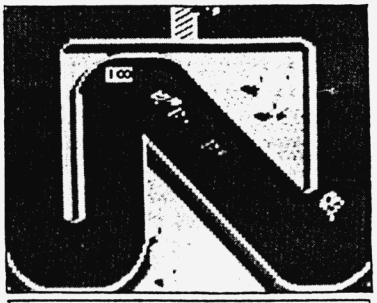
grand prix action

SIMSPOT

Wah Nige watch out, KEN WALKER also has his sights on Piquet's championship.



SIMSPOT
55 GREENBANK ROAD
DARLINGTON, DL3 6EN

Motor sports are probably the most difficult to simulate since almost everyone has an idea of what it's really like to burn rubber on either 2 or 4 wheels. Having tried both with limited success, the accurate sensation of speed, and the inevitable spills, never quite come off on the computer. However there follows a selection of games which feature race-track action and are good value for those who fancy a shot at the World Title.

3D GRAND PRIX (Amsoft)

This has been knocking around for some years now but is still regarded as having the best graphics of any Formula 1 game available for the Amstrad.

The cockpit display includes rev. counter, temp. guage, speedo, gear selector and wing mirrors, but control is a bit sluggish, especially around the corners. Each race is over 3 laps and to qualify for the next circuit you must finish in the first three - not too difficult at Zandvoort, but the competition gets tougher, and a well known cheat mode may be needed to get a glimpse of the other tracks. (Press Escape key after starting to pause, and whilst holding down the CONTROL key, type ARTWORK).

My favourite trick is to run off the track and squash the notice board, alongside the track - great sound effects. Like most racing games, it's best to slipstream the leading car around the bend and accelerate past on the straight. Silverstone is, for all games, the easiest circuit to negotiate since all the left-hand corners are not too tight and the straights are relatively long.

An additional problem with this game is in keeping the engine temperature and revs down - high temperature results in loss of performance.

FORMULA 1 SIMULATOR (Mastertronic)

This is the classic Budget game which has hardly been out of the charts for the past 2 years. There is a choice of 10 tracks, Manual or Automatic gears and the possibility of negotiating the race during wet weather. The graphics may be regarded as basic but, if anything, the handling is more responsive than *3DGP*. Starting position is determined by your performance in practice - I've yet to get higher than 5th on the grid.

SPEED KING (Mastertronic)

This is another racing cheapo but the action comes on 2 wheels and over 10 circuits which include Donnington, Daytona and of course Silverstone. Unlike the others there are options for 2 - 6 laps and a preview of each circuit can be taken at 250 MPH.

As you would expect from a Budget label, the presentation is kept simple but a lot of fun is possible by guiding Lego-man past 19 other riders. It isn't the most accurate of simulations - lap records can be achieved in under a minute - but who cares when it costs only £1.99. All those options make it good value, and it provides a lot of fun.

T.T. RACER (Digital Integration)

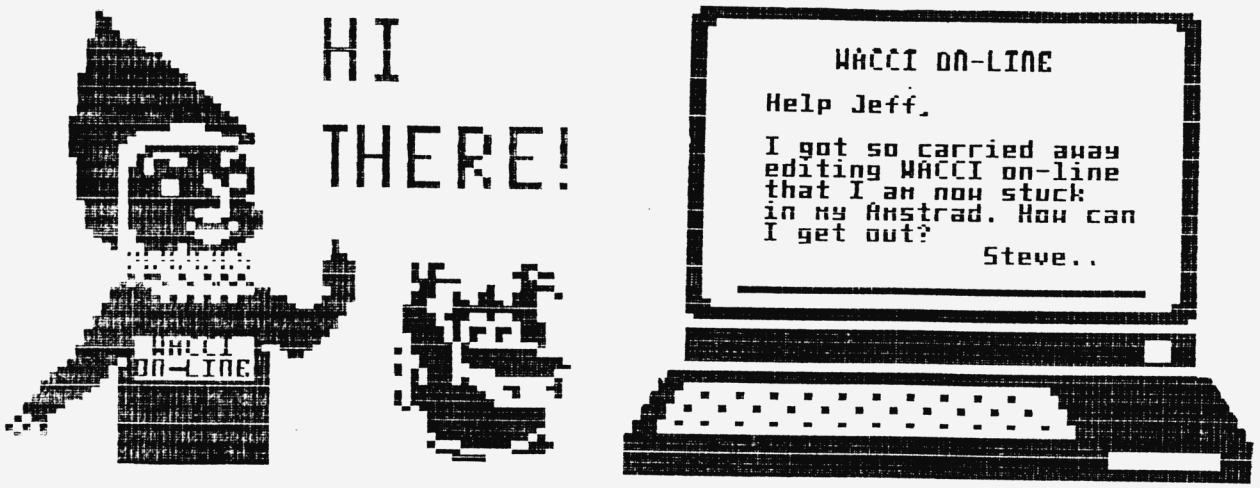
This is the best simulation of the bunch, providing an opportunity to race a whole Grand Prix season. I daresay anyone who attempts this will be shattered like Barry Sheen (who?) or collapse in a fit of exhaustion half way through the race - after all, it can be over 99 gruelling laps.

There are some nice touches, like the way the scenery tilts when leaning into a corner. It gives a great feeling of speed - the view is over the handlebars and there were times when I almost fell out of the chair!

For those who also fancy themselves as a mechanic, the engine can be tuned in the pits, whilst changing the tyres. Game selection covers 4 sizes of engine (from 80 to 500cc), 4 classes of competition (Club to Grand Prix level), 12 tracks, 8 distances (from 1 lap to over 99) and the opportunity to practice before the race. To cap it all, the game comes with a manual that has almost as many pages as the one supplied by Honda.

These games are the perfect gift for anyone who must drink and drive this Christmas - I always insist on whisky at Silverstone and brandy at Monza.

CHEERS, AND BEST WISHES - KEN



Coooeeeee .... I'm back! But where am I? And what am I doing here?

Oh yes ... Well, since last month I have set up a remote extension to my CPC. I now have an extra monitor and joystick in the bathroom. At the moment I am lying back in the luxuriously warm and soapy water, giving my joystick a gentle wiggle every now and again.

Hmmm, this is nice. This feels good. I think I'll make a little pixie hat for myself. (It's when you shampoo your hair up into a point). I'll just have a quick look in the mirror. Hmmm, not at all bad. Think I'll try a pair of horns next ... What did Jeff say about the copy date for this issue being the 7th December? WHAT THE F...

As I leap out of the foamy waters I exclaim, Gosh! Blimey! Crikey! today's the 5th, grab a towel and run like mad into the front room, switch on the CPC and, as if by magic, Heypresto! It's

BIGTHANKYEW TIME

First off, Mega-thanks to Auntie John. Listen, this man is a hero, a Saint, a superstar. Why? Well, he lent me his *Vidi* digitiser for a couple of weeks. The unit arrived with a note scribbled out on the back of an empty plant-pot. Needless to say, it was pretty illegible but I could just make out "I have now found my Inner Comic self". He's a real brick (No, I said brick).

And thanks to Glenn Carey for the fan letters. Sorry I haven't replied yet Glenn, a severe shortage of time is my only excuse. Don't hold your breath waiting for my photograph though, I saw what you did with those poor sods and wigs in the November issue.

Many, many, many thanks go to the boys at RAINBIRD for producing *The Advanced OCP Art Studio*. God bless you sirs.

CAGE COMMS ROM

And what has happened to the little *Cage Comms Rom* that I revieved way back in August? Well I phoned Ian Hoare (the man responsible) the other day and he assures me that it will be available by Crimbo. So, if I were you, I'd get your best coloured crayons out and start scrawling the old last-minute begging letters to Santa.

A SEASONAL JOKEYPOO

Two old spinsters were sat in front of the fire at Xmas. One turned to the other and said: "Would a stocking hold all you want for Xmas?"

"Nope," replied the other, "but a pair of socks would."

AND NOW...

The second part of an occasional series about communications. In which I will attempt to teach you about the world of communications and, probably, end up confusing myself, as usual.

My old mate, Glyn (Eagle-eyes) Phillips wrote to me and pointed out that, in last month's column, I had written about *Videotex* and later on had referred to it as *Videotext*.

Thank you, Glyn (ba*d), you were the first to spot my deliberate error, erhemm... What I meant to say was *Videotex*. *Videotext*, in fact, means something entirely different. It is the name given to the German version of our *Viewdata*.

wollOllowOwollOllow

COMMS

HERE WE GO, HERE WE GO ...

So last month we found out about *Videotex*. This is the system that allows you to have the facilities of a Really Big Computer right there in your front room. How? Well, if you didn't read last month's column I'm certainly not going to repeat myself all over again. Get a back issue.

A DEEPER LOOK AT VIEWDATA?

Hokay, *Viewdata* is the whizzo bit of *Videotex*. Unlike *Teletext*, it's interactive. This means you can do lots of brill things with it.

HOW?

Well. first off you buy yourself an Amstrad CPC. Wow! You mean you've got one already? Phew, what a coincidence! O.K. Next your gonna need to get a phone-line. If you haven't got one you'd better phone BT and order one. Pardon? Oh of course, how can you phone BeaTy and order a phone if you haven't got one already? Dunno really. I'll ask Jeff.

To recap (no, recap not knee-cap, fool). So far you have a computer, a phone-line and a *Remote Host* sitting at the end of a phone waiting for your call. How do you get them to talk to each other? Well, next you will need a *Modem* and some *Sox*. Oooooerr, I feel a question coming on...

WHAT'S A MODEM?

The word *Modem* stands for MOdulator-DEModulator and is a brill box of tricks that you connect into the back of your pooter.

Brrrrr, it's cold when you're only wearing a towel and a silly grin. S'pose I should have got dressed before I started typing this.

SO WHAT DOES IT DO THEN?

What? Oh yes! A *Modem* is used to translate a digital signal (on/off electronic pulses) from a computer into an analog signal (whistles and beeps) for transmission over a network (see the paragraph titled *Networks*). It also receives any analog reply stuff and bungs it back into your computer. Your computer can then read these pulses by using some clever *Sox*.

WHAT'S SOX?

No, it's not those smelly things at the end of your legs. *Sox*, is the word used by those peeps "in the know", for the software that makes the computer and modem act as a *Videotex* terminal. *Sox* is not universally accepted but it is a good word to impress other computer enthusiasts with - unless, that is, your feet have an odour problem.

NETWORKS

A *Network*, 98% of the time, means a telephone connection. But, it can be a *LAN*, which stands for Local Area Network.

*LAN*s are mostly used by big companies residing in large office blocks. These companies have computers in their offices which need to talk to each other. They certainly don't want to end up paying an arm and a leg for BT's cruddy service, so they set up their own internal system. This means that Gavin, the office yuppie on the 32nd floor, can send really important messages like "Hello Julian, gosh look I'm up here on floor 32," down to his girlie mate Julian on the 3rd floor. Beats using the lift I suppose.

SHAKE RATTLE AND SCROLL

In the last issue, I told you that there is a category of *Viewdata* called *Scrolling Bulletin Boards*. Well, just to confuse you a bit more, they are also known as *Glass Teletype* format. Nothing too difficult about that, is there? It's only the same principal as printouts being known as *Hardcopy* and/or *Dumps*.

I'm getting confused. Anyway, don't panic, as we'll come back to *Scrolling Boards* at a later date.

END BIT

Right, that's enough of this technical stuff, it's making me dizzy. If you get a modem in your stocking, on the 25th, why not have a look at WACCI ON-LINE. It's on *The Gnome at Home* Bulletin Board (01-888-8894) which is open 24hrs a day, day after day, after day, after day, after day. Crikey, I've got a headache now.

Okay, lets have a look at the new words learned this month...

NEW WORDS LEARNED THIS MONTH

MODEM	DIGITAL
SOX	NETWORKS
GLASS TELETYPE	LAN
ANALOG	GLYN
CONDOM	PIXIE HAT

So that's it. Another month's column finished. Gosh what a relief. I am now sat here with a shampoo encrusted Pixie hat and a damp towel wrapped around me. I'm back off to my tepid bath water. Glug glug till next month my little sweeties. Have a nice Xmas.

Steve Williams
59 The Green
Twickenham
Middlesex TW2 5BU

P-K4

* CHESS *

By

Alastair Scott

GAME 1

At the end of November I got a letter from Richard Burton, the *Foul Play* columnist. He challenged me to a game of postal chess. I accepted, and now we have a battle royal between two WACCI contributors who live 550 miles apart. To be more precise, two battles royal; in the traditional fashion, each player plays one game with White and one with Black. Thanks to the Post Office, the current rate is one move every 10 days. Still, I'll keep you informed of the moves every month.

The (few) moves that matter so far. In game 1, I am White. In game 2, Richard is White.

ALASTAIR SCOTT vs RICHARD BURTON

GAME 1: 1. e4

GAME 2:

I hear Alex Aird is a keen chess player too. What about a WACCI postal chess tournament? Anyone else interested?

POSTAL CHESS

Postal chess seems to be all the rage just now. Apart from the *Colossus Chess 4* versus *PCW readers* match, there is also a game being played between the readers of *The Independent* and *Psion Chess*, the strongest computer chess program, which only runs, alas, on the QL, the Atari ST and the Apple Macintosh. Rather ungraciously, the operators gave the computer White and hence the advantage of the first move. Are they afraid it will be thrashed?

QUICK ON THE DRAW

From my experience, they have good reason to be afraid. Bernard Hill of Selkirk entered a team of five chess computers and programs into the Scottish Correspondence Chess League. At the end, they had obtained a meagre 3.5 points out of 10, of which 2 were won by default, 1 was won by the BBC program *White Knight Mk2*, and the remaining draw was obtained by the *Novag Super Constellation* (supposed Elo grade 2017) against Yours Truly (Elo grade 1670), who was playing on board 1 for the Forth Knights, our local team.

The game I won is far too long and boring to reproduce here; it was a French Defence in which the computer (White) was slowly and remorselessly crushed. The draw was by repetition of position.

MASTERCHESS UPDATE

About the *Masterchess* program: Harry Ewing, my MP, has promised to contact the Trading Standards people, although I haven't heard anything from him for ages. The game hasn't been withdrawn - I saw it on sale in Edinburgh - but at least AJ got a £3.50 refund, which is interesting as the game cost £1.99!

CHESS CLOCK PROGRAM

A quick commercial for my new *Chess Clock* program in the FSW Library. It allows you to play blitz games (1-60 minutes per side) and be able to see exactly how much time you have left - no squinting at a tiny little flag. Also incorporated is a move counter and an ear-splitting alarm if you run out of time. See you next month.

ALASTAIR SCOTT
P-K4
"RUSSDENE"
30 TALBOT STREET
GRANGEMOUTH
STIRLINGSHIRE FK3 8HU

pascal compiler rom '£20 down the drain'

REVIEW by JEFF WALKER

Once upon a time there was a CPC user looking at an advert in a magazine.

"Fed up with slow Basic?" said the advert.

"Yes," said the CPC user.

"Want the speed of machine code without the hassle?" said the advert.

"Not 'alf," said the CPC user.

"Then why not try Pascal," said the advert.

"Okay," said the CPC user, and he sent his money off.

A few days later, after the nice man at the other end had made sure the CPC user's cheque was sitting snugly in his cosy bank account, the Pascal Rom arrived.

oooOooo

Computer languages don't come cheap; £40 is usually the lowest price around, so this particular CPC user was a still a little sceptical of a £20 Pascal - especially one on Rom - even as he was opening the small, plain-brown package it arrived in.

The first thing to check out when buying a computer language is the documentation. Nobody expects a comprehensive tutorial on the language, but a clear and concise explanation of the implementation is *imperative*. You would at least expect a list of all the built-in functions and reserved words, with some examples of how each works.

After I had picked out the staples, sorted the pages into their correct order, and restapled them together (wasn't I lucky!), the documentation for this Pascal Rom consisted of a slim, 24-page, photocopied booklet.

The first half of the booklet informs you of some of the less severe limitations of the program, and attempts to teach you the basics of Pascal programming - something more revered authors have written 300-page books about - and the second half is given over to page upon page of undocumented, confusing, and, in places, smudged listings.

After reading the section "About Pascal" I was left wondering where the documentation about all the other Pascal reserved words was. Only slowly did it dawn on me that this version supports less than half of the functions you would expect from a 'standard' Pascal.

Pascal is a strongly 'typed' language. In Basic we have four 'types': INTEGER, REAL (floating-point), STRING, and ARRAY. In Pascal there are more: for a start there should be things called RECORDs and SETs, and, along with INTEGER and REAL, there should be a CHAR type, a BOOLEAN type, and maybe even a STRING type.

Pascal Compiler Rom has only one type: INTEGER. It seems you can have CHAR types and STRING types, but you must declare them as type INTEGER (?).

The lack of a BOOLEAN type is a serious omission. Because of this, the Pascal identifiers TRUE and FALSE are missing too. Boolean functions are amongst the 10 most useful things in the universe when it comes to ease of programming and debugging.

The lack of a REAL type means there is no floating-point arithmetic available, and this rules out the standard Pascal functions like SIN, COS, SQR, EXP, and any other function that may return a floating-point number.

The lack of RECORDs and SETs makes this implementation little more than an expensive toy. After all, Pascal was invented so that programmers could structure their data in a clear and logical way. RECORDs and SETs are the data structures that enable you to do this, but not with this effort from John Morrison.

Pascal Compiler Rom supports ARRAYs, but only single-dimensioned ones. John Morrison says this *"is not much of a handicap"*. Maybe not, but it's one hell of a restriction!

Input/Output is controlled solely by the READ/WRITE functions. Strangely, the READLN and WRITELN functions have been omitted. This alone will cause enormous problems when trying to convert standard Pascal code from the books you will no doubt buy or borrow in order to learn the language.

There are no built-in functions for reading/writing to file from within a program. Library procedures are provided for saving and loading Binary files - routines for *Ascii* files would have been more useful.

Other important features of standard Pascals that this version omits are 'pointers', a FORWARD facility for procedures and functions, and facilities for compiling long source-code files from disc.

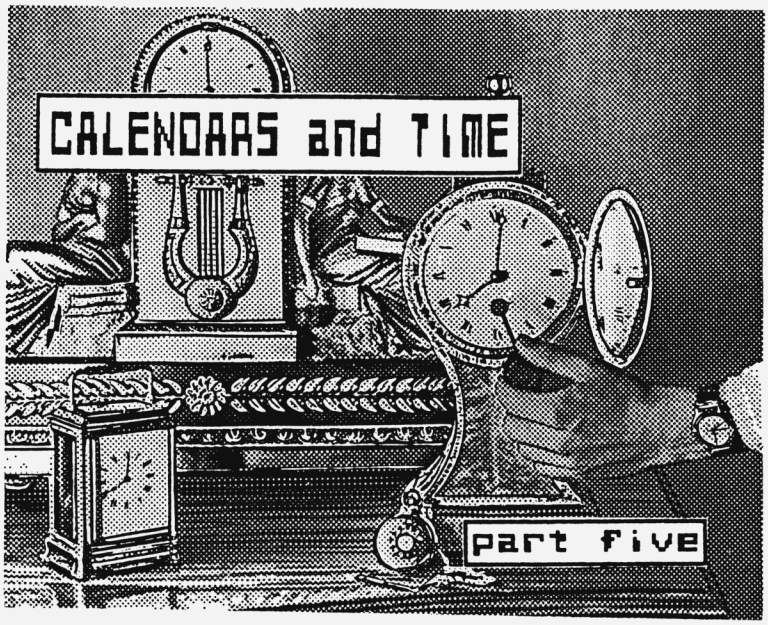
Pascal Compiler Rom cannot compile from ordinary text files, only files saved by the Rom's SAVE facility. This forces you to use John Morrison's bloody awful built-in Text Editor. Christ! It's worse than Hisoft's, and I never thought I'd live to say that.

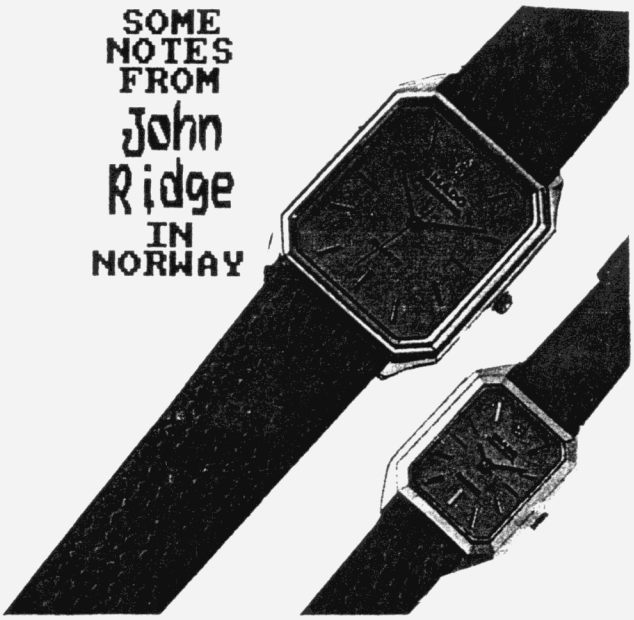
THE VERDICT

This implementation of the Pascal programming language is *useless* to beginners and experts alike because it is so far removed from the agreed standard. If you learn this version, you'll have to start all over again when you get hold of the real thing.

I've got nothing good to say about this piece of 'software'. Do yourself an enormous favour and steer well clear of John Morrison's *PASCAL COMPILER WOM*. No that's not a misprint - it stands for *Waste Of Money*!

FEATURE





No Roman ever wrote or spoke the Latin we learned at school. It is a synthetic language based on the literary and spoken Latin of a particular period, but much tidied up.

What we call Roman numerals were not used by the Romans either, they have also been tidied up. Some symbols have been abandoned and the whole system has been made regular. Nevertheless, a knowledge of School-Latin provides us with a framework upon which we can build a knowledge of genuine Latin covering a fairly wide span of periods, and the "modern" Roman numeral system enables us to puzzle out the numerals the Romans actually used at different times in their history.

In a similar way, the Roman Calendar described in these notes is also tidied up and brought into line with the Julian Calendar system. Modernised Roman numerals have been used. The differences between our version and the actual Roman Calendar for any year following the reform of 46 BC are not very great, however.

The Roman alphabet did not distinguish between the letters V and U, so that "SUM" could be written "SVM". I have used U as a vowel and V as a consonant when this seemed consistent with popular, modern pronunciation by English-speakers with little or no knowledge of Latin. It may earn me the wrath of many teachers, but these notes are addressed to computer users, not students of a dead language.

There were no lower-case or small letters, but I will use them for the sake of clarity. The letter J was a variant of the letter I, and only became established as a consonant many centuries after the Fall of Rome. After much debate with myself, I have decided to use J as a consonant and I as a vowel. My aim is to avoid confusion in any reader who is unfamiliar with Latin and might have difficulty in recognising *Ivlivs* as being *Julius*.

The Roman months are: *Januarius, Februarius, Martius, Aprilis, Majus, Junius, Julius, Augustus, September, October, November, December*. So we are on familar ground thus far.

The first day of the month was called the *Calends*. So we get: *Calendae Januarius, Calendae Februarius, Calendae Martius*, etc. There was no Roman date 1st June, for example. It was called *Calendae Junius*.

The next day of note fell on the 5th day in some months, and the 7th in other months. The days between were counted in reverse. In the examples below I have included the Roman numerals in brackets. *Pridie* means "on the day before".

CALENDS to NONAS

APRIL	MAY
Calendae Aprilis	*Calendae Majus*
quarto Nonas (IV)	*sexto Nonas* (VI)
tertio Nonas (III)	*quinto Nonas* (V)
pridie Nonas	*quarto Nonas* (IV)
Nonae Aprilis	*tertio Nonas* (III)
	pridie Nonas
	Nonae Majus

Eight days later, on either the 13th or the 15th day of the month, came the *Ides*. The count is again in reverse, rather like the system we use for describing the time as 25 minutes to six (of the clock), or when counting down to Zero for a rocket launch.

From this point on, the count is to the *Calends* of the following month. The actual number will depend on the number of days in the month and whether the *Ides* fell on the 13th

or 15th day. January will be used as an example because it contains 31 days, and the *Ides* fall on the 13th day, so the

NONAS to IDUS

APRIL		MAY	
Nonae Aprilis		*Nonae Majus*	
octavo ante Idus	(VIII)	*octavo ante Idus*	(VIII)
septimo ante Idus	(VII)	*septimo ante Idus*	(VII)
sexto ante Idus	(VI)	*sexto ante Idus*	(VI)
quinto ante Idus	(V)	*quinto ante Idus*	(V)
quarto ante Idus	(IV)	*quarto ante Idus*	(IV)
tertio ante Idus	(III)	*tertio ante Idus*	(III)
pridae Idus		*pridae Idus*	
Idus Aprilis		*Idus Majus*	

count to the next *Calends* is maximium. Remember, once past the *Ides* we are still in January, but count with an eye on the *Calends* of February. Spelling changes are the result of quirks in Latin grammar.

IDUS to CALENDS

JANUARY

Idus Januarius	
decimo nono ante Calendas Februarias	(XIX)
decimo octavo ante Calendas Februarias	(XVIII)
decimo septimo ante Calendas Februarias	(XVII)
decimo sexto ante Calendas Februarias	(XVI)
decimo quinto ante Calendas Februarias	(XV)
decimo quarto ante Calendas Februarias	(XIV)
decimo tertio ante Calendas Februarias	(XIII)
duodecimo ante Calendas Februarias	(XII)
undecimo ante Calendas Februarias	(XI)
decimo ante Calendas Februarias	(X)
nono ante Calendas Februarias	(IX)
octavo ante Calendas Februarias	(VIII)
septimo ante Calendas Februarias	(VII)
sexto ante Calendas Februarias	(VI)
quinto ante Calendas Februarias	(V)
quarto ante Calendas Februarias	(IV)
tertio ante Calendas Februarias	(III)
pridie Calendas Februarias	

The next day will be the first day of February, *Calendae Februarius.*

If we are to include the Roman Calendar in our program, the first problem will be the conversion between the Roman year-count and the Christian Era year-count. This will involve conversion between Roman numerals and Arabic numerals.

The number of days in the months is no problem. They are the same as in the Julian and Gregorian Calendars. The struggle will be with the Roman method of denoting the days of each month.

The two key factors are the total number of days in the month, and the day on which the *Nones* fall.

The *Nonae* fall on the 5th day of all months except March, May, July and October, when they fall on the 7th day. A table might prove helpful in this connection:

MONTH	NONES	IDES	LAST DAY
January	5	13	31
February	5	13	28 or 29
March	7	15	31
April	5	13	30
May	7	15	31
June	5	13	30
July	7	15	31
August	5	13	31
September	5	13	30
October	7	15	31
November	5	13	30
December	5	13	31

We have the usual business of the intercalary day for Leap Years, but there is the complication of the Romans' error. That is probably best dealt with by a special subroutines to allow inputs and printouts to cover both the chronological and historical Leap Years between 45 BC and AD 8.

There is, though, an additional problem. The Romans did not insert the intercalary day between February and March as is our custom. Caesar decreed that the extra day should be inserted in February, and be the 2nd sixth-day before the first day in March - *Ante diem bis sextum Calendas Martias* (hence the name "Bissextum" one sometimes meets).

No-one is now quite sure what he meant. It could be equally well argued that the extra day should be the 24th or the 25th of February.

The Church, which continued to use the Roman Calendar for some centuries, favoured the 24th school of opinion. I think we had better follow suit. It may be unwise to take issue with those who are in direct touch with the Almighty. One does so hope to avoid any risk of being struck by a thunderbolt, or having some equally foul disaster befall one, does one not?

That's all there's space for this month. Next month we'll start with a Roman to Decimal numbers conversion program.

arnor put the 'C' into christmas

AS THE NEW YEAR ROLLS IN, WHY NOT LEARN A NEW LANGUAGE? JOHN KENNEDY LOOKS AT ONE OF THE BETTER OFFERINGS AROUND.

'C' is a member of the high-level computer language family that includes *Pascal*, *Algol* and *PL/1*. It is a structured language, which means absolutely no line numbers, lots of puctuation, and a strict minimum of conditional jumps (i.e. GOTO's). It is definitely a "programmer's language", in that it uses lots of abbreviations and shortcuts that make the language look like some sort of random encryption system to beginners.

ARNOR have released a version of a 'C' compiler that runs under CP/M Plus, i.e. on the CPC6128 and PCW machines.

C - THE LANGUAGE

'C' is the language that professional programmers use, or so we are told. It is certainly more flexible than Basic, more comprehensive that *Pascal*, and infinitely more impressive than either at parties. Don't think, however, that because you can't get the hang of Basic, you can have a go at 'C' - the principles of computer programming are the same no matter what language you use.

A 'C' program starts by accessing any library of routines it needs, then delares any variables, and then gets down to the program itself, which is invariably written in little modules surrounded by curly brackets.

Once typed-in, you then compile the program, Link it and then convert it to a .COM file for execution under CP/M. Or you can run it under the guiding influence of a 'run-time interpreter'. Exciting stuff.

I include a simple program wot I wrote that counts (approximately) the number of words in a standard text file. To be more exact, it counts the number of gaps between words, but it works quite well.

C - THE IMPLEMENTATION

As always, ARNOR have put together a very professional package, comprising of a nice blue ring binder containing the manual and an itty-bitty 3-inch disc with the programs.

As with *Maxam II*, the CP/M text editor *APED* is included. This editor is a joy to use and has the little bugs of its predecessor removed. For a more complete look at the editor look at the *Maxam II* review (July 1987).

The compiler is a robust, Kernighan and Ritchie standard one, supplied with extra libraries which include text and window handling and 6128 firmware calls. It produces 'Basic Stack Code' which can run under the *RUNC* interpreter supplied, or else altered to become a standard .COM file.

The manual describes in detail the operation of the editor, the compiler and other included programs. Many appendices are included, detailing the error messages, summarising the compiler commands, and explaining the library functions.

The manual will not teach you how to program. Don't kid yourself - you will need an extra book to learn how

```
/* AJ for WACCI - Arnor C compiler - 19.11.87

   WRDCOUNT.C - program to count the no. of words in a standard text file

   Type WRDCOUNT <filename> to count words
*/

#include <stdio.h>

extern FILE *fopen();  /* declare external function */

main(argc,argv)
int argc;
char **argv;
{

        FILE *infile;  /* input file pointer */
        int c;
        int words;
        if (argc != 2)
        {
                printf("\nPlease include filename.");
                abort();
        }

        infile = fopen(argv[1],"a+b");  /* open file for read only */
        if (infile == NULL)
        {
                printf("\nCannot open file. Program terminated.");
                abort();
        }

        printf("\nWord Counter v1 (c) 1987 John Kennedy.\n");

        freopen(argv[1],"rb",infile);

        fseek(infile,0L,0);
        words=0;

        while( feof(infile) == 0)
        {
                c = fgetc(infile);
                if (c==32)  /* i.e. a space */
                        { words=words+1; c = fgetc(infile) ;}
        }

        fclose(infile);

        printf("\nThere were %d words\n",words);

}
```

to use 'C', and that will set you back up to £20 unless you have a fairly extensive local library. Example programs are supplied on the Disc, and these will give you the general feel for the language.

In practise, the ARNOR implementation is very easy to use. After typing in the program, you invoke the compiler directly by typing AC - there is no need to quit to CP/M.

The compiler tries to do its job, and if it finds a mistake it will give you an error message, tell you where it occured, and dump you directly back at your source program, just where you left it. Neat.

If you haven't made any mistakes (happens to us all once in a lifetime), the Linker is called into being, and if that's happy too, the program is saved in Object Code form and executed. This Object Code can be used with the Run-time interpreter or altered to form a .COM file.

LIBRARIES

The essential library functions are all supplied, together with a nice Maths library (with inverse and hyperbolic functions), and an Amstrad specific one that handles text windows and firmware calls.

CONCLUSION

If you think you have outgrown Basic, and want to learn a real programming language that may even come in useful commercially, then 'C' is for you. The ARNOR implementation is as complete as you will need, with an excellent editor and manual. I can highly recommend it.

If you're not sure whether 'C' will suit you, why not have a look at *Small-C* on *CPM DISC 2* to get the general feel of it?

ARNOR C COMPILER (for CP/M PLUS)

WACCI PRICE - £39.00 (disc)

FEATURE

screen shots

BY ALEX AIRD

For good screen shots, what you need is a camera that gives you some control over the shutter speed. For the photos you see here I used a *Pentax MX* with a *Slik 88* tripod and a cable release. The film was ordinary *Kodacolour VR100* colour film.

The lens used doesn't make any difference, but I find the 135mm lens easier because I can get back to a more comfortable distance rather than being too close to the monitor. Flashguns are most definitely out.

All CPC owners will probably be familiar with Frame Flyback. CALL &BD19, or the Basic 1.1 keyword FRAME, will synchronise printing with frame flyback. The screen is being constantly updated every 50th of a second (or every 60th if you have a USA model). So you need to use a shutter speed slow enough to take this into account.

If you use too fast a shutter speed then you will end up with pictures like PHOTO.1. This was taken at 1/60th of a second. PHOTO.2 was taken at 1/125th of a second. Here the effects of frame flyback are clearly seen.

Shutter speeds are normally 1/60th then 1/30th etc. so you, need to use 1/30th at the fastest. Preferably use 1/15th or slower. With a manual camera like the *Pentax MX* this is easy to do.

If you have an automatic camera then you will probably only have control over the aperture and the camera will set the shutter speed for you. Try an aperture of f8. Most cameras are at their best around this setting and you will get a slow enough shutter speed, around half a second. This means, of course, that you will have to use a tripod or something to steady the camera.

If you can't control shutter speeds on your camera but have a 'B' setting then use an aperture of f16 and allow an exposure time of approximately two seconds. Anything between one and four seconds will give an under or over exposure of 1 stop, this is well within the capabilities of modern colour negative film.

It is best to take the photographs at night in a darkened room. PHOTO 3 shows the loading screen from *Wizball*, and you may just be able to see the reflection from an overhead roomlight at the top right of the screen. PHOTO 4 was taken with the lights off.

PHOTO 3: *Taken with the roomlights on*

PHOTO 1: *1/60 shutter speed*

PHOTO 2: *1/125 shutter speed*

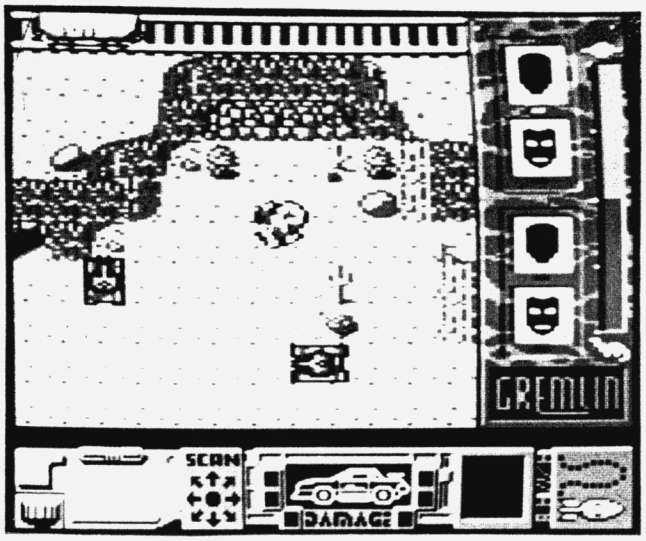
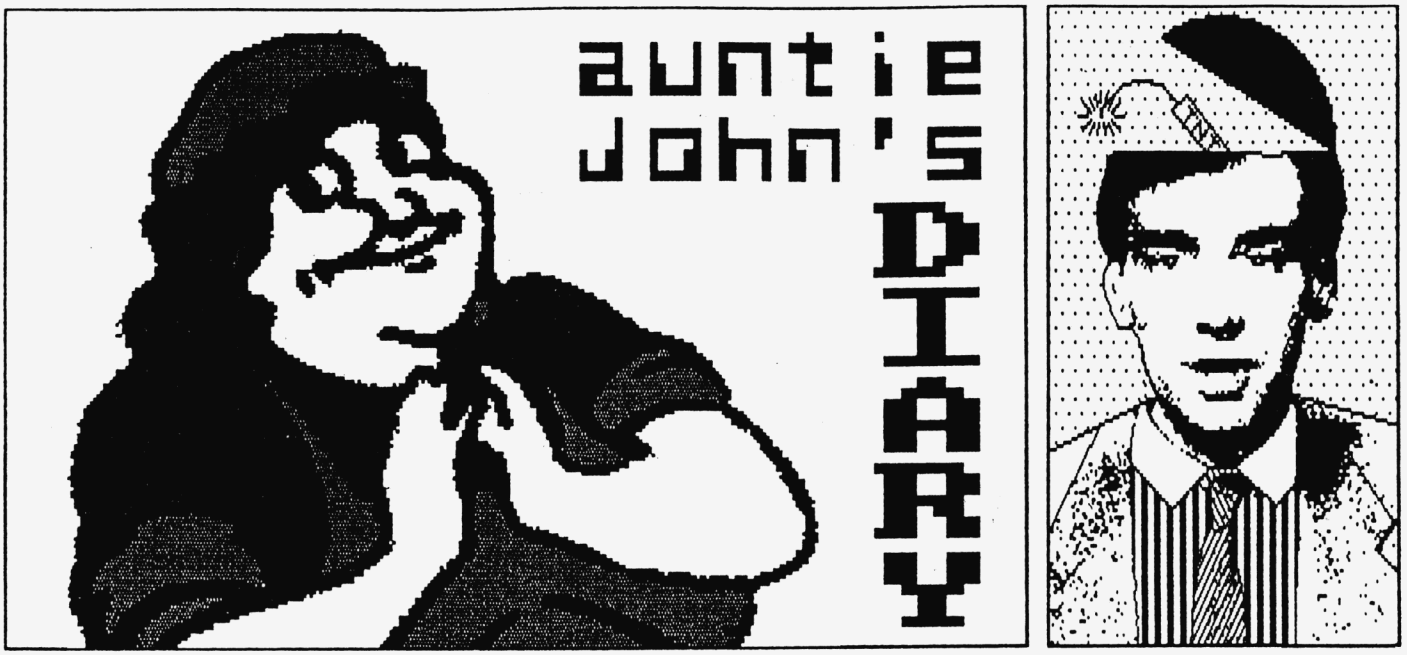


PHOTO 3: *Taken in a darkened room*



Did aliens visit the planet Earth many thousands of years ago?

If not, why are the Pyramids so uncomfortable to sit on?

The shape of Italy - just a fluke?

Glenn Carey is almost an anagram for Re Gay Lenin - blind chance?

Are UFOs, disguised as leading politicians, leading Earth to the brink of a terrible collapse in the price of Salami?

Chicken suits - are they a Good Thing?

THE MYSTERIOUS WORLD OF AJ AND SQUINTY

Yes, the problems that have caused many sleepness nights, many hours of deep philosophical discussion and severe headaches, can no longer be ignored. Such is the public outcry that even my Potplant (and Squinty) are seriously doubting their sanity.

THE PLACE: Kilinchy, a small peaceful town in Norn Iron.
THE TIME : Just after closing time (about 3am).

Mr Bob "one-for-the-road" Bleakney, was making his way quietly home from a busy night's Martial Arts practice, when he experienced a close encounter. The following are extracts from the actual Police report made by Mr Bleakney...

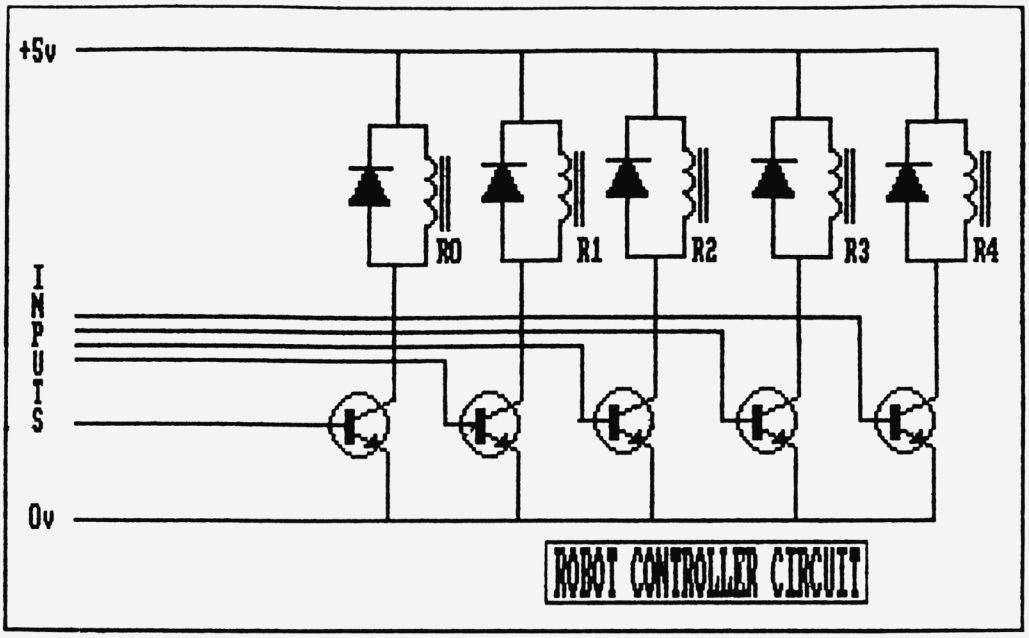
"It was amazing! A huge silver disc, about the size of a dustbin lid - no, bigger - about the size of Scotland, flew directly overhead, looped the loop, made a sound like a cat puking up fur-balls and landed directly in front of me. I was so shocked I had to have about seven pints of Guiness and a whiskey before I could pluck up the courage to look.

"So, I got out, and stood in front of the giant flashing red and yellow ... er I mean silver ... saucer when all of a sudden this sort of door opened - Yeah, just like the doors in Wimpy - and this alien geezer with a silver spacesuit came down the steps. He raised his hand, and said in a sort of strange accent.. it's hard to describe.. yeah, Welsh.. and said, 'I am YI-Ad RuH-Tra from the planet NokOff. We bring mankind greetings and offer these dozen Toshiba Microwaves and ten colour TVs with teletext as a token of intergalatic fellowship.'

"Then he sort of buggered off ... yeah, just before the police arrived."

NEXT TIME ON THE MYSTERIOUS WORLD OF AJ AND SQUINTY
PhoneCards - PanDimensional Beings from HyperSpace?
Chernoble - Does it explain Bonny Langford?

AUNTIE JOHN



Bah! I made a mistake. A serious mistake. A mistake which may get me kicked out from my institution of Higher Education. The mistake was this: I bought *Elite*. Yes, the program which is to computers as *Dire Straits* is to Compact Disc players has already made me miss numerous lectures and tutorials. And I'm still only average. Those bloody Thargoids!

Apart from that, I also built myself a second 3-inch disc drive for my 6128, and the total cost was about £28. How did I do it? Well, first I bought the disc mechanism from a company called "J&N Bull Electrical", and then I obtained a suitable Power supply. Thirty centimetres of ribbon cable and two edge connectors later, I had a dual drive system. And very useful it is too: now I can use CP/M (yawn) without all those nasty disc swapping exercises.

The trickiest part of the whole exercise is getting a proper power supply; it has to be a nice and regulated 5 and 12 volt supply. The one I have came from a rather melted BBC Micro, but the less said about that the better. J&N Bull sell a kit to make your own PSU for about a tenner. If you get stuck just drop me a line at the usual address.

oooOooo

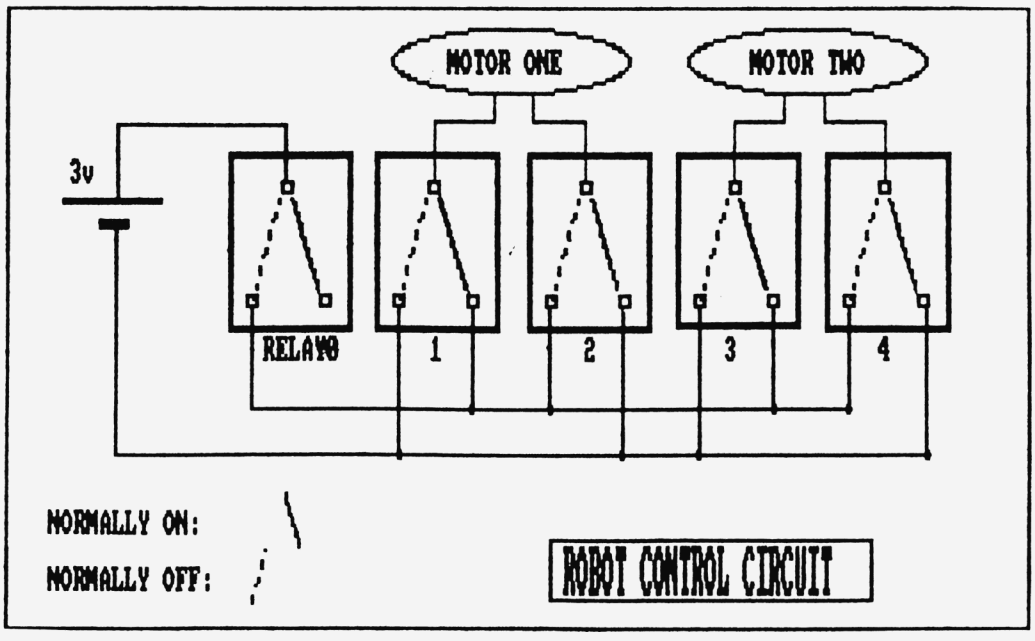
And that brings me rather neatly to the Buggy project, which in a sense is what it's there for. After all, you pays your money and you takes your choc-ice. (He said in his best Barry Norman voice).

After last month's brief discussion about the mechanics of the robot, it's time to turn our attention to the actual electronics that control it. As you can see from the diagrams, the circuit is an extremely simple switching one: a *high* on an *input* line will switch on the relevant *relay*, and the relays are connected to the *motors*.

For those of you wondering what the pretty little circles are, they are actually *BC107 transistors*, and a nice *high input* at the base (the middle, vertical line) will cause the transistor to 'switch on' and allow a current to flow through the relay coils (squiggly lines) and so switch them on. The little black triangles are *1N4004 diodes*, and stop any nasty back currents shooting back into the computer when the relays switch off again. The relays used are very small *6V Single Pole Change Over* (SPCO). *Dual pole* relays would be better, I didn't have any in my box of bits.

Notice the separate battery for the motors; it's usually a very good idea to keep 'noisy' circuits, like those driving a motor, well away from a sensitive computer. The ciruit can be soldered together on a little piece of *Veroboard* with next to no hassle.

Next month we will get to the more complicated (and more interesting) interfacing circuit - in effect a proper Input/Output port for your Amstrad. Probably.



Listen Ed, who is it that goes 'oooOooo' and 'wollOilow' between paragraphs? I was just wondering if WACCI is haunted or something.

ooooOOOooOOoOoooo *ahhh!*

And the rumour that CP/M makes your hair fall out is completely false. Ask Green, he knows nothing about CP/M and he is as bald as a coot. (Stop that Green. Physical violence never solves anything. Yes, I know you enjoy it but ... ARRHHHGGG! Ok. I'm sorry.)

As for removing IC's from circuit boards - you're looking at the guy who, armed with only a 30W soldering iron, a packet of sweetie cigarettes and Green, replaced the GI-AY-3-891x sound chip of a CPC464 that accidently got blown up when connected to thirty feet of doorbell extension cable. (Don't ask - it was embarrasing!). All this sissy stuff about static electricity and getting TV repair men to do it for you? Hah! True hackers attempt anything. (And usually spend more getting things fixed in the long run).

Well, cheerio! You never know, I may see you at the Amstrad Fair (exams permitting), so come and say Hello. I'm not that strange. Really. Well, ok just a bit - but don't tell anyone!

So have a very Happy Xmas/New Year/Birthday/Computer Fair (*delete as applicable*).

X X
X X
X X
X
X X
X X
X X

Auntie John and Potplant and Squinty
32 Bayview Road
Bangor
Co.Down
BT19 2AR

c AUNTIE
o JOHN'S
n & CONCEPT
t s h DISC
e t y
n p e . .

GREEN'S STRIP PONTOON
Embarrassingly awful digitised pictures of Green taking his clothes off, if you play your cards right.

DRIPZONE PLUS
An enhanced version of Dripzone, with 54 possible sheets, digitised pictures, digitised sound, and little twinkly things. Oh yes, it's not Cyan anymore either.

ENGLEBERT
A version of an arcade game that was quite popular some time ago.

SAUCER ATTACK
Basically a machine code shoot things game. But do you feel fulfilled?

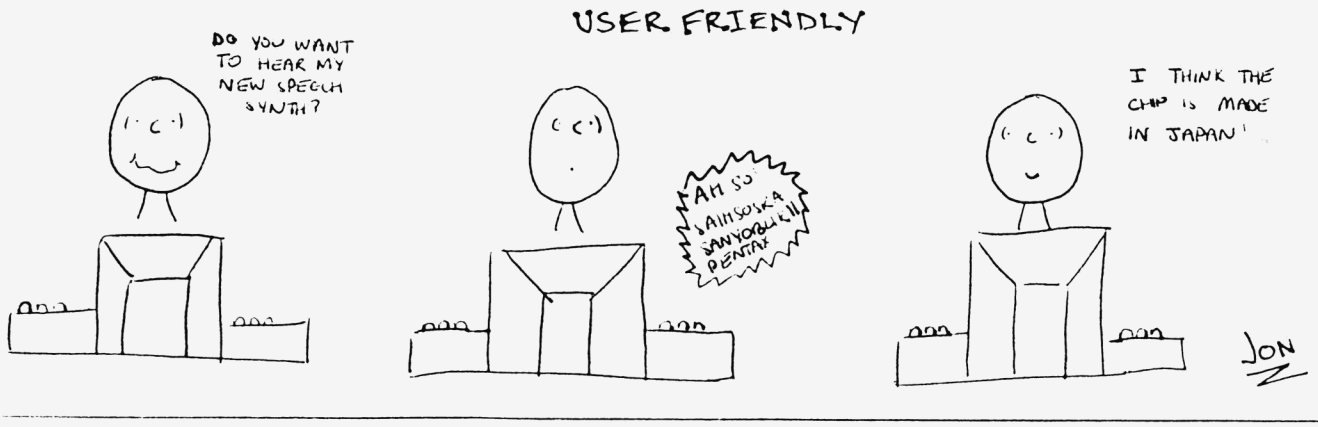
THREE DIMENSIONAL MAZE
Totally un-original, but damn fast 3D maze program. Where would we be without logical colours, eh?

BEETLEMANIA
Pure machine code highly graphical game, with ducks and trees and things.

GLOBE
Graphical view of the Earth from any point in Space. (Converted from a BBC computer program, so it must be good).

JUGGLE
Want to learn to juggle? This won't help.

NB: *The first two programs mean that the disc will really only run on 128K disc-based machines.*



PROGRAMMING

CP/M topics

MORE TECHNICAL TIPS FROM John Kennedy OF Camel Micros

THIS MONTH JOHN LOOKS AT TEXT FILES UNDER CP/M

Text files can be a bit useful. All data files written by a Basic program will be Ascii files, and most word-processors will handle Ascii format. They're also used for transferring data between databases, plotting programs, spreadsheets, etc. Yet another use is for sending data down phone lines through a modem.

Facilities for manipulating text files are therefore quite important. The main things that CP/M can do for you are:

1) Listing files to printer or screen.
2) Copying files between discs.
3) Joining and splitting files.
4) Editing text.

1) LISTING FILES

The utility named *PIP* (Peripheral Interchange Program) is useful here. Suppose you wanted to print a file named *TEXT*. There are two ways it might be done. If you have the CP/M system on the same disc, you can simply enter:

```
PIP LST:=TEXT   <-- copy file TEXT to listing device
                    (i.e. the printer)
```

If the file is on a disc without CP/M on it, first boot CP/M then type *PIP*, swap discs, and type *LST:=TEXT* as before. In this case, when you have finished with *PIP*, press CTRL-C to get back to CP/M.

You can, of course, list several files by using wildcard asterisks. For example:

```
PIP LST:=*.TXT  <-- copy all .TXT files to printer
```

To display the file on the screen the commands are just the same except that you use *CON:* (console) instead of *LST:*

Whilst the text is listing you can use CTRL-S (which means press the key marked CONTROL or CTRL and hold down S at the same time) to pause and re-start the listing.

Actually, you can also print things using *CON:* with *PIP*. CTRL-P acts as an on/off switch for 'printer echo', i.e. anything that is displayed on the screen is also printed, including any commands you type in. It's not a very useful function, but I suppose you could use it to keep a record of what you'd done.

PIP lets you do some useful extra things by using 'parameters'. With *PIP*, a parameter is a special letter put into square brackets after the filename. For listing files the main parameters are:

[L] <-- *translate upper case to lower case.*
[N] <-- *add line numbers to each line.*
[Pn] <-- *put in page ejects every 'n' lines.*
[U] <-- *translate lower case to upper case.*

To use a parameter, you simply type it after the filename, and you can have more than one parameter if you wish:

```
PIP LST:=TEXT[P60]  <-- throw new page every 60 lines

PIP LST:=TEXT[LNP58]  <-- change all upper case to
                          lower case, add line numbers
                          and throw a new page every
                          58 lines
```

Another way of listing a file to the screen is to use something like:

```
>TYPE TEXT  <-- list file TEXT to screen
```

which is, perhaps, a bit easier to remember than the PIP method. If you have pressed CTRL-P, of course, the file will be printed as well as shown on the screen.

2) COPYING FILES DISC TO DISC

Another useful job for *PIP* is copying files disc to disc. Unfortunately, under CP/M 2.2, this can only be done if the copied file goes onto the same disc or onto a disc in a second drive. It may seem daft to copy a file onto the same disc, but you will see later that this can be useful.

In CP/M, different disc drives are indicated by the letters A, B, C, etc. One of these - normally Drive A - will be the 'system' disc, and CP/M expects to find a copy of itself, together with all the CP/M utilities, on this disc.

To copy a file - and this will work for any file, not just Ascii ones - type in something similar to:

```
PIP B:NEWFILE=A:OLDFILE  <-- copy Drive A to B
```

If the file is Ascii, then any of the *PIP* parameters,

described above for listing, can be used to re-format the text.

If you only have a single drive and CP/M 2.2, copying files between discs would be a problem as *PIP* will not wait for you to swap discs. Fortunately, there is another utility called *FILECOPY* for this. An example would be:

```
FILECOPY OLDFILE  <-- CP/M 2.2 single drive copying
```

which would allow you to swap discs at appropriate times. You cannot copy to a new filename or do anything except a simple copy. Use of parameters is not allowed.

Not everyone realises that copying files, as distinct from doing a disc backup using *DISCCOPY*, has one important difference - it can often speed up disc operation. This is because after you have read, deleted, re-written, etc., files to the disc, any one file can become quite fragmented, i.e. the data is scattered over a lot of different tracks. To read the file, the disc head has to skitter about between tracks, and this takes time. Copying all files to an empty disc using:

```
FILECOPY *.*  <-- copy all files
```

will put the data for each file onto adjacent tracks. It takes longer to make the backup than by using *DISCCOPY*, and you will have to swap discs for each file, but it is worth the effort occasionally to tidy things up after the disc has been in use for some time.

3.1) JOINING FILES TOGETHER

It's quite easy to merge two or more Ascii files together into one larger file. Using *PIP* again, you simply type something like:

```
PIP NEWFILE.TXT=OLD1.TXT,OLD2.TXT,OLD3.TXT
      /            \       \       \
make this file from this, and this, and this
```

The new file can be on a different drive or on the same one - this is one of the cases where copying onto the same disc makes sense.

3.2) SPLITTING FILES APART

A very useful thing to be able to do is copy just parts of an Ascii file. The way this is done is not very user-friendly, but you soon get used to it.

It's all done using *PIP* parameters. Supposing, for instance, that the section (3.1) above ("Using PIP ...") was held on a disc as an Ascii file called *JOIN.TXT*, and you wanted to copy everything starting from "Using PIP" up to "OLD3.TXT". This could be done using the command:

```
PIP
NEWFILE.TXT=JOIN.TXT[SUsing PIP^ZQThe new file^Z]
                    /       / \          \
                   /       /   \        CTRL-Z
     Start at "Using PIP"  /     \
                          /  Quit at "The new file"
                         /
                    CTRL-Z
```

This looks pretty fearsome, but it's not too bad really. As before, upper case letters are used for the parameters. You can see that after the opening bracket the letter S (for Start) is the first thing. This is followed immediately by the text which starts the piece to be copied. To indicate the end of this bit of text, the CTRL-Z character is typed (represented by ^Z).

Then the parameter Q (for Quit) is typed, followed by the text which immediately follows the the bit to be copied. Again, the end of this is set by CTRL-Z.

Thus, everything between the first string and the second string is copied, including the first string but excluding the second.

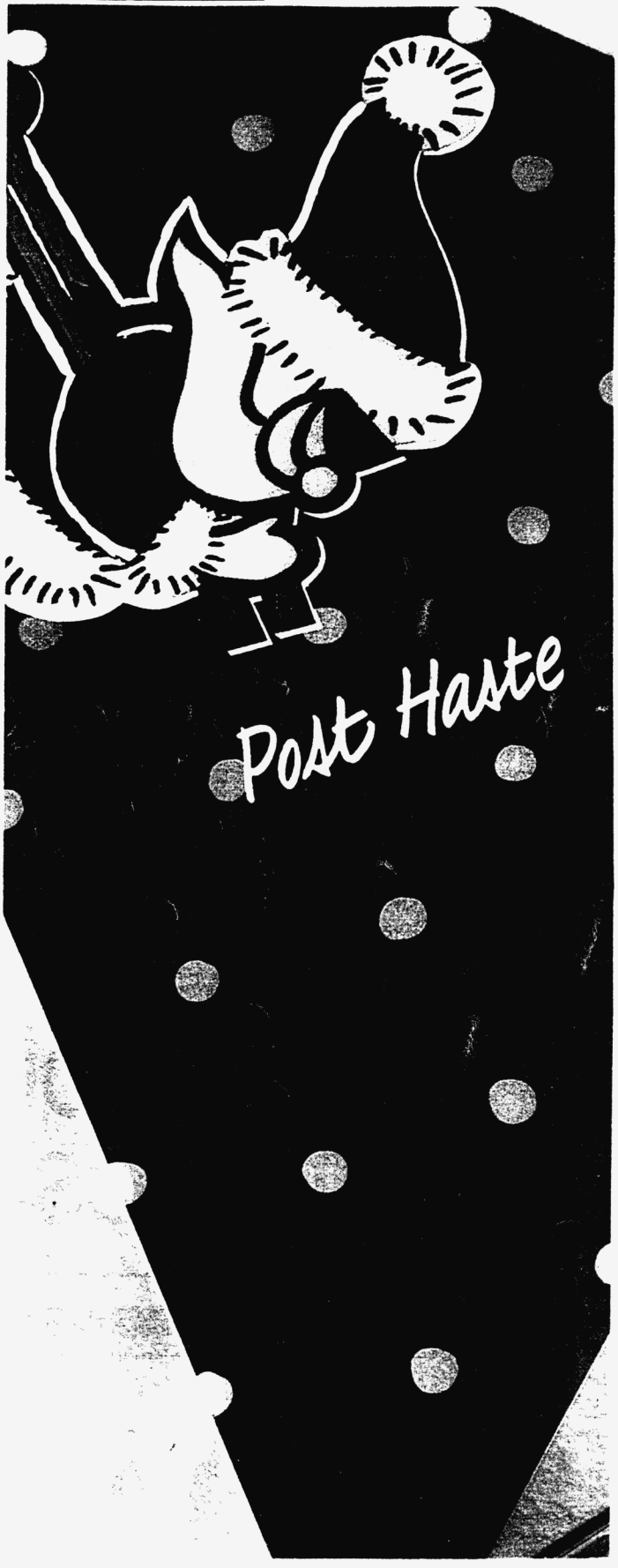
You will note that we have used *PIP* by first running the program (typing PIP), then entering the command line once it is running. You can put everything on one line, but, due to the way CP/M works, everything in a command line which is typed on the same line as *PIP* gets converted to upper case. This means your start and finish strings will appear to PIP to be in upper case too, and will not match with the lower case text in the file. So, it is always best to invoke PIP first before typing the command line.

You can, of course, use either of the parameters, S and Q, without the other. For example, to copy from "Using PIP" to the end of the file, the command would be:

```
PIP
NEWFILE.TXT=JOIN.TXT[SUsing PIP^Z]
```

4) EDITING TEXT

There is a utility on your system disc called *ED* which will let you edit text files under CP/M, but it is very unpleasant to use. *VDE* is a much better CP/M text editor and is on two or three of the Public Domain CPM discs in *The Wacci FSW Library*.



SPEED UP YOUR BASIC WITH ALASTAIR SCOTT'S HELP

Despite what those who sell assemblers and Teach-Yourself-Machine-Code books tell you, it is possible to write Basic arcade games of a decent standard. All you need is speed.

```
10 DEFINT a-s,u-z
20 ti=TIME
30 FOR a=1 to 1000
40 NEXT
50 PRINT ROUND((TIME-ti)/300,2)"seconds"
```

The above small program is a test routine which repeats an operation (placed between lines 30 and 40) one thousand times and tells you how long it took. I am going to insert various program lines inside the FOR-NEXT loop to show you how you can cut seconds off program execution times.

TEN RULES FOR SPEEDIER BASIC PROGRAMS

1. AVOID STRINGS

Strings are messy things. Unlike numbers, they do not have a fixed length and are slower to deal with.

```
31 IF INKEY(64)THEN c=1
32 IF INKEY(65)THEN c=2
```

3.46 seconds

```
31 b$=INKEY$
32 IF b$="A"THEN c=1
33 IF b$="B"THEN c=2
```

4.38 seconds

2. UNNECESSARY GARBAGE COLLECTION

The 664 and 6128 had improvements made to the Basic Rom so that there was no chance of suddenly running out of memory if you were using strings. Delete all FRE("") references if you have BASIC 1.1.

```
35 a$="**":z=FRE("")
```

4.78 seconds

```
35 a$="**"
```

1.33 seconds

3. AVOID ARRAYS

If your program contains tiny arrays with only two or three elements, it's much quicker to use separate variables instead.

```
35 z=a(1)+a(2)
```
3.24 seconds

```
35 z=a1+a2
```
2.63 seconds

4. USE DEGREES INSTEAD OF RADIANS

Arnold is the only home computer who allows you to use degrees and radians for angular measurement equally easily - degrees are quicker.

```
15 RAD
35 t=COS(PI/4)
```
11.83 seconds

```
15 DEG
35 t=COS(45)
```
9.37 seconds

5. AVOID MATHS FUCTIONS (SIN, COS, etc.)

Repeated calculations of this sort take ages. If you know about Taylor or Maclaurin series, use them instead, even two or three terms can give excellent results. Also avoid the power ('^') operator; use repeated multiplication.

```
35 t=COS(PI/6)
```
17.85 seconds

```
35 t=0.5
```
1.11 seconds

6. USE INTEGERS

As an integer takes up only two bytes of internal storage - compared with a real number's five bytes - it's fairly obvious that it takes less time to knock fewer bytes into shape.

```
10 DEFINT a-s,u-z
```
0.47 seconds

```
10 DEFREAL a-z
```
1.11 seconds

7. AVOID EXCESS BRACKETS

A common error (you see it in almost every program) is to use far too many pairs of brackets. They waste time. Remember the 'order of preference': () * / + -

```
35 z=(3*2)*(5*7)
```
3.29 seconds

```
35 z=3*2*5*7
```
2.8 seconds

8. USE LOTS OF CONSTANTS

Calculate as little as possible inside loops. Use plenty of variables (preferably integer) instead.

```
35 z=SQR(2)*a
```
16.99 seconds

```
15 t=SQR(2)
35 z=t*a
```
3.75 seconds

9. USE FOR-NEXT RATHER THAN WHILE-WEND

Apologies to structured programming fanatics, but FOR-NEXT loops are much faster, although they don't look as pretty.

```
30 WHILE a<1000
35 a=a+1
40 WEND
```
2.43 seconds

```
30 FOR a=1 TO 1000
40 NEXT
```
0.47 seconds

10. BE LOGICAL

Get rid of multiple statements by using logic instead. Say goodbye to IF-THEN-ELSE.

```
35 z=1:IF RND>.5 THEN z=2
```
4.16 seconds

```
35 z=1-(RND>.5)
```
3.96 seconds

Finally, remove all excess spaces and REM statements, and compress variable names. A toute vitesse!

INSTR

By Jeff.

INSTR is a useful keyword that gets very little publicity. Some books, including the CPC manuals, describe its use without giving any practical examples, but the great majority of books simply ignore it. This has led to the mis-conception that it is another of those keywords that only 'experts' or 'specialists' would use. Not so.

For a start, INSTR is extremely useful for validating user input. Take a look at PROGRAM 1.

The subroutine of greatest interest is at 3000. Once entered it cannot be returned from until the user has pressed one of the keys the program wants pressed. The valid keys are held in the the variable 'valid$'.

At the start of the subroutine 'keypressed' is initialised to zero, and it will remain that value until line 3040 sets it otherwise.

This line, 3040, tries to match the string 'in$' - the key you pressed - with the string 'valid$'. If it finds that 'in$' is part of 'valid$' then it assigns the value equal to the position of the first occurrence of 'in$' to the variable 'keypressed'. In terms of this program, that means that if, for example, valid$="YN", then if Y is pressed 'keypressed' will equal 1, and if N is pressed it will equal 2. If any other key is pressed, 'keypressed' will equal zero. Some other examples would be:

```
in$="E": valid$="ABCDEFG"
                    :
keypressed=5 --------'

in$="B": valid$="ABCDEFG"
                  :
keypressed=2 -----'

in$="Z": valid$="ABCDEFG"

keypressed=0
```

PROGRAM 1

```
10 'Single keypress validation
20 '
100 MODE 2
110 GOSUB 4000 'initialise
120 GOSUB 1000 'ask nosey questions
130 GOSUB 2000 'print results
140 PRINT:END
998 '
999 'Ask nosey questions
1000 PRINT"Are you:"
1010 PRINT"Male or Female? (M/F) ";
1020 valid$="MF":GOSUB 3000
1030 male=keypressed
1040 PRINT"Married or Not? (M/N) ";
1050 valid$="MN":GOSUB 3000
1060 married=keypressed
1070 PRINT"Bald or Hairy? (B/H) ";
1080 valid$="BH":GOSUB 3000
1090 bald=keypressed
1100 PRINT"Clever or Thick? (C/T)";
1110 valid$="CT":GOSUB 3000
1120 clever=keypressed
1130 RETURN
1998 '
1999 'Print results
2000 PRINT
2010 PRINT"O.K. You are a ";
2020 IF married=NO THEN PRINT BS$;"n un";
2030 PRINT"married, ";
2040 IF bald=YES THEN PRINT"bald and "; ELSE PRINT"hairy, ";
2050 IF clever=YES THEN PRINT"clever "; ELSE PRINT"thick ";
2060 IF male=YES THEN PRINT"man." ELSE PRINT"woman."
2070 RETURN
2996 '
2997 'Get single keypress.
2998 'Enter with valid$ holding
2999 'the legal keypresses.
3000 keypressed=0
3010 WHILE keypressed=0
3020  in$=UPPER$(INKEY$)
3030  IF in$=""THEN 3020
3040  keypressed=INSTR(valid$,in$)
3050 WEND
3060 PRINT in$
3070 RETURN
3998 '
3999 'Initialise
4000 YES=1:NO=2:
4010 BS$=CHR$(8) 'backspace
4020 RETURN
```

When we get back to the main program we store 'keypressed' away in another variable for future use; see line 1030 for an example.

In the initialisation subroutine two constants have been set up, YES and NO, to hold the values 1 and 2, and these constants are used instead of numbers in the results subroutine at 2000. They make the program far more readable as it is obvious at a glance what is going on in a line like:

IF male=YES THEN ...

whereas

IF male=1 THEN ...

is totally confusing to anyone except the original programmer.

The subroutine can be used for as many valid keypresses as can be held in 'valid$' - even numbers from a menu:

valid$="123456789":GOSUB 3000

would return with 'keypressed' holding the exact number the user has chosen and could therefore be used directly in an ON GOSUB statement if wished:

ON keypressed GOSUB 1000,2000 ...

oooOooo

SPLITTING WORDS

What we are going to do now is see how INSTR can be used to split up a sentence into its separate words and do a rudimentary parse.

To isolate a word we need to know its boundaries, or 'delimiters'. Words in English can be delimited by quite a few punctuation marks, but, at the end of the day, each word in a sentence, except maybe the first, will be preceded by a space character. This is the character we will look for to show us where a new word starts.

PROGRAM 2 shows the technique. The splitting subroutine is at 2000. Enter it with the sentence to be split held in 'in$', and the routine will exit with the separate words of the sentence held in the 'word$' array. Note that you should dimension this array to the greatest number of words you would would expect the user to use in one sentence. In the initialisation subroutine I've put it at 10, but 30 or 40 would probably be a safer figure.

In the splitting routine the sentence is first assigned to a temporary variable, 't$', then we look for a space character in it and set up a counter for use in the WHILE loop.

In the WHILE loop, line 2040 assigns all the characters up to (but not including) the first space it found to word$(count), and then line 2050 knocks this word (and the space) off the sentence before it increments the counter, checks for another 'space' and goes around the WHILE loop again.

PROGRAM 2

```
10 'Splitting a sentence
20 '
100 GOSUB 1000 'initialise
110 GOSUB 2000 'split sentence
120 GOSUB 3000 'print results
130 END
998 '
999 'initialise
1000 DIM word$(10)
1010 in$="Get the hat and wear it"
1020 RETURN
1998 '
1999 'split sentence
2000 t$=in$
2010 sp=INSTR(t$," ")
2020 count=1
2030 WHILE sp>0
2040  word$(count)=LEFT$(t$,sp-1)
2050  t$=RIGHT$(t$,LEN(t$)-sp)
2060  count=count+1
2070  sp=INSTR(t$," ")
2080 WEND
2090 word$(count)=t$
2100 RETURN
2998 '
2999 'print results
3000 PRINT:PRINT in$:PRINT
3010 FOR loop=1 TO count
3020 PRINT loop;word$(loop):NEXT
3030 PRINT:RETURN
```

After the loop has executed (or not if 'in$' contains no spaces, i.e. a single word), one word is still not assigned to the 'word$' array. This is either the first (and only) word of the sentence, or the very last - line 2090 completes this job.

The routine is a still a 'shell', mind you - checks for empty strings and punctuation marks need to be added really - but now you have the basics, I'm sure you can do the rest. Anyway, I want to move on to something else now.

oooOooo

PARSING

So much for detecting single characters, but INSTR can also be used to detect the presence or not of a shorter string within a longer string. Again, the value returned will be the position where the shorter target-string starts within the longer searched-string, or zero if it is not found. This is where INSTR can help us do a bit of parsing.

Before we move on to this, though, let me introduce you to the 'extra' parameter in INSTR, the 'start position':

```
where=INSTR( 9,searched$,target$ )
           /      /      \
          /      /  ...and look
         /      /      for this
start searching /        string
from the 9th   /
character of this string...


           9th character
                \
searched$="THE CAT SAT ON THE MAT"
                    :      :
target$="SAT"       :      :
where=9 -----------'       :
                           :
target$="THE"              :
where=16 -----------------'

target$="CAT"
where=0
```

Notice that because we've designated the search to start from the 9th character, when searching for "THE" it finds the second occurrence, not the first. Had we designated 1 as the start position, the first "THE" would have been found instead. Very useful feature this. Must think of way to use it some time.

Anyway, back to our programming. Keeping our adventure scenario going, now we know how to split the sentence up, we can make some assumptions; the main one being that the first word, 'word$(1)', will be a verb: GET, DROP,

CLIMB, etc.

If we pack all the words we want our program to understand - or, at least, the first four letters of each word -together into one long string, we can use INSTR firstly to tell us whether the word is understood or not, and then to direct the program at a subroutine to deal with that word.

PROGRAM 3's vocabulary - the first four letters of each word - would be held in 'know$'. If a word is less than 4 letters long, then fill it out with a dummy character; I've used a hash (#), for example, to fill out GET in 'know$', and the second line in the parsing subroutine (3010) does the same thing to the temporary variable 't$' so the program doesn't crash when line 3020 lops off the first four letters of the word in order to process it. Obviously, if we hadn't filled the word out, and if the word was only three letters long, line 3020 would crash because it would be looking for four letters in a three-letter word.

Line 3030 is the one that checks to see if the word you entered is in the program's vocabulary. If it isn't - i.e. if the variable 'where' comes out equal to zero - line 3040 simply returns from the subroutine. In practice you would deal with this by GOSUBing to a special "I don't understand" subroutine.

The next line (3050) does a calculation on 'where' because in its present form it can't really be used in an ON GOSUB. In the example program, 'where' will be equal to either 1, 5, 9, 13, or 15. We need to convert this sequence to 1,2,3,4,5 for ON GOSUB, and this is done by integer-dividing 'where' by 4 and adding one. If your program's vocabulary consisted of the first five letters of each word, then the division would be by 5; if it was just the first three letters of each word, the division would be by 3. Whatever you divide by, though, you will have to add one to the result.

The variable 'branch' holds the new value (either 1,2,3,4 or 5), and this is the value, in line 3060, that will send control of your program to the subroutine which most closely understands the word under investigation.

In these special subroutines you could use further tests to avoid ambiguity - SPEA, for instance, could either be SPEAK TO FRED or SPEAR THE PIGMY. The original word is still held in 'word$(1)', so there's no problem there:

IF word$(1)="SPEAK" THEN GOSUB ...
IF word$(1)="SPEAR" THEN GOSUB ...

These subroutines are also where you'd want to begin to investigate the rest of the sentence - you know, the words held in the 'word$' array from the routine that split up the sentence.

If the verb, for instance, is GET, then you know there's going to be noun (an object) somewhere in the sentence, so a second parsing routine to deal with objects needs to be executed if there is more than one object lying around. The technique would be almost identical to that which we have just been through. Away you go.

Oh yes, in passing, don't forget that words like THE and AND are useless, so they can be be ignored. And the word IT will always refer the the previous noun in the sentence:

GET THE HAT AND ROCK AND THROW IT

What should get thrown is the rock, not the hat.

And on that violent act I'll leave you to get on and write the next blockbusting adventure. Tarra.

PROGRAM 3

```
10 'Rudimentary parsing
20 '
100 GOSUB 1000 'initialise
110 GOSUB 2000 'get a word (in$)
115 words$(1)=in$ 'for example
120 GOSUB 3000 'parse it
130 END
998 '
999 'initialise
1000 know$="GET#DROPCLIMSPEABAST"
1010 RETURN
1998 '
1999 'get a word
2000 PRINT"Enter a word";
2010 INPUT in$:in$=UPPER$(in$)
2020 RETURN
2998 '
2999 'parse the first word
3000 t$=word$(1)
3010 IF LEN(t$)<4 THEN t$=t$+"#":GOTO 3000
3020 what$=LEFT$(t$,4)
3030 where=INSTR(know$,what$)
3040 IF where=0 then RETURN
3050 branch=INT(where/4)+1
3060 ON branch GOSUB 4000,5000,6000,7000,8000
3070 RETURN
3998 '
3999 'Get
4000 PRINT"You take it.":RETURN
4998 '
4999 'Drop
5000 PRINT"OK. Dropped.":RETURN
5998 '
5999 'Climb
6000 PRINT"Wot? Up there?":RETURN
6998 '
6999 'Speak
7000 PRINT"Speak to who?":RETURN
7998 '
7999 'Naughty word
8000 PRINT"So are you!":RETURN
```

FSW LIBRARY

the wacci fsw library

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Every effort has been made to check that the programs on the CPM discs are complete, and that they work on the CPC range of computers under either CP/M 2.2 or CP/M Plus.

However, these discs, being Public Domain, are passed on by the club on a non-profit-making basis, and, as such, WACCI cannot be held responsible for the quality of the software. If you happen to come across something that doesn't work, try unsqueezing it first, and if it still won't work, please inform us so we can check it out and remove it from the library if found faulty. Thank you.

CPM DISC 1 - £6.50

Machine Code Tools

NSWP
Excellent disc and file management utility. Includes bulk copying, erasing, renaming, plus squeeze and unsqueeze facilities.

QK20
Assigns character strings to keys.

ZMAC & ZLINK
The famous Z80 assembler and linker program.

LOOK
Edits ascii and binary files.

NDDT
Intel 8080 assembler. Improved version of the DDT.COM file.

XIZI
Intel 8080 to Z80, and vice-versa, code translator.

LOHD
Improved version of the LOAD.COM file.

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Non-symbolic Z80 debugging tool.

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Takes two files and reports the differences between them.

CPM DISC 2 - £6.50

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Excellent disc and file management utility. Includes bulk copying, erasing, renaming, plus squeeze and unsqueeze facilities.

SMALL-C
Small version of 'C' with included library functions and full documentation. 464/664 owners will need at least one extra 64K Rampack.

EPRO
A non-standard version of Prolog, a language used for reasearch into Artificial Intelligence.

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Small version of 'C' that thinks it's Basic.

EBASIC
Compiles a subset of the Basic language to Mcode.

LISP
The essence of a Lisp interpreter, the grand-daddy of Artificial Intelligence.

The languages on this disc come with good instruction files, but they do not purport to actually teach you the language.

It is recommended that a good book on the subject is read beforehand.

FSW LIBRARY

CPM DISC 3 - £6.50

File and Disc Management

NSWP
Excellent disc and file management utility. Includes bulk copying, erasing, renaming, plus squeeze and unsqueeze facilities.

SORT
Sorts text files into alphabetical order.

COMPARE
Takes two files and reports the differences between them.

CHEK
Checks disc quality.

SETCOLOR
This program changes the border, paper, and pen colours quickly and easily under CP/M 2.2

LOOKAT
Dumps files in ascii format only.

LBRDISK
Allows you to treat libraries and archives as a logical drive.

NULU
Library utility. Upgrade of the famous LU program.

GREP
Emulates the UNIX command which scans for words in a text file.

QK20
Assigns character strings to keys.

DU
Versatile disc sector editor with comprehensive instructions and documentation.

DISPLAY
Displays text files backwards or forwards.

FORM3
Allows 6128 owners to read PCW formatted discs.

Also: DISKDOC, VLIST, D, LOOK, LOHD, CONV2, WCOUNT, RPIP, SD and UNERA.

IMPORTANT NOTES: *These discs are supplied DATA formatted. If you are using CP/M 2.2 you will have to copy the files you wish to use onto a SYSTEM formatted disc before you will be able to use them. This can be done by using* Filecopy, *which you'll find on your CP/M system disc.*

*Some .DOC files on the discs are squeezed. There is no need to unsqueeze them - use NSWP (*Newsweep*) to View or Print them. The documentation for* Newsweep *is a little complicated in places and can be bewildering if you are new to the CP/M operating system; if you are having trouble using* Newsweep, *phone Jeff on (0895) 52430 (Office Hours), or write to WACCI HQ for help.*

Please, if you are having trouble, don't send your disc back before phoning or writing for help first - WACCI is a club, and as such we were founded to help you. All queries will be answered, be they big or small. As with all letters sent to WACCI HQ, a stamped-addressed envelope will be appreciated if you require a personal reply.

CPM DISC 4 - £6.50

At Your Leisure

NSWP
Excellent disc and file management utility. Includes bulk copying, erasing, renaming, plus squeeze and unsqueeze facilities.

TEAM-GEN
Football scoresheet generator.

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Biorhythm calculator. Remember, CTRL-P first for printouts.

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You against the computer under CP/M 2.2

USERFUNC
A small library of Basic DEFined FuNctions.

OTHELLO
You against a very good computer opponent.

GOLF
A text-only swipe around the golf course. Weird!

CAL
Calendar generator.

MAZE
Massive maze generator.

BINCALC
On-screen calculator.

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Word-search puzzle generator.

UKM7
Communications utility.

EPRO
The Prolog programming language.

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Improved version of PIP.

UNERA
In case of accidents.

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Excellent disc and file management utility. Includes bulk copying, erasing, renaming, plus squeeze and unsqueeze facilities.

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Improved version of PIP.

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Text-file word counter.

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Amazing spreadsheet-type program with thousands of uses. Comes with full instructions, lots of documentation, and many, many examples.

INVENT
Inventory database manager.

SORT
Sorts text files into alphabetical order.

SPELL
Spelling checker. Comes with documentation and a ready-made dictionary.

UKM7
Communications program.

VDE
Fast, efficient, powerful text editor.

CAL
Calendar generator.

UNERA
In case of accidents.

* DOUBLE DISC PACK *

CPM DISC 6 & 7 - £10

JRT Pascal PLUS

NSWP
Excellent disc and file management utility. Includes bulk copying, erasing, renaming, plus squeeze and unsqueeze facilities.

DISC 6
The JRT Pascal suite takes up most of this disc. It will run under CP/M 2.2 or CP/M Plus, but requires a minimum of 56K main storage space, which means that 464/664 owners will need extra memory. Also on this disc are EBASIC and SCI, both of which will run on any CPC. EBASIC is a compiler which compiles a subset of the Basic language. SCI is a version of 'C'.

DISC 7
This disc contains the voluminous JRT Pascal User's Manual - almost 200 pages of it including appendices - in squeezed format. NSWP can be used to Print, View, or unsQueeze it. On side 2 is a version of COBOL, plus examples, supporting files, and documentation. Also present is VDE, a good text editor, again, with documentaton.

CPM DISC 6 & 7
* CONTENTS *

NSWP - *Disc utility*
PASCAL - *Language*
SCI - *Language*
EBASIC - *Language*
COBOL - *Language*
VDE - *Text editor*

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DISC USERS may order FSW programs singly at a maximum of one disc-full per order (1p per K - minimum order 50p). Use the back of the subs form to list your requirements and send a CF2 3-inch disc in a jiffy bag with your remittance to WACCI HQ. Return postage would be appreciated.

WACCI
FSW DISCS

WACCI DISC 1: FSW-1000 to FSW-1027 - Featuring 17 games, 9 utilities £5.50
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WACCI DISC 3: FSW-1051 to FSW-1079 - Featuring 9 games, 20 utilities £5.50
AUNTIE JOHN'S CONCEPT DISC: - See Auntie John's Diary for details £6.50

PROGRAMMING

WACCI HOMEGROWN SOFTWARE - COPYING CHARGE: Standard rate = 1p per K (* = new program or new version)

FSW-1000: MASTERS OF MID WORLD.(v1) S.Anderson...29K Basic - Graphical adventure with interactive characters.
FSW-1001: MINIMON.....(v1) S.Anderson....4K Basic - Can be used to enter, load, check, or save machine code.
FSW-1002: CHARDES.....(v1) G.Burns.....3K Basic - Character designer on a 32 x 32 pixel grid (4 x 4 characters).
FSW-1003: HEADER READER.....(v1) G.Burns.....2K Basic - Colourful tape header reader.
FSW-1004: FRUIT WORM.....(v1) G.Burns.....5K Basic - A variation of the old caterpillar/fly type game.
FSW-1005: OTHELLO.....(v1) G.Burns.....6K Basic - Reversi simulation (good ego booster).
FSW-1006: FOUR IN A ROW.....(v1) G.Burns.....6K Basic - Simulation of the Connect 4 board game.
FSW-1007: THE WORLD.....(v1) J.Kennedy....26K Mixed - Brill graphics demo of the Earth spinning on its axis.
FSW-1008: CHAT.....(v1) J.Kennedy.....5K Basic - Artificial intelligence based on the famous Eliza experiment.
FSW-1009: JIGSAW-1.....(v1) J.Kennedy....34K Basic - Educational jigsaw with pictures so bad they're good.
FSW-1010: EDDY.....(v8) J.Kennedy....15K Basic - Very good text editor for all CPCs (very pretty, too).
FSW-1011: XOX.....(v1) D.Halligan....3K Basic - Two player noughts and crosses.
FSW-1012: PONTOON.....(v5) J.Walker.....37K Basic - Now with le froggy music - whatever will he think of next?
FSW-1013: PROGDOC.....(v4) J.Walker.....33K Basic - Programmer's utility with features like Find, Replace and Trim
FSW-1014: HELPING HAND.....(v1) J.Walker.....5K Basic - Can't make your mind up? Well, ask for a helping hand.
FSW-1015: BOMBER.....(v1) S.Grainger....4K Basic - Bomb the buildings and try to land your plane.
FSW-1016: LIFE.....(v1) D.Halligan....4K Basic - The game of life thingy that all the mags do eventually.
FSW-1017: LOCK'n'KEY.....(v1) S.Grainger....8K Basic - Avoid the dreaded mutant daffodil and open all the doors.
FSW-1018: TUNNEL DIVE.....(v1) S.Grainger....4K Basic - Freefall and collect all the krystals without crashing.
FSW-1019: HEAD.....(v3) A.Aird.....3K Mcode - Sophisticated tape or disc header reader RSX.
FSW-1020: MEMDATA+.....(v1) A.Aird.....3K Basic - Turns a Mcode program into DATA statements with checksums.
FSW-1021: KEYDEF.....(v1) A.Aird.....2K Basic - Redefines your keyboard for single keypress command typing.
FSW-1022: CHAMPIONSHIP DARTS...(v1) S.Anderson...12K Basic - Bonk... Bonk... Bonk... One hundred and eighty.
FSW-1023: GRID WARRIOR.....(v1) S.Anderson....4K Basic - Another interesting variation on the caterpillar/fly theme.
FSW-1024: JIGSAW-2.....(v2) J.Kennedy....51K Mcode - Educational jigsaw with VIDI digitised graphics (DISC ONLY).
FSW-1025: STAR CHASE.....(v1) C.T and J.K..11K Basic - Space shoot-em-up with triffic sounds man!
FSW-1026: UFO ESCAPE.....(v1) C.Turner.....18K Basic - Fast basic animation using 'swingers'. See, and believe!
FSW-1027: HEADLESS.....(v2) A.Aird.....3K Basic - Automatic headerless file tape --> disc transfer utility.
FSW-1028: BEETLEMANIA.....(v1) C.T and J.K..31K Mcode - Drive your VW around the Blobs' village & blow up the ducks.
FSW-1029: DISC.....(v2) J.Walker.....2K Basic - Intelligent disc menu for the 464 and 6128.
FSW-1030: SDUMP.....(v2) Aird/Walker..10K Mcode - Suite of five mode 1 & 2 screen dumps for Epson compatibles.
FSW-1031: ENGLEBERT.....(v1) J.Kennedy.....8K Basic - Bert game guaranteed to give you the Humperdink!
FSW-1032: GLOBE.....(v1) J.Kennedy.....7K Basic - Magic prog that lets you view Earth from any angle in Space.
FSW-1033: MULTIPROG.....(v1) J.Kennedy.....2K Mcode - Holds 4 Basic programs in a 2nd 64K memory bank at one time!
FSW-1034: PIXELPLOTTER.....(v1) D.Oya.....5K Basic - 6128 Etch-a-Sketch program with Circle and Fill options.
FSW-1035: STORY.....(v1) D.Oya.....12K Basic - Zany program that invents stories from supplied nouns & verbs.
FSW-1036: FUNCTDR.....(v1) D.Halligan....2K Basic - Plots graphs of user-defined mathematical functions.
FSW-1037: FUNCTSOL.....(v1) D.Halligan....2K Basic - Solves quadratic equations (perfect for hardened insomniacs).
FSW-1038: FORMULAE.....(v1) D.Halligan....3K Basic - Mixes chemicals and tell you the formula what you've got.
FSW-1039: REGILOAD.....(v1) J.Walker.....4K Mixed - Lets you LoaD Z80 register from Basic and call the firmware.
FSW-1040: CGEN.....(v2) A.Scott.....6K Basic - Natty icon-driven Character generator (JOYSTICK ONLY).
FSW-1041: EXCAT.....(v4) A.Scott.....5K Basic - Disc header reader (extended catalogue to screen or printer).
FSW-1042: EXPRINT.....(v2) A.Scott.....5K Basic - Prints out ASCII characters > 127 in their correct form.
FSW-1043: PROFORMA.....(v1) A.Jordan.....2K Basic - Prints cassette filing sheets out, but only to a DMP1 printer.
FSW-1044: NEATLIST.....(v2) A.Scott.....4K Mcode - Emulates the BBC's LISTO command to create neat listings.
FSW-1045: MENU.....(v2) A.Scott.....3K Basic - Intelligent disc menu (Load, Run, Rename, Delete, etc).
FSW-1046: ROMREAD.....(v2) A.Scott.....3K Basic - Tells you everything about any ROMs you've got connected up.
FSW-1047: SYMPHONY.....(v2) A.Scott.....4K Basic - No, not music, but a fancy kalaedoscope pattern generator.
FSW-1048: AMSIG.....(v4) J.Walker....173K Mixed - The fastest Mandlebrot Set program on the CPC (DISC ONLY).
FSW-1049: DRIPZONE.....(v3) J.Kennedy....53K Mcode - Brilliant, addictive, machine-code arcade game (DISC ONLY).
FSW-1050: DISCED.....(v1) C.Turner.....5K Mcode - Disc sector editor RSX. (664/6128 DISC ONLY)
FSW-1051: STARFIRE.....(v1) C.Turner.....25K Mcode - Fast moving, colourful, pure machine code zap-em-up game.

FSW LIBRARY

WACCI HOMEGROWN SOFTWARE CONTINUED - COPYING CHARGE: Standard rate = 1p per K (* = new program or new version)

FSW-1052: SCANNER.....(v2) J.Kennedy.....2K Basic - Loads lots of ascii files at once and lets you scan thru them.
FSW-1053: BOUNCER.....(v1) A.Scott.....4K Basic - A version of Breakout, with a few twists. (664/6128 ONLY)
FSW-1054: BASIC+.....(v1) A.Scott.....13K Mcode - 45 new commands added to Basic (with a Basic instruction file)
FSW-1055: LABEL PRINTER.....(v2) A.Scott.....6K Basic - New version with embedded printer control codes.
FSW-1056: MISSILE.....(v1) A.Scott.....6K Basic - A version of Missile Command with Joystick/Keyboard control.
FSW-1057: SKETCH & PROGRAM.....(v1) A.Scott.....8K Basic - 6128 Art program which turns your sketches into program lines.
FSW-1058: SYNTH.....(v1) A.Scott.....3K Basic - Three-channel sound at your fingertips.
FSW-1059: HOTRODS.....(v1) S.Grainger....6K Basic - Can you pass 200 cars at speed without crashing?
FSW-1060: BREAKOUT.....(v1) A.Scott.....3K Basic - Still no comment.
FSW-1061: DEPRO.....(v1) A.Scott.....2K Mcode - Allows you to LOAD and LIST protected Basic programs.
FSW-1062: DIS.....(v2) A.Scott.....5K Basic - Z80 Disassembler with printer output facility. Any Rom or Ram.
FSW-1063: PAIRS.....(v1) A.Scott.....4K Basic - Play the computer or a friend at Pelmanism.
FSW-1064: XREF.....(v1) A.Jordan.....15K Basic - A Basic programming development cross-reference utility.
FSW-1065: WACMON.....(v4) A.Scott.....16K Mixed - Machine code monitor specially put together for WACCI.
FSW-1066: MUSIC COMPOSER.....(v1) A.Scott.....14K Basic - Compose one-channel melodies to use in your own programs.
FSW-1067: LOGOPOLIS.....(v1) A.Scott.....15K Basic - Version of Logo (converted from a Tim Hartnell Speccy listing)
FSW-1068: MATHS MAGIC.....(v1) A.Scott.....11K Basic - Useful routines for numerical freaks.
FSW-1069: BREAKER.....(v1) A.Scott.....3K Mcode - Dumps screens, even from commercial games, to disc.
FSW-1070: DISC MENAGERIE.....(v2) A.Scott.....20K Mixed - Sector & Directory editor, fast format, disc map, and more.
FSW-1071: NOSEY.....(v1) A.Scott.....4K Mixed - Lets you edit memory and RAM banks, and also view ROMs.
FSW-1072: SPRITES.....(v1) A.Scott.....6K Basic - A mode 0 multi-coloured sprite designer.
FSW-1073: SQUEEZER.....(v1) A.Scott.....4K Basic - Chops 20% on average off the length of an ASCII file.
FSW-1074: CAVERNS OF SKELETOR..(v1) J.Wright.....14K Basic - Multi-coloured arcade chase through a seven-screen maze.
FSW-1075: ZENER CARDS.....(v1) A.Scott.....23K Basic - Are you extra sensory perceptive? Test yourself with this.
FSW-1076: SUM-VADERS.....(v1) J.Wright.....7K Basic - Educational game to practice doing maths (primary school age).
FSW-1077: ASTROSUITE.....(v1) A.Scott.....52K Mixed - Find out where the planets are and more. (DISC ONLY)
FSW-1078: TEXT & PROGRAM.....(v1) A.Scott.....3K Basic - Design text screens and convert them into program lines.
FSW-1079: WORDY.....(v1) A.Scott.....15K Basic - Text editor with many advanced features.
FSW-1080: TRIVIA QUIZ.....(v1) A.Scott.....68K Mixed - Colourful 2 to 4 player quiz-cum-boardgame. (664/6128 ONLY)
*FSW-1081: PROTO.....(v1) G.Burns.....16K Basic - Z80 assembler that assembles source code from ascii files.
*FSW-1082: CHESS CLOCK.....(v1) A.Scott.....10K Mixed - What all well-dressed chess freaks should not be without.

WHAT'S NEW: Do you get *Computing With The Amstrad*? Do you remember *RAW*? No? Well, for those of you don't, *RAW* was a Z80 assembler written in Basic by Roland Waddilove. It assembled mnemonics from DATA statements. Gary Burns has taken this listing by the scruff of the neck and converted it so that it now assembles from text files instead, just like a CP/M assembler. It's new name is *Proto*, and it works very well indeed considering.

That man Alastair Scott has popped up again with yet another goodie. *Chess Clock*, I imagine, would come in very handy for those Chess freaks amongst you who cannot afford one of those thingies I see sour-faced Russians and Yanks slapping after each move. I wish I could play Chess, the participants always look as if they're having such fun.

Nothing new in the CP/M section, but those of you playing with *VDE*, the text editor on discs 5 and 7, may be having trouble with the keys. Try inserting your system disc first and typing "setkeys keys.ccp". That's it. Tarra.

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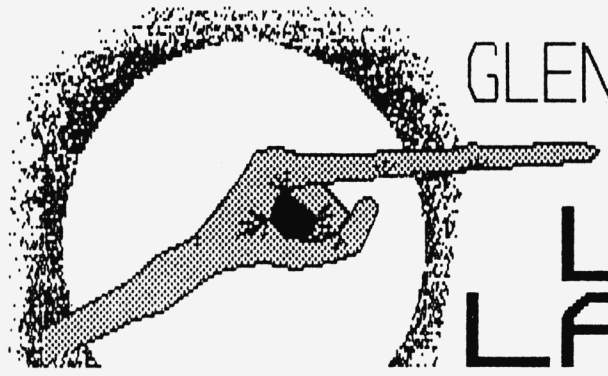
EPILOGUE



GLENN CAREY'S THE LAST LAUGH

Welcome to the 1987 Xmas Last Laugh - batteries not included.

Amongst other goodies, this month sees a brand new idea come to life - yes, another regular comic strip exclusive to WACCI. It's written by me and drawn by an up-and-coming cartoonist called Lawrence Gibbson.

Christmas

AND HOW TO SURVIVE IT (or "Is Santa a Freemason After All?")

For many, Christmas and the New Year means Goodwill, Peace on Earth, Christmas trees, presents, giving, abundant food, drink, parties, and nervous break-downs. So, as a sort of forewarning of what's to follow, here's a run down of what to expect during this seasonal time.

CHRISTMAS GREETINGS

"Only XX more shopping days till Christmas," beams the TV announcer who has the IQ of a plate of cauliflower cheese, and a vacant smile to match.

At times like these I think I could do with a little more Christmas spirit - i.e. half a bottle of vodka - before I swallow fifty asprins.

They're packing in the adverts. In fact, the very first seasonal TV advert was on Thursday, the 12th November. Yes, a certain company decided to launch their "It's so Easy" ads while many were still nursing burnt fingers from Guy Fawke's Night.

What would Santa say? Probably, "Pop in to my grotty Grotto at your local supermarket, and for 50p you can whisper in my ear, and go home with a semi-inflated orange balloon and half an unformatted chocolate digestive."

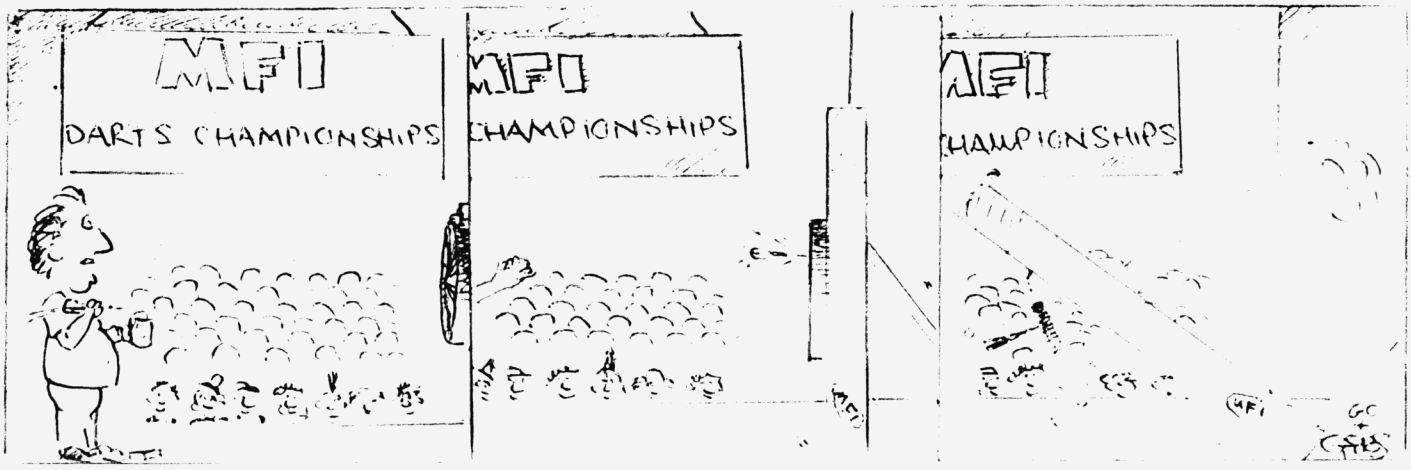
But we must remember the immortal greeting card titled "Peace at Christmas"; a piece of Mr Kipling's Plumb Pudding no-doubt...

"Tuesday," wrote Mr Kipling (in a voice suggesting he'd gargled with razor-blades), "and I tried gorging myself on a French Fancy - but the maid said 'non'. In a bitter mood I showered carol singers with treacle tarts. I never have liked Carol. Oh well, at least I'm making a fortune out of it..."

CHRISTMAS VIEWING

Staying with Television I see the four channels are in the Christmas spirit. BBC 1 spearheads its seasonal veiwing with variety, "Wogan at Christmas Eve" and "Christmas with Terry" being the main programmes. The only alternative to Wogan is "The Wizard of Oz", which makes its 145th showing this century.

On ITV the main show for Christmas night is "Benny Hill's Christmas Cracker", where busty girls in Father



Christmas suits perform the same sexist jokes that featured in "Benny Hill's Summertime Special".

One of Benny's jokes starts with the question "Is there a Mummy Christmas?" Which is quite ironic, because this just happens to be the title of Channel 4's latest Hungarian sadistic gay film, to be screened ... um ... very early in the morning.

CHRISTMAS LISTENING

Turning to the wireless, I see that Radio 4's "Afternoon Play" is about a lonely person at Christmas. Imaginatively called "A lonely person at Christmas", it was written by a wealthy writer who lives in a big house and needs his head looking at.

Meanwhile, Radio 1 pays Gary Davies even more money to be big-headed about his new car/house/suntan - so nothing changes there.

CHRISTMAS CHEER

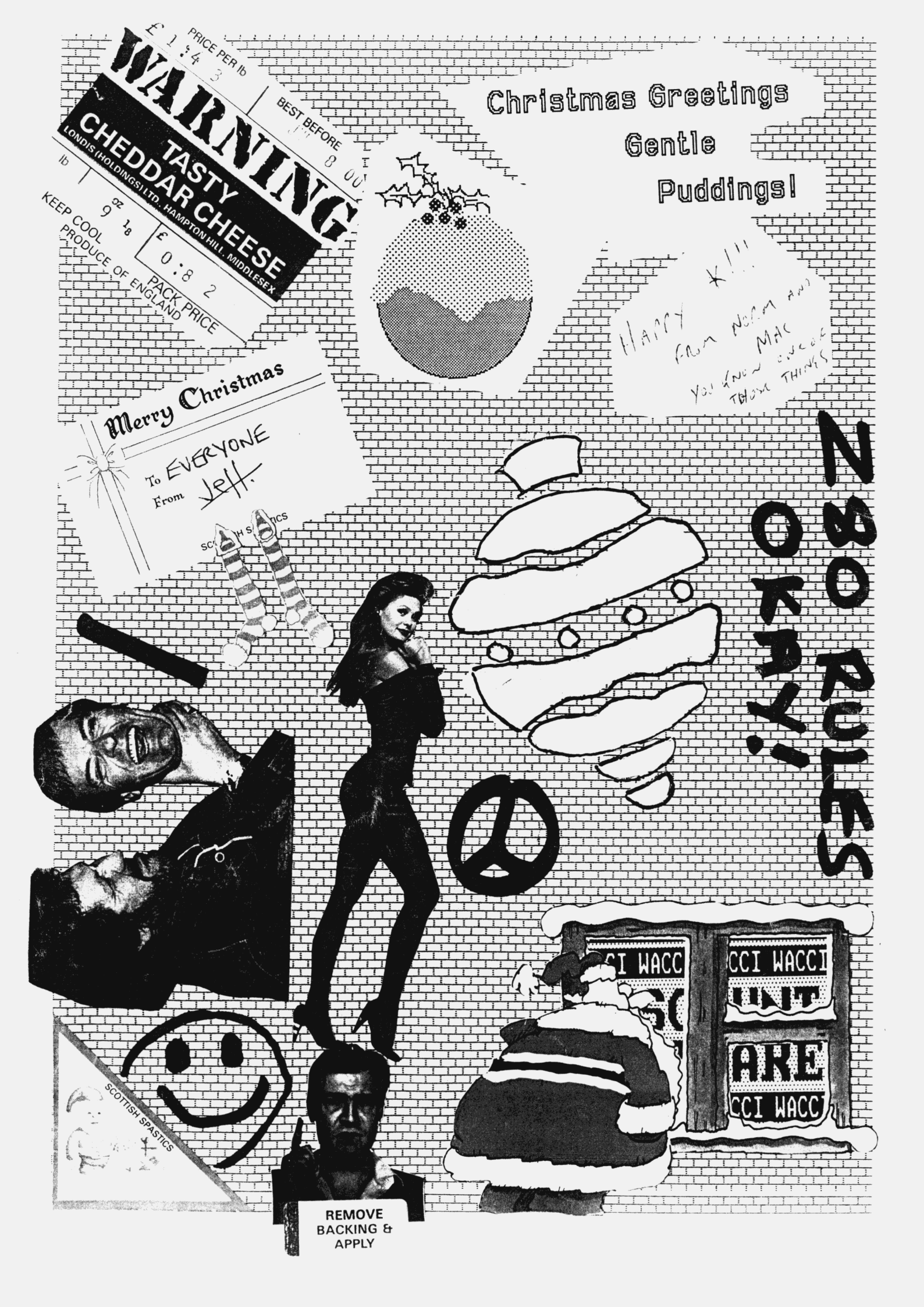
Back on the home front you can expect your dinner to solidify while the Queen's speech is on. Also, watch out for those pine needles which can get everywhere ... pluck, ouch ... and nearly always do.

Two good games to play this Xmas are "Electrocute the Boring Relatives with the Fairy Lights", and "Get Gran Pye-eyed on Sherry So She Starts Singing 'The White Cliffs of Dover'".

Talking of Trivial Pursuit, it is wise to see that you've still got the correct amount of counters after last year's ordeal when, just because you didn't know how many times a year penguins mate, you flushed several wedges down the toilet.

Drink now, and alcohol seems to take an even greater role this Christmas. For £40 you can buy one of Europe's top brands of wine, while Tesco's old favourite "Plonk de Chateau (1985)" will get you and your friends just as drunk, and you'll still have enough change left to buy the fairy lights.

Probably the only thing worth looking forward to this Christmas is the New Year. And then what? Aha. All will be revealed in The Last Laugh Almanac, next issue. For now though, eat, drink, stagger, fall down, and be sick - for next month is another year. Have a *lovely* Christmas!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CHRISTMAS!

Hello to my fan everywhere,
from Auntie John.
XOX

All of us at Arnor wish everyone at WACCI a very happy christmas and all the best for 1988.

Yours sincerely

D. Thompson

Douglas Thompson

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SCOTTISH SPASTICS

The facts of life – for CPC owners

There's birds...

'The Swift' — an uncommonly fast bird, often seen speeding past its more pedestrian feathered friends. Rather like Protext, an amazingly quick word processor that streaks ahead of its rivals. Its incredible speed is only matched by its amazing range of features. It works with any printer, has a comprehensive array of simple command options and contains a complete on-screen help facility.

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And there's Miss L. A. Nurchi of Dartford.

Miss Nurchi is a very important person — she's an individual and she doesn't like letters that begin 'Dear Householder,' or 'Dear Customer'. She especially hates the ones that start 'Dear Sir'. Promerge Plus is a fast, flexible, mail-merge program that works with Protext to produce attractive, personalised letters. Using keyboard or file input, it combines specific details with standard drafts, based on your selection criteria. And with ROM-based Promerge Plus you're free to use an extra 64K on the CPC6128 and work on two files stored in memory. Arnor's disc-based Promerge is also available.

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