The Aussie Mag for Amstrad owners

THE AMSTRAD USER

FREE 8-PAGE SOFTWARE CATALOGUE SUPPLEMENT

Issue No. 51 $4.25 April 1989

- *Ten more games reviewed + more on Communications and Structured Programming + Printer Upgrade project*
- *Presentation with LocoScript2 + Full review of 'FISH' + Creating an auto-boot disc for SuperCalc2*
- *More on MS-DOS + PC Type-in + Compatibles Corner*

FOR THE NOVICE & EXPERIENCED USER

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Pactronics newproducts

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THE AMSTRAD USER

Issue No. 51 - April 1989

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All enquiries and contacts concerning this Publication should be made in the first instance by writing to The Amstrad User, 641 High Street Road, Mount Waverley, Victoria 3149, Australia. Urgent matters can be phoned through on (03) 233 9661.

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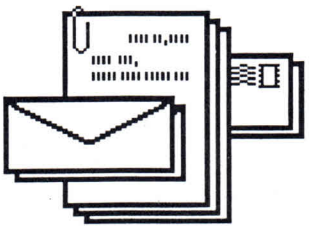
LETTERS TO THE EDITOR



A monthly selection of your comments, hints and tips, advice and news - all shared for the benefit of Australasian Amstrad users.

In the August 1988 issue of TAU your innovative contributor Arnold Goldman told how he cobbled up a device for re-inking ribbons. And an excellent item of DIY equipment it is too. May I suggest some refinements?

First, the ink. I bought a 60ml bottle from Aussoft, PO Box 476, Cleveland, Qld 4163. This is much better than the stamp pad ink I was previously using. As Arnold warns us, use it sparingly.

Next, the Goldman Gizmo. Mine is much the same as in his sketch except that I went up-market and used a camembert cheese can as the ribbon guide. Not because it was better than his Kraft peanut butter lid but because it was at hand. I always save them - they come in handy for temporarily storing parts. A great area for innovation here.

My 'ultimate weapon' is a re-chargeable battery-operated power drill or screwdriver. The Makita two-speed drill is OK on the slow speed but the Ryobi screwdriver is slower and better. It comes with a 6mm Jacobs chuck for drilling. I used this chuck to grip the knob on the ribbon cassette. Running the drill in reverse for the correct ribbon direction, the speed is just about right for the job. I can re-ink a ribbon in about five minutes.

Leave the ribbon overnight before using it. The ink seems to soak into the ribbon evenly.

From time to time I remove the printer head and clean it with a light squirt of CRC-26, wiped off with a Kleenex tissue. This electrical service spray cleans, lubricates and assists with insulation. It does the printer head a power of good!

I enjoy every copy of TAU. Keep up the good work.

A. R. Grant, Mullumbimby, NSW 2482

As a recent subscriber may I suggest that you cancel some of your User Group contacts. I have endeavoured to be in touch with three of the listed Sydney contacts and they are either unobtainable or have resigned the position some considerable time ago.

Do you have any information regarding any group starting up in Sydney Northshore as I would be interested to see what happens - I have a lot to learn before I would be helpful to others but am trying to learn.

Kenneth Sinclair, Pymble NSW

This is not the first letter of this nature that we have received in recent months, and we do sympathise. If user group secretaries (or anyone, really) are not informing us of amendments as they occur, we cannot be left to guess or spend a great deal of time and money on the telephone to make dozens of interstate phone calls. We make every effort to keep the user group list as up-to-date as possible and in print as often as possible, entirely free of charge and for the benefit of those user groups. So come on - ring or write those changes through for the benefit of all.

From now on, if we receive genuine correspondence stating that a contact is no longer obtainable, that contact will be struck off the list. We could use the space!

This letter should be addressed to those helpful people who write the marvelous articles on the PCWs and LocoScript for your magazine.

I am a writer of local history works in Launceston and have just finished another manuscript, the first on my PCW8256. It was so much easier. The manuscript is ready for the printing house but they do not have a PCW or a drive to take a 3" disc. I am wondering if an investment in a 5.25" PCW second drive (as advertised in TAU) might solve the problem of how to get the manuscript to the printing house without having it typed again and so cut down on the proof-reading.

I think the procedure would be to copy the manuscript as an ASCII file to the 5.25" which would fit the different drive, but what would happen to the LocoScript2 once it was inserted into another word-processing program? I know there would be some adjustments to make but would a program not intended for Amstrad tear my work to pieces?

I think I am asking if the 5.25" drive would assist compatibility with another system. I have enquired at the local Amstrad supplier but they only SELL the equipment and don't know how to answer problems like mine.

If this idea works, it would probably be worth my while to get a 5.25" drive as I intend to continue writing, but I need some advice first, PLEASE!

Jenny Gill, Launceston Tas.

It is a tricky if not impossible problem to solve at the moment. In general terms, there are typesetting machines (a Compugraphic for example) which accept differently formatted text files on 3.5", 5.25" or even 8" discs from a variety of word processors. Some are capable of accepting 'page-formatted' documents on

disc, possibly in PostScript, such as that used by PageMaker on the Macintosh or Ventura on the IBM or compatibles. This produces a higher quality output than going through a laser printer.

However, for nearly every type of data there must be a conversion program within the typesetting machine that will allow it to understand what it is receiving and set correctly. Whilst LocoScript1 is a good word processor it does produce very complex data files, up to half of which can be taken up with control characters determining the final layout to be printed on your PCW. LocoScript2 is even better, but alas more complex. Thus a complex conversion program is required to read LocoScript produced files.

We believe that a company in England has made the breakthrough and has developed a conversion to read LocoScript1 discs and that a LocoScript2 conversion program could be ready by the end of the year. Unfortunately, we do not know of anyone who has cracked it in Australia - unless someone else knows better.

I have recently become the proud possessor of "PrintMaster Plus" which, fortunately, I only paid half price for. Upon reading the instruction manual and seeing all that it was promising to perform I was at once impressed, but upon bringing the program home and installing it into my 6128 I though I might have somehow picked up the wrong disc or the wrong manual or maybe someone in the shop had got mixed up or something. But I persevered and eventually came to the conclusion that the program was written for a bigger machine than mine and that somehow my 6128 was limiting its full potential.

I was particularly disappointed that PrintMaster Plus does not support on-screen graphics and graphics editing functions as I would prefer to be able to manipulate my own art. I did eventually find, on a loose piece of paper that cam with the program, that this is part of the deal for the Amstrad version anyway, despite the fact that in the introduction of the manual it clearly states that "... the Drawing Pad, which you can use to draw, erase, invert, flip and otherwise alter the graphics that come with PrintMaster Plus or the ones you have created from scratch." It all looks very impressive until you try to get it to work.

However, I did get it to work in a fashion becoming increasingly alarmed at the instruction to remove the disc from the drive and insert side 'B', my obedience being rewarded by the command to then remove the disc and reinsert side 'A'. This happened on numerous occasions before I finally had something produced from the printer. I seriously wondered if perhaps all this inserting and removing might not wear out the disc, or worse still, the disc drive on my computer.

It was about this time that my memory was engaged concerning something I had read in one of your magazines. I am a fairly recent

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convert to the computer scene having bought my first machine in April of last year, so needless to say I don't fully understand everything I read with regard to computers, language, programs etc., but I read most of your articles anyway and I am progressing nicely. I hunted through the issues of TAU until I found what I was looking for. In the May 1988 issue there was a review done on this very program. What has caused my memory to prick up was the mention of all the disc swapping. Now here I was with one of these very monstrosities that you had reported on.

I finally did get some nice graphics out of the program, and now that I am used to operating the system, I find it quite useful. The kids love it. It is limited, but what it does do is good quality I feel. So, as you also say in your review, it does have its good points, and for half price I guess I have done OK.

Upon re-reading your article (which I enjoyed immensely now having first hand knowledge of the program) I found that you state that it is possible to use only one font on the

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Pactronics

...Letters continued from page 3

inside of a Card creation and also you can have a choice of only one graphics picture. This is not so. You can choose a different font for each line that you print and also there is a choice of two pictures. Why the program actually asks you to select a font prior to typing in the text is more than I can comprehend because there is a facility to choose the font while in the text mode. Could it be that you actually mean that you would prefer if you could set up a second page on the inside of the card? It would be a bit embarrassing for you if you had to apologise to Dataflow for being unduly negative about their program.

Another point that could be of interest to any of your readers who have PrintMaster Plus is to do with your statement that "when the need arises to correct a spelling mistake you must erase the line(s) of text or start from scratch." I found, quite by accident, that it is possible to erase a line, one character at a time. My children were watching as I was entering some text and for some reason, right before my very eyes, the last character of the line disappeared. One of my kids bumped the joystick and another disappeared. By moving the joystick to the left you can erase a single character. Too bad if you don't have a joystick. Maybe Dataflow could supply one with each program to make up for everything else that is missing.

Another interesting problem with PrintMaster Plus is that sometimes the program seems to lock up. Upon coming to the end of inputting all the information (after all that disc swapping), for some reason when giving the 'Print' command and pressing Enter nothing happens except that it keeps returning to the menu and around and around you go. Even going through the process of issuing a different project doesn't alter anything. It seems that the only solution is to wipe the program completely (Shift, Control, Escape) and go back to CP/M and re-enter the program. Frustration!

R.H Seaborn, Westcourt, Qld.

NEWS BREAK

Our monthly update on the gossip, news, releases and the general Amstrad scene from both home and abroad

THE AMSTRAD USER EXPANDS INTO RETAIL

It's nearly three years since The Amstrad User moved to Glen Waverley, and at that time we reckoned we would be there for at least four years. What we didn't reckon on was a faster rise in circulation than planned and a phenomenal demand in software across the range of Amstrad computers. Over the past few months our administration system has creaked a little under the strain, so when the opportunity arose to move to newly constructed premises we jumped at the chance.

What is more exciting, especially for Melbourne residents, is our decision to open a retail shop directly below the new offices to offer an extensive range of Amstrad computers, peripherals, software and ancillary equipment. At the time of writing, the shop and office complex (situated on the corner of Blackburn and High Street Roads, Mount Waverley) are nearing completion and we expect to move in at the beginning of April.

The magazine publishing and the software mail order service for Australia, New Zealand and other export countries will continue as before and we expect to expand the current range (over 1000 items) even further.

The Amstrad User Shop will display the same range of software, and a comprehensive range of computers from the CPCs through to the new PC2086. In addition, we will have both 9-pin and 24-pin Amstrad printers on display and a wide range of books, magazines and consumables such as ribbons and discs.

We leave the last word to our Editor. "Our commitment to Amstrad computers and their users has never been disputed. 1989 will see this commitment further reinforced with the opening of a retail outlet for Amstrad products. This major step in our development will undoubtedly be of great benefit to existing and potential Amstrad users and we are all very excited with the prospects."

REACH FOR THE SKY

Star gazers with PCWs may be interested to learn that "Startrack" has been released by Discovery Software. It shows any area of the night sky from any position on earth from 1000AD to 2999AD. Apart from animating the scene to show the stars moving as the months go past, it can also show the stars in one chosen magnitude.

The Australian price is yet to be fixed but is likely to be in the $60 region and will probably be available through The Amstrad User before the end of April.

PCW MACHINE CODE BOOK

SPA Associates, a small company in England, has produced a new book entitled "PCW Machine Code". The maxim 'never judge a book by its cover' applies well to this publication. It certainly doesn't come into the glossy cover/professionally typeset category as most others, but the information inside contains some real gems. In fact it was written with LocoScript and printed on the standard dot matrix printer.

Basically, the book provides a clear description of controlling the 8256/8512 and 9512 by machine code programming. It is not a guide to CP/M or the Z80, or even a tutorial, and has been written by a PCW enthusiast - Michael Keys.

Starting from a thorough description of what machine code is and how to use it, several chapters are devoted to each main feature of the PCWs. As well as describing screen, printer, disc and memory handling, it has a wide range of applications such as multiplication and division (8-, 16- and 32-bit), random number generation, BCD, Sin and Cos, Square roots etc.

There are informative chapters on how to write programs and on what pitfalls await the unwary. And to make sure you can always recover from any situation there is a chapter on how to cope with errors.

It is written in a light, often humourous style which is easy to follow but which manages to stick closely to the point. The book has a full set of appendices and a comprehensive index, and features many program examples.

Because the range is so wide, no single volume could cover the subject matter exhaustively, but a reader willing to dig for him/herself will find everything needed for controlling all the PCW hardware.

PCW Machine Code is available from The Amstrad User at $39.95 (plus post/packaging).

AMSTRAD PTY LTD REDUCE PRICES

As indicated in News Break last month, the Australian arm of Amstrad has followed suit in reducing prices across the range of computers. The PC1512s have been reduced by $100 to $999 for the single floppy mono screen and $1699 for the dual floppy colour. The PC1640 single floppy models are also down by $100 and the double floppy models by $200. The mono and colour models with hard disc are now $200 less at $1999 and $2299 respectively while the EGA model has come down by $300 to $2499.

The portables have also been reduced making the PPC512S $999, the PPC512D $1299 and the PPC640S $1399. The double drive PPC640D has been reduced by $400 from $1999 to $1599. The new PC20 (without monitor) has come down from $899 to $799 and the PCW8256 is now $200 less at $799.

These new prices confirm the aggressive marketing approach by Amstrad in Australia and its efforts to remain the top selling home computer company in this country - a position it reached at the end of last year.

BRITISH TELECOMSOFT FOR SALE

British Telecom recently announced its intention to sell its entertainment software division, Telecomsoft. As well as Amstrad, other computers such as Atari, Amiga, IBM PC etc. have been supplied with software through the Rainbird, Firebird and budget Silverbird labels. Explaining the decision, Tom Baird (Commercial Development Manager, Communication System Division) said: "The nature of British Telecom's business is constantly evolving and entertainment software publishing is no longer consistent with the company's corporate goals as a world-class supplier of telecommunications and information products and services. TelecomSoft is now organised as an autonomous business and it operates entirely independently of other British Telecom divisions."

Paula Byrne (General Manager of TelecomSoft) added: "Telecomsoft is an established operation which has consistently improved its financial performance culminating in last year's revenues of close on £6 million (about A$13 million). The last two years have seen great achievement for Telecomsoft. As the foremost developer of 16-bit games in Europe, with three strong brand names Rainbird, Firebird and Silverbird, the organisation's business has never been stronger."

At the time of writing, talks were being held with various interested parties - existing software and hardware companies and other companies looking to diversify their operations.

IMPROVED MINI OFFICE PROFESSIONAL

The database, word processor, spreadsheet, comms and graphics integrated package for PCWs 'Mini Office Professional' has been exceedingly successful despite a few minor problems with importing and exporting data from the database and spreadsheet. (not to mention the manual!).

All these annoyances have been put right, it seems, with the announcement by Database Software of a new and improved version which includes a thesaurus, a spell-checker and a new manual. Data can be imported to or exported from the spreadsheet and import data to the database. The comms package has an autodial facility added. The word processor has better printer control and supports 24-pin printers.

The thesaurus module with 50,000 word spell-checker is supplied with the package and apparently works on

LocoScript and Protext files as well. The new manual has been written by John Hughes, the author of "All-in-One business computing" and other well known PCW books.

The new version of Mini Office Professional Plus is imported by Pactronics and will be available through your dealer or The Amstrad User for around $169. The spell-checker/thesaurus module (also bought separately) will cost around $89.

PCW TO GO COLOUR?

The days of the PCW being considered just an impressive word processor are numbered with the announcement of a new program called 'Kolorkit' from graphics specialists KolorSoft. It apparently works by exploiting the well known optical illusion whereby the human eye can be fooled into seeing colours if the image it is looking at is flashing at a certain rate. A picture flashing at 34.5 times a second looks red, 50 times a second looks green and 62.7 times a second looks blue.

Kolorkit is a very clever piece of programming which modifies the startup disc. An extra range of CP/M functions will be available to control how fast the screen flashes. These will be accessed by using escape codes, so from Basic if you type PRINT CHR$(27) + "Z" + "RED" the screen turns red. Setting up different windows on the screen will allow different combinations of colours on the screen at one time.

KolorSoft's Japanese technical director, Mr. Joki Sonyu commented "Admittedly the colours obtained through Kolorkit are not as natural and sharp as ones on true colour screens, but we feel sure that the PCW software houses will rise to the challenge and write programs using Kolorkit's facilities."

Mr. Sonyu hopes that Kolorkit will be available from most dealers within the first week in April.

ON/OFF ART STUDIO

The Advanced Art Studio distributed by Rainbird is probably the easiest art package to use on the CPC. The only problem with it has been its lack of availability. It's a long story but basically Advanced Art Studio was written by OCP (Oxford Computer Publishing) who were paid a royalty for sales made by Rainbird who bought the licence. Since that time OCP has gone into liquidation and a company called EEC has purchased its assets and rights. Rainbird allowed the licence to lapse and so EEC bought it. The net result is that EEC now call the tune and have promised that there will be plenty of copies available for Amstrad owners. We think we have got the story right, but we are still not sure whether EEC are talking about The Art Studio or The Advanced Art Studio. We should have it sorted out within the next few weeks - so if you have a copy of Advanced Art Studio on order, hold your breath a bit longer!

THREE BEARS CORRECTED

Last month we reviewed the educational package "The Three Bears", which drew some criticism due to a number of spelling and grammar errors in the text. We have following publication received assurance from importers Pactronics, that our copy was an old version which has since been corrected. The new version has been on the market for "a few months". However, if any purchasers find they have bought an old version, Pactronics will be pleased to replace these free of charge. Pactronics can be contacted in Sydney on (02) 407 0261.

CPC GOING GUN-HO?

Rumours abound concerning a 'light gun' for the CPCs. Apparently Electric Studio has already produced a working prototype and some software for it.

The 'light guns' contain a receptor in the barrel and sense a signal transmitted from the screen which enables the CPC to work out the position at which the gun is pointing. When the trigger is pulled, the CPC will know which spot on the screen is 'hit'.

There seem to be two problems to overcome - first, to persuade the major software producers to write software for the gun and second, compatibility with the software.

CPC ADVANCED FLIGHT TRAINER

Probably the best flight trainer/simulator available for the Amstrad CPCs is expected to be available at the end of April. Chuck Yeager's Advanced Flight Trainer is published by Electronic Arts on tape and disc will be distributed in Australia by ECP.

Chuck Yeager is a real life, top test pilot who has put his name to a piece of software which has to be seen to be believed. It is not a shoot-em-up - far from it, and it is not confined to just one aircraft as you would normally expect in a flight simulator - you get 14 from which to choose. There is a careful balance between understanding the technical side of flying, staid flights through to high speed jet flying. There are three levels - basic, advanced, and aerobatics each with ten different perspectives from which to view your plane.

Chuck Yeager's ATF is most suitable for 6128 owners although it will run on a 464 but with less facilities. We hope to be able to provide a comprehensive review within the next couple of months.

ATARI COIN-OP CONVERSIONS

A contract to convert Atari 'coin-op' games for the CPC until 1991 has been won by Domark. The licence, called Tengen, covers the publication and marketing in the UK, Europe and Australia.

Joint MD, Mark Strachan, stated that "Domark will be able to... bring out the next Atari games arcade hit in CPC versions featuring optimum programming quality." A two-player tank combat game called Vindicators is the first in line for conversion, with Xybots, APB, Toobin' and Dragon Spirit following.

"We've always supported the CPC and in Vindicators the Amstrad's colours makes it even better conversion than on the CBM 64 or Spectrum" boasts Strachan.

MASTERFILE PC

The Complete Information Filing and Retrieval System for all PC-compatibles including the Amstrad PC and PPC range.

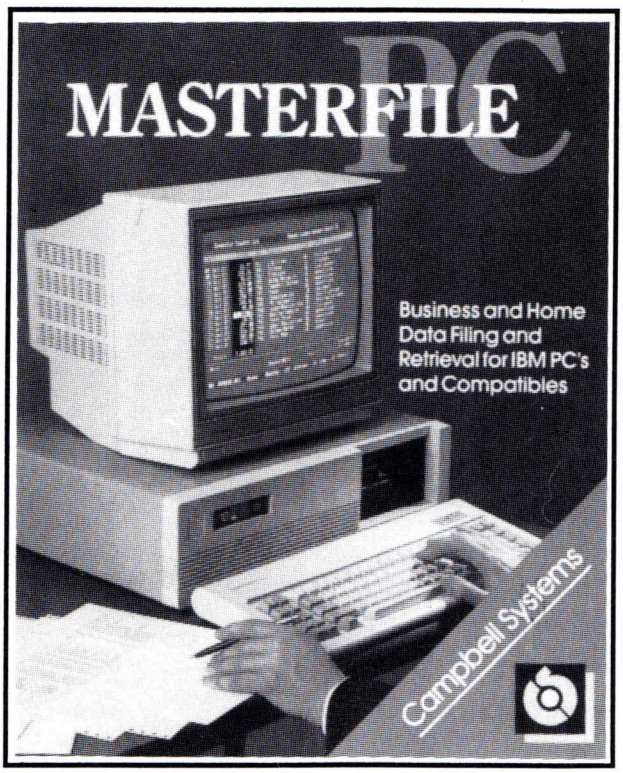
MASTERFILE has earned the respect of tens of thousands of Z80-based computer users - many of whom mourned it's absence when converting to the more powerful PC. But now MASTERFILE PC has arrived, with many more features to make best use of your PC. We are told the price ($199) is too low for a full relational database of such speed, capacity and flexibility; glance at the feature list and see if you agree.

Our first MASTERFILE PC was limited to memory-resident file size, but it has now been extended to handle files up to 16MB without losing the flexibility of variable-length data. Yet the same program can be used with just a single floppy disc drive, file size being limited only by disc capacity.

What seems to most impress MASTERFILE PC users is that there is no need to set field lengths, and it is so easy to change file structures and screen formats without having to re-enter data. We quote some early reviews:

"Surprisingly good performances, easy to get up and use."(PC User)

"A cinch to find data ... very flexible ... how little it takes to get started." (Personal Computing with the Amstrad)



Those quotes are from reviews of the earlier PC version, with RAM-limited file capacity. MASTER-FILE PC is now even more powerful, and still growing - except for the price.

APPLICATIONS

• Address Lists • Sales Ledger • Bought Ledger • Insurance Inventories • Labels • Personnel Records • Invoice Records • Stock Control • Patient Files • Job Progress • Price Lists • Bibliographic Index • Bank Statement • Shares Portfolio • Photographic Index • Catalogues • Property Details • Engineering Data • Hobbies

FEATURES

ENVIRONMENT	MS-DOS ver 2.0 or later, 80-column screen colour/ mono, minimum RAM 256K, minimum disc = 1 floppy drive. Install in seconds
POWER	Machine-coded throughout for speed and efficiency
CAPACITY	Up to 16MB/32768 records per file
DATA FIELDS	Up to 80, can extend at any time
VARIABLE-LENGTH	Data, 0-254 characters per field, 2000 per record
KEY	Automatic file sequence option
RELATIONAL	Connect up to four relational files, each up to 16MB
LOOK-UP TABLE	Each file can use it's own built-in reference table
EASY TO USE	Menu-driven throughout, foolproof
MACRO KEYS	Up to 40 expansion keys, each up to 140 characters
CALCULATIONS	Field-to-field, record-to-record, date-arithmetic
MERGE	Merge-by-key any number of files
SPLIT	Save any sub-set as a separate file
DATA ATTRIBUTES	Character or Numeric or Date (choice of styles)
MULTIPLE VIEWS	Up to 32 user-designed screen/print formats
SCREEN DESIGNS	Create graphically, 1-60 lines per record, alter at any time
EMBELLISH	With boxes, colour panels, headings, column totals
PRIVACY/ SECURITY	Data encryption option, three levels of password
WIDE-SCREEN	Screen/print formats can be up to 240 columns wide
PRINTING	Huge range of options, including divert to disc
SEARCH	By multiple criteria, including embedded texts
BROWSE	Back/Forward, Direct GOTO/FIND
IMPORT	Build file from external ASCII source
EXPORT	Send ASCII data to other systems
SORT	Breathtakingly rapid sort by any field for display/print
FILE SERVICES	Copy, selective copy, re-index, re-organise, re-size
REPORT GENERATOR	Provides data aggregation summaries (optional extra)

ORDERING

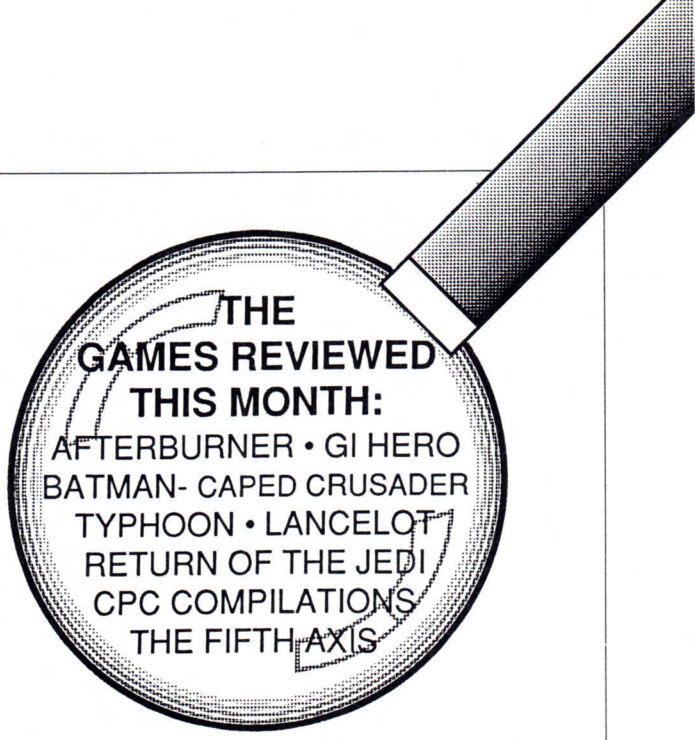
Available from The Amstrad User for $199 (overseas orders please add $4 airmail). Phone firm orders through on (03) 233 9661 or write to:

THE AMSTRAD USER
641 High Street Rd.
Mount Waverley VIC 3149

Dealer enquiries welcome. Bankcard, Mastercard, Visa accepted.

ARE YOU GAME?

The mighty Joystick Wizard has again looted the treasure trove of latest releases...



LANCELOT

A Knight to remember from Level 9

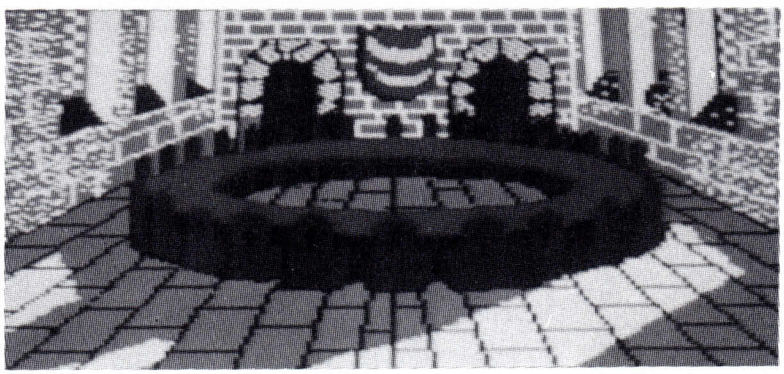
CPC Tape $34.95 CPC Disc $49.95
PCW Disc $49.95 PC 5.25" $49.95

The Austin brothers (resident in the UK) have an impressive range of adventures under their belts and can now be considered one of the foremost adventure creators. They have firmly supported the Amstrad range of computers from the beginning and confirm they will continue to do so, which can only be good news for Amstrad adventurers.

Lancelot is a good example of their clever style, well thought out with plenty of puzzles and problems to resolve, and at the same time maintaining the period atmosphere - in this case during the reign of King Arthur.

Sir Lancelot was the King's favourite knight. He was the most chivalrous, a champion at the art of mortal combat and the most supportive. Such were his talents that King Arthur chose him to search for the Holy Grail. In this three part adventure, you are required to guide the knight to his goal.

The first part, however, deals with Lancelot's journey to Camelot and associated problems. The aim on this level is to be knighted which takes the game onto the second part. This is a 'search and rescue' mission for a number of imprisoned knights and the success or otherwise determines Lancelot's standing among his peers, most of whom eventually return to the Round Table at Camelot. These first two parts should be played



in sequence, but the third and final part can be loaded and played separately.

It takes place some twenty years on, long after his assignations with Guinevere (King Arthur's wife) yet he still maintains a guilt complex, so much so that his obedience to the codes of chivalry lean to the obsessive. He has also seen his son Galahad take up the last place at the Round Table. The scene is set for his final mission, the quest for the Holy Grail. There are heaps of puzzles and the secret is to complete them in the correct order.

As you would expect with Level 9 adventures, the game comes with good instructions and hints for the beginner and some information (also providing clues) on the background and the general Arthurian saga. The tape version (for CPCs) doesn't have graphics, but the discs do and help add to the atmosphere. The CPC disc will only run on 128k machines. Naturally the PCW and PC versions also contain well drawn graphics. You would also expect 'intelligent parser', character interaction and clearly constructed text with clues. You get them!

Once again, Level 9 have produced a first class adventure which will keep you occupied for a long time.

RETURN OF THE JEDI

The best of the trilogy from Domark

CPC Tape $29.95
CPC Disc $34.95

I must admit I was somewhat disappointed with the first offering from Domark - Star Wars. It was cleverly written but I never felt that Darth Vader was breathing down my neck. Then came 'The Empire Strikes Back'. It was an improvement and more challenging. Now, presumably last in the series (unless Lucas makes another film), comes Return of the Jedi.

Everyone must have seen the film, so all I need do is remind you that the action is staged on Endor, the home of the fluffy Ewoks whilst in the heavens above, the Empire is constructing the feared Death Star Mark Two protected only by a force field projected from Endor. As with the previous offerings, three difficulty levels are provided - easy, medium and hard. There are three parts to the game.

The first sees Princess Leia racing through the forest on a speeder bike with Imperial Stormtroopers in hot pursuit. You must avoid the trees and fight off the Stormtroopers with the help of the Ewoks and eventually arrive at their village.

In the second phase, you guide Chewbacca in an Imperial Scout Walker towards a bunker which houses the protective shield instruments. The logs and rocks have to be avoided or blasted as you slowly make for the target. This phase is missed out on the easy level.

While all this is going on, Lando Calrissian is racing his Millennium Falcon towards the Death Star in the hope that the force field has been destroyed and, if it has, the action will switch to the last phase. You have to guide him to the reactor, heavily protected by Tie Fighters who always seem to attack from the rear. If you manage to avoid them and the Death Star frame-work you get a shot at the reactor, but have to get out quickly before the big bang. In the medium level the Death Star approach is omitted.

This game features diagonal scrolling (like Zaxxon) and is well executed. Although there is a lot of plain shooting, skill plays a major part. The graphics are colourful (no green screen problems) while the sound effects are restricted to clunking Scout Walkers and weaponry.

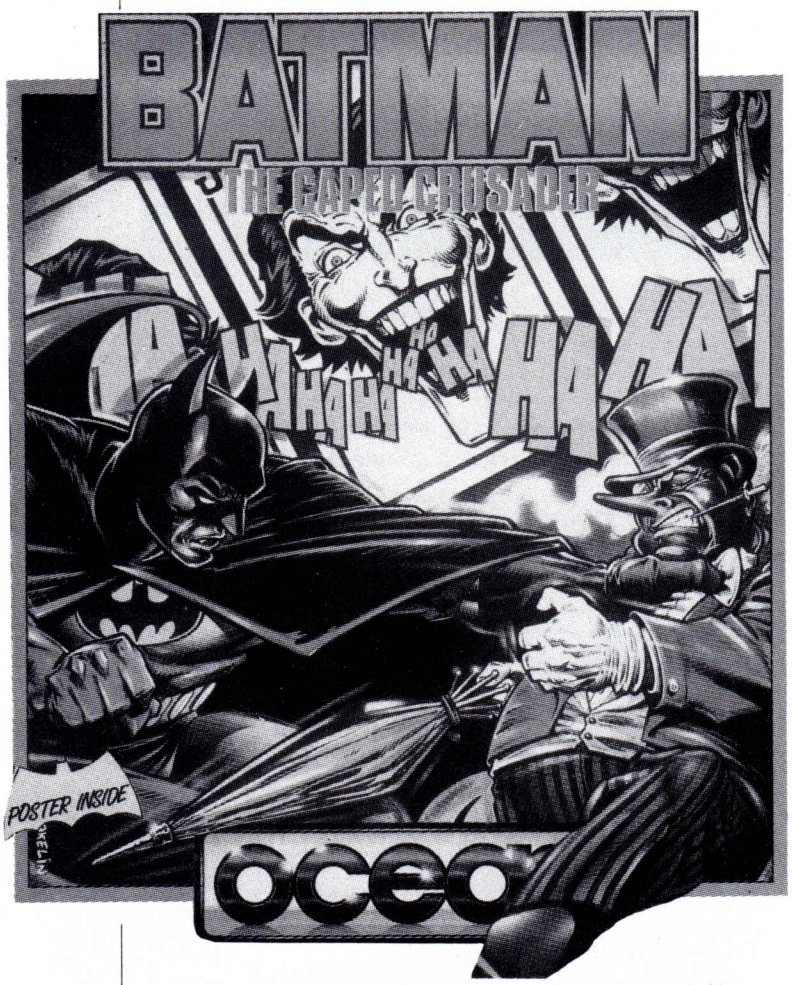
This time, Domark have got it right - Return of the Jedi beats the others hands down.

BATMAN - THE CAPED CRUSADER

Holy Bargains - two games for the price of one

CPC Tape $29.95
CPC Disc $44.95

Batman and Robin first appeared on the Amstrad screens some three years ago, courtesy of Ocean. With the release of the new Batman film, predictably a new computer game has popped up, again through Ocean, but this time Batman's sidekick Robin is nowhere to be seen. To make up for this loss (?), two games are provided starring The Penguin in "A Bird in the Hand" and The Joker in "A Fete worse than Death".



The Penguin is up to his usual tricks, planning to take over the world with his robotic chocolate bar selling penguins. The action takes place in and under Gotham City. There is an umbrella factory which needs to be entered and, naturally enough, is guarded by Penguin's energy-sapping henchmen. Various objects can be found lying around and are usually associated with that particular location, but care is required in locating and selecting the right one. However, one in particular can be used anywhere. Some screens have captions which help to make decisions.

In "A Fete worse than Death", The Joker has kidnapped Robin (so that's where he went!) and hidden him away. Not only that, he has placed explosive charges under the Batcave - what a dastardly deed. Will the Caped Crusader find them in time or will he be sent to the big cave in the sky?

As you would expect, the game is full of riddles, plenty of 'bamming' and 'powing' (punching and kicking) and yet nobody actually gets killed. The windows are cleverly designed using an overlay process and contain large, colourful graphics presenting no problems to green screen owners. You will probably need to keep a map going though to save you getting lost. Although the games are somewhat similar, you are at least getting two for the price of one which must be good value for money. You also get a package which lives up to the crazy and wacky action of its celluloid counterpart and is just as much fun.

GI HERO

A forgettable and colourless game from Firebird

CPC Tape $29.95
CPC Disc $39.95

Some NATO peace documents have been stolen by a spy and taken to a 'politically sensitive country'. Your mission is to recover them. You are sent to the jungle where your first objective is to find a dog called Killer who will help in your quest. You are provide with a direction finder, a message decoder and a torch - all of which have limited life - and can be selected through pull-down menus/icons at the top of the screen.

A flick-screen is where the action (I use that term loosely) takes place. You, as the GI, can slowly walk left or right and fire your gun from a crouching position or standing. The jungle is swarming with 'the enemy' who must be removed otherwise they will remove you. The trouble is that all the characters, you included, seem to have just got out of bed - they are painfully slow in their movements. The colours are restricted to two shades of green which really look no different on a green screen. I got lost a few times, so keeping a map is important, especially as the game is trying to represent 3D in a 2D presentation.

To strategists this game may have some appeal, but frankly I cannot see why Firebird bothered to tarnish their reputation by releasing it.

TYPHOON

Soar through yawn after yawn of flying death from Imagine

CPC Tape $29.95
CPC Disc $44.95

Typhoon comes into the "been there, done that" class. It follows the same theme of such games as 1943, Flying Shark, Xevious etc. but really doesn't come up to their standards.

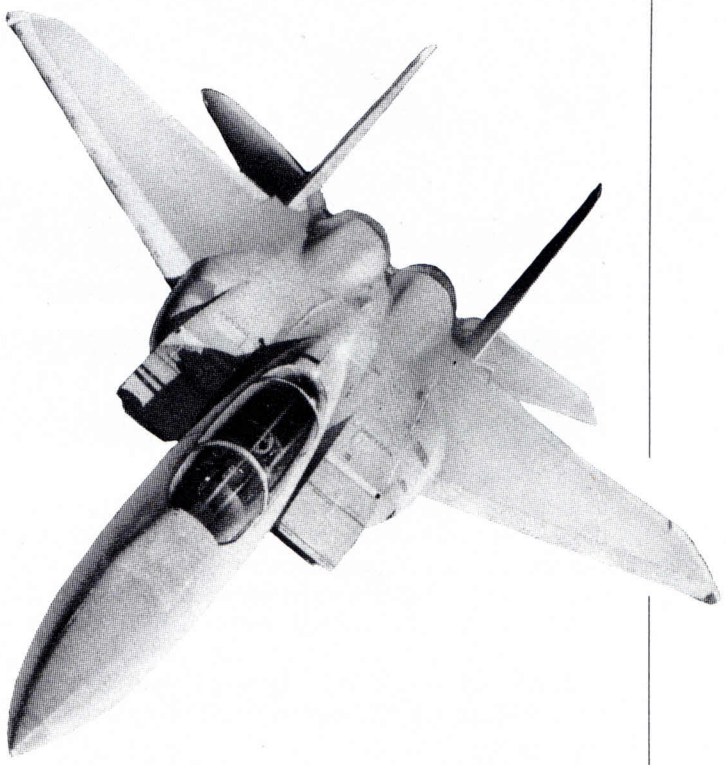
The game is split into two stages with eight levels (if you believe the instructions but only six if you believe the packaging), each as usual getting progressively harder. On the left of the screen are shown five icons - missile, laser, bomb, 3-way and Vulcan which can be added to your armoury as you proceed through the levels. On the right are your score, stage and a smart bomb for use in emergencies only, which will get replaced if you earn a life.

The first stage simulates your plane diving through the clouds to meet upcoming enemy planes with 150 points awarded for every plane destroyed. Having despatched as many as possible the scene changes to dive bombing an aircraft carrier. Miraculously though, your plane can hover nose down above the ship and drop its bombs! Not only that, the pay-load takes ages to reach its destination and while you wait to see the effect, you are bombarded with shells.

For a change, I decided to go through the first level without shooting any planes. This did not bother the game as it quite happily moved on to the aircraft carrier section. I then found a spot on the screen where the shells never reached and there it stuck and would have gone on all night. Bad programming I'd say.

The second stage features a helicopter with a 'cross' ahead of its nose. This is used for targetting bombs. The usual waves of aircraft approach, but anti-aircraft guns also hamper your progress. Once they are out of the way the screen changes to another ship, more heavily armed than the previous (of course). And that's about it!

The instructions are not that helpful (and apparently



the CPC464 is called a CPC 646 in France and England). The choice of colours is bad on the colour screen and even worse on the green. The saving grace, if any, is the music. The game is not too difficult, probably more suited to younger players, but a little tiresome during the first stages where interest can be lost quite quickly.

Sorry Imagine, but I do believe this was a rushed job and it shows in the final result.

AFTERBURNER

A sweatband is required with this great arcade conversion

CPC Tape $29.95
CPC Disc $44.95

Wow - what a game! The CPC version lives up to almost everything you may have seen on the bigger brother arcade version. I have tried both the stand-alone and hydraulic set-ups (the latter throws you around a bit) and thought that any version on the small Amstrad screen wouldn't compare. I was wrong. Anyway, let me calm down for a minute and describe Afterburner for those who have not seen it before.

You are the pilot of an F-14 Thundercat and must simply survive to win. Easily said, but in practice a darn sight more difficult. After the credit screen has disappeared, the first stage screen is loaded showing your score, number of enemy planes hit and the stage number at the top, with the number of missiles, fuel and lives left at the bottom. In between is where the action takes place and your plane is viewed from the rear as it scorches across the land/seascape. Enemy planes can appear in front or from behind you. You are initially launched from an aircraft carrier across the sea and almost immediately confront an enemy squadron. To the front of your plane is a 'sight' and if you fly such that it moves across one of the oncoming planes it locks on and a missile can be launched. While all this is happening you are weaving, dipping and generally pushing your

joystick (or fingers on the keyboard) to the limit avoiding the flak and returning a continuous machine gu: fire. If you get hit, a large trail of smoke erupts from the back of your plane, you take a dive and lose a life.

The second stage is over land with similar foe and the odd tree to avoid when flying low. Once through this section a large plane flies above providing more fuel and ammunition. Other stages include flights through valleys with ground targets to aim at and refuelling on airstrips. Naturally, there's more of everything as you progress.

The game has been converted well from the arcade version - it's full of good graphics and is colourful - but most of all it is exceedingly fast and will leave even the most hardened gamester panting for breath. Afterburner as an all-action shoot-em-up is highly recommended.

CPC COMPILATION PACKS

Flight ACE - Gremlin

Gremlin have put together some of the better simulations in this compilation. Probably the two most popular are Tomahawk, the helicopter simulation and ATF (Advanced Tactical Fighter) which has an arcade element in it. ATF has eight levels of difficulty or skill levels if you like, with smooth 3D scrolling throughout. It's a relatively easy game to get into as the controls of the plane are simplified, yet each mission is quite long with plenty happening.

Then there's ACE, Spitfire 40 and Strikeforce Harrier, with my favourite being Spitfire 40 - perhaps not the fastest of the bunch but just as skillful. Finally, there's ATC (Air Traffic Control) for the time you want to have a rest from flying. It is a cleverly thought out simulation of the problems an air traffic controller has in dealing a volume of incoming and outgoing planes at a busy airport.

Flight Ace appears not to be available on disc in Australia (you'll have to ask OziSoft for the reason), but the tape version costs $39.95 - that's about $6.66 a game.

STRAIGHT SIX - Loriciels

As its name suggests, this compilation from the French software house has six games with plenty of variety and fun. They all have good use of colour (OK too on green screens) and good music.

Flash is where you are testing a new weapon which has the capability of changing from a jeep to a tank or helicopter, at the same time destroying hoards of enemy forces. **Billy** is an exploration game in which you have to discover the location of four hidden video games somewhere in a city. Picking up the right objects and giving them to other characters allows access to more parts of the city, but giving them the wrong object means a fight is on your hands.

ZOX 2099 takes place in space where the inhabitants of Hulim are being held hostage on an asteroid by Zox. There are two parts to the game: a 3D space shoot-em-up and then a search and rescue mission on the asteroid. **3D Fight** is a game in which you skim the surface destroying all aliens and ground stations in your path and avoiding meteors.

Soccer is a game where you control one of four European teams. Your opponent can be either the computer or another player. **MGT** is a 3D exploration game which involves driving around in a tank, solving puzzles on the way to get you into deeper levels but zapping alien bacteria who get in your way. It's probably the best of the six.

Although Straight Six may not be one of the best compilations it is certainly one of the cheapest at $29.95 for disc or $19.95 for tape which makes it top value.

SPACE ACE - Gremlin

There are seven games on this compilation, the least notable being Xevious and North Star. The other five are well worth having which makes the pack good value for money. **Trantor** is full of flame-throwing action, good spot effects and a few puzzles thrown in for good measure. **Exolon** has great animation, colossal explosions, heaps of sound effects and is a very playable bomb-missile-blast-em-up. **Zynaps** is another multi-weapon blast-em-up with fast and easy shooting and great music. **Cybernoid** is in the Exolon mould (written by the same guy) and is full of colour and sweat-inducing action with 60 screens to explore. Finally, **Venom Strikes Back** is a game from the Mask series and is probably the best. There are plenty of challenges from the Venom baddies but equally a good variety of weapons to fight them off.

Space Ace is certainly worth getting even if you already have a couple of the games. Like most other compilations the disc price is $49.95 and the tape $39.95.

THE FIFTH AXIS

A timely action-packed release from Loriciels

CPC Disc only $19.95

To help us all bring to reality the vision of time travel, French company Loriciels have released The Fifth Axis. This game takes the player through different time zones, in his search for artifacts and ananchronons (explanation following). The instructions provide some clarification of the scenario: When, some time ago, a mad antique collecting Professor Chronos (the name Brown wouldn't fit his style) of the Institute of Temporal Studies, allowed his assistant to blow up a time machine containing the Professor and his assistant, all reality was spun into confusion.

At the time of explosion, the craft was somewhere in the middle of a time hop (terminology is a bit my own here) and full of artifacts from various time periods. The explosion caused the artifacts and the fragmented parts of the time machine, called ananchronons, to be scattered throughout time, resulting in a vast imbalance of time and reality. The Earth has begun to rotate on its fifth axis, in an effort to re-balance reality and this isn't too good for mankind. However, if the various artifacts and the ananchronons can all be retrieved from their various places in time, the Earth will be restored to its former temporal equilibrium - which we all want very much, thankyou.

Although the game's menu screen alludes to the idea that it is an adventure, it is more correctly a punch-em-up arcade-style game where the joystick does more work than the brain. The screen in play mode scrolls in all directions, displaying Professor Chronos' laboratory where our intrepid warrior is working his way along a series of levels, scattered liberally with artifacts, keys, keyholes, elevators, holes in the floor and robots.

The levels are scattered with holes, some short enough to jump over, others not. So before some, there are keyholes, in which keys can be inserted, allowing you to glide over the hole and continue on your way. The keys can be found throughout the laboratory.

The robots were let loose in the Professor's laboratory after the explosion, and are rather a hindrance to the player, although they don't generally put up much of a fight. The problem is that there are a lot of robots, and their compound effect on your life score is not pretty.

The top of the screen displays four important figures: your vitality, agility and force, and the 5th Axis value. The first three values can be custom modified by you before the game starts, to allow for players with different preferences - say lots of punching force and more vitality but less agility and a lower credit score (no mention of this figure is made in the instructions so I don't know how this affects you). As the game progresses, your vitality diminishes as you are faught against by robots, as you cop arrows or other foreign objects to the corpus, cranium or leg, and every time you fall further than one level. Your Agility rating remains the same throughout the game and determines the joystick's responsiveness. The force value diminishes every time you kick or throw a punch, and as the game progresses it takes more and more work to kill the robots.

The fourth value is the 5th Axis number which starts at zero and goes up to 100. It is a percentage number, representing how much of the original time machine is reassembled. Every time you get an ananchronon, it increases (by 10%). You have successfully completed the game if this number makes it to 100% - unlikely in my estimation.

The game play is fast and you need to be concentrating 98% of the time. There is the [ESC] key to pause and return to the menu screen where you can save the current game. This is a very useful facility now found in a number of games and adventures, allowing you to switch the computer off, come back another day and continue the same game, having retrieved it from disc.

Graphics are reasonably simple yet have personality (a characteristic of Loriciels games), are adequate for the task and pose no problem for green-screen owners. Music is interesting at first but becomes repetitive after a few dozen reprises, so the writers get a pat on the back for the menu option allowing you to turn it off.

The Fifth Axis is a difficult game to play, requiring serious concentration, a fast hand and about an hour to spare. There isn't much to it, really, but for less than $20 it's a beaut game.

CHEAT MODE

DRUID

Cheat Mode is back! Here's a poke for Druid, which was sent in by Richard Nicholson. It's entered using Method 1 and gives you infinite-just-about-everything.

```
1 'Druid Tape
2 'The Amstrad User, Apr '89
10 GOTO 260
20 DATA 2a,38,bd,22
30 DATA 60,08,2a,01
40 DATA bb,22,38,bd
50 DATA 3e,f7,32,0e
60 DATA bc,3e,c3,21
70 DATA 1f,08,32,30
80 DATA 00,22,31,00
90 DATA c3,00,64,2a
100 DATA 60,08,22,38
110 DATA bd,cd,37 bd
120 DATA 3e,f7,32,ba
130 DATA 0f,3e,c3,21
140 DATA 3e,08,32,30
150 DATA 00,22,31,00
```

```
160 DATA cd,00,23,c3
170 DATA 00,0f,af,32
180 DATA 01,2c,32,ee
190 DATA 30,32,8a,28
200 DATA 32,49,26,32
210 DATA e1,28,3c,32
220 DATA c8,27,32,ca
230 DATA 27,32,cb,27
240 DATA 3e,c9,32,51
250 DATA 45,c3,3e,1e
260 MEMORY 12345
270 LOAD"druid1",&6400
280 FOR a=&800 TO &85F
290 READ b$:b=VAL("&"+b$)
300 POKE a,b
310 NEXT a
320 CALL &800
```

IKARI WARRIORS

This Method 1 poke for the Elite game comes from Nicholas Pavis. It gives several different pokes which can be deleted if you want. Line 70 gives infinite fire, line 80 gives no enemy soldiers, line 90 stops bullets killing you, line 100 lets you walk through explosions, and line 110 keeps explosions on the screen.

```
1 'Ikari Warriors Tape
2 'The Amstrad User, Apr '89
10 SYMBOL AFTER 256
20 OPENOUT"d"
30 MODE 0:BORDER 2
40 MEMORY 4799
50 LOAD"Warriors"
60 FOR a=0 TO 2
70 POKE &1C82+a,0
80 POKE &1CA3+a,0
90 POKE &1CA6+a,0
100 POKE &1CAF+a,0
110 POKE &1CC7+a,0
120 NEXT
130 FOR a=0 TO 17
140 READ a$
150 POKE &FFD0+a,VAL("&"+a$)
160 NEXT
170 CALL &FFD0
180 DATA f3,31,00,00,21,c0,12
190 DATA 11,00,01,01,00,bf,ed,b0
200 DATA c3,00,01
```

POKE METHODS FOR TAPE

Here is how to input the majority of Cheat Mode tape pokes. The instructions for each poke tell you which of the two different methods to use. If you have a 664 or 6128, first type |tape.

Method 1

Rewind the game tape to the beginning. Now type in the poke listing. Then type RUN and press the Enter key. (Don't use the key marked CTRL or Control; that would stop the poke from working.) Press the Play key on the cassette deck, then any key on the main keyboard - the spacebar will do nicely. The tape should now start to play through in the normal way.

Method 2

For this method you have to skip the first bit of the game program. To do that, start by rewinding the game tape to the beginning. Now type in the listing. Then type CAT and press Enter. Start the tape by pressing Play and then any key. Then watch the screen.

Soon you'll get the message FOUND SOMETHING BLOCK 1. It doesn't matter what the something actually is; this will vary from one game to another. If the Cheat Mode instructions just tell you to skip the first block, you should stop the tape here.

If the instructions tell you to skip several things, stop the tape when the found message comes up for the last thing you're trying to skip. Once you've stopped the tape, press Escape, type RUN and press Enter. Now press Play on the tapedeck and any key on the keyboard to start the tape running.

Your pokes or hints should be sent to:
The Amstrad User (Cheat Mode)
641 High Street Road
Mount Waverley
Victoria 3149

MASTERFILE III

FOR THE AMSTRAD CPC6128
(ALSO CPC464/664 WITH DK'TRONICS 64K RAM)

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SO VERY VERSATILE...

Just about ANY kind of information can be handled by MASTERFILE. You can EXPORT the data to other systems (eg. PROTEXT/MERGE and TASWORD). You can even merge your own USER BASIC to MASTERFILE for customised file processing, or build new files from other computer sources. The speed of SEARCH of MASTERFILE is second to none. Records can be sorted ascending/descending, character or signed numeric, even embedded keys such as surnames. Other functions are field-to-field calculations, and several-across label printing. We simply don't have room to list all the features; give us a call if you are still in doubt of the power of MASTERFILE III.

ALL THIS POWER...

This is no toy thrown together in BASIC and half-tested, but real machine-coded computing power professionally constructed. We have had IBM and Apricot users beg us for a MASTERFILE for their machines - when they had seen the earlier CPC MASTERFILE.

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THE MODERN CPC6128 SPREADSHEET SYSTEM

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All spread-sheet systems allow manipulation of any array of numeric data.
What sets MASTERCALC 128 apart from the rest are these features:

Full-screen or split screen windows; variable column display width; variable column formats, 0-7 decimal places; columns can be formatted individually; ultra high-precision floating point arithmetic; direct totals and sub-totals; up to 99 relocatable formulae (usually 10 is ample!); formulae up to 75 characters, and arithmetic expressions, plus conditions, relative cell references; instant highlight of computed data; store text anywhere; pop-up help menu; 40/80 column mode; auto cursor-advance; text output to printer or to disc for word processing; fast hi-res histogram of any 3 rows; Epson screen dump; detailed manual with illustrated tutorial.

For the enthusiast, there is even USER BASIC access to the cell data, so that special operations can be performed. For example, it is possible to ship data to/from MASTERFILE III.

MASTERCALC 128 costs just $99.00 and MASTERFILE III costs $109.00 including postage and packing, and if you request air-mail within Australia, we'll do that at no extra charge too! (If you live outside Australia please add $4.00 for air-mail cost. Bankcard, Mastercard or Visa accepted).

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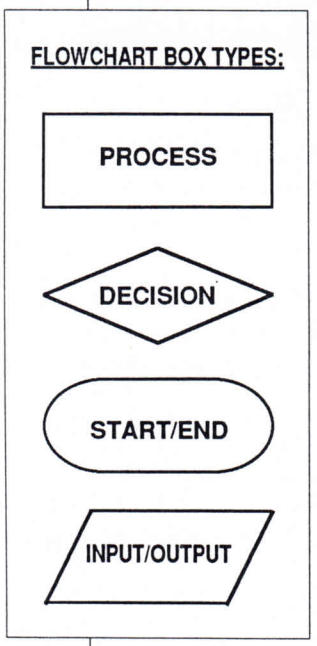
MAKING SENSE OF PSEUDOCODE

In a new series on algorithms, Gary Koh teaches us some creative problem solving techniques. Readers learning programming will find this foundational series invaluable.

Most of you have probably heard the word 'algorithm', but have wondered what the heck it means. The purpose of this series is to enlighten you on the wonders of algorithms, how they are written and what they actually are.

To put things simply, an algorithm is a step by step method of solving a particular problem. Of course, things are not quite as simple as that, which is why this series was written in the first place. One of the great things about the computer industry is that there are hardly any standards , so there is no real proper definition, as far as I know, of what is an algorithm.



One important thing to grasp is that an algorithm is language independent and is itself written in a kind of language. This enables it to be applied to other situations in real life, like the steps to reading a book, although this would not serve much of a purpose. To help explain things we will be using at first algorithms analogous to real life.

An algorithm can be complex or it can be simple. It can be short, long, fast or slow. It can come in many different guises, depending on what you are working on. Most of the time it is made to mean a very complex routine but in actual fact anything that solves a problem step by step, no matter how simple can be called an algorithm.

The purposes of an algorithm are twofold. Firstly, it has to arrive at a correct solution within a reasonable finite time. I stress reasonable in case you want to write an algorithm that takes 100,000 years to arrive at a solution. I doubt that you would want to wait that long for an answer. Secondly, it has to be clear, precise and unambiguous. In other words, an algorithm is everything a politician isn't.

MAIN TYPES OF ALGORITHMS

An algorithm can be written down in one of three ways, using either pseudocode, flowcharts or some funny thing called Nassi-Schneidermann diagrams. To make things simpler and to prevent me from having a heart attack from drawing too many diagrams we will not deal with the latter. Algorithms really belong to the realm of structured programming and as such are well structured and supposedly well organised.

Pseudocode is a written way of representing an algorithm while flowcharts represent algorithms in a diagrammatical way. Both methods have their advantages and disadvantages. Flowcharts are much easier to understand at first sight but are an absolute pain to draw. Pseudocode is a bit harder to understand at first but is much better for writing long algorithms as it is far more compact and easier to write. As long as you keep things neat and tidy pseudocode is probably the better choice.

Pseudocode is written in an English like format and does not correspond to any computer language in particular. It can however, be thought of as a kind of language in itself. It is a stylised, structured form of English with its own syntax.

Flowcharts on the other hand are diagrams that show the flow of control within whatever they are representing. As most of you are probably familiar with them I will not go into much detail about them. Figure 1 gives you a list of the boxes and what each one means.

Both pseudocode and flowcharts are not confined to algorithms, they are used in many other areas as well. Flowcharts are used even in other areas besides computing. To begin with I will be giving you flowcharts and bits in pseudocode of the same thing. Later on when things get more complicated I'll be using just pseudocode on its own.

In pseudocode if you see a Begin or an End this means that the group of statements between them are linked together, rather like a long compound statement. They are grouped together because they do a certain thing that is related. They act together like a mini subroutine that is not called but placed in that position. Another thing, indentation, although not really needed is a good thing to use as it helps set out things more neatly and helps to organise the algorithm a bit.

THAT STRUCTURED WORD AGAIN

The keyword here is structured. I know I am sounding like a broken record (disc?) but this is very important. In order to be able to apply algorithms fully and to make the best use out of them you need to keep things structured. This is not supposed to be a series on structured programming so I will not be going into this anymore. There is a series on structured programming in this magazine. I recommend you read this if you want to grasp the ideas behind writing algorithms better. While not being structured does not prevent you from writing algorithms it can make life far more difficult.

As pseudocode is nowadays used more than flowcharts, because it can

provide more structure, we will mainly be referring to this. We are always being told that an algorithm should be written without the target language in mind and be as language independent as possible. One of the main reasons is that pseudocode is much easier to understand than other computer languages. It can be understood by almost anyone who programs, no matter in what language he/she is working.

This is because pseudocode is very near to English although it is not quite English and also, pseudocode is closer to our type of logic. A computer can only deal in exact quantities and prescribed functions. We humans are more at home with what is termed "fuzzy logic". Instead of saying 95%, 55% or 15% we say high, medium or low, we deal with vague quantities based on past experience and memory. A computer does not have past experiences or our type of memory and so cannot really deal with fuzzy logic. (At least not until AI works.)

Pseudocode and languages in which the algorithm is coded are just representations of an algorithm, but no matter what representation it is in, it is still a step by step solution to a problem. A computer language is normally designed with the computer in mind, to make it as easy as possible for the computer. Pseudocode on the other hand is meant for people to use and understand. While it is perfectly plausible to write an algorithm in a computer language you will find it very hard without putting some of it in pseudocode.

THREE MAIN TYPES OF INSTRUCTIONS

Now that you are thoroughly confused we can go on to more wonderful and confusing things. There are three main types of instructions in algorithms. The most important one is the constructs and there are three main types of constructs. I prefer to call them the more descriptive name of control constructs. What they do is change the way the other types of instructions are executed (ie. the program flow) within the algorithm. Although describing them this way makes them sound very boring they are very important and form the backbone of algorithms. The three main types of control constructs are called sequence, selection and iteration. Due to lack of space I will be giving examples of them next month and concentrating on the theory this month.

The second type of instruction which is also very important but not quite as important as the control constructs are the assignments. And, no, they do not mean being given a task. An assignment involves the assigning of a value to a particular variable. In this case the variable can be anything, array, string, integer or real. In case you are interested there are others, boolean and sets and even more which are called "complex data structures" like stacks, queues, trees and lists. If you are starting to panic you can calm down; we will not be dealing here with the types of data in particular and even if we use any they will be the types seen in Basic.

Normally the symbol for an assignment is a left pointing arrow. As my printer does not support this character (nope, not even on the 8th bit), we will have to settle for the equals sign, =. Pressing the tab key under Basic yields an arrow which looks the same as the one that is used in assignments.

The arrow points in the direction of where the variable is that is being assigned the value. So in the case of the left pointing arrow the expression, value, sum, equation, formula, constant or another variable (can anybody think of anything else?) is put into the variable on the left hand side of the arrow. If you want to you can reverse this but as soon as you translate it into say, Basic, it is going to start throwing up so many Syntax errors at you that you will regret doing this for the rest of your life. Using an equals sign is not as symbolic as this but since Basic uses this, it should be easier for you to understand.

That's all there's time for, but I'll be back next month with some listing examples and lots more.

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TESTING, TESTING...

Often neglected but always imperative to good programming is thorough testing. Paul Gerard in his ninth installment explains the principles.

One of the most important, and (sadly) one of the worst neglected aspects of computer programming is thorough testing.

The two aims of testing may be summed up as follows:

1. The program should produce the desired output in ALL possible (as opposed to likely) circumstances, (i.e. it should do what it is supposed to.)

2. The program should not produce any unpredictable or undesirable output (EVER), (i.e. it should not do anything it is not supposed to.) In particular the program must be "uncrashable" - that is the user must be unable to intentionally or unintentionally cause an "abnormal termination", a "hang up", or an (unwanted) garbage collection.

Most software, whether commercially available or "public domain", is tested sufficiently well for the first criterion to be met (more or less). You may have been stung by the odd exception but by and large this is true. The second criterion is another matter altogether. How many pieces of software come out that (for instance) "hang up" or crash when asked to send output to a non-existent or unconnected printer, instead of giving us a polite little "your printer seems to be off-line" message? Or work nicely until we have so much text, or so many database records? This sort of thing is usually eminently avoidable and can easily ruin an otherwise useful program.

THE FOUR STAGES OF TESTING

1. INITIAL DEBUGGING

This first stage is no doubt familiar to all, but let's have a look at it anyway. Let us assume your program is small and conceptually "one piece". If it isn't, then (as the regular reader of these articles will know) it needs to be broken down into sub-routines that have this quality. You design the program (or routine), write it and type it into the computer. Naturally, it doesn't work, (Gerard's first law of programming - nothing works first time) so you stay up all night with it finding the "bugs" and fixing them. There are two kinds of "bug" - the syntax error and the logic error. Syntax errors are caused by using the language (in this case, BASIC) incorrectly; they are generally fairly easily found and corrected. Logic errors are often harder. In the case of a logic error what you have told the computer to do will not produce the desired output - you will usually have to re-assess the algebraic logic behind your original thinking and come up with an alternative. The answer may be a minor modification in your code, or a complete re-write from the ground up.

Finally the obvious bugs are gone and the program (or routine) functions. The high motivation that kept us going through the "de-bugging" phase is dissipated; we are probably thoroughly fed up with the whole thing. Thank Babbage, it seems to work at last. This is where testing all too often ends. It should be only the beginning!

2. EXTREME CASE (DEFENSIVE PROGRAMMING)

The next stage (perhaps a week or so after out initial work, certainly not the same evening) is to run our program (or routine) over and over again with every kind of imaginable input, and (just as important) very large amounts of input. Our input routine (sub-routine 200) is very useful here, because we can get to control the nature of input by simply changing the variables' *control* and *length*. If we are opting for a simpler use of the INPUT command however, we will have to use a good deal of "defensive programming" to achieve the same end. The object of inputting large amounts of data is to define the constraints that memory limitations are going to impose - at what stage are we going to run out of memory, and when are we going to run into an unintended "garbage collection". There is also potential here for losing data, or at least being unable to save data to the disc (or tape). Before either of these things can happen we are going to want the user to be specifically warned, at least; although much better is for the program to simply refuse to accept data past a certain point.

3. INTERACTION TESTING

Although one of the characteristics of a structured approach to programming is that the sub-routines (as "building blocks" of our completed software) are as independent of each other as possible, they inevitably interact. One of the most frustrating parts of testing can be getting a program (or a group of programs) to work as a whole, when each component routine and program seems to work perfectly well on its own. One of BASIC's main drawbacks, and one that can cause problems at this stage, is the lack of "local variables" - in a very large program it is all too easy to use a variable name in an obscure and rarely called routine that unintentionally affects something somewhere else. Even in languages

like PASCAL and dBASE, where it is in theory much easier to control interaction problems, you still get errors like this. Even the shortest, simplest program reacts with the BASIC interpreter, with the disc operating system, and so on, and subtle bugs can well lurk in these interactions, not to mention such simple things as coping with system errors and so on.

Another aspect of testing at this stage is hardware interactions - does the program work on a CPC6128 as well as a CPC464? If it uses extra memory then does it handle the Dk'tronics expansions as well as the CPC6128's built in second bank? If it has "printout" facilities, are there printers with which it will not work? ROM boards, speech synthesizers, and other peripherals can also cause problems - we should at least be aware of these, and able to mention them in our documentation, even if we can't always avoid them.

Some hardware limitations are perhaps inevitable; but generally we will want anything we write to be as "portable" as possible. The ideal is for it to run on all CPCs, at the very least on both the CPC6128 AND the CPC664/464 with a memory pack on the back. For this reason, avoid the extra commands in CPC6128 BASIC - most of these can be more or less easily simulated in CPC464 BASIC anyway. If you insert firmware calls and machine code routines (as you probably will), be especially careful about testing these on both machines. In a few cases this may actually require different routines being called depending on which machine is being used. Even if you are not like the Gerard family, which has a good ole CPC464 (manufactured 1984) for Dad and a CPC6128 for the computing son of the house, then surely someone in your user group will be able to help!

4. USER EVALUATION

The final stage of software testing is perhaps the most challenging of all. Our completed, fully tested, uncrashable program will no doubt do some things more efficiently and faster than others, and will in any case not do everything you want it to. It is likely to have at least a few serious design flaws.

The excellent "Advanced music system", for instance, ignores a few really basic musical things (triplets are the most glaring example) and the synthesizer is no easier to use than bare BASIC. The printer and linker modules are also badly flawed, without going into immense detail. If enough of us keen AMS users kick up enough fuss for long enough Rainbird Software might one day fix these things. If this happens what they will have done is to respond to user-evaluation so as to make a good piece of software better. This article, to mention another example, is being prepared on WORDSTAR version 3.4 running under CP/M version 3.1 - and neither of these are the latest versions available either! Both the wordprocessor and the operating system have been around for a few years, and have been changed many times to meet user needs.

Even if you are the only user you can still constantly brush up your own efforts. The structured approach will make this much easier than the old "let it grow like topsy" method. There are really only two major pitfalls in this. One is that all changes and enhancements must be carefully tested (especially to ensure that data created by the old version is still usable) - the other is that the program should not be allowed to grow so large that its ability to do the original job we designed it for is impaired, due to its taking up too much memory. It should also be added that changes to the program should be as structured and well REMmed as our original programming - we may want to modify the modifications!

MORE OF "STRUCTURED DATA"

What follows is the programming to add an "add records" facility to our gradually growing "data base" software. Comment has been kept to a minimum, as this article is already getting a bit over-long. Next month we will have a look at AMSDOS, and saving and retrieving our data from disc.

Line 40 should look like this - this is obviously far from its final form:

```
40 ON choice
GOSUB3000,4000,5000,6000,80,3100,3200,3300,3400,3500
```

I have inserted two more "general" routines - the first one induces an intentional garbage collection, so as to clear the memory for a new data array. Note that this is accompanied by a "please wait" message, as garbage collection can take a while if very large string arrays are being used. Another touch is a "minimum pause", so that the message is displayed long enough to be read, even if the garbage collection takes a fraction of a second.

```
300 ' clear memory for data
310 CLS#1:CLS#3
320 t!=TIME
330 PRINT#1,TAB((modewidth-13)/2)"Please wait !"
350 room=FRE("")
360 IF TIME-t!<1000 THEN t!=1000-(TIME-t!):GOSUB 700
370 CLS#1
390 RETURN
```

The second routine draws a nice mode 2 screen to display a record. We will be using this screen to input data, too. Note the use of BASIC's "box" characters.

```
400 ' Record display screen
410 mde=2:GOSUB 600:WINDOW #3,2,79,4,23:WINDOW #2,1,80,
2,2
415 PEN 1
420 PRINT CHR$(150)STRING$(78,CHR$(154))CHR$(156);
430 head=9:GOSUB 100:LOCATE 1,2:PRINT CHR$(149):LOCATE
80,2:PRINT CHR$(149);
```

```
440 PRINT CHR$(151)STRING$(78,CHR$(154))CHR$(157);
450 FOR I=1 TO 20
460 LOCATE 1,I+3:PRINT CHR$(149):LOCATE 80,I+3:PRINT CH
R$(149);
470 NEXT
480 PRINT CHR$(147)STRING$(78,CHR$(154))CHR$(153);
490 RETURN
```

Finally, here is the routine for adding records to a database file. Note that in choosing the flexibility of variable length fields (up to a maximum of 45 characters we can have as much, or as little, in each field as we like) we run into a problem in deciding how many more records we can fit in. This is solved by keeping a running check on the memory available through FRE(0), and computing a figure based on the assumption that the average size of the fields is unlikely to exceed 38. (In fact it is unlikely to even approach this figure but we need a fair margin for error.) Thus an estimate of the number of records for which space is available can be displayed - at times adding one long record will decrement this by two (or more), while at other times a series of short entries will not affect it.

Note that 'X' represents the "control X" character.

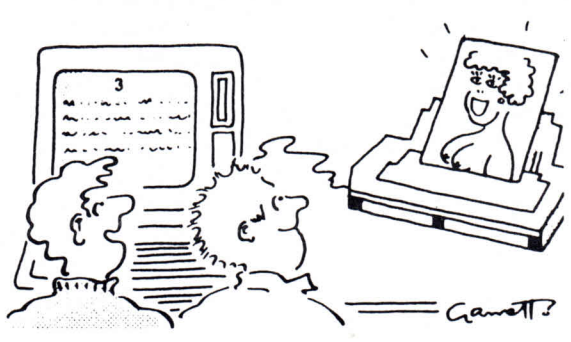
```
3500 ' add records to file
3510 IF heading$(9)<>file.name$ AND file.name$<>"" THEN
 heading$(9)=file.name$
3520 another=TRUE:roomfor=(INT(FRE(0)/38)\fields)-(20-f
ields)
3530 GOSUB 400        ' Draw screen for input
3540 GOSUB 300        ' Clear memory for data
3550 WHILE another
3560     GOSUB 3600       ' Bottom line
3570     GOSUB 3700       ' Add data
3580     IF roomfor>2 THEN
                GOSUB 3800       ' Another record ?
         else another=FALSE
3590 WEND
3595 RETURN
3600 ' Bottom line for add records
3610 record=1
3612 WHILE file.data$(0,record)<>"":record=record+1:WEN
D
3620 roomfor=MIN(((FRE(0)\38)\fields)-(20-fields),recor
ds-record)
3630 IF roomfor<2 THEN GOSUB 3900:RETURN
3640 LOCATE (42-(LEN(STR$(record))+LEN(STR$(records))))
\2,24
3650 PRINT"X";
3660 PRINT"Record no. "record" -  Room for about";
3670 PRINT SPACE$(4-LEN(STR$(roomfor)))roomfor"records"

3680 PRINT"X"
3690 RETURN
```

```
3700 ' Add data
3710 FOR field=0 TO fields-1
3720     x.axis=(30-longest)/2:y.axis=field+5
3740     LOCATE x.axis,y.axis
3750     PRINT"X "file.data$(field,0)SPACE$(longest-LEN
(file.data$(field,0)));
3755     PRINT" > X  ";
3760     caps=0:control=12:length=45:GOSUB 200
3770     file.data$(field,record)=LEFT$(user.input$,lon
g)
3780 NEXT
3790 record=record+1
3795 RETURN
3800 ' Another record ?
3810 CLS#1
3820 LOCATE 32,MIN(y.axis+5,23):PRINT"Another record ?"
;
3830 GOSUB 500    ' yes/no
3840 IF byte$="Y" THEN another=TRUE ELSE another=FALSE
3850 CLS#3:CLS#1
3890 RETURN
```

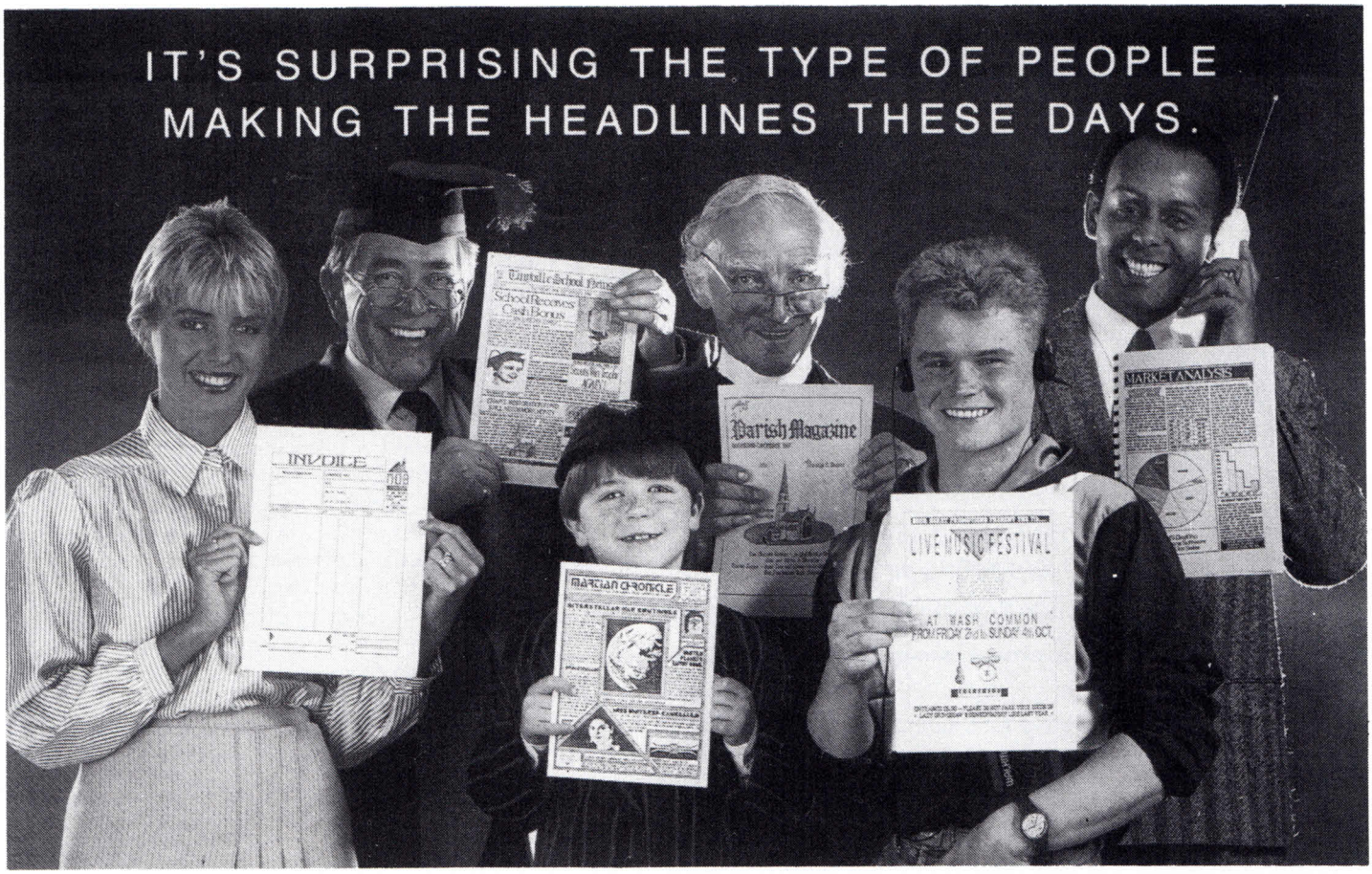
As a practical exercise, try testing this routine to its maximum by inputting large quantities of input (jamming down the "Y" key might be one way of doing this). When subroutine 3900 is finally called it should still be possible to save data. You can probably think of other tests we would want to complete in a proper testing program. For the moment we will leave this routine as it was at a certain stage in my own testing. You will want to add various tests to the routine (to be wiped later).

```
3900 ' No more room
3910 GOSUB 300      ' Clear memory
3920 PRINT FRE(0)
3930 STOP
```

Happy Testing!!



"It always happens when I print out the third page!"



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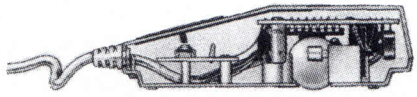

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NO-ONE'S FAR FROM ANYONE (anymore)

The world of telecommunications, modems, interfaces and the like is pretty scary for someone with little experience. Enter The Hobbit to dispel all fears and turn us all into Modem Maniacs!

In the February Issue, in our series on Computer Communications, we looked at a few of the basic aspects of communications, the different types of services we could access and had a quick peek at the equipment we would need.

This month we're going to have a closer look at this equipment and find out how hard it's going to hit the Hip Pocket Nerve.

Let's start with the most important (and usually the most expensive) device necessary; the MODEM.

WHAT'S IN A MODEM?

A MODEM is essentially a signal encoder/decoder; actually the word MODEM is a compaction of the term MOdulator/DEModulator. Its main function is to convert the DIGITAL signals transmitted by our computers into the ANALOGUE signals used by the phone lines. "What's the difference?", I hear you ask. Well, an ANALOGUE signal is one where the change from the start to the finish point happens gradually (as in a SINE wave) whereas a DIGITAL signal changes in short sharp steps.

The main feature of a Modem is the speeds at which it can handle the flow of data. This is known as the BAUD rate. The BAUD rates in common use today follow a standard devised some years ago by a group called CCITT (Consultive Committee on International Telegraphy and Telecommunications). One small but important point that I would like to raise here is the difference between the term Baud rate and that of Bits/s (Bits per second). Baud refers to the number of signal changes per second. While at lower speeds (110 -300) Baud rate and bits/s are virtually the same, as the speed of transmission increases the difference becomes obvious.

Probably, the most used Baud rate today is 300/300 Full Duplex (CCITT-V21). Full Duplex is simply a term that means the data from each end of the link travels both ways simultaneously. Although V21 is rather slow and tends to increase the phone charges (ISD & STD, not local) it is much less prone to that Arch-Villain of COMS: Line Noise.

The next speed up from this is 1200/75 Half Duplex. (CCITT-V23 0riginate). As you may have guessed, Half Duplex means the data only travels in one direction at a time. The 1200 part is how fast the information is received by the user and the 75 refers to the speed at which the data will travel to the Host. Incidentally, 75 Baud is about how fast a competent typist can type. V23 is an ideal speed for Videotex type systems as most of the information flows to the user.

The two higher speeds 1200/1200 Full Duplex (CCITT-V22) and 2400/2400 (CCITT-V22bis) are becoming increasingly popular as the quality of phone lines increases. These are the real money savers if you're calling STD or ISD. Unfortunately, the inclusion of these speeds in a modem's features tends to bump its price up. V22bis is the highest speed available at the moment on Voice-grade phone lines.

At these higher speeds data is more susceptible to corruption than when using lower speeds, so the modem takes the precaution of using Error Detection.

There are a number of different error detection techniques in use today, however they are all variations on a theme. At lower speeds this error detection is performed by the interface, as we'll see later, but it becomes increasingly costly in terms of the number of Bits that have to be sent. The solution to this is to break the data down into 'packets' or 'blocks' of 128 Bytes which then have some sort of calculation performed on them (usually adding) and the result of this calculation becomes a 'checksum' which is tacked on to the end of the block and sent to the other end.

At the receiving end the computer receives this checksum, matches it with its own checksum and if the two don't match it asks the sender to resend the block. As I said, this is the general theme of nearly all error detection techniques.

Other features included in modems are:

AUTO-DIAL - As the term indicates the modem will call up the required host and establish the link without the user having to touch the phone handset. A directory of phone numbers can be set up and stored in the modem itself or in software.

AUTO-ANSWER - A must for operators of remote systems. The modem will sit patiently until someone calls, then it will answer the phone and allow them to connect to your computer. Some modems have what is known as RING-BACK Security. Once the caller has been answered and his identity and password have been given the modem will disconnect him, check his records and then ring the person back.

AUTO BAUD SENSING - Modems with this feature are usually referred to as 'INTELLIGENT'. This feature allows the modem to test the phone line and from its findings adjust the speed of the data exchange.

HAYES COMMAND SET - This is a set of 'de facto' standard command switches resident in the MODEM itself which can control certain communications protocols. Hayes commands are found in most 'INTELLIGENT' modems.

BELL STANDARDS - If you're planning on dialling up the United States, then your modem will need these standards. Although they are similar to our Baud rates, there are subtle variations.

Modems can contain one or all of these features and maybe a couple extra that I haven't listed, however, these are the more common features found on nearly all non-manual modems.

WHICH ONE IS RIGHT FOR ME?

Now that we've had a look at what a modem does and the added extras we can get, there's only one more thing to look at before we get down to choosing a modem. That is what we want the modem to do.

If you're only thinking about getting a modem to browse through Viatel and occasionally call up a Bulletin Board or two then you won't need one with Auto Answer/Dial, Hayes commands, etc. A simple Manual modem with two speeds (V21,V23) will suffice.

Perhaps your plans are a little more ambitious and you plan to call up BBS's overseas or even interstate, then obviously you're going to need a modem with the capabilities to use higher speeds, this still doesn't mean you have to go to the top of the range though....

Have a good think about what you want to do. There are modems to suit every application whether for business or pleasure. If you're thinking about getting into some serious computing then don't be afraid of the fact that your modem might cost as much as or more than your CPC did; most, if not all modems in this price bracket are compatible with you know who...

There are hundreds of different Modems on the market, all varying in price and features. From the basic MANUAL Modem with dual speeds at around $180-$199 up to the top end of the business market Modems with all manner of bells and whistles costing several thousands of dollars. Since most, if not all of us CPC users are on a limited budget, I'll remain within the $100 -$400 price range.

One last thing. Any appliances connected to the telephone line must carry Telecom approval. Be wary of this as some modems are advertised as 'Built to Telecom Standards'. This is not the same as Telecom Approval. By failing to follow this advice you're not only breaking the law, you are risking serious damage to both your equipment and the equipment at the other end of the line.

Here's a short list of Modems, where to get them and how much they'll cost you:

1. AVTEK MINI MODEM II

SPEEDS - 300/300 FD PRICE: $199
1200/75

AVAILABLE FROM: AVTEK DATA COMMUNICATIONS P.O Box 651, Lane Cove, NSW 2066.

This is a manual modem which comes with its own Handset. Not many features to it but then it's one of the cheapest on the market. It is cheap but Telecom approved and comes with a three month warranty.

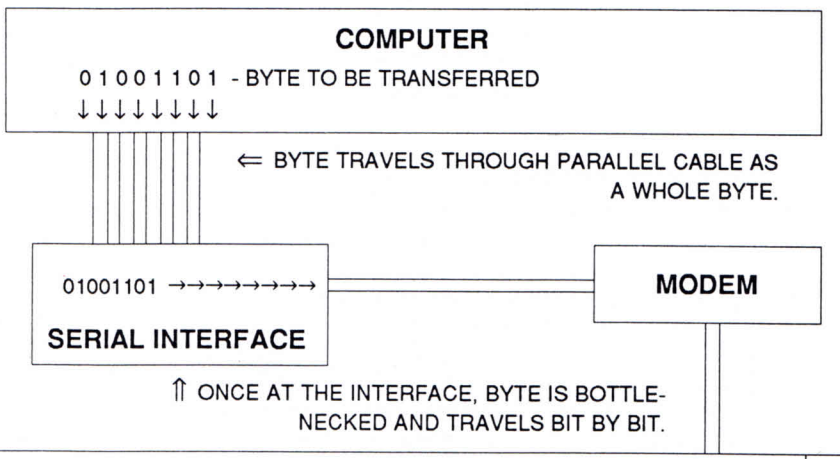
2. DATASAT CD2123

SPEEDS - 300/300 FD PRICE: $199
1200/75
75/1200

AVAILABLE FROM: DATASAT 1/8 Lachlan Street Liverpool NSW 2170 or most retail outlets.

Great value at the price, this modem has Auto Answer, Auto-Dial and comes with a 12 month warranty. Sadly though, it is an end-of-line product. Datasat are in the process of introducing their CONNECT 2400 modem which is similar to the CD2123, but for $100 extra you get 2400/2400 making it even better value for money.

- SERIAL/PARALLEL TRANSMISSION -



3. BIT BLITZER 12E

SPEEDS - 300/300 PRICE: $369
1200/1200

AVAILABLE FROM: Dick Smith Electronics (Aust. wide) OR Mike Boorne Electronics P.O. Box 8 Turramurra NSW 2074.

Has Auto Dial/Answer, BELL standards, Hayes command set, and many other features. Is Telecom approved.

4. MAESTRO 2400 ZXR

SPEEDS - 300/300 FD PRICE: $399
1200/75 HD
1200/1200 FD

2400/2400 FD
AVAILABLE FROM: Micro-Educational P/L 8/235 Darby Street Cooks Hill NSW 2300.

This modem is chock-a-block with features and for the price, would be one of the most value-packed ones on the market, but unfortunately at the time of writing, it does not have Telecom approval.

5. BIT BLITZER 123E

SPEEDS - 300/300 FD PRICE: $449
1200/1200 FD
1200/75
AVAILABLE FROM: As per Bit Blitzer 12E.

Bell tones supported, Auto Answer/Dial, full set of Hayes Commands, has a 'COMMAND' option to set relevant switches and store the set-up in a permanent record. Telecom approved.

This is by no means a comprehensive list of modems and at the time of writing all the details were correct. So check with the suppliers before making any decisions. (Not a bad cop-out, eh!)

RS-232 SERIAL INTERFACES

Sadly, one thing lacking on the CPC is the built-in RS-232 which is a standard feature on larger business type PCs. This seems to be the most inhibiting factor for CPC owners when it comes to Communications. Still, pricewise it's a great computer.

Grumbles aside, if you remember back to February's article, I made an analogy about the RS232 being an interpreter. The two dialects that it must converse in are SERIAL and PARALLEL.

Think of a train on a single track. Any number of trains can travel on the track, but only in a single direction. The same idea can be applied to the telephone line. Each character sent from the modem travels bit by bit. This is SERIAL transmission. PARALLEL transmission on the other hand, is when for example, the eight bits of a byte are sent simultaneously (See diagram). This is obviously much faster than SERIAL. The only drawback with PARALLEL transmission is that it becomes inefficient over longer distances. The reason for this is that all mediums for transferring electricity offer resistance to the flow of current. Since no two wires are ever exactly identical, over a long distance the individual bits start to arrive at different times, therefore corrupting the data. The solution to this is to use SERIAL transmission over distances and keep parallel transmission for use between peripherals.

This all leads up to the fact that we need some sort of converter to be able to send the parallel signals produced by our computers over the serial medium of the phone line (and vice-versa). This is the job of the RS232 Serial Interface. It also controls the protocols used between two communicating devices. These protocols take the form of simple error detection techniques - Start Bits, Stop Bits, Parity and Data bits.

Pure ASCII as used in all computers is made up of only 128 characters thus it can be represented by 7 bits. These are the data bits. ASCII Bulletin Boards, however use a data length of 8 bits, the extra 128 characters that this gives are used for control codes and other special characters. Obviously, our equipment needs to be able to tell between the end of one character and the start of the next. This is where the start/stop bits come in to play. To ensure the character has not been corrupted by line noise a simple check is made of the number of set or reset bits and if the number is even or odd a Binary 1 or Binary 0 is added. This is the Parity bit. So as you can see it can often take up to 10 bits just to represent one character. Different types of Hosts use different protocols and these have to be configured at your end for you to be able to successfully communicate. Videotex services, like Telecom's Viatel use 7 Data bits, Even parity and 1 Stop bit whereas ASCII BBS's use 8 Data bits, No parity and 1 Stop bit. These are the most used protocols and may vary from Board to Board.

Well, I was going to launch into a quick overview of two different RS232 Interfaces for the CPC but being rather long winded, I've run out of room. You'll have to wait for next month. Sorry! Until next time... Arriverderci.

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ADD SOME MORE ZIP!

The man who brought you our 300-line competition winning Game of Survival returns with this CPC utility listing. It fires up the TURBO routine, normally dormant in your CPC's roms. The results will surprise you!

Geoff Camp has sent in this type-in to activate the dormant TURBO routine in the CPCs ROM memory. You will find that loading and saving programs using TURBO will reduce the time by nearly 50%. The logistics of this read like Japanese for most of us, so take our word for it - it has a lot to do with machine code, jump blocks and BIOS and other words like that.

There are a few limitations when using TURBO. Firstly, you cannot load or save ASCII routines in TURBO mode, and secondly, files and programs saved under TURBO must be re-loaded again under TURBO or you won't get what you saved. For fun, see what happens when you try loading TURBO saved programs in normal mode.

```
100 '                    TURBO.BAS
110 '                    By G.CAMP
120 '           THE AMSTRAD USER, APR. '89
130 '
140 '
150 '
160 ' This routine initialises the TURBO load and save
     routines that are present in the CPC roms.
170 '
180 '
190 ' The routine loads at &8000, and is initialised by
      CALLing &8000.
200 ' Once the routine is run the following commands
     are available:
210 '       |TURBO.ON  - turns the TURBO routines on
220 '       |TURBO.OFF - returns the system to the norma
    l save/load routines
230 '
240 ' To save a file in TURBO mode use the normal SAVE
     command. The border
250 ' will flash during the save, but no on screen prom
    pts occur, so have
260 ' your tape ready before issuing the command.
270 '
280 ' Only TURBO SAVEd files can be loaded after issuin
    g the TURBO.ON command.
290 ' Use the normal LOAD syntax.
300 '
310 ' Note : ASCII files cannot be saved or loaded in
     TURBO mode - the
320 ' routines appear to be in the ROM, but they just
     don't work.
330 '
340 MODE 1:INK 0,3:BORDER 3:INK 1,15:PEN 1:PRINT"Please
Wait - Poking Data...."
350 check=0
360 x=&8000
370 READ a$:IF a$="END" THEN GOTO 390
380 p=VAL("&"+a$):POKE x,p:check=check+p:x=x+1:GOTO 370
390 READ c$:check$=HEX$(check,4)
400 IF check$<>c$ THEN PRINT:PRINT"DATA ERROR":PRINT:END
410 PRINT:PRINT"Press [S] to save or [R] to run"
420 a$=UPPER$(INKEY$):IF a$="S" THEN SAVE "turbo",b,&800
0,&139,&8000:END
430 IF a$="R" THEN CALL &8000
440 GOTO 420
450 DATA 21,10,80,01,29,01,7E,EE,B7,77,23,0B,78,B1,20,F6
460 DATA 96,AF,37,B9,48,7A,A1,0A,96,D4,37,7A,EE,37,7A,AF
470 DATA 0C,89,B7,7A,B9,0B,B6,B7,B7,7A,8F,0B,96,AC,36,89
480 DATA B7,52,42,F1,FF,7A,85,0B,46,56,8B,94,49,A7,97,46
490 DATA 8D,EF,37,8B,49,A7,97,B5,89,B6,85,EF,37,7A,27,0C
500 DATA 96,9D,36,7A,EE,37,AF,5F,B6,C9,49,93,7F,7A,ED,0C
510 DATA 94,AF,41,97,F6,E0,F6,97,97,86,85,8F,DC,97,97,FA
520 DATA DE,D4,C5,D8,D4,D8,DA,C7,C2,C3,D2,C5,97,97,9F,C1
530 DATA 84,9E,BD,BD,BA,97,13,97,86,8E,8F,82,97,F6,DA,C4
540 DATA C3,C5,D6,D3,97,F4,D8,D9,C4,C2,DA,D2,C5,97,F2,DB
550 DATA D2,D4,C3,C5,D8,D9,DE,D4,C4,97,C7,DB,D4,97,97,97
560 DATA 97,97,97,97,97,97,97,97,97,D6,D9,D3,97,FB,D8,D4
570 DATA D8,DA,D8,C3,DE,C1,D2,97,E4,D8,D1,C3,C0,D6,C5,D2
580 DATA 97,FB,C3,D3,99,BD,97,F5,F6,E4,FE,F4,97,86,99,86
590 DATA BD,BD,BA,B8,B4,CB,E3,E2,E5,F5,F8,97,97,FB,D8,D6
600 DATA D3,97,D6,D9,D3,97,E4,D6,C1,D2,97,D4,D8,DA,DA,D6
610 DATA D9,D3,C4,97,DE,D9,C4,C3,D6,DB,DB,D2,D3,B8,B6,BD
620 DATA BA,E5,D2,D6,D3,CE,BD,BD,BA,38,93,B7,B1,B0,AF,BD
630 DATA A3,B6,B5,B8,BF,BB,B3,A5,B9,AD,F6,E7,E5,FE,FB,97
640 DATA F1,F8,F8,FB,96,97,97,97,93
650 DATA "END"
660 DATA D050
```

SERENDIPITY

Joseph Elkhorne continues his look at Public Domain disc #606 - Complete Utilities, investigating Superzap, a menu-driven disc editor and bringing more news and info from PD land...

There's good news and bad news. The good news is that A.B.E. Computers, 24 Burwood Highway, Burwood, Vic. has a vast library of CP/M public domain discs. The bloke there said: "Many megabytes."

The bad news is that it is uncatalogued and resides on 8" floppies. If you want heaps of PD software, be prepared to invest some time there, finding what is available, and pay a nominal fee for conversion.

A.B.E. also run a bulletin board and would be prepared to add an Amstrad section, if some interest is expressed. If you want this facility, give them a call!

Let's look some more at Public Domain Disc #606, Compleat (it was good enough for Izaak Walton) or Complete Utilities.

SUPERZAP is a menu-driven disc editor. One can hack either directly in Track/Sector mode or via filespec.

Superzap's display is a top menu, some status information and a "sector" - really a one-record (128 byte) display in hex and ASCII presentation. The latter is not necessarily true. It does allow you to see text statements in a file; for example, messages in a game program data file, etc.

42

means one thing to Douglas Adams. To a computer, it all depends on context. A value of 42h could be the letter "B", or it might represent the instruction LD B,D in Z80 mnemonics. In 8080 talk, it reads MOV B,D but does the same thing to the CPU.

In decimal, 42 might stand for your age, probably not your IQ - or might be equivalent to 24h, the * character.

Interpreting Superzap menu

N = read next sector
P = read previous sector
C = edit the sector

The latter may not immediately be apparent. Probably when you first work with Superzap, you will decide it is C for Corrupt!

I respectfully suggest that you copy Superzap onto a working disc. Then, "have a go, you mug" and when you goof, nothing vital is lost. Make it a system disc, preferably with your .EMS (CP/M+) file on board. This will give you the opportunity to see the screen messages, which you can customise in an appropriate manner.

The Esc codes mentioned in last month's article can be plugged in here, so as to boot up with an original colour set. Make sure you edit only text messages or a corrupted disc may give you a rude shock.

The editing process, once having booted up in CP/M and then having typed SUPERZAP is:

1. S for select track/sector
2. choose as appropriate
3. C to modify/edit/alter (C for crunch?)
4. Ctrl-Z writes it to the disc, overwriting the previous data. BE WARNED!!!

Empty space on the disc actually contains the value 0E5h, a product of the formatting process. A block of E5s indicates an area not yet written to by files. An E5 within other characters is almost certainly a valid byte. Figuring out what it really means makes understanding the context important.

The first thing a newcomer can use Superzap for is inspecting the directory entries. These will be on Track 2 of system discs and Track 0 of the data persuasion.

Part of the first line of the display of a directory record is the file-name/type. The second line contains bytes representing the 1k blocks where the file physically lives on the disc, as mentioned last month.

Use SZ to unerase files by going to track/sector edit and changing the E5 value, shown as inverse "e" character on the ASCII display side. The 1st byte of directory entry on the hex display side should be changed to 00 (User 0).

Now you know so many ways to recover lost files that you will never be in strife again.

Be very light-fingered when using the K (for Kill) facility of Superzap, or you may lose more than one file.

If you read through a file, you will reach a 1Ah byte that signifies end-of-file to the operating system. Check this for yourself by creating a short text file and then inspect it.

NOTE: CP/M's ED fills remainder of "current" record with 1Ah when the file is closed after editing. Curious.

NOTE: ESC doesn't work - trial-and -error (the Edison method) showed me that Ctrl-[is used, instead, on the 6128. This can be changed; see associated .DOC file.

Superzap has a scratchpad facility, allowing you to copy one record to a storage buffer. This lets you edit a record, yet have the capability of putting the original data back into it.

FORMATS

I even used Superzap to read some

information off an MS-DOS disc. Track 0/Sector 14 was start of directory. (I had previously used another utility to set the XPB for 40-track, double-sided.)

That XPB certainly sounds mysterious - it is! The "eXtended Parameter Block" is the drive characteristics for a particular disc. Having the XPB in RAM allows different parameters to be assigned to a drive. This is the advantage that the CP/M environment has over Amsdos - and why the Amstrad ROM only believes discs are single-sided and 40 track.

Reading further on the MS-DOS disc, I found that Track 1/Sector 0Ch was the start of a program file. I stepped through that until I eventually got a bad format error.

When it comes to formats, I don't know all the answers - I haven't even heard all the questions. Another utility from #606 goes a long way to making sense of the XPB, however.

DISCKITA provides you with a way to format discs in several ways, to exercise drives, and prints out the XPB at a given time. Using this option, I discovered that my 80-track, two-sided formatter uses different values from DISCKITA.

Therefore, the DFORM program given in February may not work with someone else's procedures - but it is easy to change the DFORM values to match up. In my case, the B: drive has a 4K block minimum. DISCKITA infers a 2K block.

PIRACY

When I bought my Mitsubishi drive, I knew I'd need some software to match it to the Amstrad. I called into an Amstrad dealer, who is now only history...

He made me an offer I could not refuse: buy a "blank" disc and the B: drive utilities will be on it. Both 40 and 80 track XPB options were there, with the formatting routine. These were not Public Domain.

I had previously tried to buy a certain commercial utility from this dealer. "We don't sell it - but buy a blank disc and..."

Examples like these and other anomalies in the software field make me less than sympathetic with the moans about piracy. Going back to my Spectrum days, I was overjoyed when I got my first copy of "Elite" - only to find it did not work. Could not get past the Lenslock protection.

The second copy was no better. Not until another shipment arrived did I get to play the bloody game. The problem apparently was a mismatched specification being given to the third-party supplier of the lenticular element.

Firebird claim they paid "big bucks" to the programmers to get rid of the bugs and the Lenslock.

Recently, I found a worse protection system than Lenslock, courtesy of Domark. I bought a copy of "Star Wars" on disc, took it home and found it refused to load. Taking it back to the friendly dealer, I was assured that they check all software before it goes on sale.

The disc, however, did not load for the sales bloke, either. Another copy was tried - I saw it start with mine own eyes - took it home and got as far as the title screen. This example DID function on the dealer's machine on returning it; I'm told the new hyperprotection schemes are critical on disc speed and other factors. Like, no doubt, the angle of the sun, the relative humidity in Tierra del Fuego, the...

Aside from protection lurks, I also whinge on the oft-seen discrepancy between cassette and disc versions. A $25.00 difference is rubbish. In effect, more profit is being made from the media the program is on than the program itself.

Of course, programmers themselves and distribution houses are not above reproach when it comes to piracy. I can recall a cat-fight over several versions of "Star Trek" not too many years ago - ask the people concerned who paid a royalty fee to Paramount?

Too many double standards exist. One of my former bosses smiled when I said something about registering a software package. "We can't be bothered with such niceties," he said.

He was bothered when some programmers resigned, taking design information with them to start their own company. "Don't people have any sense of ethics?" he moaned.

Back to DISCKITA. You will note a minor repeated error in the .DOC file, about par for the course in PD software. If I had written this program, I would have had the options list appear automatically; or, would have had the -? option which explains the thing to you then drop into operating mode - rather than back to the A> prompt.

It does do, however, what it intends, allowing you to format in either A or B drives, in various modes; or check the disc parameters; exercise the drives, etc. The program does work on the 6128 and claims to function on the PCW 8-range.

Access it initially with DISCKITA. A message and status line and prompt appear. The # gives you the menu choices. Once you are fully conversant with it, you can use the "command tail" approach.

In other words, typing DISCKITA B: -P gives you directly a screen print of the current parameters of the B drive. The -? option command tail explains the various functions of the program, in detail.

Our final consideration this month is D.COM. Unlike the built-in CP/M command, DIR, a simple D gives you an alphabetically sorted list with file size and useful disc parameters. CP/Ms extended DIR, using the DIR.COM program with command options, will tell you all manner of things. It takes up 15k, however - D.COM is but a scant 1k, economical enough to reside on all your discs.

Learning to drive DIR.COM is worthwhile, though, for it has lots of options.

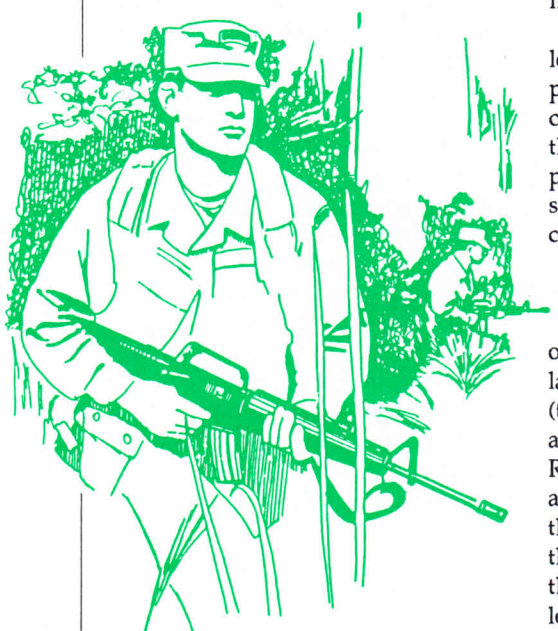
See page 44 for Joseph Elkhorne's Soft Carriage Return assembler program..

OUT ON THE FRONT LINE

The team at Microprose have released their latest war game for the CPC - Airborne Ranger. Vic Renfrew was expecting a lot when he took on this review. Find out if he was disappointed...

It was in February 1988 that I first noticed a review for Airborne Ranger on the Commodore. An action simulation with large, colourful and detailed graphics, the game was to incorporate some of the features of Gunship (namely, the ability to create a Ranger and raise him through the ranks and to save the character to disc/tape whilst completing a number of different and challenging missions), this had all the earmarks of a great game.

The story revolves around a lone Ranger, (those that trace their history back to the American War of Independence and Roger's Rovers), attempting varied and dangerous missions behind enemy lines. All missions start with the dropping of supplies across the landscape (there are three bags of these) and finally the crucial decision of where to parachute to start the mission. Once on the ground, it's a matter of consulting the map and plotting the safest route to the objective. The missions include destroying a munitions depot, photographing an experimental aircraft, rescuing hostages and freeing POWs (there are 12 different missions to choose from).



With this as a background, I loaded up the disc into the computer and, instead of the multi-colour images that can be seen in the screen shots on the rear of the packaging, I was presented with a screen completed in Mode 1 (four colours), but that was where my disappointment ended. The game is played on two screens; the Map screen (which shows the locations of the various landmarks on the landscape) and the Combat screen (this shows a view from behind and above the Ranger). In front of the Ranger is the cross-hair sights which are used for aiming your carbine at the enemy. Information contained in the border of the screens includes the number of each type of weapon left, the fatigue, wound, first aid indicators and the mission time clock. Weapons available include time bombs, grenades, rockets, carbine and (of course) knife. Choice of weapons is made using the keyboard and to help you remember which key served which function, a keyboard overlay is included in the package.

The Ranger can walk, run or crawl through the landscape and these will all be needed for the successful completion of the mission. The safest place to move is along the communication trenches which criss-cross the landscape. Once a mission is selected, the difficulty level is set. Each mission has a pre-set level of difficulty (easy) but this can be increased if desired. Next comes the mission briefing and it's important to read this because if you go into a mission that requires stealth with all guns blazing the target will not be there once you reach your objective. At this time, you are also advised what type or terrain the mission will be conducted in (either desert, arctic or temperate climates). Then it's time to drop your supplies and into the mission. Each cache of supplies contains a re-supply of ammo for your weapons as well as a first aid kit. This is used to heal wounds and thus give you a better chance to survive.

Once your mission is completed, it's time to recall your rescue plane and this takes about 20 seconds to arrive. Once at the pick-up point (which is usually near the objective) the plane lowers a rope ladder and your Ranger ascends to safety. After the completion of the mission, points are awarded based on the number of enemy soldiers and installations destroyed and a bonus is also given based on the difficulty level. If the mission is not completed successfully, a penalty is deducted and the usual result is a score of zero for that mission. As long as you can keep your Ranger alive, your score will accumulate but once killed, your score reverts to zero again. The score of your favourite Ranger cannot be saved, and there is

no promotion to be gained for the successful completion of a mission.

As stated before, the graphics used in Airborne Ranger are disappointing. Being Mode 1, the three basic colours used are light blue, black and khaki, with yellow, white or green forming the fourth to provide the background colour (depending on the climate of the individual mission). Although the lack of colour is a disappointment, the quality of the background graphics is very good. The Surface to Air Missile unit, for example is very well done, as are the buildings, machine gun emplacements and other positions scattered around the landscape. The only part of the game graphically that is not of a high standard is the Ranger figure, whose movements are a little unnatural for my liking.

Included in the packaging is the now standard detailed Field Manual (one interesting thing about the manual which may account for the decision to use Mode 1 is found on the front cover - the words "Change 1-SPECTRUM"), a card with loading instructions for the various versions of the game, the keyboard overlay and a Microprose catalogue. From a documentation point of view this is a well put together package, although the overlay is the only hint as to which key does which function. Although the manual refers to keyboard only being able to be used, on my copy I could not find any keys that would allow me to play the game and therefore I believe a joystick is essential. Two minor gripes about the overlay; firstly it says that the key "FQ" is used to select the carbine - obviously this is F0, and secondly it records that the "ENTER" key is used to make the Ranger run - but the RETURN key performs this function.

Airborne Ranger is a game that is surprisingly addictive. Even after a mission is completed, there is the challenge to do it better, faster and using a different route, as well as increasing the level of difficulty which either results in a more aggressive enemy or more targets to destroy. More colourful graphics, and this would have been a great game. As it is, it's good and has found a spot in my game collection.

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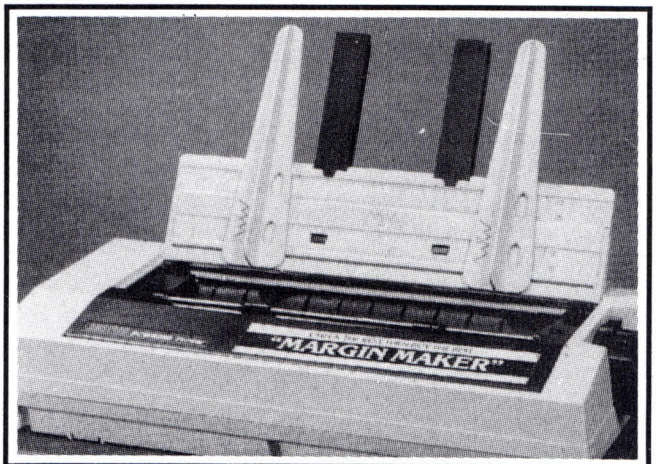

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GRANDPA ED

Although this text editor found on your CP/M disc was originally written a few computer 'generations' ago, it has served many well and is still very useful today - as Roger Williams explains.

In my previous article, I promised to introduce you to ED, the text editor supplied "free" on your CP/M system discs. Did you prepare a work disc as suggested? Like many "oldies", ED has a few eccentricities, but once you learn to accept and adapt to these you will be able to edit your text files with speed and efficiency. ED's origins are the reason; ED "grew up" in the days of teletype terminals - typewriter like machines with keyboard or paper tape input and printer output. The version supplied with the CP/M PLUS operating system is slightly more sophisticated than the CP/M 2.2 version; in this tutorial I will limit the explanation to features which are common to both versions. CP/M PLUS users need to be warned that I DO NOT use the SETKEYS KEYS.CCP command when starting CP/M on my CPC6128; if you use this, or any other SETKEYS command on start-up, you may find ED acting differently from the way I describe.

ED has two modes of operation - command mode, where you indicate what functions you want performed, and insert mode, where you type in the text for storage. CP/M acts as an interface in command mode, and since CP/M has "grown up" and knows that you are using a VDU display, the DEL key acts as you would expect for correcting typing errors. In command mode, each press of the DEL key backspaces and deletes a character from your display. But, in insert mode, ED has total control and you will see some "strange" output on your screen, even though the correct function has been performed on your text stored in memory. Since this is probably the most difficult adaptation to be made, let's see what happens.

To make learning as easy as possible, input lines will be shown in complete detail. Whenever you see <tab>, press the TAB key; whenever you see <cr>, press the RETURN key; whenever you see <ctrl-z>, hold down the CONTROL key (CPC) or ALT key (PCW) and then press the Z key. (Other letters may replace z in this notation.) Long input lines will necessarily be "broken" to fit the column width of this magazine; just keep typing, and only press RETURN when you reach the <cr> at the end of the line. Where spaces are crucial, they will be shown by <sp>; where they are obvious, as between words, no special notation will be used.

Activate CP/M from your work disc. When you call up ED, you must specify a file name (including an extension, if you want one) under CP/M 2.2. Under CP/M PLUS, ED will prompt for input and output file names if they are not specified on the command line. In response to CP/M's A> prompt type in:

```
ed<sp>learn.txt<cr>
```

After a short pause, you should see on your screen

```
NEW FILE
:*
```

and a solid rectangle, which is the input cursor. The asterisk is ED's command prompt. Read carefully and follow these instructions exactly! Press the B key and observe what has appeared on your screen; now press the DEL key and note what has happened. You should have seen the letter b appear after the asterisk, and then disapear in response to the DEL keypress. Type in

```
i<cr>
```

The i command means insert; ED is now ready for you to type your text. Press the A key, then the B key, and note what has happened; now press the DEL key and observe what appears on the screen. Almost certainly the letter b which you originally typed has not been deleted, but two extra characters have appeared. Nevertheless, internally the letter b has been deleted. To verify this type in the following lines

```
<cr>
<ctrl-z>
b#t<cr>
```

On a CPC6128, the last two lines on your screen should be

```
1:  a
1:*
```

You can see that the letter b really has been deleted, and by studying your screen you should be able to see ED's funny way of letting you know what is going on. (I don't have access to a CPC664 or a PCW; I can only hope that something similar has happened for these users. If this is not the case, please write to the Magazine and let me know.)

I told you that ED was a bit eccentric. You can also ask ED to delete a character by typing <ctrl-h>, and with this command ED will update the screen display properly. Let's see the difference. Type in:

```
-bi<cr>
```

The b command means go to the beginning of the text, so naturally enough, -b means go to the end. The

i command you already know means insert new text. Press the X key, the Y key and the Z key; see what has appeared on the screen. Now type <ctrl-h>. You should have seen the letter z disappear, even though Ed is in the insert mode! Return to command mode and examine the stored text by typing in the following lines

```
<cr>
<ctrl-z>
b#t<cr>
```

If everything has gone according to plan you should see on your screen

```
1: a
2: xy
1: *
```

Try not to mix up using DEL and <ctrl-h> to correct typing errors in insert mode. If this does happen, it is a good idea to type <ctrl-u> which causes ED to ignore everything which you have typed on the current line. You can start the line again and know exactly where you are. The text in your file may not be particularly useful, but at least you should now have a reasonably clear picture of how ED operates.

You have twice entered insert mode by using lower case i; this mode can also be entered using capital I. Type in the following

```
-bI<cr>
Entering insert mode with<cr>
capital I results in all<cr>
text being converted to<cr>
upper case<cr>
<ctrl-z>
-4t<cr>
```

Notice what has happened to the text. If you don't want all your text to be converted to upper case, enter insert mode with lower case i.

Leave ED temporarily by typing

```
e<cr>
```

After a short pause you will see the CP/M prompt A> on your screen.

Type in

```
dir<cr>
```

to obtain a directory listing of the lines on your disc. You should see a file called LEARN.TXT in this listing; this is the file which you have created using ED. Return to ED by typing

```
ed<sp>learn.txt<cr>
```

Since the file exists, ED goes straight into command mode. Type in

```
b#t<cr>
```

Nothing will be printed. What has happened? ED has found the file on the disc, but has to be instructed to read it into its memory buffer for processing. Type in

```
#a<cr>
b#t<cr>
```

Now the text from the file should appear on the screen. Having checked that your file really exists, you can make a "no change" exit from ED by typing

```
q<cr>
```

ED will ask you to confirm that you want to quit; press the Y key and wait for the CP/M prompt A> to appear.

If I make this article much longer, the Editor (of the Magazine, not ED) will be upset. Let's finish by using ED to summarise the commands which have been introduced so far. You should be in CP/M, so type in

```
ed<sp>commands.txt<cr>
```

Wait for ED to print the asterisk prompt, and then type in

```
i<cr>
<tab>#a<tab>Append (transfer) text
from file to buffer<cr>
<cr>
<tab>b<tab>Beginning of buffer<cr>
<tab>-b<tab>End of buffer<cr>
<cr>
<tab>e<tab>Exit ED; update text
file<cr>
<cr>
<tab>i<tab>Insert mode<cr>
<tab>I<tab>Insert mode with
conversion to upper case<cr>
<cr>
<tab>q<tab>Quit ED; no change to
file<cr>
<cr>
<tab>#t<tab>Type to end of
buffer<cr>
<tab>-4t<tab>Type previous 4
lines<cr>
<tab><tab>(Any number can be
used)<cr>
<ctrl-z>
```

Notice how using the TAB key has lined up the text in columns. Exit from Ed with the e<cr> command so that this file is saved on your disc. Keep both files you have produced for the next session. Practice using these commands to make some text files of your own. But, please remember that ED is NOT a word processor - there is a limit of 80 characters per line, and each line MUST be terminated with <cr>.

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AUTO SC2

SuperCalc2 users: are you sick of manually booting up whenever you work on a file? There IS a solution! Helen Bradley enlightens us...

Many SC2 users will find themselves each session starting up SC2 and then loading the same spreadsheet before commencing work. If SC2 can be autobooted and the spreadsheet loaded automatically then considerable time can be saved.

The aim of this article is to show you how to set up an autoboot SC2 disc so that SC2 will start as soon as your disc is placed in your machine and the SC2 spreadsheet that you use first of all each day (I have called it MYFILE.CAL) will appear on the screen with no input from you (save for answering the DATTIM screen prompts for date and time).

Alternatively if you start each day with a fresh screen then this autoboot system will work for you too and I have included the form of a PROFILE.SUB file to assist you.

First you will need all your files on one disc and this will need to be a disc formatted to be used in drive A. The files that you will need on this new disc are:

```
PROFILE.SUB  (Full exp. later)
SETDEF.COM
PIP.COM
SUBMIT.COM
J14CPMS.EMS (or CP/M equiv.)
SC2.OVL
SC2.HLP
SC2.COM
DATTIM.COM
```

MYFILE.CAL (this is the name I have given to my start of day spreadsheet. If you want to start the day with a blank spreadsheet you won't need this file. Note that there is ample room on your SC2 disc for all but the largest of spreadsheets.)

If you start each day with a "template" type spreadsheet which you fill in and then save under a different name so that you can re-use the blank template the following day, then you should consider protecting your template spreadsheet (so that you cannot overwrite it with data) by making it a 'read only' file. To do this 'pip' the SET.COM utility from side two of your Locoscript disc into drive M, put your SC2 disc in A and type:

```
M:
SET A:MYFILE.CAL [ro]
```

This will protect your file so that no information can be written on to it - but it will also make SC2 crash and force a return to CP/M with the subsequent loss of all your data if you try to overwrite it - which you may agree is a fairly extreme reaction to your mistake! So make sure that you treat 'Read only' files with the respect that they deserve.

You will now need to create a new PROFILE.SUB file using RPED or another text editor as follows:

```
setdef m:,* [order=(sub,com)
temp=m:]
pip
<M:=SC2.*[o]
<M:=DATTIM.COM[o]
<M:=MYFILE.CAL[o]
<
M:
DATTIM
SC2
<
<
</
<LMYFILE.CAL
<
<A
<
<=A1
```

When you have created this file save it on the disc which you created earlier with the other SC2 documents and the CP/M utilities. You will note that we have included the SC2 dating facility DATTIM.COM - if you do not want to use this then simply leave out the lines:
<M:=DATTIM.COM[o] and DATTIM from the PROFILE.SUB file.

When you are ready put your new SC2 disc in Drive A and then reboot the machine by pressing the following three keys at the same time <SHIFT> <EXTRA> <EXIT> and you will notice that CP/M autostarts and the SC2 files are transferred to M drive. Next DATTIM is loaded for you and it will prompt you to set the date and time. When that is complete SC2 is loaded, then your spreadsheet and finally the cursor is placed in cell A1 (if you want to start at another cell then specify that instead of A1 in the line <=A1).

When the session is complete you will simply need to save the spreadsheet as normal. If you don't want to file your work into your SC2 boot disc (and you should never do this - you should have a SC2 filing disc for your spreadsheets) then you should change your disc when the autoboot is complete.

Be careful, as SC2 is working from drive M, you will need to save any spreadsheets as /S A:MYPROG or some other name (ie. to specify the destination drive). It makes good sense always to specify drive names when saving files so as to ensure that the destination disc is always correct. If you don't use A or B as the drive specification then SC2 will save to drive M and your work will be lost when you turn your machine off if you do not first save it to a disc.

If you always use a blank spreadsheet to start your day then your PRPFILE.SUB file will look like this:

```
setdef m:,*[order=(sub,com) temp=m:]
pip
<M:=SC2.*[o]
<M:=DATTIM.COM[o]
<
M:
DATTIM
SC2
<
<
```

Autoboot discs and submit files are very handy for protecting you from the rather unfriendly face of CP/M.

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The Sans Serif style has been designed with the same character widths as the standard style. So Sans Serif documents lay out identically to the standard style. The other new styles have different character widths and documents using these may lay out in a slightly different way.

The two "Mini" styles are designed for use at eight lines per inch, giving more characters to the page. The rest are intended to be used at six characters per inch.

Note that a document can only use a single style.

LocoFont Set1 & 2 are available from The Amstrad User at $75.00 and $65.00 respectively.

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If you haven't already, now's the time to move up to LocoScript2 - the better word processor for the PCW.

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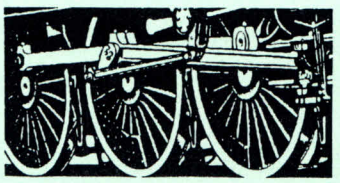

LOCOMOTIVE SOFTWARE

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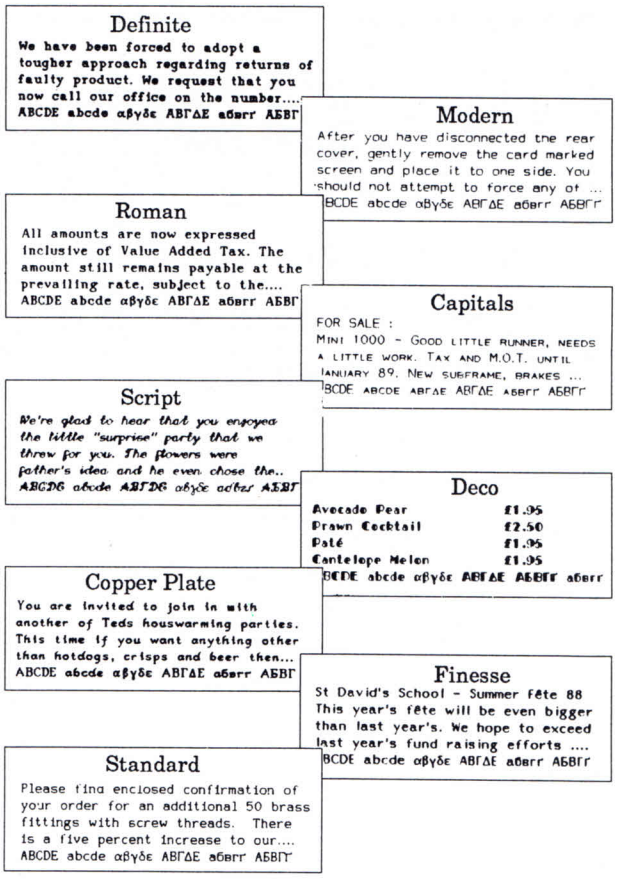
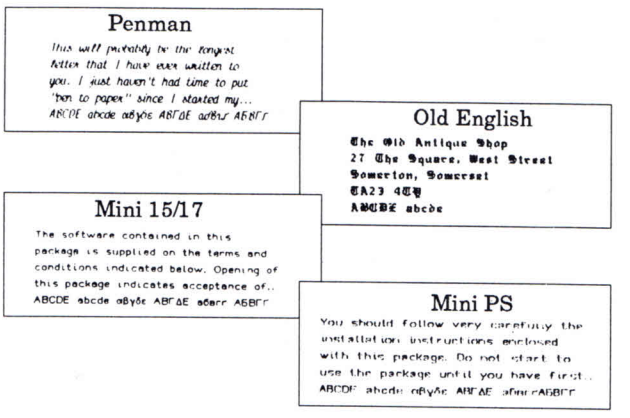
LocoFont - Set 1



LocoFont - Set 2



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8K PRINTER UPGRADE

For solder addicts, here's another hardware project to keep you all satisfied. Mr. R. S. Hamilton of Melton explains how to perform an 8K upgrade for your DMP 2000.

The following is an 8K upgrade for DMP 2000 Printers, it may work on the DMP 3000 and the 2160/3160 printers also, but I have not tried them.

I can't take the credit for this mod, as I got it out of a U.K. magazine myself, and the credit should go to a Mr. Ju, Dorset, U.K.

I do not recommend this mod for people whose printers are still under warranty.

First take the printer cover off, and take out the 6116 RAM chip from its socket (it's the one where the socket is bigger than the chip that's in it). Find the box with 3 solder-filled holes marked J3 (to the left of the RAM chip). Lift up the circuit board by undoing the two screws that hold the computer-lead socket to the board, and cut the track that connects the LEFT solder-filled hole in J3 to the CENTRE solder-filled hole.

Now connect the CENTRE hole to the RIGHT hole in J3 with a small piece of wire. When this is soldered in place, place the new 6264 CMOS static ram chip (or equivalent).

As Mr. Ju states this mod works on version 2 of the DMP 2000, as for version 1, he and I don't know.

I have successfully converted my own printer and that of another member of the Sunbury Melton User Group, and we are both very pleased with the mod.

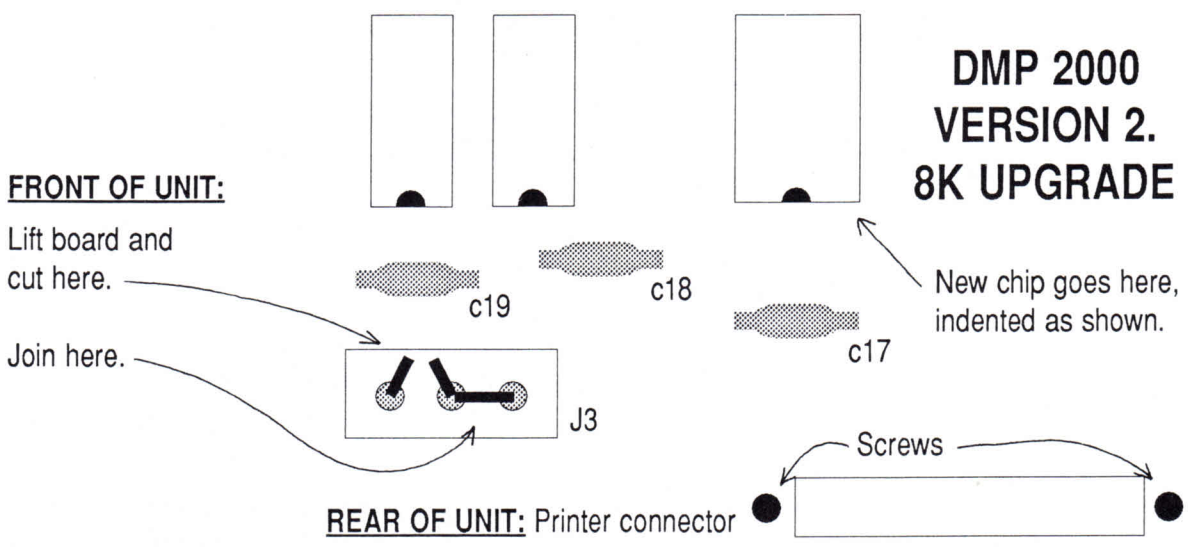
When removing the 6116 chip take note of the position of the indentation and make certain that you put the new one in the same way, even though it takes up the whole socket.

The 6264 (or equivalent) STATIC RAM chips are available from Rod Irving Electronics for approx. $10.00.

I do recommend that when cutting the connection on J3 you use a magnifying glass, a bright light and a very sharp modeling knife. Also check with an Ohm meter that there is no circuit between the left and centre holes. Also that when you solder in the wire, check that you do have a circuit between the centre and right holes.

Below is a diagram of the approximate positions of the components, J3 and the chip socket.

An approximation of components in the vicinity of J3 and the new chip.



MASTERFILE 8000

FOR ALL AMSTRAD PCW COMPUTERS

MASTERFILE 8000, the subject of so many enquiries, is now available through The Amstrad User from Campbell Systems in the UK.

MASTERFILE 8000 is a totally new database product. While drawing on the best features of the CPC versions, it has been designed specifically for the PCW range. The resulting combination of control and power is a delight to use.

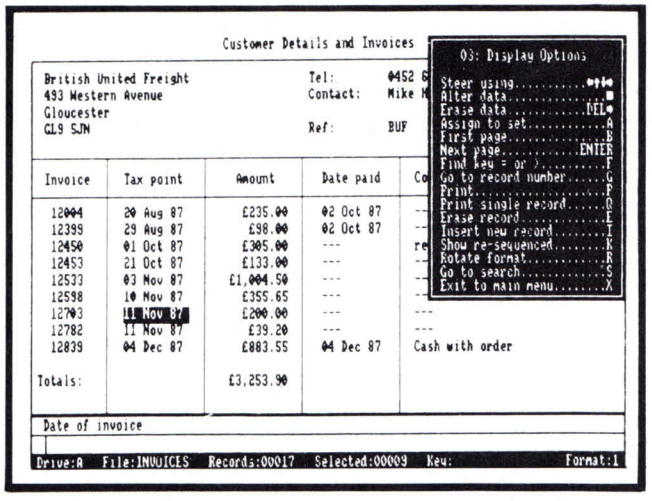
Other products offer a choice between fast but limited capacity RAM files, and large capacity but cumbersome fixed-length, direct access disc files. **MASTERFILE 8000** and the PCW RAM disc combine to offer high capacity with fast access to variable-length data. File capacity is limited only by the size of your RAM disc.

A MASTERFILE hallmark is the provision of multiple, user-designed display formats. This flexibility remains, but now it's even easier. With **MASTERFILE 8000** you design your formats "live"; no more questionnaires, just move your format effects around the screen using the cursor keys!

Record updating is even easier than before - just steer your cursor to any field on the screen and then insert/erase/alter as required.

Special options are provided for handling dates and surnames, and column totals can be generated.

All screen work is done graphically - and hence we offer unique panel, box, and ruled line options. Choose the line spacing at pixel resolution - you will be amazed how much clearer 9-pixel lines are than the usual 8-pixels. (Study the picture.) And all this faster than CP/M normally lets you paint the screen! PCW printer functions, under menu control, are provided.

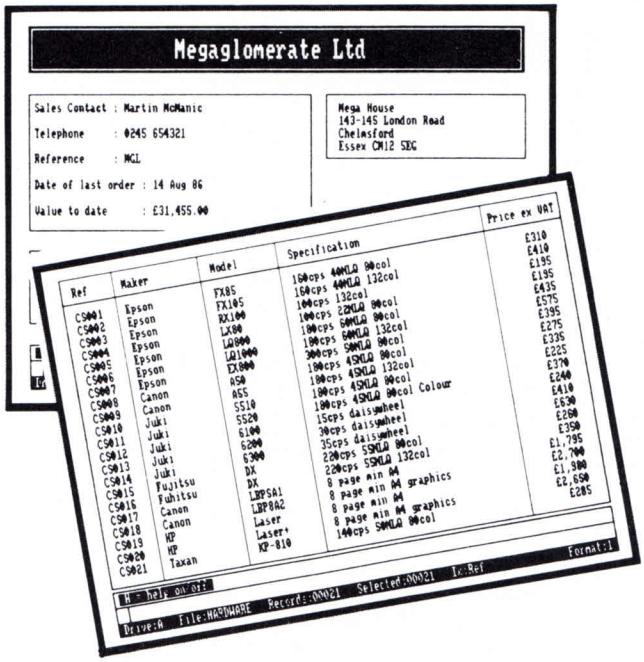


Keyed files are maintained automatically in key sequence, with never any need to sort. You can have unkeyed files too, where records can be inserted at any point in the file.

Any file can make RELATIONAL references to up to EIGHT read-only keyed files, the linkage being effected purely by the use of matching file and data names.

You can import/merge ASCII files (e.g. from MASTERFILE III), or export any data (e.g. to a word processor), and merge files. For keyed files this is a true merge, not just an append operation. By virtue of export and re-import you can make a copy of a file in another key sequence. New data fields can be added at any time.

File searches combine flexibility with speed. (**MASTERFILE 8000** usually waits for you, not the other way around.) You can even assign subsets of a file into one or more of seven pigeon-holes for subsequent reference or further manipulation.



MASTERFILE 8000 is totally menu-driven, fully machine-coded, and comes with example files and a detailed manual. We claim (modestly) that you will not find another filing system with such power, flexibility, and friendliness.

MASTERFILE 8000 costs $119.00 including postage and packing, and if you request air-mail within Australia, we'll do that at no extra charge too! (If you live outside Australia please add $4.00 for air-mail cost.)

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EXPRESSING YOURSELF

Mike Turner continues his series on the writing of user manuals and other documentation stressing content and planning.

I am a great believer in exploding the myths and trying to explain computer terminology in plain language. I think this is particularly important when dealing with newcomers to the marvellous world of computers. The truth is just about anyone is capable of developing simple computer applications and writing the necessary documentation. All it takes in the case of writing documentation is the ability to express yourself clearly to others.

So what sort of documentation should accompany a program? This will depend to a large degree on how complicated the program is to use and if there are any special procedures involved in its use. It is always handy to keep notes or plans you make during the development of the program to assist you in the task of writing the documentation later. In a serious business-type application these form a vital part of the documentation as they show later users the process of design used. This could be particularly useful to those who later have to modify the system in some way.

PLANNING YOUR WRITING

So now the moment of truth has arrived and it is time to write your manual. Here are some ideas to help you along the way. I don't think it is ever possible to cover all angles but at least this should give you a good starting point. After reading this you will probably say to yourself that it is all common sense stuff and you would be right. But it is very easy for common sense and logic to fly out the window and the great mental blank to overwhelm you when you sit down at the keyboard.

Plan the layout of the document. If your manual is of a reasonable size, (say in excess of 40 or 50 pages), you should make sure it contains certain elements. It should contain a title page, a table of contents, the body of the manual split up into logical sections and an index normally at the end. Consider also including a glossary of terms somewhere up near the back of the manual for use associated with the index or for general reference.

The relevant files that are contained on the disc should be listed so that the user can check that he or she has all the necessary ones to use the program correctly. If installation is required plan accordingly. Consider where you will place this section in the manual. You may put it up the front of the manual on the premise that users will need to start there to get the program running; or at the back as it won't be used frequently after the initial set-up. The choice is yours. Just make sure that they can refer to it easily.

APPROPRIATE CONTENT

Be precise in your use of terminology. Discs are discs and tapes are tapes and never the two shall meet. Be completely thorough with your explanations of processes to be followed. Don't assume prior knowledge. If you don't have the time or inclination to explain things about the hardware aspects at least refer the user to the appropriate sections of the manual that accompanies the computer on which the program will be run.

For example, if your program requires the use of PIP or some other file copying utility during the initialisation process; refer the user to the appropriate section of other documentation to obtain a full explanation of how the utility operates. Whilst it might not be strictly necessary for them to understand what is happening inside the guts of the computer while all these files are being copied, it will enhance their knowledge of the computer in general. It may also help them later to do their own fault finding if things go amiss.

I have seen too many instruction manuals which merely pay lip service to their name. If you are a writer worth your salt, you should also partially assume the role of teacher. The time spent doing this will be greatly appreciated especially by first time users who will be likely to remember how easily they were able to get up and running with your package and come back for more. It makes good business sense as well. So how do we adopt this teaching approach?

TUTORIALS

Consider devoting one section of the manual to a tutorial or a teaching guide. Some packages have hands on tutorials available on disc. If this is the case, then at least cover how to load and use this tutorial in an appropriate section of the manual. The tutorial can be in the manual with sample files provided on the disc for the user to experiment with. Locoscript is a good example of this technique.

A section of the manual can be used as a troubleshooting section. A "what to do if" type approach can

be really helpful especially to novice users. List what you consider will be commonly encountered faults and possible reasons for them occurring along with the solution to the problem. This will help to stop repeats of the same thing later, providing the user takes the trouble to learn from mistakes made. We can't spoon feed them all the time!

WHERE DO I FIND IT?

I keep harping on about how valuable a good index can be. If you aren't sure how one should be laid out, have a look at the index in the manual that came with your Amstrad. I've found these to be as good as any. So let us look at the creation of an index. There are various ways of doing this. If you are a professional writer it will probably be well worth the expense of purchasing a dedicated sorting and indexing utility for your particular word processor. If for example you use WordStar, there is a program called Star Index which will help in this regard. You insert codes at various points in the document relating to things you want included in your index. When you run the program it will produce a table of contents, an index and even a list of figures if you wish.

This type of program is very swept up and extremely handy. Particularly so if you subsequently add sections to the manual with updates to the software. Of course, the page numbers will change and the thought of manually re-doing the entire index could be mind-boggling, depending on the size of the manual concerned. This type of program allows you to quickly and easily produce an updated index and table of contents with the computer doing all the hard work. After all isn't that what using computers is all about? Locoscript users are catered for with a utility called Ansibleindex.

If you are not a professional writer of documentation or the manual you are composing is fairly short, you can get away with doing the indexing job manually if you wish. Probably a better way of doing this is to use your word processor to help you. Make a draft print of your manual. Armed with that go through the draft and type up a file containing references to interesting features along with their page numbers, exactly as you would expect to find them in an index. Use a separate line for each entry. Make a simple ASCII version of this file by whatever means is available to you. You can then use a sorting program such as those published as type-ins in Issue No. 39 of TAU. This will sort the entries into alphabetical order for you and then read the resulting disc file into your document and redefine it with boldface or italic text for headings and so on. There is also an excellent type-in program called the Book Indexer in Issue No. 44 of TAU designed especially for those who use Locoscript on the PCW.

Yet another method of producing an index is to use a database to do the sorting for you. Proceed as above but create a database with a field for the subject, perhaps one for a sub-heading and one for the page number. As you go through your draft copy of the manual key in the details to be indexed into the database and then let it sort everything into alphabetical order. At the very least you will be able to get a printed listing which you can then type into the original manual as an index. However, if your database has an exporting capability the job is easier again. You can get the database to export the resulting list to a disc file in ASCII text which can then be read into the manual by your word processor.

FIGURATIVELY SPEAKING

Consider the use of diagrams and figures to illustrate various points. They don't have to be fancy, just as long as they get the message across. If you can, supply screen dumps of appropriate menus etc. within the program for use as figures in the manual. This technique can be used to enhance the word picture created by your text. If you are not producing a professional standard manual utilising the services of an offset printer, you can still produce acceptable results with a photocopier. A simple cut and paste job can be done to insert your figures into spaces left for them in the text before photocopying the manual for distribution.

Well folks, that's about it for now. I hope these few hints will help you along the way in whatever type of writing you end up doing. Remember that although these articles are primarily aimed at people writing software documentation, a lot of the information is relevant to other forms of business communication. You might have a lengthy report to prepare for your boss on a particular subject. Maybe the fate of one of your pet projects or the acquisition of some new equipment will depend on just how well you communicate or "sell the concept". Be positive and give it your best shot. Happy Writing.

PCW MACHINE CODE

This newly released book provides a clear description of controlling the PCW 8256, PCW 8512 and PCW 9512 by machine code programming.

Written by Mike Keys, this highly informative book provides a thorough description of what machine code is and how to use it, devoting separate chapters to each main feature of the PCW. Including:

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LAYOUT RULES OK

The layout and presentation of documentation is a very important factor contributing to its overall appeal. Rob Ainsley takes the LocoScript2 user through the ins and outs of good layout.

The sort of paper you use for your letters depends on what sort of letter you want to send. Business correspondence will probably go out on bog-standard headed A4; but your love letters would look more romantic on that scented, odd-sized, sideways hand-made Japanese washi you picked up in Kyoto. With LocoScript, you're in luck; far better and more easily than most word processors, you can set up your layouts and paper types to cope with any piece of paper you throw at it.

First, suppose you're wanting to set up a disc to hold some business letters. In group 0 on your blank disc, hit C for 'create' a document, calling it TEMPLATE.STD. As you know, when you create any new document in a group, LocoScript will take the group's TEMPLATE.STD and use it as a starting point for your new document. So, if you create a TEMPLATE.STD consisting of a heading with your company name and address, every document you ever create in that group afterwards will have the heading automatically included in it.

The first thing to do in the new template is to set up the layout. On the 'f2=Layout' menu choose 4 the 'Change layout' option. The cursor now moves up into the ruler line at the top of the text area; here you can set things like tab positions and left and right margins.

Knowing where to set the margins is a big step to conquering your paper problems. Take a blank sheet of the paper you want to use, and with a pen mark out the actual area that you want the text to fall in. Now, in LocoScript 2 on the PCW8256 and 8512 you are probably using 12-pitch text, but on the 9512 the standard is 10-pitch.

Now you can work out where the margins should be. Suppose your paper is A4, which is $8^1/_4$" across, and you want to leave a $1^1/_2$" margin left and right. This means a left margin at $1^1/_2$", and a right margin at $6^3/_4$". The margins in LocoScript are measured by character position (15 spaces in, 20 spaces in etc.), so you have to convert inches to characters, which depends on the character pitch you are using. In this case, with 12-pitch text your margins would be at 18 and 81, and with 10 pitch text at 15 and 68 (to the nearest whole number).

One caveat applies for Loco 2 users - when you are in the editing layout stage the 'f8=Options' menu allows you to alter the 'scale pitch'. Make sure that the scale pitch is set to be the same pitch as your main text, usually 12-pitch on an 8000, 10-pitch on a 9512.

GIVE THEM AN INCH

Your Japanese notelets may not be anything like the standard sizes (as discussed later). Fortunately though you can define a new size as standard.

Suppose the paper is eight inches long by six wide. In the Disc Manager screen (ie. not editing any document) select 'f6=Settings', then the 'New Paper Type' option, and a list of data appears. The figures shown are taken from a paper type currently floating about, and you can revise them appropriately. First, choose a name, say 'Washi8x6'. Indicate whether single or continuous stationery, and key in the height and width of the paper - each figure is specified in lines rather than inches, so since there are six lines per inch as standard, you need to multiply the height and width in inches by six, so for this example the height would be 48 and the width 36.

If continuous paper has been selected, you can set the 'left offset' - how much space to leave in the left margin, again width-in-inches-times-six - and change the top and bottom gap. On single sheet, the top inch and bottom half-inch (ie. top six and bottom three lines) are physically unable to be printed on, but with continuous paper you can utilise this space for printing, though gaps of zero would risk printing on the perforations.

Press [ENTER] to 'create' the new paper type. The new paper type has to be stored to disc, otherwise it will be forgotten when you turn off, but this is effectively done automatically since when you leave the Settings menu you're asked to put your Start-of-day disc in the drive for the new settings to be saved onto.

You will now probably want to set up the document in question to use this 'Washi 8x6' paper too. Edit the document, go into the Document Setup area and go to the 'f5=page' menu. The 'Paper Type' option then gives you the choice of types, and you'll see the paper just created on the list of available types, so select it. Exit back to the main editing text

screen, and you'll see that the page breaks are in the correct places for your new stationery.

You don't in fact need to explicitly alter the paper size that the printer is set up for, since as soon as you try to print your letter set up on washi LocoScript will point out that the printer is currently set up for A4 and ask you whether you wish to use A4 or Washi 8x6. You can just pick the 'Use paper type for document' option when the printer query is reported, and from then on the printer expects your own washi. You can make Washi 8x6 the default paper type (ie. the type always expected whenever you use the PCW) by declaring it as the default in the 'Printer Defaults' option of the 'f6=Settings' menu on the Disc Manager Screen.

All that remains to do now is to set your margins in the template, and you can use that group for all your notelets; each new document will be set up on the right size paper, with the right margins.

STOCK ANSWERS

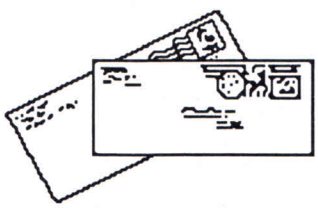
Suppose you are typing away, and halfway down the first page there are some columns of figures to be laid out. The layout has to be different for this bit, with some decimal tabs and narrower margins.

Press [f2] and select 'new layout'. Set up your new margins, tabs etc., to suit the columns you want, and when you're satisfied [EXIT] and type in the figures.

Suppose you want to switch between the original layout and the 'figures' layout constantly. You can get back to the original by keying in [+]LT1 (LocoScript2 thinks of the original layout as 'Layout 1' of ten 'stock layouts' which you can define to use whenever you want - at the moment you've only defined this one). To get the 'figures' layout again, you can just insert the (Layout) code which appeared at the beginning of the 'figures' layout - either use the [COPY] and [PASTE] keys to copy the layout code, or remember what number the layout was in the list of stock layouts and use the [f2] menu to insert that layout number where you want.

Hit [f1] and select the 'document setup' option. Select [f2], Layout, and choose 'change stock layouts'; a list of ten layouts appears. Selecting one of these by cursoring over it and [ENTER]ing, you can set tabs, margins, select pitch size and justification, etc. - [EXIT] takes you back to the list.

LocoScript normally uses Layout 0 in the headers and footers, and Layout 1 in the body of the document. You can name each layout ('figures', 'body', 'footnotes' and so on) if you wish via 'f7=Name'; when you've set up as many as you think you'll need you can EXIT back to the headers and footers.



In a document you can insert these layouts by going through the 'copy stock layout' routine ([f2], 'New Layout', then [f5], and select which layout you want to use). However, short-cut commands with the [+] key like [+]LT5 (which invokes layout 5) and [+]LT1 (to return to the original layout) can be used instead. Note this is different from LocoScript 1, if you are a recent convert where you typed [-]LT to return to the basic layout. The name of the current layout being used is displayed in the top left-hand corner; unless you've given a layout a name, it'll be called something prosaic like 'Layout 1'. If you change the layout through [f2], without going into document setup, LocoScript thinks of this as a temporary change, and the name doesn't change.

The stock layouts only apply to a single document - but if you know you'll be using the same layouts in lots of different documents, define the stock layouts in your TEMPLATE.STD - then in any new documents in that group you can select any of these layouts just by [+]LT3 or whatever.

SIZE ISN'T IMPORTANT

LocoScript initially expects everything to be on A4 paper, and you could therefore go through life happily sticking exclusively to A4 and never worrying about anything else. But what about your odd-sized notelets? Well, in LocoScript 2 you can specify as part of the document what size paper the result is intended to be on. Also, the printer (independently) expects to be printing out in a certain size, so it knows where to put the page breaks. You can set either to expect A4, A5 (normally or sideways) or 11-inch continuous paper.

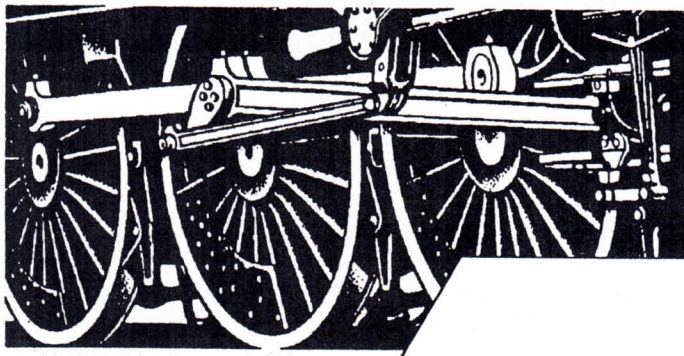
If the two sizes are different, you're offered a choice at the printing stage to use the paper the printer expects ('use current paper'). You might use this for drafts - you might have several different paper type documents but want a quick draft of each on continuous paper. Alternatively you could override the printer and tell it to accept the size intended for the document ('change to paper intended for document').

The PCW can cope straight off with the everyday sizes mentioned above. To set up a document as A5 sideways ('landscape' - the normal way around is called 'portrait') for example, you would go via 'f1=Options' through 'document setup' and then via 'f5=Pages' to 'paper types'. You can select A5 and landscape by setting with the [+] key. Appropriate [EXIT]s and [ENTER]s take you back to editing the document.

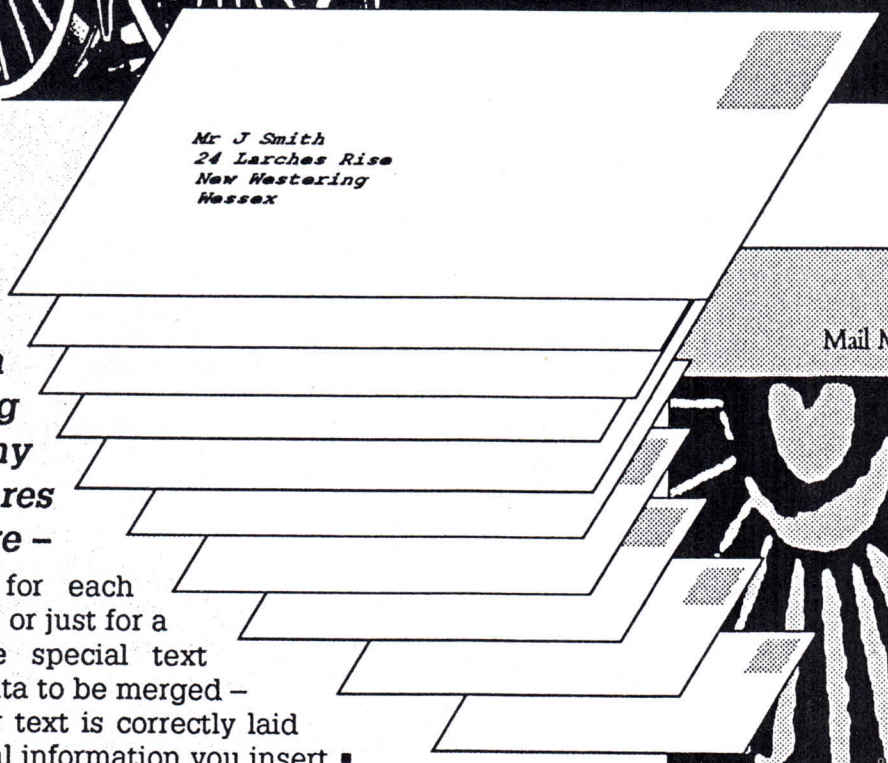
To set up the printer to expect this size, hit the [PTR] key and via [f3] select the paper type you require. [ENTER] and [EXIT] takes you back to the disc manager.

FOR LAZY TYPES

The smart way to set tabs without using menus is to press the [+] key - once for a normal tab, twice for a right tab, three times for a centre and four for a decimal.

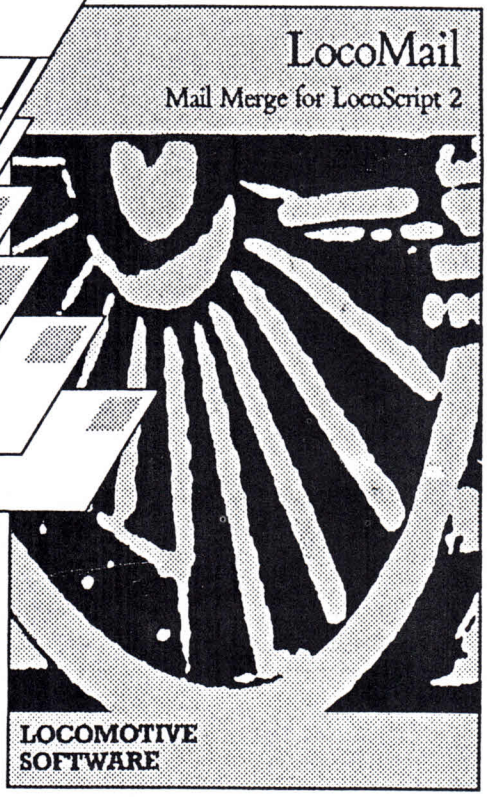


LocoMail for LocoScript 2



Use LocoMail to send letters to everyone on your mailing list. Use its many advanced features to do much more –

▪ Produce letters for each name or data record, or just for a selection ▪ Include special text depending on the data to be merged – each version of your text is correctly laid out, whatever special information you insert ▪ Edit the merged letter before printing ▪ Save the result to disc if required ▪ Use LocoScript data files or ASCII data files from a CP/M program ▪ Prompt for information to be typed at the keyboard ▪ Perform arithmetic within LocoScript documents ▪ Add paragraph numbers automatically ▪ Produce sophisticated LocoMail 'programs' for Invoicing, Credit Control, Enquiries etc.▪



LocoMail now comes with a completely revised 288 page User Guide – available separately for users of the PCW9512 and earlier versions of LocoMail.

▪ An extended tutorial section ▪ Detailed descriptions of the advanced facilities ▪ Worked examples of "program units", loops and conditional operations ▪ Descriptions of typical uses of LocoMail – Club Membership, Invoicing, Enquiries, Labels ▪ A set of "building blocks" to include in your own LocoMail applications ▪ Full technical description of LocoMail ▪ Troubleshooting guide ▪

All the examples described in the User Guide are supplied on the LocoMail master disc. In case you're just buying the new User Guide, they are also supplied on the LocoMail Examples Disc, available separately.

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• LocoMail User Guide	$54.95
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GUIDE TO MS-DOS

In the second of his three-part series, David Worlock introduces the new PC user to the external MS-DOS commands, and more...

In the last issue we began our investigation of MS-DOS with a look at what DOS actually does, how it is divided into internal and external commands - small programs that either reside in memory or that have to be called from disc - and how DOS expects you to refer to disc drives. This month we're going to jump ahead a little bit and look at some of the external commands. While it's true you can use your PC happily without ever needing them, the external commands can help you get much more from your system.

DISC FORMATTING - BUT WHY??

Perhaps the first external command you will encounter is FORMAT. Disc formatting is one of those irritating little essentials of computer use that often puzzles beginners, so let's get that out of the way first. The question that often springs to mind is why discs need to be formatted at all.

The answer is rather similar to the reason why books and magazines don't just run all their text together in one long splurge. Breaking a book up into chapters, paragraphs and sentences makes it easier to keep track of where you are in the text, and to reference particular bits of information.

Similarly, computers format discs into blocks, sectors and tracks. Now, with certain exceptions that needn't bother you at all, every 5.25 inch floppy disc is intrinsically the same, so why aren't discs preformatted when you buy them? Basically because no two computer manufacturers can agree on a standard. What one thinks is a brilliant way of organising a disc, another thinks is stupid/primitive/overly-complex. So although they look identical, you can't use a disc formatted for an Apple II, say, in your PC, and neither could use a disc formatted for an Amstrad 464/6128.

Hence the need for a format command. FORMAT is simply a small program that controls the read/write head of your disc drive and magnetically marks the disc off into the tracks, sectors and blocks mentioned earlier. Every disc must be properly formatted before it can be used in your PC.

Format also has a couple of additional benefits. After a disc has been used for a while, and files get added, moved and deleted, blocks get filled up in a fragmented fashion. Even though DOS knows that the space occupied by a deleted file is available for use, it will always use empty space first and this can slow down your disc accesses - if you hear the drive head rattling backwards and forwards when the disc is in use that's a good indication that the disc space is heavily fragmented.

Deleting all the files on an old disc does free all the space but it doesn't solve the problem of fragmentation. But if you format an old disc you create a pristine, blank work space and your disc drive will be working at maximum efficiency again (and it saves a little bit of wear and tear on your drive mechanism). The counterpoint to this is that format is completely destructive as far as your data is concerned. It is possible to recover a "deleted" file as long as it hasn't been overwritten. But FORMAT deliberately overwrites ALL blocks on the disc, so files on an accidentally formatted disc are gone forever.

COPYING DISCS AND ANYTHING ELSE

These matters have a bearing on another external command, DISKCOPY. As its name suggests, this little program creates an exact duplicate of a disc. What could be wrong with that? Usually nothing. Indeed, there are times when DISKCOPY is precisely the correct command to use - for example, if you are making a working copy of a new and expensive piece of software (highly recommended).

Although using COPY *.* will usually suffice, there is a problem in that the COPY command cannot cope with sub-directories.

We'll discuss sub-directories completely next time but for the moment suffice it to say that sub-directories are simply directories within directories and are usually found on hard disc drives. But some commercial software will use them on floppy discs, and that is where COPY can fall down because, while it will duplicate the sub-directory, it won't duplicate the files within that sub-directory.

However, returning to the subject of fragmented space, DISKCOPY also reproduces the fragmentation, and on a much-used disc (as we've seen) that's not particularly desirable.

There is another potential problem with DISKCOPY and that will arise if you have a PC system that uses both the new 3.5 inch discs and the older 5.25 inch size. Because DISKCOPY is designed to exactly duplicate a disc, it obviously has problems when the two discs themselves are substantially different. The same problem will occur if you are also using a mixture of 360k discs as standard on the PC/XT computers, and the 1.2Mb discs that are standard on AT-style PCs.

Which leads us to a third external command, XCOPY. This gets round all of the problems: it doesn't duplicate fragmentation, it will handle discs of different sizes, and it will cope with sub-directories. The only reason for not using XCOPY all the time is simply because it is an external command and has to be loaded from your DOS disc, and introducing a third disc into the proceedings is not particularly desirable. But on the right occasion, XCOPY can be a great help.

NEXT TIME: DOS for hard-disc users.

SOFTENING .DOC FILES

Joseph Elkhorne with some help from David Whitman has created this program for the PC with WordStar, which converts all hard carriage returns in a .DOC file to soft ones.

I am indebted to David Whitman, author of the Public Domain program, CHASM, for the use of his LC.ASM program, which I adapted into SOFTCR.

The purpose of this little routine is to accept a .DOC file, such as one often finds in Public Domain programs, and convert all the 'hard' carriage returns into soft ones. By doing this, the file can be processed more easily in WordStar. Granted, one can do this within WordStar by the use of Ctrl-6 (if memory serves) but is required on each line of a paragraph, then Ctrl-B to reformat it.

SOFTCR uses the redirection syntax, which is not common. The proper command is:

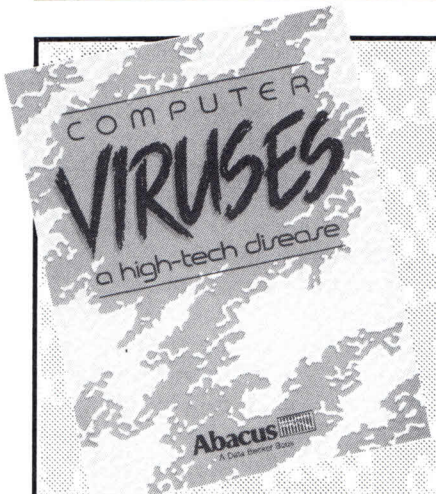
SOFTCR <infile >outfile

Yes, those are corner brackets, the left one for input and the right one for output. One can, of course, use the same file descriptor.

By further processing a .DOC file, the user can achieve exactly the format he desires. Straight printouts often give you no left-hand margin, or other anomalies you may not appreciate.

```
;================================================
; PROGRAM SOFTCR  Version 1.0 by J.L. Elkhorne
; adapted from Dave Whitman's LC.ASM
; [Whitman Software,PO Box 1157,North Wales, PA,
;  USA,19454]
; as found on Public Domain disc CHASM
;
; Filter to convert hard CRs to soft for WS use.
; Other characters are not affected.
;
; Syntax:  softcr [?] [<infile] [>outfile]
;
; The ? option prints a help message.
;
; Requires DOS 2.0, will abort under earlier versions.
;================================================

;=============
; Equates
;=============

@read   equ   3FH             ;read file/device
@write  equ   40H             ;write file/device
@dosver equ   30H             ;get dos version
@prnstr equ   09H             ;print string

cr      equ   0DH             ;carriage return character
lf      equ   0AH             ;line feed character

stdin   equ   0000H           ;standard input
stdout  equ   0001H           ;standard output
u       equ   01H             ;upper case option selected

buf_size      equ    512      ;size of input and output buffers

param_count   equ    [80H]
param_area    equ    [81H]
mem_avail     equ    [06H]    ;PSP field: memory available in segment

low_mask      equ    10000000B  ;mask for soft cr conversion (with OR)

main  proc    far
      call    setup           ;check dos, parse options
      call    process         ;count w, l, c from std i/o
      int     20H             ;and return to dos
      endp

;====================================
; SUBROUTINE SETUP
; Checks for proper DOS, parses options
;====================================
setup  proc   near

       mov    ah, @dosver     ;what dos are we under?
       int    21H
       cmp    al, 2           ;2.0 or over?
       jae    a_mem           ;yes, skip

       mov    ah, @prnstr     ;no, bitch
       mov    dx, offset(baddos)
       int    21H
       pop    ax              ;reset stack
       int    20H             ;and exit

a_mem  mov    ax, mem_avail   ;do we have room for the buffers?
       cmp    ax, buf_size*2
       jae    a_help          ;yes
       mov    ah, @prnstr     ;no, bitch
       mov    dx, offset(nomem)
       int    21H
       pop    ax              ;reset stack
       int    20H             ;and exit

a_help xor    ch,ch           ;cx <== param count
       mov    cl, param_count ;  "
       cmp    cl, 00H         ;any params?
       je     aexit           ;return if none

       mov    di, offset(param_area)   ;scan for help request
       mov    al, '?'
       repnz                  ;repeat until matched or end
       scasb
       jnz    a_par           ;reached end, no match? skip
       mov    ah, @prnstr     ;found ?, so print help
       mov    dx, offset(help)
       int    21H
       pop    ax              ;pop stack
       int    20H             ;and exit

a_par  xor    ch, ch                  ;cx <== param count
       mov    cl, param_count         ;  "
       mov    di, offset(param_area)  ;scan for options
```

```
a_loop mov     al, '/'                  ;will be marked with /
       repnz                    ;repeat until matched or end
       scasb
aexit ret

baddos db      cr lf 'This program requires DOS 2.0!' cr, lf, '$'

nomem  db      cr lf 'Insufficient memory, program aborted  cr lf

help   db      cr lf
       db      'SOFTCR version 1.0' cr lf
       db       cr lf
       db      '18/12/88 by J.L. Elkhorne' cr lf
       db      cr lf
       db      'Syntax:  SOFTCR [?] [<infile] [>outfile]' cr lf
       db      cr lf
       db      'Reads stdin and writes to stdout.' cr lf
       db      cr lf
       db      'Options:' cr lf
       db      '    ?  = print this help message' cr lf
       db      cr lf
       db      'This program is in the public domain.' cr lf
       db      cr lf '$'
       endp

;=======================================
; SUBROUTINE PROCESS
;
;   1. load input buffer
;   2. convert each char, pass to output buffer
;   3. dump output buffer
;   4. repeat until EOF
;=======================================

process proc   near

bu1    mov     ah, @read        ;read
       mov     bx, stdin        ;from stdin
       mov     cx, buf_size     ;one buffer's worth
       mov     dx, offset(buf_in)
       int     21H
       cmp     ax, 00H          ;test for EOF
       jz      buexit           ;if so, done

       push    ax               ;save number of chars read
       mov     cx, ax           ;cx <== number chars read
       mov     si, offset(buf_in)  ;source is input buffer
       mov     di, offset(buf_out) ;destination is output buffer

bu2    lodsb                    ;al <== next char from buffer
       cmp al, cr               ;test if hard carriage return
       jne bu4                  ;no? skip
       or   al, low_mask        ;no, convert to lower case
bu4    stosb                    ;put in output buffer
       loop bu2                 ;loop until input buffer empty

                                ;dump output buffer
       mov     ah, @write       ;write
       mov     bx, stdout       ;to stdout
       pop     cx               ;number of chars read
       mov     dx, offset(buf_out)
       int     21H

       jmps    bu1              ;and loop until EOF

buexit ret
       endp

;=================
;GLOBAL VARIABLES
;=================
options  db  00H       ;byte of option flags

;=====================================================
;BUFFERS
;
; No space is actually allocated for the buffers.
; At run time, the program checks to ensure there
; is suffcient free memory, then uses the memory
; immediately after itself for buffers.
;
; This stratagy minimizes the size of the object file,
; and lets the program load quicker.
;=====================================================

buf_in                  ;input buffer

        org offset($+buf_size)   ;this is a trick to set the address
                                 ;the output buffer.
                                 ;the address of buf_out is set to be
                                 ;the offset of the input buffer, plus
                                 ;the buffer length.

buf_out                 ;output buffer
```

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MORE POWER TO YA

Helen Bradley helps you find information and ideas so that you too can become a POWER user of your software and hardware.

Recently I read a letter printed in the letters page of a UK computer magazine dedicated to the Amstrad PCW. The writer of the letter told the story of a friend of his who was using the Locoscript package on his PCW. The friend was producing a document about a Shakespearean play which constantly referred to a character who had a long and complicated name which the friend laboriously typed every time he encountered it.

Now readers of The Amstrad User who use Locoscript will by now be shaking their heads in wonder at the actions of the friend as they will know full well that there is a far easier and more accurate way of doing this - you will, won't you?! Of course what the friend should have done instead of repeatedly typing the long and complicated name was to type a few unique letters in his document (eg. ***) in every position that he wanted the fancy name eventually to appear. When the document was complete all he had to do was to find and exchange all the occurrences of the unique letters (***) with the character's name using Locoscript's find and exchange utility and voila, it would all be typed in for him, saving effort and always ensuring correct spelling.

The writer of that letter pointed out to the magazine's readers that he had wondered at his friend not knowing how to do this. But on investigation the problem was that the friend had never dared to use the FIND/EXCHANGE key on his PCW as he did not know what it did. He had learned enough of Locoscript to get the program working to print his documents but as to the finer points of the program - he knew naught.

The magazine printed the letter not so much for the tip regarding Locoscript but because it was evidence that there are a lot of users out there who are not power users of their software and further that what may be self evident to one user may not be so to another. The editor pointed out that it is important to take time out now and again to look back at the manual and go over the familiar and not so familiar material. There may be some keys or functions that you have never used which may prove helpful to you.

YOU NEVER STOP LEARNING

Using your software programs to their greatest potential is not something that you can learn overnight. Computers are complex pieces of equipment and powerful software packages like Locoscript, Wordstar, Lotus 123 and dBase take time and effort to learn well and thoroughly. The problem with many users is that they expend all their learning energy when they first start to use a program. They will read their manuals and make every attempt to learn about the program until they have it up and running and as soon as it is, they put the manual away and forget about it.

I believe that the most important time to read the manual for a piece of software is often not when you are getting a program up and running but when you have been using it for a while and you are familiar with its basic use.

At this time if you re-read the manual you can skip over the parts which deal with the basics of the software (or just skim-read them since you should already be familiar with these) and you will be able to concentrate on the software's more detailed aspects.

I write magazine articles freelance and to do this I use Multimate Advantage II running on an IBM clone. Multimate has a facility to import ASCII text directly into its documents using a CRTL-6 key combination. I use this extensively to insert copies of programs or copies of Spreadsheet files etc., into the text so that what I use are actual copies of working originals and not retypes. This reduces the possibility of error and saves me re-typing examples and listings.

The ASCII files that I use are created outside Multimate and they are files that I have created using another text editor or .PRN files that have been created by directing spreadsheet output to a file rather than the printer. The point is that by the time I come to import them into a Multimate document they could have been created a few days before and they could be anywhere - 40 meg of hard disc space is a lot of room to lose files in.

I always give my files names which relate to their contents so that the files which relate to a cashbook article that I am writing will be called CASHBOOK.DOC, CASHBK.TXT or CSHBK.PRN etc. Being organised but not well organised, I do know that they will be called something like those names but I'm not sure exactly what they are called, in fact, I need to have a look at a list of the files in a sub-directory before I can be sure what the file's actual name is.

There up until now has been my downfall. When you press CRTL-6 in Multimate you are prompted to enter the name of the document that you want to import - or press F6 for a directory. Now I am constantly over estimating my ability to recall file names and it has been my habit to blithely enter a name and then press F10 only to be confronted with the inevitable error message FILE NOT

FOUND. PRESS ANY KEY TO CONTINUE. On pressing a key I am returned to the menu to retype the name of the file to be imported. By now some doubt has crept into my mind as to my recall abilities; I press the promised F6 to get a list of files and lo and behold -, the screen clears in anticipation of providing me with the file listing but nothing else happens - no listing.

I have then rationalised (incorrectly) that a listing cannot be obtained and for some time now I have been saving the document that I have been working on, exiting the wordprocessor and going into DOS to find the document and its path name and when I have written it down then going back into Multimate armed with the information that I require and importing the text the usual way. When I look back I cringe with embarrassment to think of what I have been doing and the waste of time and effort but this is a good example of a system that works (albeit laboriously) and a lack of realisation on my part that things could be any different.

The enlightenment came only days ago. A student of mine was having problems with an aspect of Multimate's merge function and I had gone to the manual to look for an answer to the problem. When I had finished reading the relevant section of the manual and felt that I had the problem licked and having naught else pressing to do I sat back and browsed through the rest of the manual. It was most enlightening.

Not only did I pick up a few pointers to save time and keystrokes in other areas of Multimate (any one of which would have made the exercise valuable) but I read that you can use the wildcards * and ? to build a search request when you are getting a document directory from within Multimate.

In the end this was not the immediate solution to my problem but I thought it was and I was inspired to spend some time playing around with file directories in Multimate until I came up with the solution.

What threw me was that if I pressed CTRL-F6 and then straightaway pressed F6 to get a directory it all worked perfectly. But this was not my modus operandi. My habit was to type in a file name and when that was incorrect (as it often was) then to request a directory with less than spectacular results. What was happening was that the incorrect file name still appeared in the menu area when I requested the directory listing and the program went looking for a file whose name directly matched the incorrectly entered name, no wonder it didn't work, the file was not there - I knew that much already.

Now when I delete the incorrect file name before I request the search it all works without a hitch. Multimate looks for, and displays, all files in that subdirectory. It is a salutary example to me of what benefits can be obtained by reading the manual.

ROUND AND ROUND AND ROUND AND...

My second tale is almost equally revealing. It concerns Lotus 123 and involves the concept of circular functions. Circular functions, in spreadsheet terms, are somewhat tantamount to encouraging a dog to chase its own tail. A circular reference will be created if you enter a formula into a cell where that formula, itself, contains a reference to the cell containing it. The result is that Lotus cannot ever arrive at a sensible calculable answer for the contents of that cell because for every recalculation the answer is different from the time before.

Eventually Lotus throws in the towel, refuses to recalculate any further and puts a little CIRC message at the foot of the screen. Now this is not a problem that I generally encounter myself, but as I teach Lotus 123 at the local TAFE college it is a common occurrence among my students. Unfortunately they generally do not see the CIRC message until long after the incorrect formula has been entered into the spreadsheet and in consequence precious class time is wasted trying to find the cell that is causing the problems so that I can show them the cause and help them right it.

Well I used to waste a lot of time until I - you guessed it - read the manual. You see if you know how to ask then Lotus 123 will actually tell you the cell reference for the cell which contains a Circular function.

Press /Worksheet Status and there is a list of cells containing circular cell references - easy when you know how. Now I waste much less time and my students can easily trouble shoot the circular references themselves with far less input needed from me.

In each of the three problems that I have outlined (and I can think of any number of similar stories that I have encountered) the solution would not have come to light unless someone, sometime, read the manual (or talked to another user or read a book or read a magazine or made some active attempt to find the answer). The situations that I and the letter writer's friend encountered are often only experienced with use of a package and only after the software has been learned well enough to get it to work at a rudimentary level. By now the manual is collecting dust on the shelf and the user is compensating for his/her mistakes with systems that may often work but are slow and cumbersome.

My definition of a power user is a person who uses all the functions of a piece of software to their fullest. This doesn't mean that you need to be fully conversant with the database features of your spreadsheet if you only use it for financial modelling and it doesn't require that you are a whiz at mail merge if you use your wordprocessing package to write fiction books. What it does require is that you use the functions which your software has, so far as they apply to your needs, to their fullest.

HINTS FOR WOULD-BE POWER USERS

Here are a few tips to help you become a power user:

- Read the manual for your software and keep reading it. You will be amazed at what you find.
- Read magazines. These are the source of up to date information on

..."More Power To Ya" continued from page 47

the software and hardware that you are using. Magazines also print tips and tricks from other users that are often written in a way that makes them more easily understood than the manual. Finally they are also the source of undocumented information - the stuff not in the manuals.
- Read books. Though I err towards reading magazines rather than books, there are lots of good books dedicated to teaching you particular software packages in a way that you may find is easier to understand than the manual. There are also books that take you further than the manual does into the more powerful applications and functions - steps towards becoming a power user.
- Join a User Group. If there is one near you then join it and go to the meetings. You will always find that there are people more knowledgeable than you at these meetings who are more than willing to share their knowledge with you. Computer people are a breed apart and their capacity to share their knowledge freely for the benefit of all is legend.
- If you have access to a modem and a comms package then consider joining a bulletin board. Riccay Schmahl's Amstrad Board (02) 981 2966 in Sydney has separate areas for each computer in the Amstrad range so you can share trade and communicate with other CPC, PCW or PC users.

To become a power user takes effort, it is not a gift from above, but it is something you need to do yourself. You will find it rewarding though; it's a real buzz to be using your software and your hardware to their fullest and then some.

When you find something useful or have an idea worth sharing with other users then please tell us all. The Amstrad User has pages each issue devoted to tips and tricks and there is satisfaction in seeing your ideas in print. Maybe out there is someone with a problem that you know the answer to who is just waiting to read your tip so go on - put it down on paper and send it in.

A PISCINE TALE

Or how to convert a normally devout non-games player to the joys of adventure gaming in one easy lesson! Mike Turner looks at FISH! from Magnetic Scrolls.

Let me set the record straight from the start. I am not opposed to computer games, but moreover I dislike some of the mindless arcade type "Shoot "Em Ups" that seem to waste hours of my children's time. I do however like flight simulators and other challenging mind type games such as Trivial Pursuit. Another great type of game is the adventure game or interactive fiction.

Infocom is famous for this type of game with perhaps the best known of their games being "Hitchhikers Guide to the Galaxy". This type of game can be both challenging and infuriating at the same time depending on just how well you are doing. If you are not into adventure games yet, I can assure you that you will be hooked (pardon the pun) after playing FISH.

Most of these games are text oriented, although FISH does include graphics; but more on that later. FISH comes to you from the authors of such award winning classics as The Pawn and The Guild of Thieves. It is full of the unexpected and loads of fun to boot. Enough of the preamble what about the game? Ok I give in.

FISH is available for the AMSTRAD PCWs and PCs. The PCW version fills both sides of an A drive CF2 disc. All sorts of useful and some quite amusing documentation accompanies the disc. There is a list of loading instructions and controls to enable you to quickly get the game loaded and start your adventure. FISH is one of the best documented games I have come across.

Things are not going well in the teeming metropolis of Fishworld. The oceans are boiling off into space and a top secret project has been sabotaged. The Seven Deadly Fins are on the loose and it looks like you won't get to enjoy your vacation after all. Still life's like that, isn't it.

You play the part of Secret Agent 10 of the Department of Inter-Dimensional Espionage. When you start the game you are a goldfish. Er, well you aren't really a goldfish except when you're on vacation. "But why are you a goldfish at all?", I hear you ask. The answer is really quite simple once you understand that Inter-Dimensional agents can move through time and space and end up in other people's (or even fish's) bodies.

As you may have guessed, your arch enemies are a group of inter-dimensional anarchists called The Seven Deadly Fins, who will stop at nothing to destroy all forms of life as we know it. The Fins carry out all their dastardly crimes with the aid of a technique called warping. Warping allows them to move around between different dimensions and take over the bodies of other beings. This makes their detection and capture quite hard. Luckily you and some other crack operatives have been trained in the techniques of warping in an effort to thwart the Fins at their own game. To assist you the program documentation contains a dossier from Mission HQ. It contains instructions on warping for trainee operatives and all the information available on the Seven Deadly Fins.

The dialogue in the game is easy to understand and at times highly amusing (the programmer must share my warped sense of humour). You may type in commands in full or use abbreviations such as I for

inventory, N for north, S for south and so on. You can even ask for hints if you are really stuck. But beware of this information falling into enemy hands! You will have to use a special code to get the answers to your questions.

There are graphics included in the game although you can operate with them off if you wish. I found the graphics pretty good by PCW standards and preferred to leave them on. You may vary the size of the graphics window with the ↑ (UP ARROW) or ↓ (DOWN ARROW) keys to display any amount of text lines you wish.

Every now and then Sir Playfair Panchax (your boss), contacts you and asks you to confirm your identity, after all you can't be too careful with the Fins around subverting operatives. You are asked to provide the answer to his question from within the accompanying documentation. This is obviously an attempt to thwart software pirates. I gave a wrong answer once to see what would happen and was given another chance to identify myself, although not allowed to continue with the game in the mean time. I was never quite game enough to continue giving wrong answers to see how long it would take to get spat out of the game; just in case it did something nasty like wipe the disc as well.

Your travels will take you from rain soaked forests and London recording studios to the farthest reaches of time and space as you endeavour to complete your mission. Are the FINS stoppable? Can you save the project? You'll have to find out for yourselves. I for one, am having a great time trying. As the packaging says, "One Nibble and You're Hooked".

TIPS FOR BEGINNERS

For those not familiar with adventure games, here are a few ground rules. Most of these games are text oriented and you play the part of one of the characters in the story. As you move about you will meet various people and have to solve numerous problems or puzzles to achieve your objective. You converse with the computer by typing in commands in simple English.

The game program has an element called a parser which contains a list of stock phrases and key words along with the appropriate responses. Depending on just how good this parser is you may be able to issue multiple commands in the one sentence such as, "Pick up the book and go out the door". Some games limit your possible input as the parser won't recognise many of the words you type in.

There is normally an objective of some sort as the ultimate goal of the game; although quite often the fun is in the getting there, if you ever do. The trick with these sorts of games is to read the accompanying manuals thoroughly, as there are quite often valuable clues hidden in there amongst all the other tips.

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TRIPLETS FOR THE TAKING

Petr Lukes relates his change-over from the CPC to the PPC and takes a look at some shareware. Everything seems to come in threes: computers, disc sizes, operating systems, and BASICs.

If you own a computer now, you will probably own a different one within the next five years. (The five years is the Taxation Office estimate of the useful life of computer equipment.) The new computer will not cost more than the present one in money terms, which means that it will be about half the price in real terms (ie. after inflation has been taken into account), and it will be considerably smaller and much more powerful. It is also likely that it will not be compatible with your present one. We have already seen letters asking for help with conversions from one system to another; if you do not have this problem now, you most probably will have it soon and some of my experiences might help a little.

After nearly ten years of using computers based on the Z80 microprocessor (of which the AMSTRAD CPC464 was the latest), I somewhat reluctantly decided to learn a new operating system and a new microprocessor. The change involved getting the AMSTRAD PC1512, but a son decided that he needed it more than I did and I agreed to swap for an AMSTRAD PPC512. This involved me in yet another disc size: I now have a conglomeration of programs and utilities on 3", 3.5" and 5.25" discs, and I expect to be able to use most of them both on the CPC (which I intend to keep until it asks for repairs) and the PPC.

I would not presume to advise AMSTRAD on their marketing policy, but I think that the PPC could have been promoted as a home computer rather than just a portable business machine. It is not much of a games machine, but is eminently suitable for more mundane applications such as word-processing. It has one great advantage: it avoids the problem of a conventional monitor dominating any room it is in. Although not promoted as such, it can be used as a lap-top, and can be disguised as a flower pot stand when not in use, so possibly contributing to domestic harmony.

ONE OPERATING SYSTEM TO ANOTHER

The three operating systems in the heading are CP/M-80 of the CPC, the CP/M-86 (DOSPlus) supplied with the PC1512, and MS-DOS of the PC and PPC. I did not want to get involved in serial communications and chose to transfer data by copying from disc to disc. The CP/M-86 provided a bridge between CP/M-80 and MS-DOS, being able to read and write the CPC IBM format as well as the MS-DOS format. I no longer have the right to use it without breaching copyright laws and the licence agreement, but there is a Shareware utility which can do the same and more: all kinds of CP/M-80 formats can be defined, and CP/M-80 software can be run under MS-DOS. More about it later.

This left the problem of disc sizes. Both the CPC and the PC1512 had a 5.25" drive attached, and the PPC has an expansion port which, I think, is designed to allow the connection of an external drive. The information should be in the Technical Reference Manual, but there do not appear to be any copies of it in Australia at the moment. Since my PPC has a single drive with all the wiring for a second drive in place, I decided to try to connect the larger drive to the spare connector. The information I have seen says that all the three different sized drives expect the same signals on the same pins with minor variations: the 3" needs a READY signal whereas the other two do not, and the 3.5" does not use HEAD-SELECT.

Getting to the B connector was quite simple: just two screws hold the top cover of the drive compartment, and gentle tugging brought the connector out of the inner drive compartment. The 3.5" connector is the same as the 3" connector, a 34 pin female plug designed to be inserted into a socket mounted on the drive. Needless to say, I could not find a suitable connector to make an adaptor for a 5.25" drive, and had to resort to using another female plug. After clamping about half a metre of ribbon cable with a regular 34 way card edge connector on the other end onto it, I stacked the two plugs on top of each other, and connected the bottom row of pins of one to the bottom row of the other, and the same for the top row.

It is essential that the wiring does not get crossed; unlike the CPC cabling, the PPC follows the convention of marking the wire 1 with a different colour (red in my case), and this wire must lead to pin 1 on the 5.25" connector. The drive and the computer should not suffer any damage if the cabling gets crossed, (it happened to me when I was connecting the 5.25" drive to the CPC), but the setup just will not work. The resulting extension is not pretty, but it has worked for about a month without any significant

trouble. The external drive must, of course, have its own power supply.

So far I have not tried the 3" drive, but there is no reason why it should not work if the READY signal is faked by earthing pin 34. I have voided the guarantee by opening the machine, but I think that if something is going to go wrong, it will happen either in the first month of use or just after the guarantee expires. As soon as I get the necessary information, the bird's nest will be removed and replaced by a proper extension.

THE BASICS OF BASIC CONVERSIONS

And now to BASICs. The conversion of CPC BASIC to BASIC2 and GW-BASIC was covered in TAU, December 88. The PPC comes without BASIC, but the Shareware P-BASIC is apparently fully compatible and runs on the PPC with no problems. It appears that AMSTRAD have dropped the Locomotive BASIC2 on the new machines; the PC20 comes with GW-BASIC, so we may have one less version of BASIC to worry about. However, the third BASIC of the title is not BASIC2, but the CP/M-80 MBASIC.

There is a P.D. disc with an MBASIC-compatible compiler, which I was interested in. On the same disc is an MBASIC program called DESKMATE, which, the catalogue claims, "runs just as well under BASICA". Having looked at the compiler, I decided to try the DESKMATE. It loaded into P-BASIC without any trouble, but had a definitely strange appearance when listed, like having XOR where logic would indicate that the equal sign would be appropriate. After a while it dawned on me that it must have been saved in the internal (tokenised) form of MBASIC and while P-BASIC could convert most tokens (such as PRINT, IF, REM, etc.) correctly, some meant very different things to the two BASICs. Just for interest sake, I saved the program in ASCII (with the "a" option), loaded it into a word processor and proceeded to replace the obviously wrong commands by the most likely correct ones. It took three tries, but eventually the DESKMATE ran under P-BASIC.

A similar trial with CPC BASIC saved in the tokenised format failed, but that does not mean that it could not be done. The MS-DOS P.D. software includes a program called READBAS.BAS, which can read tokenised P-BASIC and convert it into ASCII text. It could be adapted to read other BASICs, but a far simpler solution is to save any BASIC in ASCII if there is any likelihood that it may need to be transferred to another system.

UTILITIES AND SHAREWARE

Now to the utility which can read CP/M-80 discs and run CP/M-80 software: I have not tried running CP/M-80, so I cannot vouch for that part. From my reading of the manual it appears that the original CP/M-80 is not required at all, the routine simply replaces it. There is no mention of CP/M+, so it may not be able to cope with that, but it claims to handle Z80 code. The CPC disc formats are not included in the definition table, but it is easy to include them. In case somebody wants to use the utility, here they are, copied from the DDI-1 manual:

```
    BEGIN
     ai  AMSTRAD CPC IBM
    DENSITY  mfm,low
    CYLINDERS  40
    SIDES  1
    SECTORS  8,512
    SIDE1  0  1,2,3,4,5,6,7,8
    BSH 3  BLM 7  EXM 0  DSM 155
DRM 63  AL0 0C0h  AL1 0  OFS 1
    END

    begin
     as  AMSTRAD CPC SYSTEM
    density  mfm,low
    cylinders  40
    skew  5
    sides 1
    sectors  9,512
    side1  0  41h,42h,43h,44h,45h,46h,
47h,48h,49h
    bsh 3  blm 7  exm 0  dsm 170  drm
63  al0 0c0h  all 0  ofs 2
    end

    begin
     ad  AMSTRAD CPC DATA
    density  mfm,low
    cylinders  40
    skew  5
    sides  1
    sectors  9,512
    side1  0  0c1h,0c2h,0c3h,0c4h,0c5h,
0c6h,0c7h,0c8h,0c9h
    bsh 3  blm 7  exm 0  dsm 179  drm
63  al0 0c0h  all 0  ofs 0
    end
```

I imagine that the PCW formats could be included in a similar way. The routine must be told the format before it tries to read it, it does not go through the table trying to find one that will fit. All my CPC discs were read without any problems. I have very little of CP/M-80 software, but eventually I may get around to trying to run something under the utility.

Shareware software can be obtained from many sources, but I will list where mine came from:

From SELECT SOFTWARE,
P.O. Box C343,
Clarence Street P.O. NSW 2000:

CP/M-80 disc with compiler and DESKMATE (cat. no. CP90).

MS-DOS READBAS.BAS on Special BASIC Aids (2) (cat. no. M5010).

From FREEWARE,
Freepost 3,
Newtown NSW 2042:

CP/M Transfer Utility (2 discs) (cat. no. PC3230).

I found P-BASIC locally, but both firms mentioned are advertising it. The name FREEWARE is, of course, a misnomer. Their 5.25" discs cost $12, post-free, while SELTEC charge $18 a disc plus $3 postage per order. My copy of the Transfer Utility arrived in record time; the order was mailed in Toowoomba just before the New Year's break, arrived in Newtown on the 3rd, FREEWARE processed the order and posted the discs the same day, and the mail person delivered them on the 5th. January.

IMPROOV YOU'RE SPELING

Troy Cox from Newtown in Victoria has sent in this simple yet very useful spelling tutor type-in. It's a great help for those words you keep getting wrong. The program also has plenty of room for your own style.

This program has been written to provide a simple spelling tutor program. It has been laid out to show you each separate module and what it does. Now it's up to you to develop it yourself. Troy has provided a well structured program, with room for you to personalise and develop it as you like. Have a go, and improve on your spelling at the same time!

Initialising...

```
CLOSE WINDOW 3
CLOSE WINDOW 4
CLS RESET
STREAM #1
WINDOW OPEN
WINDOW FULL
WINDOW TITLE "TUTOR2.BAS"
USER SPACE 640,200
DIM word$(100)
FOR i=1 TO 100
 READ word$(i)
NEXT i
```

Asking questions...

```
SET MODE 2
BOX 0;0,640,200 FILL COLOR 15
SET COLOR 0
GOSUB draw
REPEAT
 SET COLOR 15
 LOCATE 5;10:FOR i=1 TO 60:PRINT CHR$(27)+CHR$(5);:NEXT i
 SET COLOR 1
 INPUT AT(10;10);"How many words to be practiced";words
UNTIL words>0 AND words<250
CLS
```

This does the real "asking".

```
REPEAT
 SET COLOR 0 FONT 1 POINTS 10
 wword=INT(RND*99)+1
 CLS:BOX 0;0,640,200 FILL COLOR 10
 GOSUB draw
 SET COLOR 0 FONT 1 POINTS 10
 a$="The word is "
 MOVE 320-EXTENT(a$)/2;100:PRINT a$;
 FOR t=1 TO 550:NEXT:PRINT " .";
 FOR t=1 TO 550:NEXT:PRINT " .";
 FOR t=1 TO 550:NEXT:PRINT " .";
 PRINT word$(wword)
 FOR t=1 TO 1000:NEXT t
 a$=""
 FOR t=1 TO 60:a$=a$+CHR$(27)+CHR$(5):NEXT t
 MOVE 60;100:PRINT COLOR(10);a$;
 REPEAT
  LOCATE 5;10:PRINT COLOR(10);a$
  INPUT AT(10;10);"What was the word";try$
 UNTIL try$<>""
 IF try$=word$(wword) THEN correct=correct+1:m$="Correct !!"
 IF try$<>word$(wword) THEN wrong=wrong+1:m$="Wrong !!"
 SET FONT 2 POINTS 20
 MOVE 320-EXTENT(m$)/2;50:PRINT m$
 FOR t=1 TO 4020:NEXT t
 x=x+1
UNTIL x=words
```

Okay, let's see how we went...

```
CLS:BOX 0;0,640,200 FILL COLOR 7
SET COLOR 1 FONT 1 POINTS 10
GOSUB draw
a$="Your Results were:"
SET COLOR 10
MOVE 320-EXTENT(a$)/2;150:PRINT a$
a$=STR$(correct)+" words were spelled correctly and . . ."
MOVE 320-EXTENT(a$)/2;100:PRINT a$
a$=STR$(wrong)+" words were spelled incorrectly."
MOVE 320-EXTENT(a$)/2;70:PRINT a$
SET COLOR 15
a$="Do you want another go (Y=yes, N=no) ?"
MOVE 320-EXTENT(a$)/2;50:PRINT a$
REPEAT:k$=UPPER$(INKEY$)
UNTIL k$="Y" OR k$="N"
IF k$="N" THEN CLS:END
RUN
```

The border...

```
LABEL draw
 LOCATE 4;2:PRINT STRING$(68,42)
 LOCATE 4;18:PRINT STRING$(68,42)
 FOR i=3 TO 17
  LOCATE 4;i:PRINT "*"
  LOCATE 71;i:PRINT "*"
 NEXT
RETURN
```

Data for the words (80 of them)...

```
DATA active,Uranus,school,wanted,thought,couldn't,hasn't,editor,own,related
DATA label,structure,clock,diskette,Amstrad,model,owner,proud,edited
DATA first,last,second,impossible,known,couldn't,hurt,fastest,record,noted
DATA reckoned,didn't,software,hardware,peripheral,printer,monitor,console
DATA mouse,joystick
DATA compilation,compiled,compiler,author,written,added,unknown,could
DATA actual
DATA calculated,optional,extras,decided,considered,reasonable,payment,hit
DATA opened,closed,random,important,added,subtracted,listed,facilities
DATA lollies,acted,upon,drought,noticeable,after,external,device,internal
DATA speed,collection,protect,password,chair,wardrobe,helmet,blackboard
DATA motorbike,cassette,player,printout,arrange,information,order,cutting
DATA reading,England,Australia,America,football,cricket,check,cheque,cash
DATA money,denied,answered,correctly,incorrectly,adjusted,fitted,squashed
DATA pushed,accurate,filled,height,weight,clever,insist,consists,complied
DATA authorise,operation,saved,savings,accounts,ledger,conducted,sporting
```

CHKDSK, ARCHIVING AND MORE

With news, current affairs, tips, tutorials, bonus offers and more, Chris Collins is our expert PC columnist, this month discussing the external CHKDSK command and some archiving software.

Well, the time has come once again for all of you readers out there to read my meandering monologue about all things PC, and hopefully some things Amstrad.

That doesn't really sound at all like me, does it? Hello, and welcome to Compatibles Corner. This month we will be looking at approximately three diskettes, and probably a command or two.

To get things underway this month, I must admit that I haven't heard a lot of gossip on the grapevine lately. New programs and updates are always arriving but the only news heard this month relates to Amstrad narrowing down the range of dealers that will be able to sell the 2000 series machines. But we all knew that was coming anyway.

Image-3d was one of the diskettes that we looked at last month. A new update has arrived from the USA, and now bears the version number 2.6 (up from 1.8). Only one program is needed now, and it supports CGA, EGA and VGA so it will cover all of the current PC range. There don't appear to be many other changes, but at the moment I haven't had a chance to check it out more thoroughly. All people ordering Image-3d have received the new version.

THE CHKDSK COMMAND

The command for this month is CHKDSK. CHKDSK is used to analyse the directories, files and the file allocation table on the designated or default drive, and produces a disc and memory status report.

The syntax for this command is:

```
[d:][path]CHKDSK
[d:][path][filename[.ext]][/F][/V]
```

If we break the command line down into little bits, we can see that the first [d:][path] tells DOS where to find the CHKDSK command.

[d:][path][filename[.ext]] tells CHKDSK that you wish it to specifically check a group of files. If not specified, CHKDSK assumes the default drive, all of its sub-directories and all of its files.

[/F] is used to have CHKDSK fix any errors that it finds in the directory or file allocation table. If you do not specify /F, any errors that CHKDSK finds will not be written to disk.

[/V] will force CHKDSK to give you a verbose listing of all files and directories on the specified drive.

If CHKDSK does find any errors and you specified the /F switch on the command line, CHKDSK will write the errors to a group of files called FILEnnnn.CHK. The nnnn is a sequential number beginning with 0000. These files will be created in the root directory of the disk, and can be examined with a file or text editor. If you do not want to keep them after checking the files simply erase them and free up the space for future use.

CHKDSK will not work on network drives, or on drives involved in a SUBST or JOIN command.

That I think is enough work for this month. Let's get on with the new software for you all to check out.

ARCHIVE TOOLS

As we saw in last month's ARCHIVE TOOLS diskette, there are many different ways of archiving files and data. This month we will take another quick look at ARCHIVE TOOLS 1 and we will take a first look at ARCHIVE TOOLS 2.

Archive Tools 1 contains the following files:

PAK16.ARC - This is the latest edition of the new archiving program PAK. This program is written by NO-GATE computing and consistently produces .PAK files that are approximately 10% smaller than an equivalent .ARC file. However, this extra compression does have a major cost, speed. PAK is no speed demon, being approximately twice as fast as ARC, but this still makes it twice as slow as PKARC. If you need speed, use PKARC. If you want compression, use PAK.

PK-KIT71.ARC - This is a collection of utilities designed to work with PKARC. The utilities include:

CLNARC.EXE which allows selective deleting of unwanted files from selected archives.

CHKARC.EXE allows you to check the integrity of your archive files. This is the equivalent to using the -t switch in PKXARC or ARC.

REARC.EXE will go through and re-archive all of your archive files. When PKWare releases it's new compression method, the author promises to update the program to include the new method.

ARCCOMNT.EXE is used to put a comment in the archive. This is not a file by file comment but simply a comment in the archive title. Can be used as free advertising by Sysops who bring in files from overseas.

PK361.ARC is the latest incarnation of PKWare's compression utilities. The new version has now a name change to PKPAK and PKUNPAK from the older PKARC and PKXARC. This has resulted from a court case between PKWare and SEA (the originators of the .ARC format file). However, I have renamed my copies to PKPAK and PKXPAK, and there is nothing to stop you doing the same thing. Or you could even rename them to PKARC and PKXARC if you liked.

ZOO201.ARC is a new method of archiving, yet to gain a lot of acceptance in the PC community. It produces files with a .ZOO extension

that are basically the same size as those produced by PKPAK, but it does it with the speed of PAK. Not much use, but supplied in case you come across a .ZOO file on a BBS.

Normally PAK16.ARC, PK361.ARC and ZOO201.ARC would be self extracting files as are supplied on most BBSs, but for the diskette I have removed the self-extracting code to make the files smaller, and to fit them all onto the diskette.

Archive Tools 2 contains the following files:

ARC530.ARC - This is the latest version of the original ARC program. It comes from SEA, and is the grand-daddy of all the current archiving programs. Very slow, but put on this diskette to show you how it was done in the beginning.

ARCCAT.ARC is a cataloguing program for .ARC files. It will look through all of your archive files, give you the title of the archive, and a complete file listing of all the files in that archive. Very handy for keeping track of old data files, and finding in which archive you put them.

IDC.ARC is the third program on this diskette, and comes from a company called Infinity Design Concepts. It is two programs in one! It includes a DOS shell called IDCSHELL, and an archiving program called NARC. IDCSHELL can be used for all your normal DOS uses, including moving, copying, deleting and many others. It can tag files from a directory for archiving, and can also call NARC if you need to look into an archive file. NARC is the archiving program and allows you to do almost everything that you require for an archive, all from a menu system. An incredible pair of programs.

LAR22.ARC is probably the latest version of the earliest type of compression program. LAR originates from the old CP/M days, and creates .LBR files. Compression was never a strong point in a library file, but it did manage to keep a collection of files together.

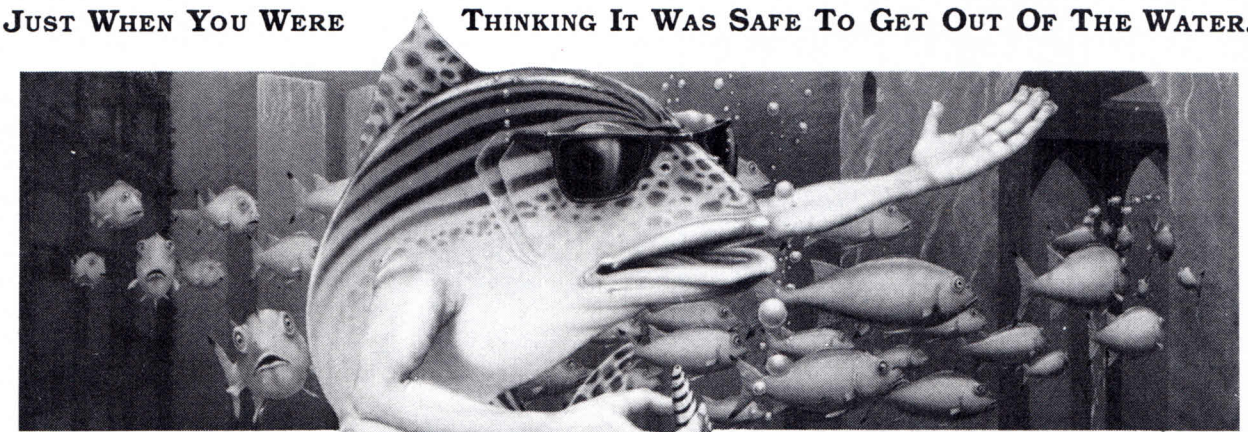
PCSQ-USQ.ARC is the last of the utilities on this diskette. This one also comes from the CP/M days and this pair of utilities are ofen referred to as SQUEEZE and UNSQUEEZE. They do compression of files, but they don't allow you to group files together as in an archive.

PKXARC.EXE is also on both diskettes to help you unarchive the files that I have given you. Also on the diskettes is README!.COM to help anyone that gets into trouble. Look for ARCHIVE TOOLS 3! Coming soon to a computer system near you.

The last diskette for this month is another EGA special. CAPTAIN COMIC is an EGA graphical adventure game. Part one of the game has been released and almost totally occupies one diskette. The idea is to make your way around the world collecting treasures of one sort or another. But just to make it interesting, it also travels to the moon. But remember that the 'world' on this adventure is not EARTH! It must be seen to be believed!

Well, I think that's all for this month. I hope to have more for you next time, including a bonus for all you Mean 18 players out there. Until next month, don't get any viruses!

JUST WHEN YOU WERE THINKING IT WAS SAFE TO GET OUT OF THE WATER.



FISH!

And you're a goldfish.
Tough. But then life's like that. Sometimes you're dealt a raw deal. Toast falls buttered-side down. Phones ring while you're in the bath. And there's always chili sauce on your kebab.
From the rain-soaked forests and London recording studios to the farthest reaches of time and space, Fish! will bemuse, dazzle and thrill you before confusing, razzling and killing you. So, dust down your tackle, dress up your flies, reel in a winner and play Fish!

The tide is turning in the teeming metropolis of Fishworld. The oceans and seas are boiling off into space. The Seven Deadly Fins - an inter-dimensional group of anarchists - are on the loose. The project has been sabotaged...

ONE NIBBLE AND YOU'RE HOOKED. FISH! BY MAGNETIC SCROLLS IS AVAILABLE ON THE AMSTRAD PCW, PC1512 (TEXT ONLY) AND PC1640 FOR $69.95. SO WATER YOU WAITING FOR?

ADVENTURER'S ATTIC

This month Philip Riley investigates a new encoding/decoding program for adventurers, with some questions and answers thrown in to help those going nowhere fast.

This month we start a series of articles on a new encode/decode program for Adventure writers. The program is an input program, this allows you to input your data to the computer and then save it to disc or tape. The second program is a compact program, this is the encode section, it encodes the data into a smaller memory area. The third and final program is the decode program, it is a small machine code program that decodes the encoded data back into its original format as each piece of data is needed (don't worry, all the people out there who know nothing of machine code - you will be able to use this program without any worries at all).

This month we don't have any listings, just an explanation as to how the system works. The first major problem with the idea was to get a fast encode/decode program. You may remember the old program (issue 23 & 24) that was written in BASIC; it was too slow due to the poor string handling of the Amstrad. I also wanted a program that was not only fast but could compact the data even further than the old program (yep, that's right. "To boldly go where no data has gone before").

I thought over a few ideas and finally came up with the idea of saving characters in BITs rather than BYTEs. In fact this system can save up to four characters in one BYTE. How do we do this miracle? Simple. We firstly divide the characters we want into groups of four as shown in diagram one.

As you can see we have 16 groups numbered 0 to 15. Each group has four characters in it. For those of you who don't know or have forgotten about BITs and BYTEs I will now jog your memory a little to the very basics of it. You have 8 BITs in a BYTE. You can't put it much simpler, can you? What some of you may not realise is that you can check the BITs individually or in groups to see if they are set or not.

We can in fact store our characters in BITs. We have four characters in a group so we use four of the eight BITs to represent these characters. If a BIT is set, then print the character. If the BIT is not set, then don't print the character. This leaves us with four BITs left over; these are used to tell the computer which group of characters it should be looking at.

The BITs are used as diagram 2 shows.

Now you may be asking yourself why all of the characters are jumbled up like that. The answer is simple: these are the most common groupings of the letters of the alphabet when used in sentences. How do I

Character division into groups of four.

0	1	2	3
i n g space	s t . space	h e r space	q u a space
4	**5**	**6**	**7**
c o w space	b l y space	j m , space	k x d space
8	**9**	**10**	**11**
S f p space	A B z space	C D E space	F G H I
12	**13**	**14**	**15**
J K L M	N O P Q	R T U V	W X Y Z

know this? Again it is quite simple. I sorted them out from some old data files and counted them all out. Well, I didn't count them - the computer did, I just looked at the results after the printer had printed them out.

One thing that you should know about this system is that you can only compact the characters if they are to be printed in consecutive order. You can save the characters 'ing' in one BYTE if they are to be printed in that order but to print the character 'gin' would take two BYTEs. You also cannot save the same character twice in one BYTE. This is due to the fact that the program first looks to see which group of characters is being represented, then checks the next four BITs in order to see if they are set or not.

Next month we will publish the input routine with an explanation of how it works - if I can figure it out myself, that is. Yes, I know I wrote the thing but that doesn't mean I have to remember how it works, does it?!

James Green has also sent us lots and lots of maps to publish; they will be going in over the next few months as well. This is, as James puts it, his contribution to the plot to take over the mag. As you can see we are getting bigger all the time. Today The Amstrad User, tomorrow the World!

Well, until next month, keep on compacting your BYTEs and expanding your BITs.

Character identification BITs.

128	64	32	16	8	4	2	1
Store characters to be printed				Store group number			

QUESTIONS

A lot of questions are from James Green and concern Smugglers Cove. Where is the cloak? Where is the sword? Where is the statue? How do you dig with the spade?

Now we head back to Camelot, to the game of Lancelot. Rhonnda Cook would like to know how to get the harp from the Mermaid and James Green would like to know how to find the lift in Turquins manor.

Domenic Amenco is stuck in Knightmare. He has managed to get out of dungeon V but is now stuck in the next dungeon. No command he tries seems to work.

Finally, a message for James concerning Dracula. We cannot publish your request, as what you ask can in fact be classed as piracy. The only thing we can suggest is you send the tape back to Software House that produces it along with a large SAE and they may change it for you.

ANSWERS

James Green sent in some answers for Lancelot for 'some silly fool' (his words not mine) who sent in the questions some time ago. Let's just look back here. Ah, yes, here they are. That's right, they were sent in by James Green, I remember now. Some of the questions were answered last month but this one was not. To kill Nabon the giant ,hit him with the hand from his pillow. Thanks can also go to Rhonnda Cook for also answering this question. After all, why should all the fools get all of the attention? Rhonnda also sent in other answers, but they were answered last month and her letter just missed the deadline. Sorry about that, but that is the way things go sometimes.

Well, that's all we have for this month. One answer and nothing more - believe it or not!

Lancelot - the adventure!

Travel back to the Age of Chivalry when knights were bold, galloping across the countryside and rescuing damsels in distress.

Level 9 recreate the time of wizards and the Knights of the Round Table in their greatest adventure yet. Lancelot consists of three interlinked adventures, spanning the complete saga, from the foundation of the Order to its final hour - the quest for the Holy Grail.

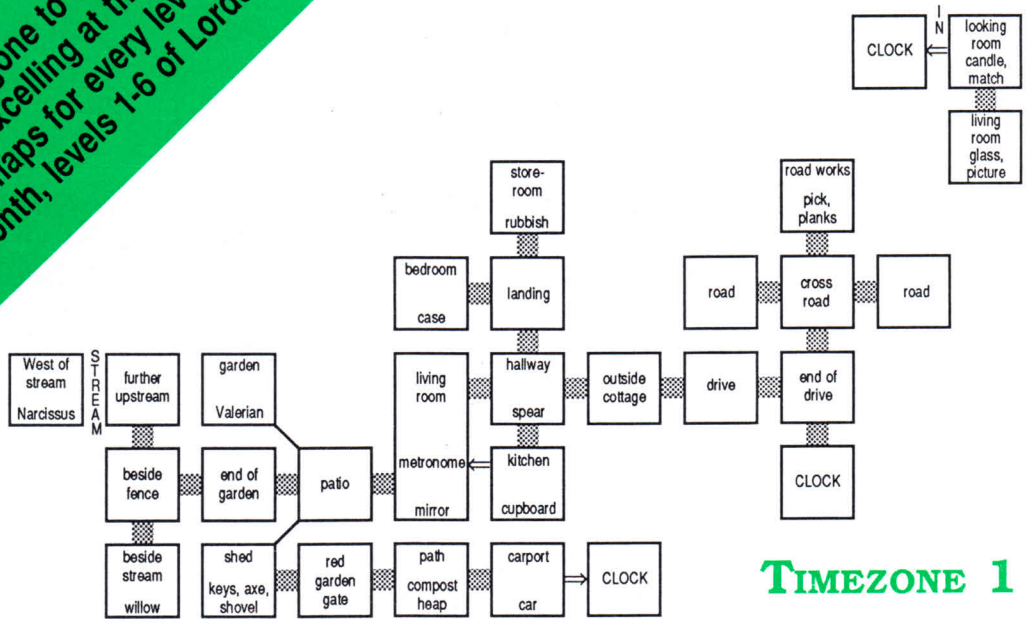
Guide Lancelot through his many exploits at Camelot, battle with wayward knights, and win the love of Guiniver and Elaine.

The Challenge which has fascinated treasure hunters through the centuries is now yours - and you'll need all your strength, wit and valour to achieve your goal.

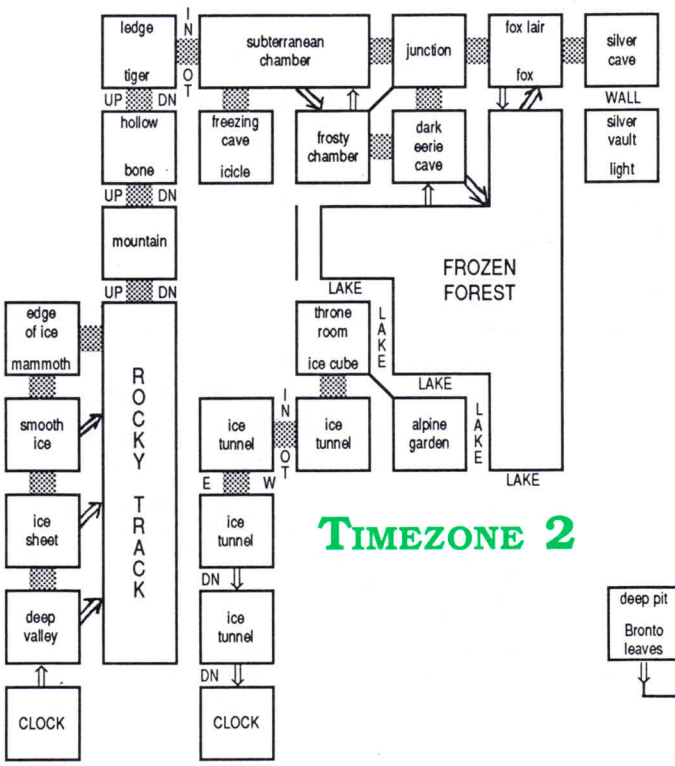
Available on: PC - $59.95, PCW - $59.95, CPC disc - $49.95, CPC tape - $39.95 from The Amstrad User, 641 High Street Road, Mount Waverley 3149. Ph (03) 233 9661

TIME AND MAGIK ALL MAPPED OUT

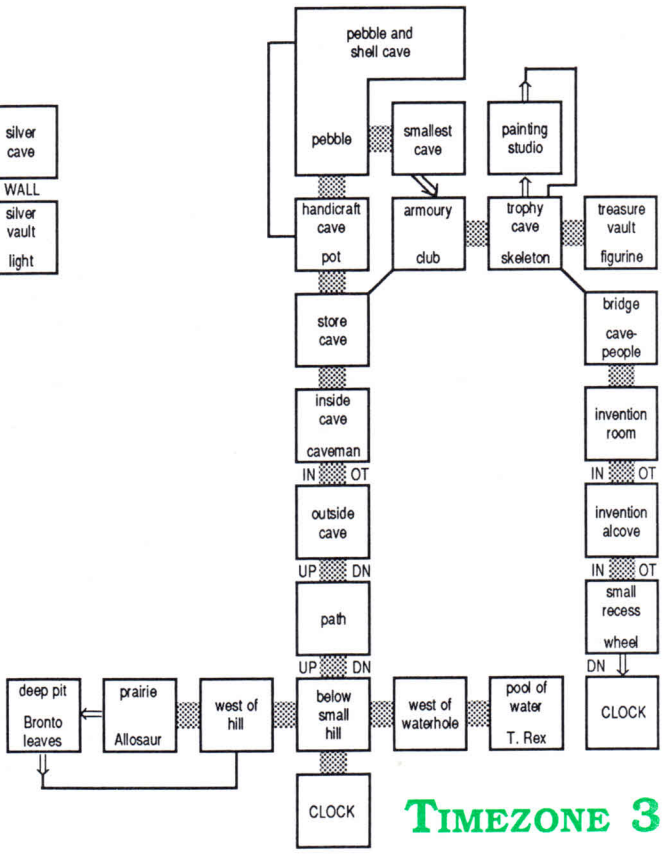
James Green of Rathmines has gone to some trouble to assist Time And Magik Trilogy players in excelling at these three rather vast games. Over the following months maps for every level of all three adventures will be published. This month, levels 1-6 of Lords Of Time are featured.



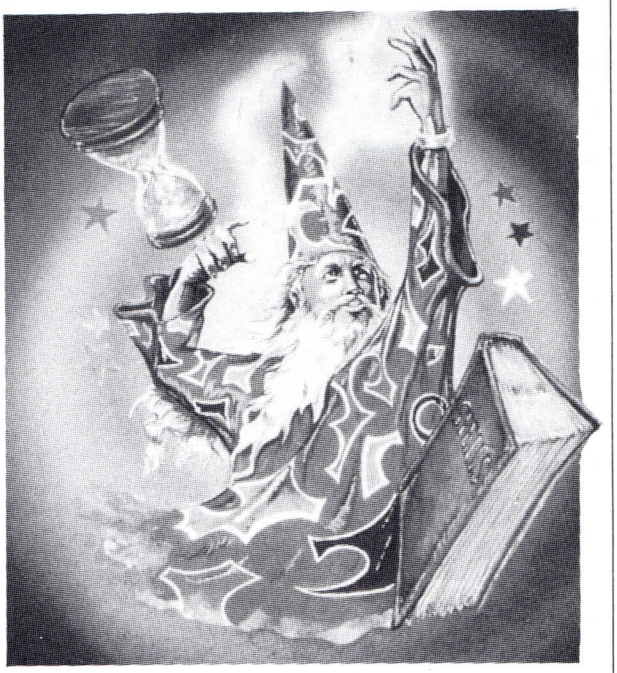
TIMEZONE 1



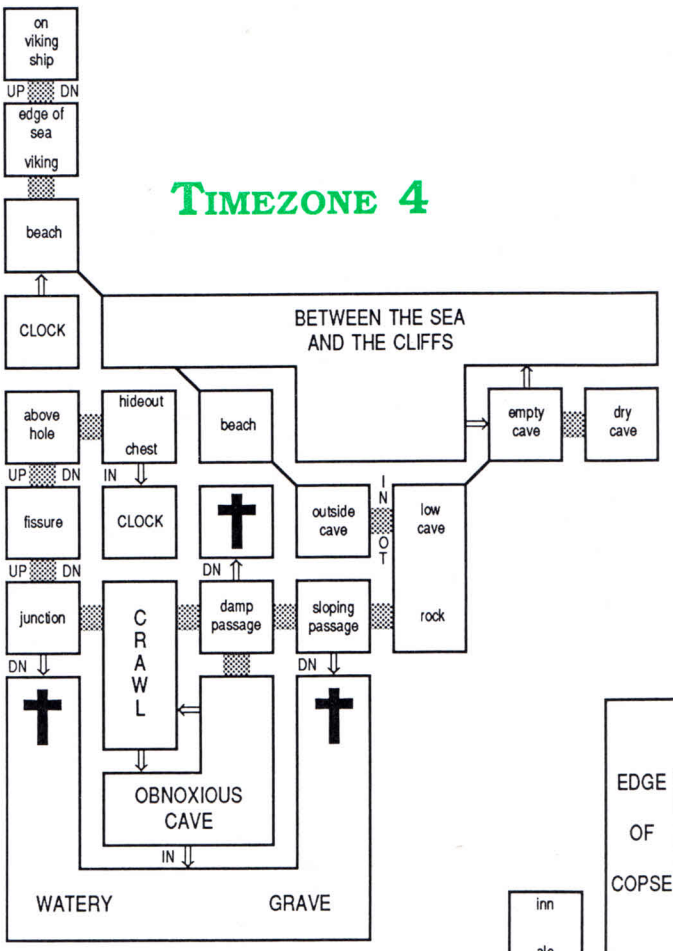
TIMEZONE 2



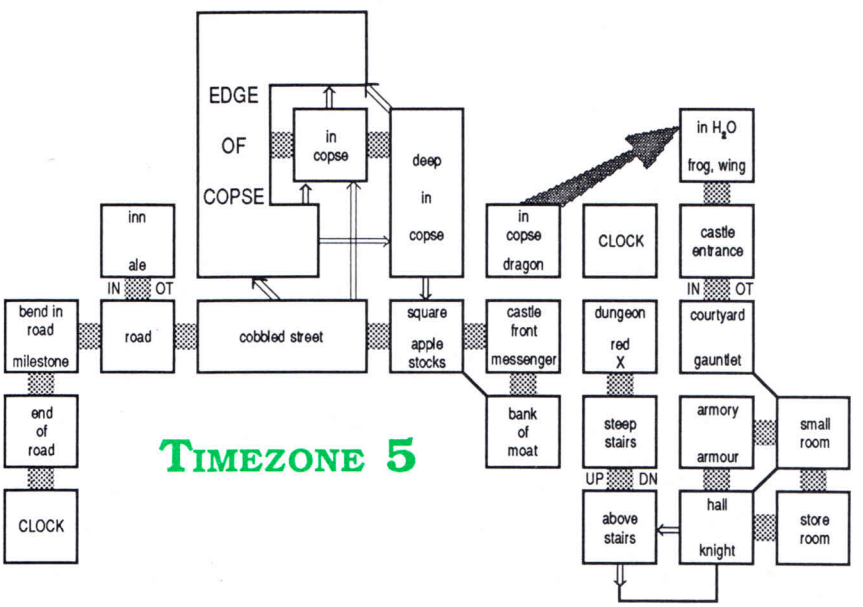
TIMEZONE 3



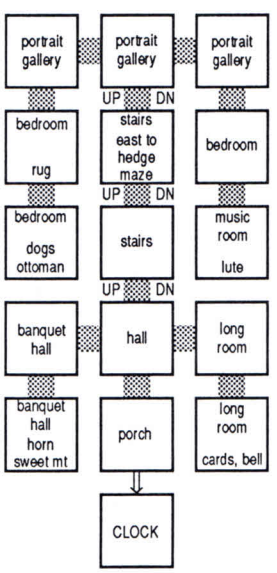
TIMEZONE 4



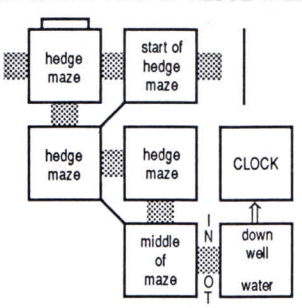
TIMEZONE 5

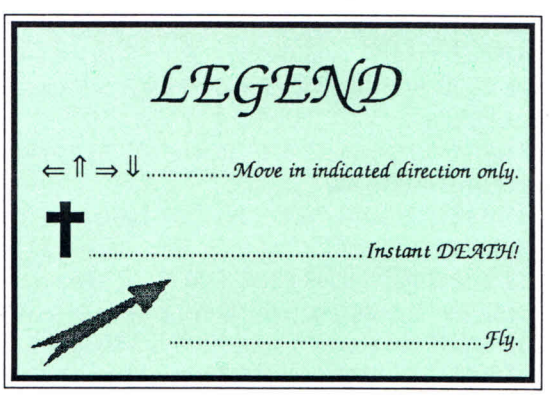


TIMEZONE 6



IMPORTANT PART OF HEDGE MAZE





THE CASTLE

Adventure junkies Barrie and Mark Eaton this month bring us part two of their Basic adventure program. You've got it all now!

```
1060 NEXT:r=0:1%=0:IF LEN(1$)<2 THEN RETURN
1070 FOR x=1 TO 34:IF LEFT$(get$(x),LEN(1$))=1$ THEN 1%
=1:r=x
1080 NEXT:RETURN
1090 GOSUB 1050:IF 1%=1 THEN 1110
1095 PRINT"You can't!": PRINT: RETURN
1100 RETURN
1110 e%=0:FOR x=1 TO 24:IF obj%(x)=posi% AND obj%(get%(
r))=posi% THEN e%=1
1120 NEXT:IF e%=0 THEN RETURN
1123 FOR x=1 TO 4: IF inv$(x)= "" THEN x=10: GOTO 1130
1126 NEXT: PRINT "Your hands are full!": RETURN
1130 IF r=1 OR r=2 THEN aa=1
1140 IF r=6 THEN ab=1:PRINT"You aren't fussy are you":P
RINT
1150 IF r=7 THEN ac=1
1160 IF r=8 THEN ae=1
1170 IF r=9 THEN af=1
1180 IF r=3 OR r=4 OR r=5 THEN PRINT"Don't be absurd":P
RINT:RETURN
1190 IF r=10 THEN PRINT"You can't":PRINT:RETURN
1200 IF r=11 OR r=12 THEN ah=1
1210 IF r=13 THEN ai=1
1220 IF r=17 THEN ak=1:GOSUB 2170
1230 IF r=19 THEN al=1
1240 IF r=20 OR r=21 THEN am=1
1250 IF r=22 THEN an=1
1260 IF r=23 THEN ao=1
1270 IF r=31 THEN ap=1
1280 IF r=33 THEN aq=1
1290 IF r=15 OR r=16 OR r=24 OR r=25 OR r=26 OR r=27 OR
 r=28 OR r=29 OR r=30 OR r=34 THEN PRINT"You can't":PRI
NT:RETURN
1300 e%=0:FOR x=1 TO 4:IF inv$(x)="" THEN inv$(x)=obj$(
get%(r)):e%=1:x=10
1310 NEXT:IF e%=0 THEN PRINT"Your hands are full!":PRIN
T:RETURN
1320 obj%(get%(r))=0:PRINT CHR$(7):RETURN
1330 PEN 3:PRINT"You are carrying :-":PEN 2:f%=0:FOR x=
1 TO 4:IF inv$(x)<>"" THEN PRINT inv$(x):f%=1
1340 NEXT:IF f%=0 THEN PRINT"nothing at all!":PRINT
1350 PRINT:PRINT:RETURN
1360 GOSUB 1050:e%=0:FOR x=1 TO 4:IF inv$(x)=obj$(get%(
r)) THEN inv$(x)="":e%=1
1370 NEXT:IF e%<>1 THEN PRINT"You are not carrying a ";
1$:PRINT:RETURN
1380 IF r=1 OR r=2 THEN aa=0
1390 IF r=6 THEN ab=0
1400 IF r=7 THEN ac=0
1410 IF r=8 THEN ae=0
1420 IF r=9 THEN af=0
1430 IF r=11 OR r=12 THEN ah=0
1440 IF r=13 OR r=14 THEN ai=0
1450 IF r=17 THEN ak=0
1460 IF r=18 OR r=19 THEN al=0
1470 IF r=20 OR r=21 THEN am=0
1480 IF r=22 THEN an=0
1490 IF r=23 THEN ao=0
1500 IF r=31 THEN ap=0
1510 IF r=32 OR r=33 THEN aq=0
1520 obj%(get%(r))=posi%
1530 RETURN
1540 IF posi%=9 AND aa=1 THEN PRINT"Well Done!  You hav
e found your way intothe castle":loca%(posi%,2)=10:loca
$(9)="swimming under water.Below you lies an  exit lead
ing south":PRINT:RETURN
1550 IF posi%=9 AND aa<>1 THEN PRINT"You have nothing t
o force it open with.":PRINT:RETURN
1560 IF posi%=25 AND ac=1 THEN PRINT"Thats done the tri
ck.The door is open":PRINT:loca%(posi%,3)=26:RETURN
1570 PRINT"You can't":PRINT:RETURN
1580 IF posi%=25 AND ac<>1 THEN PRINT"You need the righ
t object to do that":PRINT:RETURN
1590 RETURN
1600 IF posi%=24 AND ak=1 THEN PRINT"You unlock the doo
r with the large key":loca%(posi%,3)=25:PRINT:RETURN
1610 IF posi%=11 AND af=1  THEN PRINT"You unlock the do
or with the iron key":loca%(posi%,4)=14:PRINT:RETURN
1620 IF posi%=37 AND an=1 THEN PRINT"You unlock the doo
r with the silver key":loca%(posi%,3)=38:an=0:PRINT:RET
URN
1630 IF af<>1 OR ak<>1 OR an<>1 THEN PRINT"You don't ha
ve the key!":PRINT:RETURN
1640 RETURN
1650 IF posi%=12 THEN PRINT"A secret panel slides open"
:loca%(posi%,4)=13:PRINT:RETURN
1660 PRINT"You Can't":PRINT:RETURN
1670 RETURN
1680 GOSUB 1050
1690 IF posi%=14 AND r=18 THEN PRINT"A secret door open
s in the wall":loca%(posi%,1)=15:PRINT:RETURN
1700 PRINT"You Can't!":PRINT:RETURN
1710 RETURN
1720 IF posi%=15 AND ah=2 THEN PRINT"O.K! Consider it d
```

```
one":obj$(23)="stone cube":ah=0:PRINT:RETURN
1730 IF posi%=15 AND ah<>2 THEN PRINT"No point just yet
":PRINT:RETURN
1740 IF posi%=40 AND ao=2 THEN PRINT"You climb down.":P
RINT:posi%=3:loca$(3)="on the drawbridge.On the far sid
e is a  portcullis barring entry into the castleYou can
 see a rope dangling down":GOSUB 1840:RETURN
1750 IF (posi%=38 OR posi%=39) AND ao=2 THEN PRINT"O.K!
 You land in the moat.":PRINT:posi%=4:GOSUB 1840:RETURN
1760 IF posi%=3 AND ao=2 THEN PRINT"You climb up.":PRIN
T:posi%=40:RETURN
1770 IF posi%=38 OR posi%=39 OR posi%=40 AND ao<>2 THEN
 PRINT"You can't":PRINT:RETURN
1780 IF posi%=3 THEN PRINT"You can't":PRINT:RETURN
1790 IF posi%=27 THEN posi%=28:PRINT:RETURN
1800 IF posi%=28 THEN posi%=27:PRINT:RETURN
1810 IF posi%=4 OR posi%=5 OR posi%=6 THEN PRINT"OK!":P
RINT:posi%=2:RETURN
1820 IF posi%=7 OR posi%=8 OR posi%=9 THEN PRINT"OK!":P
RINT:posi%=2:RETURN
1830 IF posi%=3 THEN PRINT"You can't":PRINT:RETURN
1840 IF am=1 AND (posi%=3 OR posi%=4) THEN GOTO 2790 EL
SE RETURN
1850 IF posi%=15 AND ah<>1 THEN PRINT"There's nothing t
o climb here.":PRINT
1860 RETURN
1870 IF posi%=17 AND ae<>1 THEN PRINT"You Can't!":PRINT
:RETURN
1880 IF posi%=17 AND ae=1 THEN PRINT"That did the trick
. A secret door opens in the wall":PRINT:loca%(posi%,2)
=18:RETURN
1890 PRINT"You Can't!":PRINT:RETURN
1900 RETURN
1910 IF posi%=15 AND ah=1 THEN PRINT"O.K! It is in posi
tion":PRINT:loca$(15)="in a damp cellar.In the opposite
 corner high above the ground is a recess in thewall."
1920 FOR x=1 TO 4:IF inv$(x)=obj$(9) THEN inv$(x)=""
1930 IF ah=1 THEN NEXT:ah=2
1940 IF ah=2 THEN obj%(9)=posi%:RETURN
1950 GOSUB 1050
1960 IF posi%=31 AND (al<>1 OR r<>19) THEN PRINT"It has
 no effect":PRINT:RETURN
1970 IF posi%=31 AND al=1 THEN PRINT"Excellent! An iron
 door rises slowly":PRINT:loca%(posi%,3)=32
1980 FOR x=1 TO 4:IF inv$(x)=obj$(13) THEN inv$(x)=""
1990 IF al=1 THEN NEXT:al=2
2000 IF al=2 THEN obj%(13)=posi%:RETURN
2010 RETURN
2020 IF posi%=38 OR posi%=39 OR posi%=40 AND ao=1 THEN
PRINT"O.K! It is in place":PRINT
2030 FOR x=1 TO 4:IF inv$(x)=obj$(16) THEN inv$(x)=""
2040 IF ao=1 THEN NEXT:ao=2:RETURN
2050 RETURN
2060 IF posi%=20 THEN GOTO 2120
2070 GOSUB 1050
2080 IF posi%=19 AND (ai<>1 OR r<>13) THEN PRINT"You Ca
n't!":PRINT:RETURN
2090 IF posi%=19 AND ai=1 THEN PRINT"Alright! You can n
ow cross over":PRINT:loca%(posi%,2)=20:loca$(19)="on a
stone causeway.There is a wide gap half way and on eith
er side a sheer dropinto oblivion"
2100 FOR x=1 TO 4:IF inv$(x)=obj$(10) THEN inv$(x)=""
2110 IF ai=1 THEN NEXT:ai=2:RETURN
2120 IF posi%=20 AND ai=1 THEN PRINT"Alright! You can n
ow cross over":PRINT:loca%(20,1)=19
2130 FOR x=1 TO 4:IF inv$(x)=obj$(10) THEN inv$(x)=""
2140 IF ai=1 THEN NEXT:ai=2:RETURN
2150 PRINT"You Can't":PRINT:RETURN
2160 RETURN
2170 IF posi%=21 AND ak=1 THEN PRINT"As you take it a t
rapdoor beneath you  opens.You fall through and the tr
apdoor closes again.":loca$(21)="in a torture chamber.O
ld implements of  torture lie around covered in cobwebs
.":PRINT:posi%=22:RETURN
2180 RETURN
2190 IF posi%=2 OR posi%=3 OR posi%=6 THEN PRINT"You pl
unge deeply into the murky depths of the moat below.":p
osi%=7:PRINT:RETURN
2200 IF posi%=38 OR posi%=39 OR posi%=40 THEN PRINT"You
 plummet headlong to your death":PRINT:GOTO 2720
2210 IF posi%=19 THEN PRINT"You plunge headlong to your
 death":PRINT:GOTO 2720
2220 RETURN
2230 IF posi%=16 THEN PRINT"Well Done! An opening appea
rs in the    wall":PRINT:loca%(posi%,4)=17:RETURN
2240 PRINT"There is nothing to turn here.":PRINT:RETURN
2250 RETURN
2260 GOSUB 1050
2270 IF r=8 THEN PRINT"It is round with a hand carved h
andle.":PRINT:RETURN
2280 IF r=9 OR r=17 OR r=22 THEN PRINT"It obviously fit
s some lock somewhere.":PRINT:RETURN
2290 IF r=3 THEN PRINT"Etched in the wall you see  ";CH
R$(241)+CHR$(241)+CHR$(241):PRINT:RETURN
2300 IF r=20 OR r=21 THEN PRINT"It is solid gold with j
ewels that       sparkle in different colours.
  It is the fabled Crown of Zildabar.":PRINT:RETURN
2310 IF posi%=14 AND r=27 OR r=28 THEN PRINT"It is made
 of stone and has its wings  outstretched.":PRINT:RETU
RN
2320 IF r=11 OR r=12 THEN PRINT"It is empty.":PRINT:RET
URN
2330 IF posi%=14 AND r=10 AND ap=0 THEN PRINT"It contai
ns an old parchment.":PRINT:obj$(22)="parchment":RETURN
2340 IF posi%=14 AND ap=1 THEN PRINT"It is empty.":PRIN
T:RETURN
```

```
2350 IF r=31 THEN PRINT"There is a message written on i
t":PRINT:RETURN
2360 IF r=7 THEN PRINT"It is a broad sword but quite ru
sty.":PRINT:RETURN
2370 IF r=32 OR r=33 THEN PRINT"It is shaped like a cub
e":PRINT:RETURN
2380 IF posi%=16 AND r=29 THEN PRINT"It looks like the
type that prisoners  used to be chained to":PRINT:RETU
RN
2390 IF r=14 THEN PRINT"It is made from solid oak.":PRI
NT:RETURN
2400 IF posi%=23 THEN PRINT"The hole is square in shape
":PRINT:RETURN
2410 PRINT"Don't bother":PRINT:RETURN
2420 RETURN
2430 IF posi%=22 THEN PRINT"You have called upon Zildab
ar.His power transports you to a safer zone":posi%=23:P
RINT:RETURN
2440 PRINT"Trying to evoke Zildabar has no effect":PRIN
T:RETURN
2450 RETURN
2460 GOSUB 1050
2470 IF posi%=6 AND r=3 THEN PRINT"There is nothing her
e to read":PRINT
2480 IF r=31 THEN PRINT"It says' when in mortal danger
try      ZILDABAR":PRINT:RETURN
2490 RETURN
2500 GOSUB 1050
2510 IF posi%=17 AND (r=33 OR aq=1) THEN PRINT"You Can'
t!":PRINT:RETURN
2520 IF posi%=23 AND r<>33 THEN PRINT"You Can't!":PRINT
:RETURN
2530 IF posi%=23 AND aq=1 THEN PRINT"Consider it done!
A section of the wall opens up":PRINT:loca%(posi%,3)=24
2540 FOR x=1 TO 4:IF inv$(x)=obj$(23) THEN inv$(x)=""
2550 IF aq=1 THEN NEXT:aq=2
2560 IF posi%=23 AND aq=2 THEN loca$(23)="Inside a room
.You can see a carving on  the wall.There are exits eas
t and west.":PRINT:IF aq=2 THEN aq=0:RETURN
2570 RETURN
2580 PRINT:PRINT:INPUT"Do you want to save the game.";e
$
2590 e$=LOWER$(e$)
2600 IF e$="y" THEN GOSUB 2830
2610 PRINT:INPUT"Do you want another game";ww$
2620 IF ww$="y" THEN RUN
2630 END
2640 IF posi%=25 THEN PRINT"It's stuck.":PRINT:RETURN
2650 IF posi%=11 OR posi%=24 OR posi%=37 THEN PRINT"It'
s locked.":PRINT:RETURN
2660 IF posi%=3 OR posi%=31 THEN PRINT"You can't":PRINT
:RETURN
2670 RETURN
2680 IF posi%=2 OR posi%=3 OR posi%=4 OR posi%=5 OR pos
i%=6 THEN PRINT"YUK!....You must have been desperate":P
RINT:RETURN
2690 RETURN
2700 IF posi%=2 OR posi%=3 THEN posi%=4:PRINT"OK!":PRIN
T:RETURN
2710 RETURN
2720 PRINT:PRINT:PEN 3:PRINT"You are dead..."
2730 PRINT:PRINT"Do you want another game?....y/n"
2740 INPUT a$:a$=LOWER$(a$)
2750 IF LEFT$(a$,1)="y" THEN RUN
2760 PRINT:PRINT"Good bye.....Thankyou for playing."
2770 IF posi%=23 AND aq=1 THEN PRINT"O.K. A section of
the wall opens up":aq=2:loca%(posi%,3)=24:PRINT:IF r=32
 THEN qq=32 ELSE IF r=33 THEN qq=33:GOTO 2110
2780 END
2790 FOR k=1 TO 1000:NEXT:CLS:PRINT"Well Done."
2800 PRINT"You have performed a great deed and     succ
essfully completed your quest. You  take the crown back
 to the king of      Zarros who in return promotes you
to therank of a noble and gives you an estate along wit
h his daughters hand in wedlock"
2810 PRINT"You are now one of the most powerful menin t
he kingdom."
2820 GOTO 2730
2830 PRINT:PRINT"Please insert tape or disc now."
2840 PRINT:INPUT"Type in version number followed by
  [ENTER] to save";a$
2850 PRINT
2860 SPEED WRITE 1
2870 b$="data"+a$:PRINT:OPENOUT b$
2880 PRINT#9,loca$(21):PRINT#9,loca$(23):PRINT#9,loca$(
15):PRINT#9,loca$(9):PRINT#9,loca$(19):PRINT#9,loca$(16
)
2890 PRINT#9,loca%(9,2):PRINT#9,loca%(25,3):PRINT#9,loc
a%(24,3):PRINT#9,loca%(11,4):PRINT#9,loca%(37,3):PRINT#
9,loca%(12,4):PRINT#9,loca%(14,1):PRINT#9,loca%(17,2):P
RINT#9,loca%(31,3):PRINT#9,loca%(19,2):PRINT#9,loca%(16
,4):PRINT#9,loca%(23,3)
2900 FOR x=1 TO 4:PRINT #9,inv$(x):NEXT
2910 FOR x=1 TO 24:PRINT #9,obj%(x):PRINT #9,obj$(x):NE
XT
2920 PRINT #9,loca%,posi%,obj%,get%
2930 PRINT #9,aa,ab,ac,ad,ae,af,ah,ai,aj,ak,al,am,an,ao
,ap,aq,ar,as,at,au,av,aw,ax,ay,az,ba,bb,bc,bd,be,bf
2940 CLOSEOUT
2950 PRINT:PRINT"Data file has been created."
2960 FOR k=1 TO 1000:NEXT
2970 CLS:RETURN
2980 PRINT:PRINT"Please insert tape or disc now."
2990 PRINT:INPUT"Type in version number followed by
  [ENTER] to load";a$
3000 PRINT:b$="data"+a$
```

```
3010 PRINT:OPENIN b$
3020 IF DERR=146 THEN PRINT"File not found. Get it righ
t!":FOR x=1 TO 1000:NEXT:RETURN
3030 INPUT#9,loca$(21):INPUT#9,loca$(23):INPUT#9,loca$(
15):INPUT#9,loca$(9):INPUT#9,loca$(19):INPUT#9,loca$(16
)
3040 INPUT#9,loca%(9,2):INPUT#9,loca%(25,3):INPUT#9,loc
a%(24,3):INPUT#9,loca%(11,4):INPUT#9,loca%(37,3):INPUT#
9,loca%(12,4):INPUT#9,loca%(14,1):INPUT#9,loca%(17,2):I
NPUT#9,loca%(31,3):INPUT#9,loca%(19,2):INPUT#9,loca%(16
,4):INPUT#9,loca%(23,3)
3050 FOR x=1 TO 4:INPUT #9,inv$(x):NEXT
3060 FOR x=1 TO 24:INPUT #9,obj%(x):INPUT #9,obj$(x):NE
XT
3070 INPUT #9,loca%,posi%,obj%,get%
3080 INPUT #9,aa,ab,ac,ad,ae,af,ah,ai,aj,ak,al,am,an,ao
,ap,aq,ar,as,at,au,av,aw,ax,ay,az,ba,bb,bc,bd,be,bf
3090 CLOSEIN
3100 PRINT:PRINT"Data has been loaded."
3110 FOR k=1 TO 1000:NEXT
3120 CLS:RETURN
3130 CLS:LOCATE 13,1:PRINT"CASTLE ADVENTURE"
3140 LOCATE 10,6:PRINT"By B.M. and M.C. Eaton"
3150 LOCATE 3,12:PRINT"Most commands are two word form
ie-"
3160 PRINT:PRINT"      Get Sword     Drop axe etc."
3170 LOCATE 7,22:PRINT"PRESS SPACEBAR TO CONTINUE"
3180 b$=INKEY$
3190 IF b$=" " THEN GOTO 3210
3200 GOTO 3180
3210 CLS
3220 PRINT:PRINT:PRINT"The kingdom of Zarros once enjoy
ed a    high and envied position whilst under  the pro
tection of the wizard Zildabar.  When Zildabar died his
 power lived on  symbolized by his golden crown."
3230 PRINT"But a jealous rival stole the crown and took
 it to the castle of the ancients.  Ever since the king
dom of Zarros has    deteriorated.You however have been
      chosen by the king to try and recover"
3240 PRINT"the crown in order to restore the formerglor
y to the kingdom.To find the castle is no problem but g
etting inside is not easy and once inside only the most
      resolute and intelligent of mortals willbe able t
o go any further."
3250 PRINT:PRINT"Your adventure begins.....Good Luck!"
3260 LOCATE 7,23:PRINT"PRESS SPACEBAR TO CONTINUE"
3270 c$=INKEY$
3280 IF c$=" " THEN LOCATE 6,25:PRINT"Initialising....P
lease wait!":GOTO 60
3290 GOTO 3270
```

ADVENTURER'S CONTACT LIST

(Please don't abuse the help being offered)

Jason Pavy
105 Lyall St. Kalgoorlie
W.A. 6430

The Hobbit, Forest at World's End

Rhondda Cook
PO BOX 418
Gatton Q.L.D. 4343

Time Search, Trials of Arnold Blackwood, Arnold goes Somewhere Else, Castle Dracula, Mountain Palace Adventure

Steve & Robyn Ballard
126 Lyndhurst Road
Boondall, Q.L.D. 4034

Warload, The Experience, Escape, Forest at World's End, Phoenix Mission, Message from Andromeda, Heroes of Karn, Jewels of Babylon

Karla Slack
P.O. Box 201,
Springwood N.S.W. 2777

Adventure Quest , The Hobbit, Zork II ,The Neverending Story (1) Wishbringer

John McNeill
1 Hawkins St.
Chatswood Hills, Qld 4127

Jewels of Babylon, The Trials of Arnold Blackwood

Dean Stibbe
25 South Esplanade
Bribie Island Qld 4507

Seabase Delta, The Trials of Arnold Blackwood, Colossal Adventure, Dracula (pts1&2)

Michael Fitzgerald
54 View Road Burnie
Tasmania 7320

The Hobbit,The Neverending Story

John Hall
28 Werribee Street
Broadmeadows, Vic 3047

Forest Land

Dave Weatherhead
2 Searle Court
Nth. Dandenong Vic 3175

Aftershock, Imagination, Seabase Delta, Necris Dome

Mark Nelson
128 Parkin Street
Rockingham. WA 6168

Enchanter, Gremlins, Infidel, Midshadow, Message from Andromeda, Wishbringer, Heavy on the Magick.

John Dawson
RSD 557,
Cygnet Tasmania 7112

Ground Zero, Curse of Sherwood, Pyjamarama, Down the Mine, Warlock, Exchange, Castle Dracula, Time Search, Subsunk, Mountain Palace Adventure, Mayday, Sorcery+, Aftershock, Knight-Tyme, Zorro, Adventure Quest, Time & Magik Trilogy.

Scott Barker
88 Elsie Gve,
Chelsea VIC. 3196

The Hobbit, Jewels of Babylon, Imagination, Mordon's Quest

James Green
24 Rosemary Row
Rathmines N.S.W. 2283

Adventure Quest, Time & Magik Trilogy, Aftershock, Mind Shadow, Sorceror, The Neverending Story, Red Moon, Enchanter, Imagination, Mural, Message from Andromeda.

Steven Orr
17 Garong Close,
Edgewater, W.A. 6027.

CPC Games; Forest At Worlds End, Bored Of The Rings, Warlord, Necris Dome, Zork I & II, Hitchikers Guide To The Galaxy, The Hobbit, Swords And Sorcery.
PC Games; Zork I, Hitchhiker Guide To The Galaxy, Kings Quest I, II & III, Police Quest, Space Quest, Land Of The Lounge Lizards, The Hobbit, Castle Adventure, Crime Adventure, New York Adventure, Buckaroo Bonzai.

Bobby Lockett
5 Wendy Place
Prospect. Tasmania. 7250.

The Hobbit, Zork 1, Enchanter, Tau Ceti, Sorceror, Planetfall, Mordons Quest, Jewels of Babylon, Forest At Woods End, Neverending Story, Swords and Sorcery, Bugsy, Jack The Nipper, Seabase Delta. Message From Andromeda, Leather Goddesses of Phobos, Everyones a Wally, Pyjamarama, The Boggit, Robin of Sherwood, Sorcery+, Shogun, Academy, Knight Tyme, The Wild Bunch.

Jeff Tremain
P.O. BOX 92
North Quay QLD 4002

The Pawn, Guild of Thieves, Jinxter

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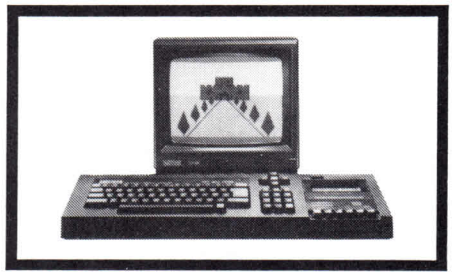

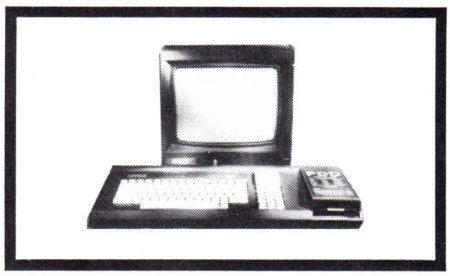

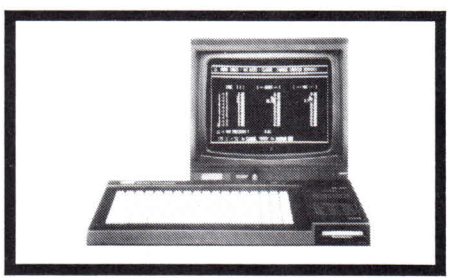

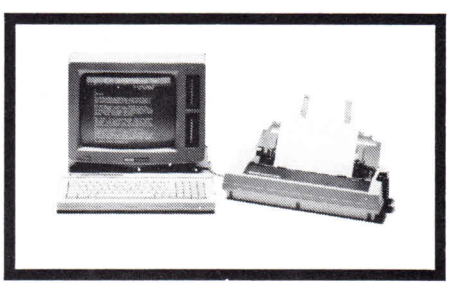

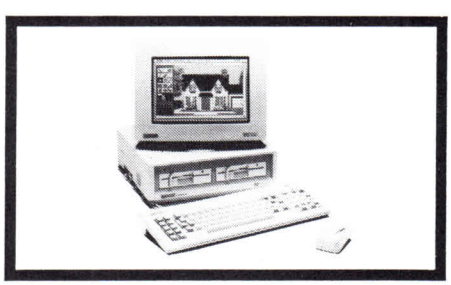

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CPC - continued

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Supersprites - sprite designing and control program	29.95	19.95
System X - adds over 40 new Basic extension commands	29.95	19.95
Toolkit - the most advanced Basic extension for the CPC	69.95	49.95

JOYSTICKS

CHALLENGER CPC – futuristically shaped joystick in high-impact light grey plastic. Ultra-sensitive top and bottomfire buttons. Features a very smooth stem movement and fast micro-switches 29.95

STAR CURSOR - a very robust joystick designed and manufactured by a leading arcade joystick supplier. Fully microswitched with fire buttons on base and handle. Adjustable 4- or 8-way action. 49.95

WINNER 220 - a really robust joystick with built-in precision control. Fully micro-switched with two fire buttons on the base and two on the stem for fast and furious action 34.95

ZIPSTICK SUPERPRO - 90% British made quality moulded high impact plastic with self-centring actuator & eight-way micro switches. 1.4m of cable. Left and right hand fire buttons, steel shaft, non-slip rubber pads 39.95

ZIPSTICK ELITE - a smaller, specially designed hand-held model with similar specifications to the Superpro, but with just one forward centrally located fire button. Also has rubber pads on base for flat surface use 29.95

MISCELLANEOUS

Screen Filter	29.95
Ribbons	
Black Nylon for DMP 2000/3000/3160	19.95
Black Nylon for DMP4000	19.95
3" drive cleaning kit	19.95
CF-2 3" discs each	7.00

Joystick Splitter Cable - to allow the use of two joysticks through the single joystick port of the CPCs *(not simultaneously)* 19.50

CPC6128 'Seal 'n' Type' Keyboard protector
Stops damaging spills etc. 29.95

PCW

Amstrad PCW Range 8256, 8512 and 9512

(unless otherwise stated)

GAMES

Academy (Tau Ceti II) §	65.95
Armageddon Man §	57.95
Batman §	57.95
Catch 23 §	57.95
Classic Quest Adventures:	
Goblin Towers (moderate)	49.95
Forestland (hard)	49.95
Witch Hunt (very hard)	49.95
Corruption	59.95
CP Compilation - *with 3-D Clock Chess, Backgammon, 3-D Draughts and Bridge 2000 all on one disc*	59.95
Distractions: *3 graphics games compilation: On the Run, 2112 AD and Nexor* §	59.95
Double T Patience - *compilation of six frustrating games including Kuala Lumpur, Poker Patience and Fourways*	64.95
Giant Killer - maths adventure 10 to adult	54.95
Graham Gooch Cricket *(Limited Overs & Test Match)*	49.95
Guild of Thieves	69.95
Gnome Ranger	59.95
Head over Heels §	57.95
Heathrow ATC/Southern Belle	57.95
Ingrid's back	59.95
Jinxter	69.95
Knight Orc	59.95
Lancelot	59.95
Living Daylights	49.95
Match Day II - *animated soccer action*	57.95
Mindfighter §	65.95
Pawn, The	69.95
Return to Doom *(Topologika adventure)*	54.95
Scrabble de luxe	65.95
Steve Davis' Snooker	54.95
Time and Magik Level 9 trilogy: *Lords of Time, Red Moon and Price of Magik*	54.95
Tomahawk: helicopter simulation	57.95
World of Soccer - international Soccer management simulation	59.95
PUBLIC DOMAIN DISCS	**17.50**

(The games above marked with a § symbol are known to work only on the 8256/8512)

PCW YEAR DISC

Containing all the PCW type-ins published in The Amstrad User for issues shown

Year Disc 1 - Issues 25 to 40 27.50

EDUCATIONAL

Better Maths (12-16 yrs)	39.95
Better Spelling (12-16 yrs)	39.95
Biology (12-16 yrs)	39.95
Chemistry (12-16 yrs)	39.95
Giant Killer - maths adventure 10 to adult	54.95
Magic Maths (4-8 yrs)	39.95
Maths Mania (8-12 yrs)	39.95

PUBLISHING

Desk Top Publisher 99.00

PCW - continued

Newsdesk International 125.00

STOP PRESS from AMS

The ultimate Desktop Publishing package for PCW owners. Combine text and graphics with 'what you see is what you get' facilities. The ideal publishing software solution for home enthusiasts, schools, societies and small businesses

Stop Press (disc only) 179.00

With AMX Mk III Mouse 299.00

DATABASES

Cardbox	129.00
Cardbox Plus	199.00
Condor One	149.00
Masterfile 8000	119.00
TAIT Database and Labeller	49.95

MISCELLANEOUS

Brainstorm - tool for structuring raw ideas in a logical manner 99.00

Daatafax Personal Organiser Gift Pack from Kempston - with software, stylish binder, subject tabs, and starter stationery 149.00 *(Additional stationery available on request)*

Graphics, the Universe and everything... *This latest version (2.0) provides the means to create professional graphics output and more. Source code included (All PCWs)* 75.00

Lightning Basic Plus - *turbo charge your Mallard Basic (all PCWs)* **75.00**

Master Paint - deluxe graphics program, for use with either mouse or keys 59.95

Mini Office Professional - the PCW version of the highly successful Mini Office II with Spreadsheet, Wordprocessor, database, graphics and communications 149.00

Money Manager Plus - cashbook/personal accounting 99.00

NewWord2 - only one available just 150.00

Personal Excellence Package - High quality mental performance analyser 109.00

Plan-it - desktop organiser, plan budgets, sort files etc. 39.95

Print Master Plus - create your own Banners, Letterheads, Signs, Calendars or Greeting Cards with graphics or borders supplied. *(Runs under CP/M Plus only)* **59.95**

Protext Filer - pop-up database module for Protext 69.95

Protext Office - as Protext Filer but with mail-merge and invoice generator module 99.95

Protext PCW 179.99

Prospell PCW - spellchecker for most word processors incl. Wd/Star and LocoScript 89.95

Scratchpad Plus spreadsheet 99.00

Stockmarket - watch your investments **79.95**

Tait Accounting System - small business Debtors, Creditors and Invoicing 129.00

Tempdisc - a disc full of instant templates exploiting LocoScript to the full. Provides a wide range of heading styles, agendas, invoices, borders and documents:

Tempdisc 1 (needs Loco1)	59.95
Tempdisc 2 (needs Loco2)	59.95
Tempdisc 8.2 (needs Loco2, Locomail and 8512)	67.95

PCW - continued

Tempdisc 9 (for 9512) 67.95

T/Maker - ***Relational database, Spreadsheet, Word Processor, Spell Checker, Graphics, List processor - for 8512s and 9512s*** 149.00

Touch 'n' Go - typing tutor 69.00

PERIPHERALS

8256/512 'Seal 'n' Type' Keyboard protector
Stops damaging spills etc. 29.95

9512 'Seal 'n' Type' Keyboard protector
Stops damaging spills etc. 29.95

AMX MOUSE plus interface from AMS - the most popular and sought after peripherals for your PCW, especially with StopPress 165.00

MM3 Margin Maker - *Single sheet locator and aligner for PCW 8000 printers* **39.95**

PCW Joystick Interface from Kempston 59.95

SCANNER - Master Pack - a scanning device which attaches to a PCW printer head to copy photos or other art work, Master Scan software and Master Paint, a powerful graphics package. Compatible with Desktop Publisher, FSE and Newsdesk International 279.00

SCREEN FILTER 29.95

TASMAN RANGE

Tasword 8000	79.95
Tas-spell 8000	56.00
Tasprint 8000	52.00
Tas-sign 8000	89.95

CONSUMABLES

PCW 8000s Printer Ribbons

Black Carbon or Nylon	19.95
Coloured Nylon - Blue, Red or Green	24.95

PCW 9000s Printer Ribbons

Black Carbon or Multistrike	15.95
Black Nylon	19.95

Daisy Wheels for 9000s
Prestige Pica 10; Prestige Elite 12; Courier 10; Cubic Pica 10; Mini Gothic 15/Micro; Orator 90%/10; Letter Gothic 10/12; Script 12 *each* 19.95

3" disc drive cleaning kit 19.95

CF2 3" discs each 7.00

LOCOMOTIVE PRODUCTS

LocoScript 2 (v. 2.16 - N/E)	87.00
LocoScript 2 + LocoSpell	130.00
LocoMail2	105.00
LocoSpell2	75.00
Locomail1 to 2 upgrade	18.50
LocoSpell1 to 2 upgrade	18.50
LocoScript2 upgrade to v2.16 (N/E)	18.50

(Original LocoScript2 disc must be returned certified mail for upgrades. Please note that upgrades are not available/ necessary for 9512 owners. Upgrades from LocoScript1 to LocoScript2 are not available.)

The following are for PCW 8000s using LocoScript 2.12 and above (Please state 8000s):

24 Pin Printer Driver - suitable for most 24 pin print head printers attached to the 8000s 64.95

Printer Character Set Disc for defining new character sets 59.95

Extra Printer Drivers Disc containing a PrinterFile for every LocoScript2 compatible printer 59.95

PCW - continued

Keyboards Disc to configure LocoScript2 to use American, Canadian, Danish, English, French, German, Italian, Norwegian, Spanish or Swedish keyboard layouts with any nationality of LocoScript2. 59.95

Locofile/8000 - the resident 'pop-up' database for LocoScript2 **110.00**

LocoFont SET 1 adds nine extra fonts to your matrix printer 75.00

LocoFont SET 2 adds a further set of five fonts to your matrix printer 65.00

LocoKey to customise your keyboard 59.95

Locomail Sorting Program 39.95

Locomail2 Examples disc 17.50

LocoMail2 New User Guide 54.95

The following are for PCW 9512s using LocoScript 2.12 and above (Please state 9512):

24 Pin Printer Driver - suitable for most 24 pin print head printers attached to the 9512 **64.95**

Printwheels Disc allows the correct printing of the characters from any printwheel supplied for the built-in printer. 59.95

Locofile/9000 - the resident 'pop-up' database for LocoScript2 on the 9512 **110.00**

Keyboards Disc to configure LocoScript2 to use American, Canadian, Danish, English, French, German, Italian, Norwegian, Spanish or Swedish keyboard layouts with any nationality of LocoScript2. 59.95

Printer Driver and Character Sets supports a wide range of printers and printwheels used as an alternative to the built-in printer 59.95

Locomail Sorting Program 39.95

Locomail2 Examples disc 17.50

Amstrad PC Range PC1512/1640, PPC512/640 and PC2000 series

(unless otherwise stated)

Items marked with a "†" symbol are also available in 3.5" disc format.

GAMES

221b Baker Street	49.95
4 x 4 - Off-Road Racing †	49.95
4th and Inches (Grid Iron)	44.95
4th and Inches Construction Set	35.95
Aces High Compilation *with World Series Baseball, Wizball, Top Gun and Arkanoid*	69.95
Action Service	54.95
Airborne Ranger †	**59.95**
Alternate Reality (The City)	49.95
After Burner	69.95
Alter Ego (female version)	47.95
Amazon	59.95
Annals of Rome	64.95
Apollo 18	64.95
B-24	69.95
Battle Chess (needs 640k)	69.95
Battle for Normandy	69.95
Battle Hawks 1942	64.95

PC - continued

Battle Tech	61.95
Batman	69.95
Beyond Zork	49.95
Bionic Commandos	54.95
Black Cauldron †	59.95
Black Jack Academy †	49.95
Bobo	69.95
California Games †	49.95
Captain Blood	69.95
Charlie Chaplin	69.95
Circus Games	**57.95**
Classic Quest Adventure Series:	
Goblin Towers	39.95
Forestland	39.95
Witch Hunt	39.95
Catacombs	39.95
Cornucopia	39.95
Classic Arcades 1	59.95
Classic Arcades 2	59.95
Colossus Mahjong	69.95
Combat School	69.95
Concentration	49.95
Crazy Cars	59.00
Crosscheck	49.95
Crusade in Europe	59.95
Daley Thompson's Olympic Challenge	69.95
Dark Castle	49.95
Dark Side	54.95
Decision in Desert	59.95
Def Con 5 (American 'Star Wars' defence)	59.95
Demon Stalkers	54.95
Destroyer †	49.95
Dragonworld	59.95
Dream Warrior	69.95
Driller	59.95
Echelon	54.95
Elite	69.00
Empire	47.95
F-15	59.95
F-16 Falcon †	49.95
F-19 Stealth Fighter	79.95
Fahrenheit 451	59.95
Family Feud	49.95
Fire and Forget †	**69.95**
Fire Power	47.95
First Expedition †	49.95
Fish	**69.95**
Flippit	39.95
Galactic Conqueror	**69.95**
Games, The - Summer Edition †	**49.95**
Gettysburg	69.95
Gnome Ranger	59.95
Gold Rush	52.95
Grand Prix Circuit	59.95
Great Escape, The	59.95
Gunship †	69.95
Hardball	49.95
Hitch Hiker's Guide to the Galaxy	64.95
Hunt for Red October	49.95
Impossible Mission II †	49.95
Ingrid's back	59.95
Inside Trader	59.95
Impact (mouse or keyboard only)	49.95
Jack Nicklaus Golf	59.95
Jackal	69.95
Jeopardy	49.95
Jet	69.95
Jewels of Darkness	59.95
Joan of Arc	**52.95**
Kampfgruppe	69.95
Kings Quest 1 †	49.95

PC - continued

Kings Quest 2 †	49.95
Kings Quest 3 †	49.95
Kings Quest 4 (9x5.25" and 4x3.5")	84.95
Knight Orc	59.95
Lancelot	59.95
Leisure Suit Larry (AO) †	59.95
Leisure Suit Larry II (AO)	59.95
Man Hunter - New York	64.95
Mean 18	69.95
Mean 18 Famous Courses 1	24.95
Mean 18 Famous Courses 2	24.95
Mean 18 Famous Courses 3/4	24.95
Mech Brigade	69.95
Might and Magic	79.95
Mini Putt	49.95
Moebius	59.00
Mystery Trilogy (3 mystery games)	47.95
Night Raider	69.95
Nine Princes in Amber	59.95
Nord & Bert couldn't make head nor tail...	47.95
Pawn, The	69.95
Peter Rose Pennant Fever	47.95
PC Gold Hits Compilation (for CGA) *with Infiltrator, Bruce Lee, Ace of Aces and World Class Leaderboard*	49.95
Perry Mason - Mandarin Murders	59.95
Phantasie 1	69.95
Phantasie 3	69.95
PHM Pegasus †	59.95
Pinball Wizard	69.95
Pirates	69.00
Platoon	69.95
Plundered Hearts	47.95
Police Quest †	59.95
Police Quest 2	59.95
Portal	47.95
President Elect	69.95
President is Missing	59.95
Project Space Station	49.95
PSI-15 Trading Company	49.95
PT-109	64.95
Quadralien	**49.95**
Rack'em (Pool, Billiards, Snooker)	54.95
Rambo III	69.95
Reach for the Stars †	49.95
Rebel Charge at Chick.	69.95
Rendezvous with Rama	59.95
Rings of Ziflin	69.95
Roadwar 2000	69.95
Roadwar Europa	69.95
Romantic Encounters (AO)	49.95
Sapiens	69.95
Sargon III (Chess)	84.95
Scavengers	54.95
Serve and Volley	54.95
Shard of Spring	69.95
Shiloh	69.95
Silent Service	59.95
Silicon Dreams	59.95
Silpheed	52.95
Solomon's Key	69.95
Space Quest 1 †	59.95
Space Quest 2 †	59.95
Space Quest 3	59.95
Speed Ball	64.95
Spitfire Ace	59.95
Star Command	79.95
Star Fleet	59.95
Star Trek: Kobayashi	49.95
Star Trek: Promethian	49.95
Star Trek: The Rebel Universe	49.95

PC - continued

Star Quake (Amstrad j/stick port only)	59.95
Star Ray	**59.95**
Stellar Crusade	69.95
Star Glider	59.95
Station Fall	47.95
Street Sports Baseball †	49.95
Street Sports Basketball †	49.95
Sub Battle Simulator †	49.95
Summer Games	45.00
Tau Ceti	59.95
Technocop	69.95
Test Drive	59.95
Tenth Frame	59.00
Tetris	49.99
Thexder†	59.95
Thud Ridge	54.95
Thunderblade	69.95
Time and Magik	59.95
Train, The	54.95
Trantor	69.95
Ultima V	59.95
UMS (War game simulator)	69.95
Untouchables	69.95
Victory Road	69.95
Wargame Construction Kit	69.95
WEC Le Mans	69.95
Wheel of Fortune	59.95
Who framed Roger Rabbit †	54.95
Winter Games †	49.95
Wizard's Crown	69.95
World Class Leaderboard Golf value pack	64.95
Zac McKracken & the alien mindbenders	64.95
Zork Quest II - The Crystal of Doom	37.95

BUDGET GAMES

Arcade 1: *Pitfall, Artillery, Goob and X-Wing*	14.99
Arcade 2: *Munchman, Bowling and Depth charge*	14.99
Arcade Bonanza: *Frog, Pac-em, Tank and Red Alert*	14.99
Board Games	14.99
Master Blaster: *Paratrooper, Round 42 and Rockets*	14.99
Mind Games: *Concentration, Magie, Hide-away and Mindscan*	14.99
Sink the Bismark: *Computer Battleships and Naval Trivia*	14.99
Space Battles: *Space War, Meteor Shower, Moon Lander, Space Zombies*	14.99
Space Games	14.99
Strategy Games: *Ruler, Killer Bees, Engineer, Sabotage and Vampire*	14.99

EDUCATION

Alphabet Zoo	59.95
Arrakis Advantage Series:	
Algebra 1/1 - Sets & notatations	59.95
Algebra 1/2 - Number Sys.	59.95
Algebra 2/1 - Equations & Formulae	59.95
Algebra 2/2 - Linear Equations	59.95
Algebra 3/1 - Polynomials	59.95
Biology 1 - Respiration	59.95
Biology 2 - Digestion & Nutrition	59.95
Biology 3 - Reproduction & Dev.	59.95
Biology 4 - Circulation & Heart	59.95
Chemistry 1 - The Atom	59.95
Chemistry 2 - The Periodic Table	59.95
Geometry 1 - Basic Geometry	59.95
Geometry 2 - Plane and Space	59.95
Physics 1 - Motion	59.95

PC - continued

Physics 2 - Light	59.95
Statistics 1 - Intro. Descriptive Stats	59.95
Trigonometry 1 - Intro. to Trig.	59.95
Better Maths (12-16 yrs)	39.95
Better Spelling (9- Adult)	39.95
Biology (12-16 yrs)	39.95
Chem Lab	69.95
Chemistry (12-16 yrs)	39.95
Computerease - tutorial on PC	39.95
Cryptocube	59.95
Decimal Dungeon	49.95
Delta Drawing	59.95
Face Maker	59.95
Fraction Action	49.95
Grammar Examiner	59.95
In search of the most amazing things	59.95
Kids on Keys	59.95
Kidwriter	59.95
Kindercomp	59.95
Lex, Wizard of Words (10 to 99) †	39.95
Magic Maths (4-12 yr) CGA	39.95
Maths Mania (8-12 yr) CGA	39.95
Maxi Maths (12-16 yrs)	39.95
Micro Maths - advanced for Years 9-11 students	69.95
Mission Algebra	59.95
Mixed up Mother Goose †	59.95
Notable Phantom	59.95
Number Fun 1 (5 to 15) †	29.95
Physics (12-16 yrs)	39.95
Race Car Arithmetic	49.95
Remember!	89.95
Sesame Street series - covers problem solving, predicting, logic & reasoning	
Ernie's Big Splash (4-6 yrs)	39.95
Astro Grover (3-6 yrs)	39.95
Grover's Animal Ad (4-6 yrs)	39.95
Big Bird's Delivery (3-6 yrs)	39.95
Ernie's Magic Shapes (4-6 yrs)	39.95
Pals around Town (4-6 yrs)	39.95
Science & Engineering - examples	49.95
Ships Ahoy	59.95
Snooper Troops 1	59.95
Snooper Troops 2	59.95
Spellagraph	59.95
Spellakazam	59.95
Spelling Fun 1 (5 to 15)	39.95
Ten Little Robots	49.95
Typing Tutor 4	79.95
Word Fun 1 (5 to 15) †	39.95

BUSINESS

ABC Business Pack	499.99
Ability Plus	299.00
Ability	199.00
Brainstorm	99.00
Business Dynamics - *primer*	39.95
Capital Budgetting	199.00
Cardbox PC	149.00
Cardbox PC Personal	349.00
Cardbox Plus Standard	895.00
Cardbox Plus Multi-user (1st three users)	1450.00
Chartman - *bus. graphics*	129.00
Condor 1 Jnr	149.00
Corporate Finance	199.00
Desktop Accountant	450.00
Diamond - *integrated s/sheet (like Lotus), Graphics and word processor*	249.00
Financial Accounting for non-Accountants	199.00

PC - continued

AMS FINESSE DTP-PC

From the Desktop Publishing software leaders AMS comes this "what you see is what you get" program including GEM3 and Bitstream Fontware to produce professional results quickly. Import graphics from GEM Paint/Draw or Chart. Supports CGA, EGA, MCGA/VGA and Hercules graphics cards, most hi-res dot matrix printers and HP and Apple laser printers. **299.00**

In-house accountant	169.00
MASTERFILE PC †	
The most popular relational database for Amstrad PCs and compatibles	199.00
Mini Office Personal - integrated database, wordprocessor, Spreadsheet and label printer (replaces M/O Professional)	99.95
Money Manager Plus - cash book including graphics	99.00
Personal Excellence Package - *a serious approach to assessing your thinking skills, IQ, mental performance and aptitudes*	109.00
Personal Cardbox Plus	399.00
Protext PC	199.00
Protext Filer PC	69.95
Protext Office	99.95
Ram Jet Executive - *gives PC1512 only a disc cache, print buffer, screen accelerator*	189.00
Scratchpad Plus	99.00
Sales Force Management	199.00
Stockmarket - watch your shares	**79.95**
Tait (Everyman) Accounting - small business accounting with Debtors, Creditors and Invoicing	149.00
Top Copy Plus - *advanced word processing + macros*	299.00
Twin Advanced - *integrated spreadsheet (like Lotus), graphics and database*	189.00

UTILITIES

Award Ware - *certificates, banners, cards Designer*	49.95
Business Agreements- *ready designed templates with 77 business forms, 33 contracts & 105 letters*	99.95
Computer Diagnostics	24.95
Copy It	24.95
Disk Utilities	24.95
Easy DOS - DOS tutorial	49.95
File Rescue Plus	69.95
Gift List	24.95
Hard Disk Log	24.95
Home Inventory	24.95
Home Office Filer	24.95
Home Office Writer	24.95
Home Organiser: *with Inventory, Shopping list, Librarian and Planner*	14.99
Homeword Filer	69.95
Labeller	24.95
Logistix	295.00
Phone & Address filer	24.95
Print Magic	49.95
Print Power - multi fonts & borders	69.95
Ready!	99.00
Skill Builders	249.00
Superbase	249.00
Tasword PC †	135.00
Tas-spell PC †	110.00
Tas-print PC †	110.00
Tas-sign PC †	110.00

PC - continued

Tascopy †	110.00
Thinktank	359.95
Time and Expense log	24.95
Touch 'n' Go	69.00
Trio	99.95

MISCELLANEOUS

Joystick Games Card: Easily fitted - allows the use of an IBM style joystick on your Amstrad PC 1512 or 1640 42.50

Anko Precision Joystick: top of the range - with free floating or auto centring operation modes, dual axis trim controls for accurate control of cursor/ aiming/movement, two fire buttons on base and one on stem and rubber feet for surface grip 49.95

Anko Standard Joystick: mid-range joystick with fire button on base and one on the stem, dual axis trim controls for accurate movement, rubber feet for surface grip 39.95

Junbo Joystick: the smallest in the range but just as accurate, with auto return centring and fine tuning to adjust movement control, long life variable resistor control, two fire buttons,suitable for hand held control 29.95

CHALLENGER PC - futuristically shaped joystick in high-impact light grey plastic. Ultra-sensitive top and bottomfire buttons. Features a very smooth stem movement and fast action micro-switches 29.95

PC1512/1640 'Seal 'n' Type Keyboard Protector

Stops damaging spills and dust 29.95

MOUSE DRIVER for Microsoft windows (allows the use of Amstrad with MicroSoft products) 59.95

MODEM - Amstrad's MC2400 (V21, V22, V22 bis and V23 2400 bps). Works with any IBM compatible and comes with communications software. 399.00

DISC DRIVES

20mb Hard disc drive for PPC	**1199.00**
20mb Portable Hardcard for Desktops	**899.00**
30mb Portable Hardcard for Desktops	**949.00**
20mb Hard Disc Kit for PC1640	**875.00**
3.5" internal disc drive kit for PPC	**375.00**
5.25" Disc drive kit for 1512/1640	**375.00**

MICROSOFT RANGE

(Items marked # are supplied in dual media)

Chart	**495.00**
Excel #	**875.00**
Flight Simulator †	**85.00**
Learning DOS †	**85.00**
Microrim Rbase Tutor	**50.00**
Multiplan #	**345.00**
Multiplan/Chart #	**755.00**
Pageview †	**85.00**
Project #	**695.00**
Rbase †	**795.00**
Rbase System #	**1195.00**
Rbase Runtime	**425.00**
Rbase Trial Pack	**20.00**
Windows 286 †	**175.00**
Windows 386 #	**345.00**
Word/Pageview #	**695.00**
Works #	**345.00**
Word Exchange †	**99.00**

BOOKS

BOOKS for all Amstrads

Please note that there is a P&P charge of $5.00 on al orders containing books exceeding a value of $20.00. ***This should be added to your remittance.***

CPC TITLES

Advanced User Guide	21.95
Amstrad Compendium	23.95
Basic BASIC	18.95
Childs' Guide to the Amstrad Micro	13.95
Disc System, The Amstrad CPC 464	28.95
Filing Systems and Data Bases for the CPC464	30.95
Graphics Programming Techniques	25.95
High Energy Programs for the Amstrad	9.95
Ins and Outs of the Amstrad	23.95
Machine Code for Beginners	21.95
Machine Lang. for Absolute Beginner	23.95
Practical "C"	29.65
Ready made Machine Lang. routines	23.95
Starting Basic - Bk 1	19.95
Sound, Graphics & Handling - Bk 2	24.95
Structured Programming on 464/664/6128	30.95
Watson's Notes Series (for younger readers)	
Book 1: First Steps in Basic	17.95
Book 2: Exploring Basic	17.95
Book 3: Computer Games	17.95
Whole Memory Guide - 464	30.95

LOGO TITLES

LOGO Pocketbook	17.95
Practical Logo on the Amstrad	27.95
Using DR Logo on the Amstrad	37.95

PCW TITLES

Advanced LocoScript on the PCWs	39.50
Desktop Publishing with the PCW	35.95
All in one business computing with the PCW and Mini Office Professional	**37.95**
Locomail User Guide - new version	54.95
LocoScript Pocketbook	17.95
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PC TITLES

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GIFT VOUCHERS - ring 03 233 9661 for details

CPC & PCW PUBLIC DOMAIN SOFTWARE

The following discs contain compilations of public domain programs put together by the Advantage Computer User Group (in England) and which have been tested under CP/M Plus. Unless otherwise stated, programs will run on the PCW, 6128 and 464/664 with extra memory and CP/M Plus. Programs for the 464/664 are on the CP/M 2.2 Collection. The discs are supplied in Data format and contain documentation files to help the user get started and provide instructions on running the programs plus useful sorted directory and MENU systems.

But remember, as Public Domain programs they are supplied on an as-is basis.

CP/M 2.2 COLLECTION

For 464/664 disc drive users with CP/M 2.2. Contains File Manager, Compare, Find, Disc sector editor, Key definer, Bad sector eliminator, Grep, Full Screen text editor, Easy lister, File transfer utility, Unerase erased files, erased files catalogue and many more.

CPC Ref: #430

FULL SCREEN TEXT EDITOR

This machine code editor offers full screen editing, full block operations, windowing, automatic horizontal scroll (line length up to 255 characters), macro functions, word-wrap and formatting, pagination, find/replace, undelete and many user options.

The editor, which is less than 10k in size, is fast because it edits a file entirely in memory. It produces ASCII text files and has enough features to be used as a word processor. A comprehensive on-disc manual is included together with keyboard configuration files for the CPC and PCW.

CPC Ref: #601 PCW Ref: #801

DATABASE

A small relational database suitable for storing simple data and producing reports and forms letters from the data. Offers free format query language with macros and commands plus on-line help. The disc also contains an Inventory Database. Whilst these databases provide a useful introduction and you can use them to set up a full operational database system they are not meant to replace commercial packages for professional or business use.

CPC Ref: #602 PCW Ref: #802

COMMUNICATIONS

Programs to allow data transfer between computers (local and remote), access databases and bulletin boards. UKModem7, New Kermit, MEX and various communications utilities. The disc also contains software for Prestel (Viatel) emulation (PCW only).

CPC Ref: #603 PCW Ref: #803

VIDEO CLERK

Keep track of your video collection. With four Sort options and Forms Management system for printing out the data in order of title number, video number, global alphabetic or unique. Includes extensive on-disc documentation.

CPC Ref: #604 PCW Ref: #804

FIXED ASSETS LOG

Allows you to keep a record of all your assets and their value. For example, at home, you may wish to keep a record of how much money you are spending on your computer or the value of a stamp collection etc. In business you can use it to keep a record of how much money you have tied up in land, buildings, office equipment, cars etc. It can also be used as a stock-taking program.

CPC Ref: #605 PCW Ref: #805

COMPLETE UTILITIES

• *Newsweep* - one key erase, copy, rename and print, plus many other features. Ideal for sorting out your disc collection quickly and efficiently • *Superzap* - disc sector editor - edit by track/sector or filename. Fully menu-driven with cursor key SETKEYS file • *DiskitA* - multi-choice disc formatter, offers 178k data format for PCW discs and 5.25" second drive formatting • *Unerase* erased files • *Read/write* PCW discs on a CPC • *CP/M v2.2 emulator* • *Make* - allows you to copy files across user areas • *Cleanup* - useful for speedy file deletion • *Lookat* - speedily lists any file in Hex and ASCII • *Screen Dump* (CPC only) • *Password* • *Easy Lister* • *Password Protection* • *File Scrambler* • *File Splitter* • *Directory check*

CPC Ref: #606 PCW Ref: #806

TEXT PROCESSING UTILITIES

• *Sideways* - prints text file sideways on an Epson-compatible printer. Ideal for those wide spreadsheets • *Sort* any ASCII list into alphabetical order • *Word count* - can be used on any ASCII file • *WSClean* - removes higher order bits from a text file and converts it to straight ASCII • *Calendar Generator* - prints out calendar for any year • *Simple Spell Checker* - with starter dictionary and dictionary editor • *Scoring card generator* • *Banner printers* • *Typewriter emulator*

CPC Ref: #607 PCW Ref: #807

DISC ORGANISATION

Catalogue your disc collection and produce a printed index. Useful for speedy location of files and for keeping your discs in order. Library utilities for archiving and saving disc space. File dating system. Squeeze and unsqueeze for saving up to 40% disc space. Menu system - allows menu-driven access to programs on a disc. Completely and easily user-definable.

CPC Ref: #608 PCW Ref: #808

Z80 PROGRAMMER

A complete Z80 Assembler which is capable of converting an ASCII assembler file into a fully executable machine code .COM program. Plus Z80 Disassembler, Z80 Debugger, Z80 Library, 8080 Disassembler, Z80 to 8080 Translator and associated utilities.

CPC Ref: #609 PCW Ref: #809

'C' PROGRAMMER

The Small 'C' Compiler by Mike Bernson. Includes source code and 25k of documentation. Produces executable .COM programs.

CPC Ref: #610 PCW Ref: #810

'C' TOOLBOX

A disc full of 'C' source code examples together with the corresponding executable .COM programs. Useful to those wishing to see some practical examples of 'C'. As a bonus, the programs are quite useful too. The 'C' source was written for a variety of compilers and may need modifying to compile on MIX or Small 'C'.

CPC Ref: #611 PCW Ref: #811

FORTH, STOIC AND 'C' INTERPRETER

For experimenters interested in using these languages. Documentation is included on disc.

CPC Ref: #612 PCW Ref: #812

GAMES COMPENDIUM

A varied selection of the best machine code programs available for CP/M. Includes Pacman, Snake (PCW only), Chess, Othello, Mastermind, Spellit, Awari, Life, Golf, Polish Pong, Maze, Biorhythms, Word Search puzzle maker, TicTacTo.

CPC Ref: #613 PCW Ref: #813

ADVENTURES

• *Colossal Cave Adventure* which originated on main frame computers. With game save and re-load • *Bestiary* (written in Mallard Basic for either PCW or 6128 Mallard users. Standard CPC users see Adventurer's Attic March 1989)- you play the part of a young prince, your greatest love being to read the ancient bestiaries about strange and often legendary animals. Your task is to find a solution to the terrible blight which, one year, destroys both crops and animals in the kingdom. Includes game save and re-load • *Return from Arg* - a short but interesting new adventure written in 'C'.

CPC Ref: #614 PCW Ref: #814

PCW GRAPHICS (PCW only)

Simple user-designed graphics drawing program. Enables you to create, save, edit and print pictures on your PCW. Plot lines, points, boxes, four fill patterns, easy to use and wholly interactive • *PCW Screen Font designer* with several ready-to-run font sets • *Biomorph* - fascinating, graphic demonstration of natural selection - develop your own bugs! • *Readme* - program to display any ASCII text file in 45 character format on the 90 character screen - makes it easier to read.

PCW Ref: #815

HOW TO ORDER YOUR DISCS

You may either order over the phone by credit card or by post. *It is very important that you get the reference number correct. CPC and PCW discs are different.* (Software contained on 3" discs only).

The cost per disc is $17.50. • ***BANKCARD, MASTERCARD & VISA accepted*** •

• Price includes postage in Australia, overseas add A$2.00 •

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