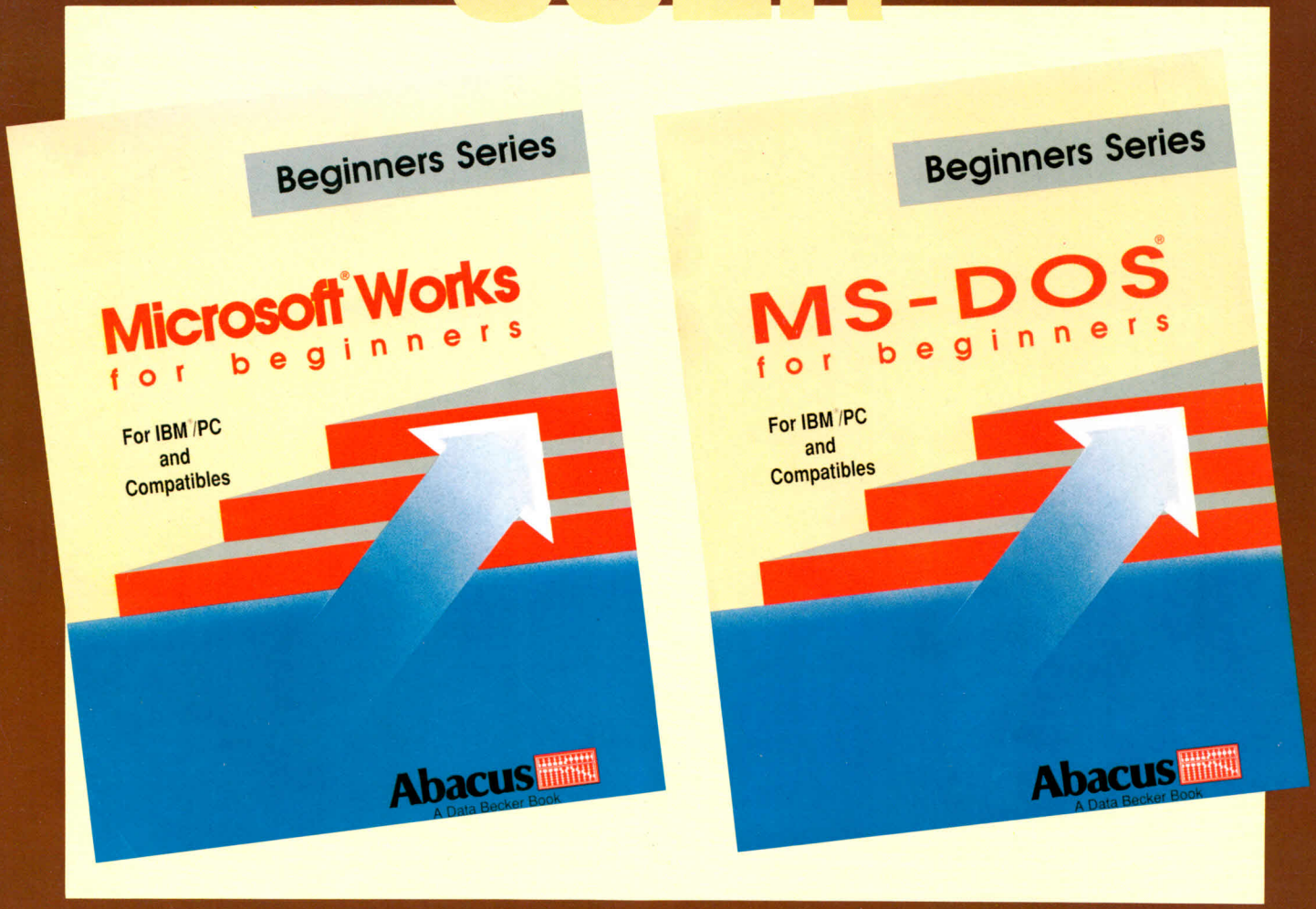
The Aussie Mag for Amstrad owners

THE AMSTRAD USER

Issue No. 53 $4.25 June 1989



- *CP/M Plus tutorial commences + more on Algorithms + CP/M on a chip + Time & Magik Trilogy maps return*
- *In-depth DR Logo + Small C Interpreter review + more PCW Pot Pourri + Amstrad Bulletin Board introduced*
- *Part 1 of Finesse DTP review + Digital voice recording*

FOR THE NOVICE & EXPERIENCED USER

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AS AUSTRALIAN AS OUR KOALA

Koala Courtesy Lone Pine Sanctuary

Assist the Koala Foundation: During June, July & August, for every Starcursor Joystick sold in Australia, $1.00 will be donated to the **Australian Koala Foundation.**

What the computer magazines say:
"King of the league" — Commodore Amiga Review, Dec. '88.
"Stands up to a battering" — Amstrad User, Feb. '89.
"I have tested this stick extensively, and can thoroughly applaud the solid yet functional design" — Sydney Morning Herald, Jan. 20 '89.
"Aussie stick comes up trumps" — New Computer Express, U.K.

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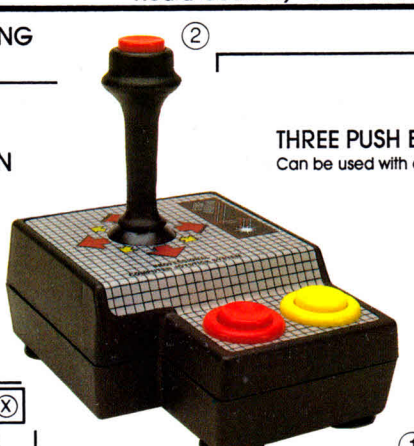


VERSATILE USAGE
Can be placed onb knee, in the hand or onb a table using easy grip suction caps

THE AMSTRAD USER

Issue No. 53 - June 1989

For Tape Subscribers, CPC programs appearing in this month's magazine can be found at the following approximate positions:

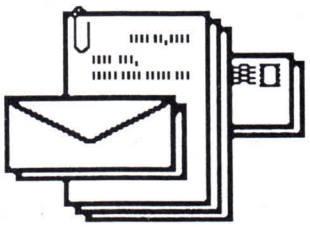
Side 1: STRPRG11 - 7 COMPACT - 120

Side 2: BEYONDLO - 7

ADVERTISER'S INDEX

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.
The Amstrad User is normally published on the first working day of each month.
 The single copy price of $4.25 is the recommended retail price only.
From time to time, some articles appearing in The Amstrad User will be reproductions from UK publications Amstrad Action, 8000 Plus and CPC Computing (formerly Computing with the Amstrad). The first two are printed under an agreement between Strategy Publications and Future Publishing Ltd, Bath, and the latter under an agreement with Database Publications.
The subscription rate (for Australia) is $42.50 for 12 issues of the magazine only, or $80.00 for 12 issues of the magazine plus tape (for CPC range only) containing programs appearing in that issue. Postage is included in the above prices. For subscriptions to New Zealand, PNG, Solomon Islands or Vanuatu please add $21 airmail. Other overseas prices available upon application.
Please note that whilst every effort is made to ensure the accuracy of all features and listings herein, we cannot accept any liability whatsoever for any mistakes or misprints. Contributions are welcome from readers or other interested parties. In most circumstances the following payments will apply to published material: Cartoons $10.00 and a rate of $15.00 per page for programs, articles etc. unless otherwise previously agreed. Contributions will not be returned unless specifically requested coupled with a suitable stamped and return addressed padded bag (for tapes or discs).
The Amstrad User is an independent Australian magazine, in no way affiliated with Amstrad or their Australian distributors or any dealer in either software or hardware (TAU Shop excepted).

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.

I am making enquiries regarding the possibility of purchasing of a book for the Amstrad 464 computer.

In your advertisement dated January 89 under the books heading you describe having a book with the title of Advanced User Guide $(A)21.95. Is this book black and does it have the words 'Firmware Manual 464,664,6128 on it?

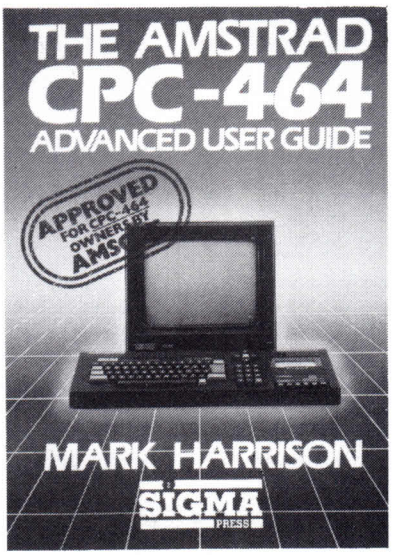
If this is the case, it would be the same one I have which does not tell the operator how to write to the machine memory. If this book is not the same, is it orange in colour and does it explain how to write to the machine memory.

When purchasing the computer, I received the beginners guide which in the back states that to write to the machine ram I would need a book called Advanced User Guide, so I purchased The Firmware Manual thinking it was the correct book which, now that I have read your whole advert appears to be the booked listed as "Whole Memory Guide 464".

I would appreciate some help in solving this problem as the agents in Christchurch, New Zealand do not think that there is another book.

Allan S. Kennaird, Christchurch, N. Z.

The book is not black or orange. It's blue and grey with a 464 on the cover and looks like this:



If you want to learn how to write machine code programs then 'Machine Code for beginners' or ' Machine language for the absolute beginner' is what you need. 'The Ins and Outs of the Amstrad' is as near as you can get to the firmware manual (no longer published).

Concerning the letter from Cameron Bunn (issue 49, Feb. 89). It is possible in Renegade to get red blood which 'oozez' rather than just appearing. To get this effect hold down A,D,W, SPACE and then, still holding them down press f0, small Enter,. (full stop) These last three are all on the numeric keypad. At this stage the game should pause itself. Any key to continue. There you have it. Red blood. Now, I would like to know if anyone knows the code for level 2 of The Vindicator, I'm finding it extremely tricky!

P.S. Would you please tell me where I can get "Micro-Music Creator" by First Byte Software on mail order.

Craig Kooistra, Pt Lincoln, SA.

Thanks for the tip but we cannot reciprocate as we have no idea where to get a copy of Micro-Music Creator. Can anyone else help on this?

I write as a result of the reader's letter from Mr. Bob Olsen from Wishart in Queensland in the December 1988 issue. I really cannot understand his or your magazines difficulty in obtaining hardware constructional articles. The Amstrad User magazine seems rightly or wrongly to have no kind of contact with the rest of the electronics world, concentrating on various forms of typewriter-bashing and the internal workings of the many Amstrads now available. However, all electronics magazines published in Australia, include fairly regularly, construction projects for the expansion of most popular home computers. Now certainly most of these projects are aimed at Commodore, BBC, Amiga or Microbee users, but this is only because these people asked for them. They cater for the greatest demand. At the time that the CPC 6128 appeared the "AUSTRALIAN ELECTRONICS" magazine used to run a column devoted to each of the previously mentioned home computers. They also suggested to readers that they start a column for Amstrad owners to be called the Amstradder. A comprehensive article detailing the installation of a Hitachi double sided 3" disc drive 360K into the CPC6128 was published in the October 1987 issue, but due to lack of support the column has since disappeared.

Anyway, in England, where the Amstrad is even more popular that

it is here, the English publication "PRACTICAL ELECTRONICS" has published AMSTRAD specific designs for various expansion units. The only problem with this is that it is a long way to send for a printed circuit board unless you can make it yourself.

The June edition of this magazine included a ROM board design for 6 ROM's and I include a copy of this article for your encouragement. Mr. Olsen should consult his local library for electronic mags. or perhaps contact a local Amateur Radio Society whose members would probably have access to this kind of information. I hope he knows that he will have to program his ROM or PROM chips before he can use the ROM-board.

Congratulations on the quality of TAU magazine Ed., I have read it since the very first issue and can find very little to complain of over the years. Best wishes to you and all your staff in the future. Would you please forward the design to the desperate Mr. Olsen.

John Houghton, Caringbah, N.S.W.

Done!

Jenny Gill (Letters, April '89) does have a problem and you are probably correct in suggesting the answer is not available in Australia yet; I contacted all the DTP bureaux in Australia during 1987, and advertised in TAU last year, and still can't find a bureau that can produce quality print-ready copy from LocoScript. A company did advertise in the UK a year or two back, quoting about £10 per page to produce laser-printer copy, and another has just been reported (Amstrad PCW Magazine in January this year) as offering to convert LocoScript files to a form ready for use by computer typesetters for £70 for a 720k disc, which is really too dear. If there is anyone in Australia who can do it at an affordable price, I'd like to know as well.

Now, her other problems are solvable - Magnetic Data Storage in Kensington (NSW) do produce 5.25" drives, which work on the PCW, but she will also need a formatting/transfer utility such as Alien, or Moonstone's MFU, in order to transfer files to and from machines using disc formats other than Amstrad's; total cost about $300 or thereabouts for the drive and $150 for the utility. This would allow her to transfer her text as an ASCII file to a 5.25" disc, which could be read by any other computer using that size disc, but there is little point in that, as the texts would still not have any printer instruction codes in them. The only way out at this stage would be for her to agree with her printers on precisely which codes they need in order to produce the intended results, and then to edit her text and insert the codes "manually". The codes could

conform to certain standards, but something as simple as <B> could be used to turn on BOLD, and </B> to turn it off. This is all covered in great detail for the expert in a recent manual (1), and in mercifully less detail for the beginner in Alan Phillip's thoroughly recommended booklet (2). Although very early versions of LocoScript could not produce ASCII files, later versions can, and I can arrange transfer of the files to 5.25" discs at a minimal price, for those who do not want to buy the equipment for themselves.

Locomotive do produce printer driver files that operate most printers, but I had only minimal success with their D630 driver on a Laserwriter, and no success at all with an Omnilaser so it may not yet be worth buying a laser printer for use with Locoscipt, for other than ordinary letter production (and the PCW printer is perfectly adequate for that). As far as I can tell, the problem arises because LocoScript does not work with point sizes (size of letters in points), but only with letter pitch (number of letters per inch), so there is no information contained in a LocoScript file telling it to change type sizes, and it seems to default to whatever is the resident 10 Point type, usually Courier, which is OK for typewriters, but not good enough for printing. We have a HP DeskJet, which gives almost the quality of a laser printer, and could print single pages in Times Roman to be used for the production of printing masters, in a simple format (i.e. ASCII characters only, and no intricate display type), from LocoScript, at a pretty low price; interested parties might like to contact me about this.

Brian Howes,Wagga Wagga, NSW

As a Christmas present I received a PC1512 with a colour monitor. This I thought would be ideal for use at University, which I hope to be attending next year.

Now I have seen that there is an adaptor which will turn your CPC colour monitor into a colour television. I was wondering if there is any such thing for the PC? If not, is it possible that an experienced T.V. technician could adapt it for use on the PC?

Oh yes, there is a place that you can put those letters from jealous CPC owners, who are whingeing about losing a few pages to the PCW and PC computers. It's called The Bin!! I too was once a jealous CPC owner too.

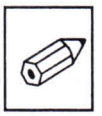
Also, just a little word of warning to those on an economy drive, and saving by re-inking their ribbons. I thought this was great, I even made my own little thing to do it for me. What could be better?

That's what I thought until I had to fork out over $100 to get a new print head!! I hope that others can learn from by BIG mistake. The money I had just saved went straight back to someone at Epson. I'll bet that they're in fits of laughter!

Thank's for a first-rate magazine. I really appreciate Chris Collins' COMPATIBLES CORNER so don't scrap that yet. It's also good to see that your ladies in the mail order section know what their talking about.

Errol Brandt, Maryborough, Qld.

The TV Modulator (MP3) is suitable only for the 6128 or other CPCs with a CTM644 screen. We are not aware of any unit to allow your PC monitor to be used as a colur TV, but this does not mean that it cannot be done by an expert. The 'ladies in the mail order section' appreciate your comments and would have walked out if we had not printed that bit!



There is a question I would like to ask. Why in your magazine (The Amstrad User) don't you print a game (type-in) for the CPC, PCW and PC. What I mean is the same game in one magazine. For example, issue 49 Javanese Checkers and last month was Poker Machine and we can all enjoy the same game.

Also I love your mag and will keep on buying it every month.

I am the proud owner of am Amstrad 1512 and new to computer systems.

It's only a suggestion.

Andre Luiacono, Shalvey, NSW.

When you get to the position of sending us a type-in, will you also be able to provide the listing for the CPC and the PCW?

I am a student of Vilnius University, Department of Astrophysics. It is difficult to imagine modern astrophysics especially theoretical (which is my specialization) without computer technique. Regrettable to say computer technique is still very poorly developed in this country and thus there is not a good personal computer here. On the other hand, currency in this country is controlled by the state and it is impossible to purchase computer from abroad. Perhaps there are available in your club some cheap used which you could donate to me - perhaps in exchange of literature or somewhat else from our country - I even have no idea what ever may be of interest for you. I would be indebted if you write to me regarding to this.

Hope to hear from you soon.

Saulius Kriukelis, Lithuania, USSR

This unusual request was forwarded to us by Ian Pearson, the secretary of the Mountain Districts Amstrad User Group in The Basin, Victoria, to whom this letter was originally sent. Ian has forwarded it to us in the hope that there is someone out there able to help Mr. Kriukelis. For a start we believe nothing less than a PC2286 with specialist software (like 'T³') would really suffice for the task, but there again he would probable feel spoilt with an HP pocket calculator. Any offers or correspondence will be forwarded to the above mentioned user group.

All letters should be addressed to:
The Editor
The Amstrad User
Suite 1, 641 High Street Rd
Mount Waverley VIC 3149

CLASSIES

FOR SALE

PCW 8256/8512, Centronics serial Interface, RS232C and Avtek mini modem II, 300 and 1200/75 baud rates suitable for link with bulletin boards and Viatel. Best offer phone (02) 679 1727

AMSTRAD PCW8256 - complete original software and manuals + DTPx2 and games. ALSO extra colour ribbons and magazines - $650 ONO. 5.25" disc drive for above - $250 ONO. Phone Michael on (02) 349 1226, (02) 579 6975 after 5pm.

Start Computing with the Amstrad CPC6128 - by Judith Thamm.
A Basic course for beginners, full explanations. 112xA4 photocopied pages coil bound with over 50 programs. Ideal for computer clubs. Book $20.00, 3" disc $10.00, P&P $2.00
Ribbons re-inked $4.50 plus return postage. Judith Thamm, Box 269, Two Wells SA 5501 (Ph 085 202377)

Start Computing on the PC - by Judith Thamm. A course for beginners. Everything you need to know to get started. Book and disc set: 5.25" disc $30, 3.5" disc $32, postage $2. Bankcard, Mastercard accepted. Judith Thamm, Box 269, Two Wells SA 5501 (Ph 085 202377)

OVER 100 NEW PROGRAMS for Amstrad CPC's. Schoolwork, games, etc. High quality programs at low prices! Write now for free list to:- Educator Discs, Waitakere, Auckland, NEW ZEALAND

WANTED

STICKERS! Do you collect them? For details about a club for sticker collectors from everywhere (run on an Amstrad PCW), send an SSAE to W.A.S.C.A., PO BOX 77 Brunswick Junction WA 6224

SERVICES

JOYSTICK REPAIRS: Most nine-pin plug joysticks. Also joystick extension cables. Printer and disk drive extensions for CBM64. Reasonable prices. Ring Shannon on (03) 720 2597 or Chris on (03) 729 3365 after 4pm.

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MISCELLANEOUS

Make a lot of easy money by making your own games with a powerful sprite editor that can animate sprites. Tape $8, Disc $16 to A. J. Cutler, 86 Gibson Street Kingsmeadows Launceston Tas. 7250

SPECIAL OFFER

Amstrad TV Modulators (MP3s) which allow CPC colour monitors (model CTM644 only) to be used as a television are available at a knock-down price of just $99.95 including postage. Stock at this low price is limited so be quick and ring The Amstrad User on 03 233 9661.

CONTRIBUTIONS

We accept unsolicited articles or program contributions from readers with a view to possible publication, but in the case of programs we must insist that the coding is submitted on either tape or disc. We just do not have the time to key them all in. The tape or disc will be returned if originally accompanied with a stamped and return addressed padded bag.

DISPLAY ADVERTISING DEADLINES

Issue	Booking by	Copy by
AUG'89	12/06/89	23/06/89
SEP'89	10/07/89	21/07/89
OCT'89	10/08/89	18/08/89

Please refer all display advertising enquiries or bookings to DERRICK LEWIS & ASSOCIATES on (03) 51 9984.

Classified ads should be phoned or sent directly to The Amstrad User.

Just $7.50 gets you a spot in our Classies reaching over 8500 readers each month!

Classified Ads Order Form

This section of the magazine offers you the chance to speak directly to the huge waiting world of Amstrad owners - or would-be owners.
You can place an ad of up to 30 words for just $7.50. So you could use it to sell a printer, launch a user group or publicize a piece of software you have written.
One thing you can't advertise is the sale or swap of software you've purchased. Such ads can be misused by software pirates.
Just fill in the application form and send it to us together with payment. We'll then place the ad in the next available issue (published 3 to 7 weeks after we receive your order.)

Classification: ❑ For Sale ❑ Wanted ❑ Services ❑ User Groups

Please place the following advertisement in the next available issue of The Amstrad User
I enclose payment of $7.50 by Cheque/MO/Bankcard/ Visa/Mastercard (cheques payable to The Amstrad User).
Credit Card Number .....
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Write your advertisement here, one word per box. If you want your phone number printed, it must be included in one of the boxes.

NEWS BREAK

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

MORE FROM PACTRONICS

A recent overseas trip by Max Walters of Pactronics (Chatswood, NSW) sees him return with more new products for Amstrad computers.

For CPCs, a new range of educational software from Database under a series name of Fun School 2. It consists of three packs - under 6, 6 to 8 years and 8+ years - each with eight colourful programs. Levels can be set by parents who are best placed to gauge the child's pace. For serious card and board game players are 'Backgammon', 'Draughts', 'Bridge' and '3D Voice Chess'.

Max has also secured the latest Hewson compilation '4 Smash Hewson Hits' consisting of Zynaps, Exolon, Ranarama and Uridium Plus. All have sold extremely well as single games and at $29.95 for tape or $39.95 for disc are an excellent bargain. Garfield returns along with 'brilliant games' called 'Highway Patrol' and 'Iron Tracker'. Finally, at least for CPCs, a Taito Coin-op conversion called 'Soldier of Light' will soon feature in Max's list.

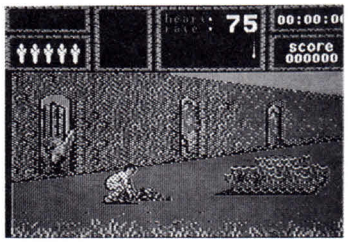
For PCW owners, 'Clock Chess 89' makes its debut with 'Bridgeplayer', the latter a very stong Bridge game with a tutorial section.

For PC owners the list includes 'Bridge Player 2000', 'Splash' - a VGA program with over a quarter of a million colours and 'Disco' - a new hard disc organiser and menu system. On the games front is 'Lombard Rally' which apparently gives 'Turbo Cup' a run for its money and '20000 Leagues under the Sea' presumably adapted from the Jules Verne novel. A little more serious are 'New York Times Crossword', 'Poker PC', 'Blackjack PC' and 'Backgammon PC'.

Finally, Max has returned with some very interesting books - all for beginners - covering Ventura (the Desktop publishing system), Microsoft Word, MS-DOS, Unix and Zenix and GW-Basic.

BRITISH TELECOMSOFT STILL ENGAGED

While British Telecomsoft continue negotiations with prospective buyers (could it be MicroProse?), their release schedule seems to be little dented. A major addition to the list later this year will include a Taito coin-op conversion 'Rainbow Islands'. Instead of firing bubbles to trap the baddies, rainbows are launched in a quest across seven islands. A little closer to release (for the PC only at the moment) is 'Weird Dreams' in which you need to solve the intricate and highly imaginative puzzles to fight your way back to a world of sanity. The game features carnivorous rose bushes with snapping jaws, demonic toys and mutating creatures. As the Press Release states - play Weird Dreams and Night-time will never be the same again.



ROGER RABBIT FOR CPC

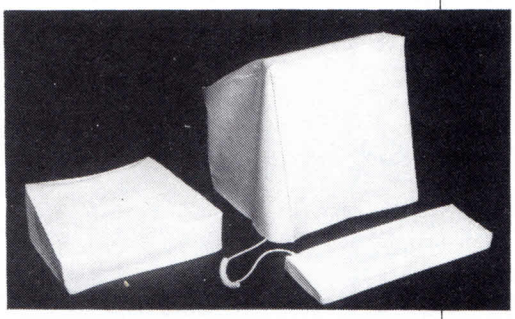
Activision are reported to have signed the license to produce the runaway hit 'Who framed Roger Rabbit' on the CPC. Unless you were abroad at the time, you would not have failed to notice the PC version featured on the front cover of our March '89 magazine. There are two other titles also secured by Activision. First, 'The Real Ghostbuster' - a twelve level game of ghost-zapping mayhem from the children's cartoon and based on the Delta East

PRO-PUNTER UPDATE

The original version of Pro-Punter, the software package for horse racing analysts, was found to be unsuitable for Australasian courses as there was no real method of overriding (excuse the pun) the in-built English course information. We reported a few issues ago that a new version was being written to accommodate our requirements in Australia. The good news is that DGA Software are currently writing a "far superior international version". It will contain Australian course data, but with a tool kit so that the user can construct his/her own local or undocumented course. It will feature a greatly improved presentation, on screen editing and a fully interactive database to store all 'horse form' with full recall.

The bad news is that this obviously improved version will not now be available until August due to the major re-write. However, it should be worth its 'wait' in gold!

COMPUTER DUST COVERS



Protection from DUST for your Amstrad has arrived thanks to a new Australian company, LINE Manufacturing, a Melbourne family company.

The owners, Linda and Nigel Newby, first saw the need for some protection against dust when their own Amstrad PC1640 began disappearing beneath a layer of dust and grime. "We set about designing a tailored cover that would not only afford good protection to our investment but would also be attractive. We received favourable comments on our cover and requests for similar ones from friends. We are extending our range constantly, even to the point where we can make up special orders as required".

The photograph shows a PC1640 alongside an Epson printer. The covers are tailored to fit, thus giving good protection against dust and spills. The covers are a light grey in colour and made from an Australian produced fabric backed vinyl, and as a result will withstand the worst of spills in the office or home. Any stains which may occur are easily removed using a damp cloth and mild detergent solution.

Prices start at $17 for a DMP3160 printer cover, up to $60 for the PCW9512 system which includes a cover for the monitor/system unit, keyboard and daisywheel printer.

Covers can be obtained by mail order from The Amstrad User, from the TAU shop, or by contacting Line Manufacturing on (03) 801 5855.

ROGER RABBIT CONTINUED...

arcade version and second, 'Timescanner' which will be released on the Electric Dreams subsidiary label (at least in the UK anyway - see Ozisoft releases below). It is essentially a pinball machine game but with a different layout for each level and a break-out bonus screen at the end of the game.

WORKS A LITTLE BETTER

Owners of a PC1640 mono-screen Amstrad may have discovered by now that the Microsoft Works package didn't exactly live up to its name. Their computer appeared to go on strike when the SETUP program was run.

However, Microsoft have discovered where the problem lies and are now supplying Release 1.05 to registered users who have the problem. Another good reason for registering software when you buy it.

OZISOFT MAJOR CPC RELEASES

There are a number of potentially good games in the pipeline from Ozisoft.

Blasteroids is a sequel to the arcade classic Asteroids in which you clear all the sectors of space debris to meet the dreaded Mukor.

Outrun Europa (also to be available for the PC) boasts that the ultimate driving experience has become better with this game. Drive your Testarossa to the limits on the highways of Europe.

Renegade 3 - The Final Chapter is bound to be popular as the successor to Renegade and Target Renegade.

The Running Man (based or the Arnold Schwarzenegger movie of the same name) in which you become Ben Masters in a TV fight of your life. (Will also be available on the PC).

Time Scanner where your space travelling drops you into a time warp and an ultimate experience in pinball games.

Red Heat (based on the movie) is hot and the chase is in full cry as East and West join forces to hunt down a Soviet drug dealer.

Vigilante takes place in New York in 1994 where law and order no longer exist. Street gangs dominate the city and your last chance is the Vigilante.

Thunderbirds from the original Gerry Anderson TV cult series hits the CPC screen (and PC too) with all the FAB arcade/adventure action you would expect.

New Zealand Story from the Taito arcades casts you as the last of the free Kiwis with a mission to rescue your friends from their evil captors. It's an incredibly addictive platform game with a difference.

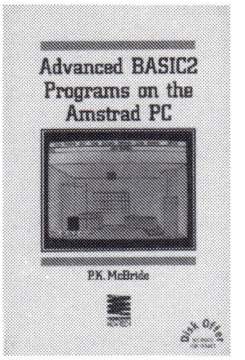
LATEST PC BOOK RELEASES

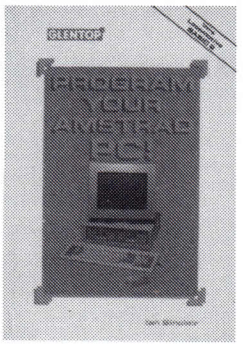
Available by mail order from: The Amstrad User, Suite 1, 641 High Street Rd. Mount Waverley VIC 3149 or phone (03) 233 9661. Rush through an order today!

Advanced BASIC2 Programs On The Amstrad PC

By P.K. McBride

This book is aimed at those Amstrad PC users who have some experience in using BASIC2 and who would like to learn more about the language and its potential. Each program focuses on a different aspect of BASIC2 programming and each has been written as a series of distinct sub-routines. This makes it much easier to explain how the programs work, and will make it easier for the reader to adapt them or take routines from different programs and use them in new applications. ***$35.95 (+ p.p.)***

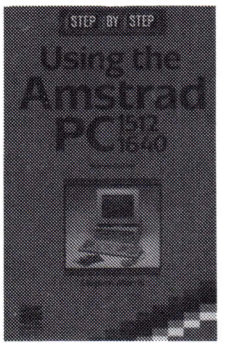




Program Your Amstrad PC!

By Ian Sinclair

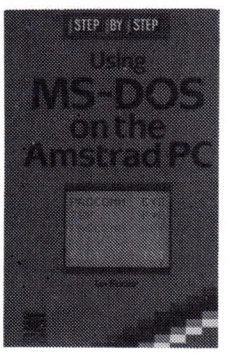
This book by popular U.K. writer, Ian Sinclair, is designed both for the complete beginner to BASIC programming on the Amstrad PC, as well as the more experienced user. It starts from the very beginning, and in easy stages takes the reader through the fundamentals of BASIC2 programming. Topics include: displaying messages on the screen, data statements, formulae and functions, loops and string handling, sub-routines, data files, screen and printer output, program editing and more. ***$32.95 (+ p.p.)***



Using the Amstrad PC1512/1640

Second Edition by Stephen Morris

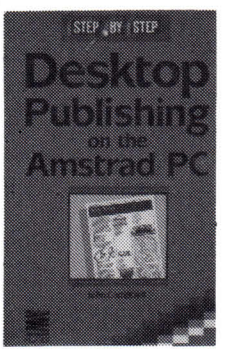
This book from the Step By Step series, describes how to understand and use all the facilities of the Amstrad PC, from initial setting up of the system, copying discs, using GEM through to printers and printing, using RPED, and the operating system. The guide's clear text, which includes many example screen displays, provides a simple, effective learning system. ***$29.95 (+ p.p.)***



Using MS-DOS On The Amstrad PC

By Ian Sinclair

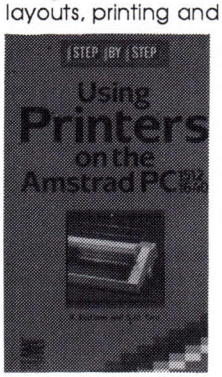
Here's a book for Amstrad PC users who have some prior knowledge of computing but now want to know all about MS-DOS. The book is divided into parts, each of which deals with a number of important topics, relating to the everyday use of MS-DOS on your PC. Topics include the disc system, internal commands, the MODE command, inputs and outputs, formatting discs, batch commands, error messages, utilities and more. Written by Ian Sinclair, who has more than seventy technical and computer books to his credit. ***$29.95 (+ p.p.)***



Desktop Publishing On The Amstrad PC

By John Campbell

This book from the Step By Step series, shows the first-time user how to use packages like Finesse, Ventura and Fleet Street Editor and the sort of professional results that can be achieved. A major emphasis of this book is equipping the reader with an understanding of the principles of typography and graphic design. Discussed are typography, graphics, binding, text and fonts, page layouts, printing and presentation. ***$29.95 (+ p.p.)***



Using Printers On The Amstrad PC

By K. Ewbank and S.M. Gee

Choosing and using a printer to hook up to your Amstrad PC seems straightforward but is actually a minefield for the unwary user. There is great potential to produce impressive results - once you have discovered how. This book explains the different types of printers on the market and the features of each. It explains how to interface your printer to the PC and exploit it to its full potential. Got a printer? Get the book! ***$29.95 (+ p.p.)***

THE GAMES REVIEWED THIS MONTH:
STAR TREK - The Rebel Universe
MERCENARY COMP.
BARBARIAN II

THE GAMES PEOPLE PLAY

The Joystick Wizard is on holiday wherever wizards go, so Ed. has brought in some experts instead, with their own in-depth reviews...

STAR TREK - Rebel Universe

Graphic galactic challenge from Firebird — **PC - $49.95**

The last time I played Startrek, it was on a scrolling terminal. The Klingons looked like this, <K> and the USS Enterprise looked like this <S> and the stars were asterisks and all input was typed. We've come a long way, baby! This FIREBIRD version is totally pointer controlled. You may enter commands with either a joystick, mouse or cursor keys. Each of them moves a graphic pointer to a "control point" on a screen containing one of the crew. The keyboard option is the slowest between the mouse and the keyboard and while it is not documented in the manual that you can move the cursor using all the numeric keys, and to click on a control point, you must use the space bar, it is mentioned in the addendum that accompanies the package. In fact, after reading the manual, read the addendum in conjunction with the manual to see what is not provided in this version. The graphics are the highpoint of the game, (on an EGA screen) but you are given the option of changing the palette on the CGA version.

The action takes place in a section of the galaxy where the bad guys (Klingons) have been subverting the peaceful citizens with a psi-emitter powered by a certain crystal that is only found on a certain planet. Your mission is to stop them. The manual presents several scenarios for doing just that, but it also mentions other objects found during the course of the game "whose purpose will become clear" in the game, so I guess there are some surprises also. The package comes in a plastic box about the same size as a double cassette pack. In it you will find both the EGA and CGA versions. The manual contains enough information to get you to a point where you would have a reasonable chance of success in the mission.

The display is made up of several windows, the action taking place in the largest of these called the primary window. Surrounding the primary window are seven secondary windows containing the most recently used of the other control screens. To make a window active, just click on it and it will be transferred to the primary window where further clicks will accomplish the desired task. It is a typical Amiga type interface and it was only on reading the addendum closely that I learned that this was a conversion from the Atari.

To actually play the game, you must first select a star system to travel to, then set the warp engines to get you there. You won't run out of planets to visit, as there are three "zones" of systems, all containing a number of

solar systems with either 3,4,5 or 6 planets. Once you have reached your destination you may then select a planet to orbit. Before you do that, have Spock analyse the planet to see if it is life-supporting. If it is you may beam down a landing party and explore, sometimes finding useful objects in the process. It is more than likely you will be attacked by either rebel starships, Klingons or Romulans. The battle controls take a little practice to get used to, so expect to be blasted the first few times out. Yes, there is a save game option and also a pause option while you read the manual! It's a good idea to keep a log of the planets visited and what is found there as you never know when you will need a drone repair dock or an energy refinery. There are several ways to fail in your mission, but one of the most insidious is by catastrophe pod. When you enter a solar system where one of the planets have these pods, they attach themselves to your ship and start eating away at the structure. It is so easy to forget they are there, that you merrily go on your way and the next thing you know, a picture of Spock appears, informing you that he will never understand humans, and that's all folks, time to restart the game!

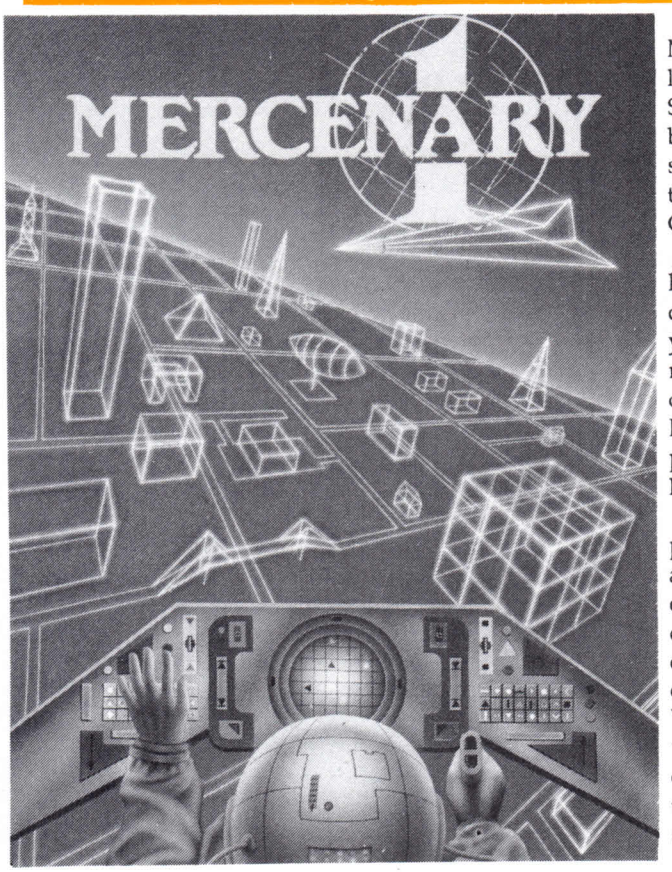
There are a few things that are difficult to operate, the main one being the navigation equipment. This consists of a "starglobe" that shows some of the systems available in the current "zone". Select a planet and you will be given it's co-ordinates. These three sets of numbers are supposed to give a reference that makes the planet easy to find again. I've lost more planets than a dog has fleas! I simply could not get the hang of this navigation system. To be fair, the manual does warn you that it is not easy. They just do not say how difficult it really is! One of the other minor annoyances is the alarm that sounds when you are being attacked. This has the capacity to wake the whole house if you are playing late at night, and I could find no way to switch it off permanently, short of cutting the wires to my computer's speaker. Apart from these niggles there are no real defects in the game. You get the best results with a mouse. I didn't try the joystick option as I don't have one, but I found the keyboard to be workable. The CGA version is also quite playable.

To boldly go where no man has gone before, you will need a 1512/1640 with colour screen and for best results, use the mouse. The program is not copy-protected and will load and save to a hard disc. All in all, a good implementation of an old favourite. *Shane Kelly*

MERCENARY COMPENDIUM

An arcade/adventure game from Novagen

CPC Disc $24.95
CPC Tape $19.95



Mercenary was originally launched for the CPC early 1987, around the same time as Rainbird launched STARGLIDER. Originally only available on tape (or so I believe) the game had included an ability to load a second data-set at a later date that would allow players to explore a second city. That time is now and Mercenary Compendium is here!

The story goes something like this. You play a battle-hardened mercenary who, having tired of war has decided to return home to Earth for a rest. Suddenly, your inter-galactic craft, named "Prestinium", has a mechanical malfunction and you find yourself on a collision course with the planet "Targ". Your individual PC, names "Benson", decides that it's time for you to play pilot and reverts the ship to manual control, just too late for you to be able to avoid crashing into the planet.

The inhabitants of the planet Targ are the Playars, a peace loving race who are currently engaged in a war against the invading Mechanoids. Into this hostile environment you are plunged, to survive as best you can. Your luck starts off fair, as on the airstrip where you crash is a ship that you can buy. Once that transaction is completed, it's into the ship and off to explore the planet. While you are flying about, a job offer is received by "Benson" from one of the warring parties, along with the co-ordinates of the full briefing. Once you have received this briefing, it's off on the mission of exploring the city and finding a ship capable of getting you off the planet.

Mercenary combines arcade action with the touch of an adventure. You fly the ship (or control one of the ground craft that can be found) as in most flight simulators. The screen shows, as well as your forward view, your elevation, location, altitude, speed and direction (via a compass). You can fly, drive or walk around the city, which is based on a 15 by 15 grid. Located throughout the city are hangers which allow access to subterranean levels. Access to these levels is via elevators, then it's out of the ship to explore the various rooms and passageways on foot. As well as the various objects to be found (e.g. sights for your weapons) there are also transporters located in these levels, which allow for rapid access between various areas. However, as moving around the rooms can be confusing, mapping is essential.

The elements of the city of Targ are drawn using vector graphics, which pass by remarkably quickly. Some features, such as radar dishes, actually move. Once again, mapping is essential to completing the game. Outside the city there are also some areas to explore, the trick being to find them. There is even a space station, but to explore this you will need a ship with the power to climb to 65,000 metres. Also located somewhere in the city is a ship capable of inter-galactic flight, your ultimate goal in your quest on Targ. Once you have completed the Escape from Targ, you can load up the Second City, which offers more of the same, only harder.

Mercenary Compendium is a challenging game. The elements of the city are well drawn. The animation required when a building is destroyed has to be seen to be believed and the man responsible for the conversion of the program has a sense of humour. Spread around the landscape are bill-boards boasting the Atari and Commodore emblem. Destroy these and you get the message "Well done" but if you destroy the Novagen sign, you are told that the game will get harder as a result. You can spend hours exploring either city. No-one will attack you until you commit an act of aggression. Finally, you will get the urge to destroy something, anything. Then the party who controlled that building will send a ship to destroy you and if it succeeds, you are thrown clear and it's back to walking to get around. Ah well, you can always find another ship! Also included is a save game option. Just the thing to use before stepping through the door on the space station marked with the skull and cross bones (yes, you guessed it....65,000 metres straight down). But still you don't die - you just have to walk until you find another ship.

Mercenary does have a lot in common with other vector graphics games, such as Starglider and Cholo. Where Mercenary stands alone is its speed and the adventure aspect where it's back to mapping and matching clues to objects in order to make as much money as possible (there are supposed to be 1.9 million credits available in Escape From Targ alone). The documentation supplied with the game is good and if you are really stuck, there is included an address in the U.K. where you can write to for a survival kit which contains maps, hints and a novella entitled "Mercenary - Interlude on Targ". The major sounds in the program are engine noise, elevator operation and crashes. These are well done and add to the atmosphere of the game.

While Mercenary Compendium will not appeal to everybody, it will to those who like a challenge. With two cities to explore and numerous problems to solve, this will be a game that you will still be playing for some time. It's a challenge to complete, and although there are long periods of in-activity, it keeps the interest, especially when the credits start to roll in. Accept the challenge, and good luck fellow Mercenaries.

Vic Renfrew

BARBARIAN II

Visit the dungeons of Drax with Palace

Prices unavailable

THE STORY SO FAR...

..."At the finale of BARBARIAN - THE ULTIMATE WARRIOR, the barbarian defeated the warriors of Drax and thus freed Princess Mariana from his evil spell...

..."Drax fled to the dungeons beneath his black castle, vowing to wreak disaster on the Jewelled Kingdom...

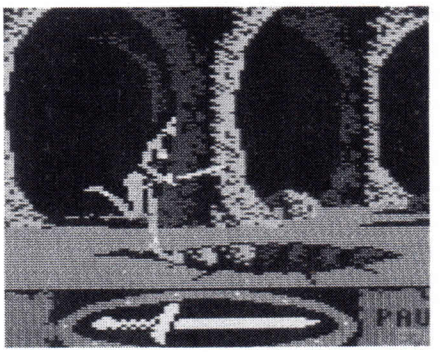
..."It is decided that there is only one way to stop Drax. The Barbarian and Mariana - herself an accomplished swordswoman - are the only two warriors skilled enough to survive the perilous journey to Drax's lair. They must stop him before it is too late..."

Do you remember BARBARIAN? It was launched a couple of years ago and boasted good graphics and great animation. The basis of the game featured a muscular fellow fighting against a number of opponents in an arena, with the ultimate aim of rescuing a princess from an evil wizard. What helped the game stand out was the animation. It was great and the sprite could perform a number of moves (including a flying neck chop - with interesting results - and forward and backward rolling). Included was a two player option which added a new dimension to the game (BARBARIAN is now available on the compilation pack "We are the Champions", available from TAU). Although it was great fun, the actual gameplay was limited, being confined only to the arena (the background can be changed but once selected... that's it). When I heard that Palace planned to launch a sequel to BARBARIAN, but with more gameplay, I couldn't wait to get my hands on it.

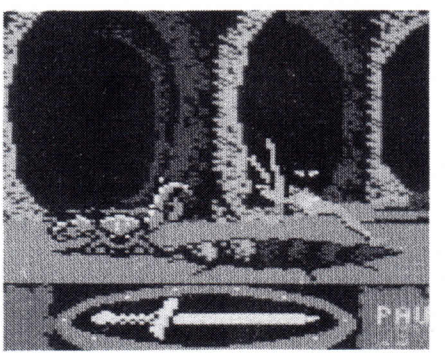
Well, I got my hands on it and have been playing it

for a number of weeks, so I suppose it's time to sit down and review the game. So here goes...

Upon loading the game you are given the option of loading the Barbarian, armed with a wicked looking battle axe, or the Princess, who is armed with a sword. Once that selection is complete it's onto the game.



BARBARIAN II puts your character in a battle through three levels of landscape in an effort to reach the Sanctum of Drax where you must defeat three enemies - the Living Idol, a great Demon, and finally Drax. To help defeat these three, scattered around the levels are six objects that must be collected (there are two objects on each level). The objects are the axe, the globe, the potion, the key, the shield and the jewel. To make your progress around the levels more difficult, there are six different types of monsters which must be defeated. At the start of the game, your character has five lives, all of which have a finite amount of energy and with each strike upon your character by a monster, this energy depletes, until finally a life is lost. These can be replaced as scattered extra lives in the form of skulls. These can be accumulated so that you can in effect have more than the five lives.

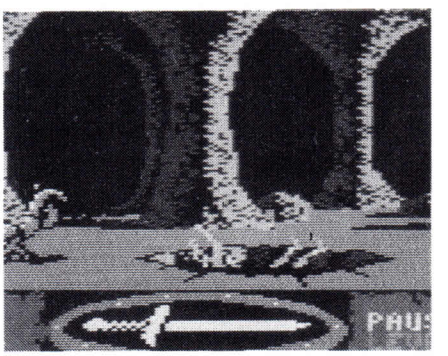


Each of the first three levels contains about 28 screens. With these you can walk (or run) left, right or into caves or doors found in the scenery. The firsat three levels are the Wastelands (featuring belching volcanoes amongst other effects), the Caverns and the Dungeons. Don't think it's just a matter of running through each screen because some screens have huge craters in them which your character must jump over (timing is the key to this manoeuvre). Once you have completed each level, you carry forward the number of lives left at that point of time. Each level is loaded separately and as a result, if you lose all lives it's only back to the start of the level you are currently playing. Each monster encountered require different modes of attack, varying from kicking to the flying neck chop. Learning which tactic and destroying each monster is easy - but requires timing. Mapping is important for completing each level but maps are already in various trade magazines if you don't want to get involved in drawing maps.

Level four is the final level and you had better have collected your magical objects or you will have little protection against the wrath of Drax and his mates!

Well, how does BARBARIAN II play, compared to the original? Because there are a number of locations and three levels plus the final confrontation stage, there is more gameplay in BARBARIAN II. The differing enemies means developing different tactics but once this is done, the game is back to the same slack and hack that is contained in the original. No music is available in this game, sound effects being limited to the sound of the sword or axe slicing through flesh or air, footsteps as the character runs, hits of the creatures on your character and a rhythmic pulse to let you know that you are at the exit location from the current level. Unfortunately, what lets BARBARIAN II down, in my opinion, is not anything to do with the gameplay, but a couple of bugs that have managed to creep into the program. The first is to do with the loading, which sometimes makes the sprite disappear when performing an attacking move (particularly the Princess). The second concerns the loading of Level 3, which causes the background scenery and enemy sprites to partially crash. The hero sprite and the objects to be collected from this level are clear, but the rest of the screen breaks up so that your opposition and the holes in the floor of the dungeon are unrecognisable. I know that Palace is aware of these bugs and are currently working to rectify them. Perhaps they will be corrected before the game is on general sale.

To summarise, BARBARIAN II has the potential to be a very good game; in fact the two levels I have been able to play are very addictive and have resulted in many a late night where time has just slipped away. The two bugs mentioned ruin the game, and, hopefully by now Palace have found the problem and have corrected it (the review copy was sent to TAU direct from UK by Palace). All in all, BARBARIAN II is enjoyable and challenging and, if the bugs are fixed, will find a place in my software collection.



Vic Renfrew

BEYOND LOGIC

Here's part two of Aaron Pile and Ian Lacey's brain cell destroyer. Tip: be patient and cunning!

```
1670 DATA 1111111111111111,1100000000000m1,11915811701
11811,1100000000000m0k1,10,3,1101101101j00211,5,13,11000
000m11700m1,11n1011011170111,11000m1011077011
1680 DATA 11010008k1877781,8,6,1101111711117101,11000m1
n1000m101,1101000110101101,11010j0000180001,3,3,11000m1
11n161001,11n1000000x000k1,3,10,1111n11111111111
1690 REM
1700 REM TRAIL SCREEN 10
1710 REM
1720 RESTORE 1730:RETURN
1730 DATA 1111111111111111,11080000x0000011,11011111177
77711,1100000000000011,1101111111717301,1101000000010561
,1101078701100211,1101000001000011
1740 DATA 1101011111012011,1120300000010011,11011001110
00011,1101000000212211,1180000010112211,11410331j0082211
,5,14,1111113112111111,1111111111111111
1750 REM ##
1760 REM ## TRIAL SCREEN 11
1770 REM ##
1780 RESTORE 1790:RETURN
1790 DATA 1111111111111111,1x0100000000000m1,11000101017
17811,1111300000811311,1100077001180001,1101171171171101
,1108008100800101,1111011101100001
1800 DATA 1100000000m00701,1100177081131301,11300177311
10001,1113008000000001,1111171700000001,1111111111111131
,1000000000000001,1611111111111111
1810 REM ##
1820 REM ## hi scores
1830 REM ##
1840 IF SC(5) > SC THEN in=24:GOSUB 440:GOSUB 120:RETUR
N
1850 SCOUNT = 1
1860 FOR I= 5 TO 1 STEP -1
1870 IF SC >= SC(I) THEN SC(I+1)=SC(I):NA$(I+1)=NA$(I)
1880 IF SC < SC(I) THEN HO= I+1:SC(I+1) = SC:NA$(I+1)=C
HR$(15)+CHR$(7)+CHR$(8)+CHR$(243)+"--------":GOTO 1930
1890 NEXT I
1900 SC(I+1) = SC:HO=I+1:NA$(I+1) = CHR$(15)+CHR$(7)+CH
R$(8)+CHR$(243)+"--------":GOTO 1930
1910 FOR I=1 TO 5:NA$(I)="NUT & CO":SC(I) =4100-(I*800)
:NEXT
1920 RETURN
1930 IN=24:GOSUB 420:GOSUB 150:IN=0:GOSUB 420:PEN 1:NA$
="":GOTO 2060
1940 A$="":WHILE A$="":A$=INKEY$:WEND
1950 a$=UPPER$(a$)
1960 A = ASC(A$):LA = LEN (NA$)
1970 IF (A>31 AND A<91) OR A=127 OR A=13 THEN 1990
1980 GOTO 1940
1990 IF A=127 AND LA >=1 THEN NA$=MID$(NA$,1,LA-7):LOCA
TE 1,18:PRINT "          "+NA$+DEL$
2000 IF A=127 THEN 2040
2010 IF A=13 THEN NA$=NA$+SPACE$(8-(LA/7)):GOTO 2080
2020 IF LA >= 56 THEN 1940
2030 NA$=NA$+CHR$(15)+CHR$(0)+CHR$(255)+CHR$(8)+CHR$(15
)+CHR$(1)+A$
2040 LOCATE 1,18:PRINT "  NAME    "+NA$
2050 GOTO 1940
2060 LOCATE 1,18:PRINT "  NAME "+CHR$(15)+CHR$(7)+CHR$(
243)+CHR$(15)+CHR$(1)+"  "+"--------"
2070 GOTO 1940
2080 PEN 0:LOCATE 1,18:PRINT DELLINE$:NO2$=""
2090 FOR I=1 TO LA:A$=MID$ (NA$,I,1)
2100 A=ASC(A$):IF A > 31 AND A < 91 THEN NO2$=NO2$+A$
2110 NEXT I:NA$=NO2$+SPACE$(8-(LEN(NO2$)))
2120 FOR I=8 TO 0 STEP -1:INK 7,I:FOR A=1 TO 200:NEXT A
:NEXT I:INK 9+HO,26
2130 LOCATE 1,10+HO:PEN 0:PRINT DELLINE$
2140 LOCATE 1,10+HO:INK 9+HO,0:PEN 9+HO:PRINT "   "+NA$
+" "+STRING$(5-(LEN(STR$(sc(HO)))-1),"0")+MID$(STR$(SC(
HO)),2,LEN(STR$(SC(HO)))-1):FOR I=0 TO 26-(HO*3):FOR A=
1 TO 200:NEXT A:INK 9+HO,I:NEXT I
2150 FOR I= 1 TO 7000:A$="":A$=INKEY$:IF A$<> "" THEN 2
160 : ELSE NEXT I
2160 NA$(HO)=NA$:HALT=REMAIN(0):DI:SCOUNT=0
2170 RETURN
2180 REM ##
2190 REM ## movement
2200 REM ##
2210 RESTORE 3150:EVERY 5 GOSUB 3110:EI
2220 A=ACROSS:D=DOWN
2230 A2=A:D2=D
2240 IF NOS=0 THEN TELE$="Y":INK 8,9,0:INK 9,0:INK 11,0
2250 LOCATE 1,1:PRINT MO$:LOCATE A2+2,D2+2:PRINT " ":LO
CATE A+2,D+2:PEN 2:A2=A:D2=D:GGH = NOT(GGH):IF GGH=0 TH
EN SYMBOL 35,56,68,198,238,198,68,56,0:PRINT "#":ELSE S
YMBOL 35,56,124,146,130,146,124,56,0:PRINT "#"
```

```
2260 D$=XS$(A,D+1):IF TELE$="Y" AND D$="5" THEN D$="0"
2270 U$=XS$(A,D-1):IF TELE$="Y" AND U$="5" THEN U$="0"
2280 L$=XS$(A-1,D):IF TELE$="Y" AND L$="5" THEN L$="0"
2290 R$=XS$(A+1,D):IF TELE$="Y" AND R$="5" THEN R$="0"
2300 IF XS$(A,D+2)="5" AND TELE$="Y" THEN XS$(A,D+2)="0
"
2310 IF INKEY$= exit$ THEN LIVES=LIVES-1:GOSUB 3020:HAL
T=REMAIN(0):DI:BBOK=0:IF LIVES=0 THEN GOSUB 1810:GOTO 3
090:ELSE GOTO 270
2320 IF INKEY$= quit$ THEN lives=0:GOSUB 3020:HALT=REMA
IN(0):DI:BBOK=0:GOSUB 1810:GOTO 3090
2330 IF BBOK = 3 THEN GOTO 2670
2340 IF D$ = "7" THEN BBOK = 3:A3=A:D3=D
2350 IF D$="6" AND TELE$="Y" THEN TELE$="N":SC=SC+300:G
OSUB 3040:FOR i=100 TO 400 STEP 50:SOUND 2,i,3,5:SOUND
2,i,3,7:NEXT:DI:RETURN
2360 IF D$="8" THEN D$="0":XS$(A,D+1)="0":SC=SC+100:GOS
UB 3040:GOSUB 3100:NOS=NOS-1:IF NOS=0 THEN TELE$="Y":IN
K 8,9,0:INK 9,0:INK 11,0
2370 IF D$="0" THEN D=D+1:GOTO 2240
2380 IF D$="n" THEN GOTO 2640
2390 IF NOS=0 THEN TELE$="Y":INK 8,9,0:INK 9,0:INK 11,0
2400 A$="":WHILE A$="":A$=INKEY$:WEND
2410 IF D$="2" OR D$="3" OR D$="4" THEN FOR I=1 TO 35:N
EXT
2420 IF A$ = exit$ THEN LIVES=LIVES-1:GOSUB 3020:HALT=R
EMAIN(0):DI:BBOK=0:IF LIVES=0 THEN GOSUB 1810:GOTO 3090
 ELSE GOTO 270
2430 IF A$ = quit$ THEN lives=0:GOSUB 3020:HALT=REMAIN(
0):DI:BBOK=0:GOSUB 1810:GOTO 3090
2440 IF A$=mol$ AND (L$="0" OR L$="8") THEN A=A-1:IF L$
="8" THEN XS$(A,D)="0":SC=SC+100:GOSUB 3040:GOSUB 3100:
NOS=NOS-1:GOTO 2240:ELSE GOTO 2240
2450 IF A$=mor$ AND (R$="0" OR R$="8") THEN A=A+1:IF R$
="8" THEN XS$(A,D)="0":SC=SC+100:GOSUB 3040:GOSUB 3100:
NOS=NOS-1:GOTO 2240:ELSE GOTO 2240
2460 IF A$=mob$ AND D$="4" AND XS$(A,D+2)="0" THEN D=D+
1:XS$(A,D)="0":LOCATE 1,1:PRINT me$:LOCATE 1,D+1+2:PRIN
T SPACE$(A+1)+UDC$(4):XS$(A,D+1)="4":GOTO 2240
2470 IF A$=mob$ AND D$="2" AND XS$(A,D+2)="0" THEN D=D+
1:XS$(A,D)="0":LOCATE 1,1:PRINT me$:LOCATE 1,D+1+2:PRIN
T SPACE$(A+1)+UDC$(2):XS$(A,D+1)="2":GOTO 2240
2480 IF A$=mou$ AND D$="3" AND U$="0" THEN D=D-1:XS$(A,
D+2)="0":LOCATE 1,1:PRINT MO$:LOCATE A+2,D+2+2:PRINT "
":A2=A:D2=D:LOCATE 1,1:PRINT ME$:LOCATE 1,D+3:PRINT SPA
CE$(A+1)+UDC$(3):XS$(A,D+1)="3":GOTO 2240
2490 IF A$=mou$ AND D$="2" AND U$="0" THEN D=D-1:XS$(A,
D+2)="0":LOCATE 1,1:PRINT MO$:LOCATE A+2,D+2+2:PRINT "
":A2=A:D2=D:LOCATE 1,1:PRINT ME$:LOCATE 1,D+3:PRINT SPA
CE$(A+1)+UDC$(2):XS$(A,D+1)="2":GOTO 2240
2500 IF A$=mol$ AND L$="1" THEN FOR I=300 TO 340 STEP 2
0:SOUND 2,i,7,5:NEXT:FOR I=1 TO 5:LOCATE A-1+2,D+2:FOR
I2=1 TO 10:NEXT I2:PRINT LS$(I):NEXT:GOTO 2540
2510 IF A$=mor$ AND R$="m" THEN FOR I=300 TO 340 STEP 2
0:SOUND 2,i,7,5:NEXT:FOR I=1 TO 5:LOCATE A+1+2,D+2:FOR
I2=1 TO 10:NEXT I2:PRINT RS$(I):NEXT:GOTO 2560
2520 IF (A$=mor$ AND R$="k") OR (A$=mol$ AND L$="j") TH
EN GOSUB 2580
2530 GOTO 2260
2540 R$=XS$(A+1,D):IF R$<>"m" THEN A=A+1:LOCATE A2+2,D2
+2:PRINT " ":LOCATE A+2,D+2:PRINT CHR$(15)+CHR$(2)+"#":
A2=A:D2=D:GOTO 2540:ELSE FOR I=300 TO 340 STEP 20:SOUND
 2,i,7,5:NEXT:FOR I=1 TO 5:LOCATE A+1+2,D+2:FOR I2=1 TO
 30:NEXT I2:PRINT RS$(I):NEXT
2550 GOTO 2240
2560 L$=XS$(A-1,D):IF L$<>"1" THEN A=A-1:LOCATE A2+2,D2
+2:PRINT " ":LOCATE A+2,D+2:PRINT CHR$(15)+CHR$(2)+"#":
A2=A:D2=D:GOTO 2560:ELSE FOR I=300 TO 340 STEP 20:SOUND
 2,i,7,5:NEXT:FOR I=1 TO 5:LOCATE A-1+2,D+2:FOR I2=1 TO
 30:NEXT I2:PRINT LS$(I):NEXT
2570 GOTO 2240
2580 FOR I=1 TO 9:IF SWITCH (I,1)=A AND SWITCH (I,2)=D
THEN 2590 ELSE NEXT
2590 DRA=SWITCH(I,3):DRD=SWITCH(I,4)
2600 IF XS$(DRA,DRD)="0" THEN MOV=-1:ZAP=6:XS$(DRA,DRD)
="9":ELSE MOV = 1:ZAP = 0:XS$(DRA,DRD)="0"
2610 IF L$="j" THEN FOR I=1 TO 5:LOCATE A-1+2,D+2:PRINT
 LSW$(I):ZAP=ZAP+MOV:LOCATE DRA+2,DRD+2:PRINT DR$(ZAP):
FOR I2=1 TO 30:NEXT:NEXT I
2620 IF R$="k" THEN FOR I=1 TO 5:LOCATE A+1+2,D+2:PRINT
 RSW$(I):ZAP=ZAP+MOV:LOCATE DRA+2,DRD+2:PRINT DR$(ZAP):
FOR I2=1 TO 30:NEXT:NEXT I
2630 RETURN
2640 FOR I=300 TO 340 STEP 20:SOUND 2,i,7,5:NEXT:FOR I=
1 TO 5:LOCATE A+2,D+1+2:PRINT US$(I):FOR F=1 TO 30:NEXT
:NEXT
2650 IF U$ = "0" THEN LOCATE A+2,D+2:PRINT " ":D=D-1:D2
=D:LOCATE A+2,D+2:PRINT CHR$(15)+CHR$(2)+"#":U$=XS$(A,D
-1):GOTO 2650
2660 R$=XS$(A+1,D):L$=XS$(A-1,D):U$=XS$(A,D-1):D$=XS$(A
,D+1):IF R$="m" THEN A$=mor$:GOTO 2500:ELSE A$=mol$:GOT
O 2500
2670 BBOK = 0:SOUND 2,200,20,6,1,1,5:FOR I=1 TO 5 :LOCA
TE A3+2,D2+2+1:PRINT BBR$(I):NEXT:IF A=A3 AND D=D3 THEN
 D$="0"
2680 XS$(A3,D3+1)="0":GOTO 2340
2690 ON SQ(1) GOSUB 2700:RETURN
2700 READ TON,LE:IF LE=999 THEN RESTORE 2710:RETURN:ELS
E SOUND 1,TON,LE:RETURN
2710 DATA 300,20,250,30,200,30,250,30,300,20,250,30,150
,30,0,10,300,20,250,30
2720 DATA 200,30,250,30,300,20,320,30,0,30,300,30,250,3
0,200,30,250,30,300,20
2730 DATA 250,30,150,30,0,5,150,30,0,5,150,30,200,30,25
0,30,300,30,250,30,300
2740 DATA 40,0,30,100,20,0,5,100,20,150,25,100,20,0,5,1
```

```
00,20,150,25,200,20,0,5
2750 DATA 200,20,250,25,200,20,0,5,200,20,250,25,0,5,25
0,20,0,5,250,20,200,25
2760 DATA 250,20,0,5,250,20,200,25,250,45,300,30,0,5,30
0,30,0,30,0,1500,999,999
2770 in=24:GOSUB 440:WINDOW #1,3,18,3,19:LOCATE 1,1:PRI
NT #1,CHR$(12)
2780 PRINT mo$:LOCATE 2,21:PEN 3:PRINT "YOUR SCORE - 00
000"
2790 LOCATE 2,23:PEN 3:PRINT "LEVEL 00  LIVES 00":PRINT
 me$
2800 RESTORE 2840:TAG:a=38:d=272
2810 FOR i= 1 TO 6:a=a+32:d=d+16:READ a$:PLOT a,d,5:PRI
NT a$;:NEXT:a=390:d=368
2820 FOR I=1 TO 6:READ a$:PLOT a,d,5:PRINT a$;:a=a+32:d
=d-16:NEXT
2830 TAGOFF:PRINT CHR$(22)+CHR$(1):PEN 1:LOCATE 1,8:PRI
NT CHR$(9)+CHR$(9)+"B"+CHR$(11)+"E"+CHR$(11)+"Y"+CHR$(1
1)+"O"+CHR$(11)+"N"+CHR$(11)+"D    L"+CHR$(10)+"O"+CHR$
(10)+"G"+CHR$(10)+"I"+CHR$(10)+"C"+CHR$(10)+"!"
2840 DATA B,E,Y,O,N,D,L,O,G,I,C,!
2850 FOR i=100 TO 200:PLOT 200+30,i+70,4:DRAW 320+30,i+
30+70,4:DRAW 440+30,i+70,5
2860 NEXT:FOR i=169 TO 195
2870 PLOT 300+30,178+70,1:DRAW 258+30,i+70,1:DRAW 225+3
0,160+70,1:NEXT
2880 FOR i=70 TO 130:PLOT 320+30,i+70,14:DRAW 200+30,10
0+70,14:PLOT 320+30,i+70,14:DRAW 440+30,100+70,14:NEXT
2890 DATA p,320,125,320,115,p,320,105,320,95,p,320,85,3
20,75,p,320,65,320,55
2900 DATA p,320,45,320,35,p,201,90,201,80,p,201,70,201,
60,p,201,50,201,40,p,440,90,440,80,p,440,70,440,60,p,44
0,50,440,40
2910 DATA p,215,204,215,210,240,215,240,212,p,330,230,3
30,235,355,230,355,225,p,260,217,260,245,270,255,285,26
0,300,255,310,245,310,230,p,270,245,285,240,300,245,290
,235,285,240,280,234,270,245,p,283,230,290,230,286,226,
283,228,290,228,999
2920 LOCATE 1,1:RESTORE 2890
2930 READ a$:IF a$= "999" THEN 2960 ELSE IF a$<>"p" THE
N 2940 ELSE READ a,b:PLOT a+30,b+70,1:GOTO 2950
2940 a=VAL(a$):READ b:DRAW a+30,b+70,1
2950 GOTO 2930
2960 INK 7,0
2970 INK 6,0:LOCATE 4,13:PRINT UDC$(8)
2980 in=0:GOSUB 450:ha=4:lives=5
2990 IF LIVES>99 THEN LIVES=99
3000 halt=REMAIN(0):halt=REMAIN(1):RESTORE 2710:EVERY 1
0 GOSUB 2690:EI
3010 A$="":A$=INKEY$:IF A$ = "" THEN 3010:ELSE halt=REM
AIN(0):DI:SOUND 1,0,1:in=24:GOSUB 450:l=1:GOSUB 280
3020 PRINT CHR$(22)+CHR$(0)+CHR$(15)+CHR$(3):LOCATE 18,
23:IF LIVES < 10 THEN PRINT HEX$(LIVES,2):ELSE WRITE LI
VES
3030 RETURN
3040 IF SC > 99999 THEN SC=0:FOR I=1 TO 10:PRINT CHR$(7
);:NEXT
3050 IF SC<10 THEN P=19 ELSE IF SC<100 THEN P=18 ELSE I
F SC<1000 THEN P=17 ELSE IF SC<10000 THEN P=16 ELSE P=1
5
3060 PRINT CHR$(22)+CHR$(0)+CHR$(15)+CHR$(3):LOCATE P,2
1:WRITE SC:RETURN
3070 PRINT CHR$(22)+CHR$(0)+CHR$(15)+CHR$(3):LOCATE 8,2
3:IF L < 10 THEN PRINT HEX$(L,2):ELSE WRITE L
3080 RETURN
3090 sc=0:l=0:INK 5,3:GOTO 2770
3100 SOUND 2,30,10,5:FOR i=25 TO 40 STEP 5:SOUND 2,i,10
,5:NEXT:RETURN
3110 ON SQ(1) GOSUB 3120:RETURN
3120 READ so1,so2,so3:IF so1=99999 THEN RESTORE 3150: S
OUND 1,0,250:SOUND 4,0,295:READ so1,so2,so3:RETURN
3130 IF so1=2 THEN SOUND 4,so2,so3,4 ELSE IF so1=300 TH
EN GOTO 2700 ELSE SOUND so1,so2,so3
3140 RETURN
3150 DATA 2,493,176,1,493,20,1,0,2,1,493,20,1,0,2,1,391
,20,1,0,2,1,391,20,1,0,2,1,329,20,1,0,2,1,329,20,1,0,2,
1,293,20,1,0,2,1,329,20,1,0,2,2,220,170,1,440,20,1,0,2,
1,440,20,1,0,2,1,391,20,1,0,2,1,391,20,1,0,2,1,329,20,1
,0,2
3160 DATA 1,329,20,1,0,2,1,293,20,1,0,2,1,329,20,1,0,2,
2,493,170,1,493,20,1,0,2,1,493,20,1,0,2,1,391,20,1,0,2,
1,391,20,1,0,2,1,329,20
3170 DATA 1,0,2,1,329,20,1,0,2,1,293,20,1,0,2,1,329,20,
2,329,174,1,0,2,1,329,20,1,0,2,1,329,20,1,0,2,1,261,20,
1,0,2,1,261,20,1,0,2,1,220,20,1,0,2,1,220,20,1,0,2,1,19
5,20,1,0,2,1,220,20
3180 DATA 2,493,170,1,493,20,1,0,2,1,493,20,1,0,2,1,391
,20,1,0,2,1,391,20,1,0,2,1,329,20,1,0,2,1,329,20,1,0,2,
1,293,20,1,0,2,1,329,40
3190 DATA 1,195,20,1,0,2,1,220,20,1,0,2,1,246,20,1,0,2,
1,246,20,1,0,2,1,246,20,1,0,2,1,293,40,1,0,6,1,220,20,1
,0,2,1,246,20
3200 DATA 1,0,2,1,261,20,1,0,2,1,261,20,1,0,2,1,329,40
3210 DATA 1,0,2,1,246,20,1,0,2,1,246,20,1,0,2,1,246,30,
1,0,2,1,220,40,1,0,2,1,246,20,1,0,2,1,261,40,1,0,20
3220 DATA 99999,0,0
3230 in=24:GOSUB 420
3240 PRINT #1:PRINT #1,CHR$(12):PRINT #1,"congatulation
s!":PRINT #1:PRINT #1,"  it took you  ":PRINT #1:PRINT
#1,"  long enough  ":PRINT #1:PRINT #1,"  to get here
":PRINT #1:PRINT #1,"   WELL DONE   ":PRINT #1:PRINT #1
:PRINT #1," KEEP ROLL'N ON "
3250 PRINT #1:
3260 IN=0:GOSUB 420:A$="":WHILE A$="":A$=INKEY$:WEND:LI
VES = 0:HALT=REMAIN(0):DI:BBOK=0:GOSUB 1810:GOTO 3090
3270 GOTO 3270
```

CP/M+ BOX

From Graduate Software comes the CP/M+ ROM Loader, effectively storing CP/M and utilities on a chip. Joseph Elkhorne leaves Serendipity for a month to take a look.

Graduate Software, of UK, produce an add-on for anyone who works with CP/M regularly. Essentially, this is a plug-in to the expansion buss, which contains a custom copy of CP/M Plus.

Inside the attractive grey plastic box, we find six (6) ROM sockets and DIP switches to enable the filled positions. One and Two hold 32K worth of CP/M. Utilities and applications programs in ROM can live in the others. To ensure against piracy, your original CP/M+ disc is send to Graduate, who dump it to ROM. This ROM copy is further customised with your name, address, and unique serial number.

The CP/M Accessory box comes with an A5 manual and a pocket card which summarises the command set. If accessory ROMs are selected, additional printed matter accompanies them. The box has a short ribbon cable and edge connector which fits onto the computer expansion buss. This, of course, is done with power OFF! To review this unit, I looked at the current state of my rig and wondered if one more add-on would make a difference. Edgar (my CPC 6128) is already full blown: joystick, ribbon cable to NEC printer, cassette cable, ribbon cable to 5.25" disc drive and serial interface leading to modem. Throwing caution to the wind, I plugged the CP/M box onto the i/f and hit the power switches.

The first change is the sign-on screen. A portion thereof appears in red with yellow lettering– quite vivid– and additional copyright information. It's business as usual after that for AMSDOS applications. I ran up Tasword to see if anything unusual was going to occur. Everything seemed normal. I still had 360K access to my B:drive (using the Dform entry) and editing, saving etc. all worked fine. I closed off the word processing and glanced at the manual for a few milliseconds. Enough to find that |o took me into the alternate environment straight away. There are a number of approaches and options with this accessory and reading the manual is a must.

128K AND 3" DRIVE ESSENTIAL

Before I get bogged down in detail, I must say that the accessory requires 128K. This means 664 and 464 users will need the 64K rampack. The latter, of course, will also require a 3" disc drive. Actually, if you already use a ROM board, Graduate's CP/M ROMs can be bought separately. The only proviso of these ROMs is that they must live below MAXAM version 1.5 if you are using that. Both use an |o command. In Graduate's case, this is a quick way into CP/M saving a whole two keystrokes as against the |ems (early morning start) entry. Graduate gives you the best of all possible worlds; use of the accessory ROM does not preclude using the |cpm entry for different CP/M configurations or those games that use it for auto-booting.

When the Graduate ROM boots, the signon message includes your name, address, and serial number. At this point you would have the normal A> prompt– unless a disc with a PROFILE.SUB file is resident. Then, the submit process takes off and the profile commands are executed. Using the Graduate Roms means you can improve your prior CP/M operations. The 25K .EMS file no longer needs to reside on the applications discs. This gives you more working space for applications like dBase II for example. You still have to have the 6K SUBMIT.COM file on-board to process the PROFILE.SUB, though.

There are a number of Bar commands that will be new to you. These provide the ROM version, access to owner's name (for use in BASIC programs), ability to disable CP/M and free the small bit of memory space normally reserved for the system, a password facility, and other goodies. For example, you can immediately go into a CP/M application from AMSDOS by entering |o,"application". In fact, you can have a menu-driven BASIC program to access the other environment– providing the proper disc is installed.

A further option is the |op entry. This presents a CP/M menu with all .COM and .SUB files on a disc listed. Moving the highlight along the names with the space bar and hitting ENTER then runs that one. Using Escape allows you to swap discs and repeat the process. A second Escape keypress takes you back to AMSDOS.

PASSWORD AND FURTHER CHECKS

The password facility improves protection of your BASIC programs and data. Graduate state: 'It is not "hacker" proof but it is "fool" proof'. Using |password in a program supplies the question mark prompt and expects a proper reply. Three misses and CP/M is invoked, thus wiping the program. For those devious souls who know how to use the Break facility, an additional Bar command further checks that the password routine has successfully run. Again, one ends up in CP/M if this is not the case. Obviously, none of this will stop the determined hacker, but it does protect against casual meddling and accidents.

Moving into the CP/M environment, we find that Graduate have really planned ahead. Not only do you have instant access to the facilities you are used to, if you want the disc version of a command on ROM, you need only enter name.C to

access it.

The normal .EMS commands are: DIR, DIRS, ERASE, RENAME, SHOW, TYPE and USER. SHOW is actually a subset of the disc version which takes up 9K. If you need the lot, you need only type SHOW.C option. to get to the disc version. The Graduate handbook curiously refers to these as "transient" whereas a CP/M manual calls them "built-in" (being part of the Command Control Processor, or .EMS functions).

Interestingly, commas are now accepted as delimiters, and prompts are issued if you do not include the information with the command. You need the manual and the pocket card to keep track of the surfeit of commands, as shown in the box. On the whole, the manuals are adequate. Enhancements to the usual CP/M approach will be appreciated by users more familiar with the BASIC environment.

NOT WITHOUT MINOR BUGS

On the down side, there are some bugs. DATE will be wrong 3 years and one month out of four years, even when you are careful with DATE SET. I was quite surprised when I typed a date in and found I was one day out. Did I make a mistake? I tried again; same result. Apparently our programmer in this area was careful about the Leap Year factor, to the exclusion of all else! Further, anything before 1 January 1978 is an "illegal date". I honestly do not know if anyone would ever need to date stamp a file so far back — but it annoys me for a machine to tell me something that flies in the face of reality.

Another minor bug exists with 24LINE. If you execute this at the bottom of the screen, the cursor ends up on the command line over the first character. I know such a quibble is picky but it should have been picked up.

More serious is the CAT bug. In theory, this does the same as in AMSDOS. I interrogated a disc on B: drive with D (such a handy utility! and available in the accessory ROM). It showed all filenames. DIR gave the same result. CAT, however, ignored three files– and I don't know why! AMSDOS CAT recognised their existence. What an anomaly.

One other gremlin surfaced whilst I was playing about. With everything still attached and powered-up, I needed to format a 5.25" disc. Pulling the appropriate utility out, I was surprised to find the file corrupted. The screen display blew itself apart.

Being a clever fellow, I retrieved the backup copy, only to find the same thing happened. At that point, I powered down and disconnected the add-ons. On power up and standard entry into CP/M, everything was normal until I ran the utility. Splat! Now, this could be– and probably is– one of those funny coincidences, a Murphy's Law case.

Certainly, nothing else seems amiss. On reconnecting the lot, everything again works as it should, save this one file. As I have not needed it for a couple of weeks, it is probable that the accident to the program occurred during a previous work session.

Still, one wonders. With all the extras hanging off the computer, perhaps there is ribbon cable crosstalk, rogue signals from the monitor getting into the system randomly, or perhaps simply I have reached the power limit of the supply. Understand– this in no way implies a criticism of the Graduate unit. I only mention that the anomaly occurred to present all factors present during the review. In point of fact, I am going to be extremely reluctant to return the unit to The Editor.

Several times since I initially tested it, I have instinctively tried to use it, though it was no longer connected. On my second extended run, I accessed half-a-dozen bulletin boards without problems. Once or twice, I lost RAM buffer saves, but this happens sometimes, in any case. Again I suspect random interference.

I have not tried a CP/M comms program yet, with the Graduate unit attached, but do not anticipate any untoward problems.

All in all, I would have to rate this wonderful accessory 9 on a scale of 10. Despite the minor bugs uncovered during my evaluation, I would have no hesitation in recommending it to any Amstrad computer user.

The Resident CP/M package is available on a chip (£33.50) or as an external interface box (£55.00) and can only be bought directly from Graduate Software in the UK. Send international money order (prices include postage) and your original CP/M disc to :

Graduate Software
14 Forrester Avenue
Weston On Trent
Derbyshire DE7 2HX

What the designers refer to as "built-in" commands are :

24LINE, ensures the scrolling error messages at bottom of screen;
25LINE, which turns off that status line and puts any error message on screen under the bad command;
AMSDOS, the 1K disc utility which ensures a clean exit from CP/M;
BUILTIN tells you all commands in your ROM;
BORDER changes the colour as in Locomotive BASIC;
CAT exists for those who resist DIR, again giving you an alphabetical sort and free space;
CLS clears the screen just as in BASIC, homes the cursor but does not affect screen mode;
DATE is supposed to display the system date and time. More on this later;
DETAILS inform you about the system set-up;
EXPAND assigns a character string to a lone keystroke;
HOME send the cursor to the top left-hand corner of the screen without clearing the screen;
INK works as in BASIC;
INVERSE gives paper-on-ink colours, or reversed display, until the NORMAL command is given;
KDS controls the optional 8-bit port, if you have one;
LANGUAGE accesses the various character sets available;
LPRINT dumps a file to your printer;
MODE for columns on screen, as in AMSDOS;
PALETTE changes screen colours easily;
PAPER and INK do what normally happens in BASIC;
ROMCAT tells you what's on-board other accessory ROMs;
SETLST initialises the printer;
SET24X80 is a single command combining MODE 2 and 24LINE functions, so existing PROFILE.SUB files need not be modified;
CKEY allocates an ASCII code to a Control+key combination;
NKEY is for normal key assignment;
SKEY uses shift+key for ASCII assignment;
SIGNON lists accessory ROMs available for use under CP/M;
WAIT prompts user for keypress.

DEFINING FUNCTIONS

Often overlooked but nonetheless very useful are user-defined functions. Paul Gerard explains these while further refining his database.

One feature of BASIC that is very conducive to clear, structured programming and is at the same time rather under-used is the employment of user-defined functions (FNs). Since many quite experienced BASIC programmers are very unclear how these work we will diverge from our practice in the earlier articles and look at the actual commands involved.

First, just what is a "function"? The books will tell you that a function returns a value. What this boils down to is that a function can be considered as a special, very flexible kind of variable. Theoretically, for instance, we could define a function to "return" the number of days in a week like this:

```
10 DEF FNdays.in.week=7
```

We could then use FNdays.in.week just like a variable - for instance:

```
20 PRINT FNdays.in.week;"= the number of days in the week"
100 days=weeks*FNdays.in.week
```

and so on.

This actually works perfectly - the only reason we don't use such simple functions as this is that it is easier to simply define day.in.the.week as an ordinary variable, thus:

```
10 days.in.week=7
```

and forget functions altogether. But wait a minute, there is much more to them than this.

Instead of simply assigning a fixed value to our function/variable we can use a formula which actually calculates the value.

```
10 DEF FNdays(weeks)=weeks*7
```

We can still use the function as if it were an ordinary variable in PRINT, LET, and arithmetic commands, but each time we will put either a number or a numeric value in the brackets, and the function will calculate an appropriate value based on the number in the brackets, thus: FNdays(3) will come out as 21 - if a variable called weeks.since.last.transaction = 12 then FNdays(weeks.since.last.transaction) will be equal to 84. This still may seem a little impractical, since it is probably just as easy to simply perform a simple calculation like this rather than call a function to do it for us. But what about this situation?

Let us suppose you are very paranoid about letting your employer have your tax file number - so much so that you would rather have your P.A.Y.E. tax instalments deducted at the full marginal rate (56 cents in the dollar). It will after all mean a very nice little refund come next August. You want to install a routine in your home accounts program that will calculate the tax deducted from your gross earnings each month. This function will do the job quite nicely. Note I assume we have invoked DEFINT a-z so that our "real" values (including the value returned by the function) need exclamation marks to distinguish them from integers.

```
10 DEF FNmargin!(a!)=ROUND((a!*O.56),2)
```

But why, you say? Why not simply use a straightforward calculation in the two or three places where the function would be used. Ah ha, but what if Mr. Hawke changes the rate? The beauty of using the function is that in this case we will simply change the rate in the function, for instance:

```
10 DEF FNmargin!(a!)=ROUND((a!*0.45),2)
```

and the rest of the program will work in a perfectly updated manner right through, without chasing down each and every time we calculated the tax. This will even be true if the formula for calculating the marginal rate changes, so that the function becomes something like:

```
10 DEF FNmargin!(a!)=ROUND(MIN((a!*0.45),((a!/2*0.33)+(a!/2*0.56))),2)
```

O.K I know that is a very silly formula, but you get the point, it still only has to be entered in one place to bring the whole program into line with the change.

The "number in the brackets" needs a little explanation. I is a function parameter, not a variable in the ordinary sense. Every time we invoke the function, "a!" will be replaced either by a variable (say weeks.gross!) or a numeric value (say 345.67) - but a! itself will not acquire a value of its own, or interfere with any variable elsewhere in the program, even a variable called "a!". (See my article on variables for the reason why this is unlikely, incidentally).

A function may have several parameters - this function, which you may find handy for games, especially, allows a neater way of calculating a random

integer number between a low number "a" and a high number "b" than a straight use of BASIC's RND :

```
10  DEF  FNrandom(a,b)=INT((RND*(b-a+1))+a)
```

For example FNrandom(1,6) will give a random value between 1 and 6 - thus simulating a dice throw, while FNrandom(100,250) will give a value between 100 and 250.

On the right side of the DEF FN statement we may include variables from other parts of the program, and even other functions. For instance to calculate our net pay from FNmargin we can define a new function thus:

```
10 DEF FNnet!(a!)ROUND(a!-FNmargin(a!),2)
```

All the functions we have looked at so far have been numeric (either integer or real) - functions may also represent Boolean (or logical) variables, or strings. The following useful little functions return "0" (FALSE) or "-1" (TRUE) to test if an integer is odd or even, and if one integer is a factor of another.

```
10 DEF FNodd(a)=(a/2<>a\2)
20 DEF FNeven(a)=(a/2=a\2)
30 DEF FNdiv(a,b)=(a/b=a\b)
```

These could be used in expressions like:

```
100 IF FNodd(page no) THEN PRINT TAB(40);page.no
```

or perhaps:

```
100 IF FNdiv(year,4) AND NOT FNdiv(year,400) THEN leap.
    year=TRUE
```

Functions that represent string values are also permissible for instance the following produces a version of a string in lower case, with the first letter capitalised.

```
10  FNcapital$(a$)=UPPER$(LEFT$(a$,1))+LOWER$(MID$
    (a$,2))
```

Finally, a real killer diller - this one uses existing variable values, a function (FNdiv(a)) and a lot of gall to produce a three letter string representing the day of the week for any date since the present (Gregorian) calendar came into use. It is "clever" rather than good programming, since even if you can follow how it works it hardly constitutes clear, readable code! Incidentally, assuming you are game enough to try to type this one in do it in one continuous line. When trying it out remember that the year must be the full number e.g. "1989" NOT "89", and that there is no checking for invalid dates like the 31st of February.

```
10 day$="SunMonTueWedThuFriSat"  'days of week
20 magic$="033684625032"  'calculates calendar
30 DEF FNday$(date,month,year)=MID$(day$,((date+2*(3-
(year\100 MOD 4))+(year MOD100)\12+(year MOD 100 MOD
12)+(year MOD 100 MOD 12)\4+VAL(MID$(magic$,month,1))-
10*(month=12)+ ((month<3) AND FNdiv(year,4) AND NOT
FNdiv(year,400)))MOD 7)*3+1,3)
```

There is actually something else wrong with the above (and, incidentally with all string user defined functions in Locomotive basic) and that is that it does consume memory that may need to be reclaimed by a garbage collection. Now for programs that do not use large quantities of string data this is neither here nor there, as garbage collections only take a fraction of a second anyway. If on the other hand (as in "Structured Data" for instance) we have very large string arrays in memory then anything that can produce a garbage collection should be avoided like the plague, as in this case the "garbage" can take literally minutes to "collect", convincing the unwary user that the program has hung up altogether! In our INPUT routine (see the earlier articles in this series) we saw one way of writing round this unfortunate feature (I think I'd go so far as to call it a "bug") in Locomotive BASIC. There is no way that I can see of using string functions (of the FN type) and avoiding the possibility of the dreaded garbage collection - hence except in very short programs I personally avoid using them.

Functions that return NUMBERS as opposed to strings are of course another matter altogether - they can make our code more structured, easier to read and (quite often) faster and more compact. The program needs to "run over" their definitions, preferably as part of our initialisation routine. As with variable initialisation, this should come after any DEFINT, MEMORY or SYMBOL commands.

To return to this positive note, here is a function that might be used to tidy up "Structured Data" a bit:

```
13800 ' User defined functions
13810 DEF FNcentre(strg$,offset)=(modewidth-offset-LEN
    (strg$))/2
```

This function assumes our variable modewidth, which of course varies with the mode we are in. We can use it to either centre text exactly on the screen, or, using the "offset" parameter, to place the text a little to the left (for instance, to allow for some user input). Depending on circumstances, we may use it either as part of a LOCATE statement :

```
32100 LOCATE FNcentre(foolish$,0),1:PRINT foolish$
```

or as a TAB indication :

```
110  PRINT#2,TAB(FNcentre(heading$(head),0))heading$
    (head)
```

In fact merge line 110 above (and 13800-13810) into

"Structured data". If everything works exactly as it did, then you are cooking with gas (or programming with functions). If you are really keen on the idea you may be able to find several other places where FNcentre could replace the current programming or even where a new function or two of your own devising could speed things up a bit - but I'll leave that up to you.

STRUCTURED DATA

As promised, here are the display and edit functions, together with a few modifications and corrections to earlier code. Again, comment has been kept to a minimum as we are already running a little overlength this month.

First, good old line 40 - if you are using "stubs" your line will look different - the important thing is that the "operational" line numbers are the same.

```
40 ON choice GOSUB3000,4000,5000,6000,80,3100,3200,
   3300,3400,3500,8000,9000,9200,20,20,7000,5100,20,20,20
```

Next, a little alteration to line 430 in our record display routine :

```
430 GOSUB 100:LOCATE 1,2,:PRINT CHR$(149):LOCATE
   80,2:PRINT CHR$(149);
```

The only difference is the elimination of the statement head=9 - this allows us to put different headings on the record display screen.

This is a little routine that prints a field name on the screen (in inverse video) - note that " ^X" is the "control X" character. I really must resolve to use "CHR$(24)" in future - it is not so neat but at least it doesn't confuse the printer!

```
900 'list field names
905 x.axis=(30-longest)/2:y.axis=field+5
910 LOCATE x.axis,y.axis
920 PRINT"^X"file.data$(field,0)SPACE$(longest-LEN(file.data
   $(field,0)));
930 PRINT" > ^X ";
940 RETURN
```

Line 3520 needs the head=9 that we shaved off 430:

```
3520 another=TRUE:roomfor=(INT(FRE(0)/38)\fields)-(20-
   fields):head=9
```

Line 3580 somehow acquired a REM in its middle - although this does not affect us yet, we had better fix it:

```
3580   IF roomfor>2 THEN GOSUB 3800 ELSE another
   =FALSE
```

To use our new subroutine at 900 - delete line 3720 and substitute a new line 3740 :

```
3740   GOSUB 900 ' Print field name
```

The error message for a file being asked for that is not on the disc was very untidy - this makes it a bit neater :

```
4560 CLS#1:PRINT#1,TAB(7)LEFT$(file.name$,MIN(8,INSTR
   (file.name$," "))) "not on this disc !"
4565 MID$(file.test$,1)="*   "
```

This routine enables us to "abandon" a file (presumably after saving any modifications) and get on with another one.

```
5100 GOSUB 5200 ' confirm abandon file
5110 IF yes THEN GOSUB 5300 'abandon file
5190 RETURN
5200 ' confirm abandon file
5210 CLS#3:head=14:GOSUB 100 ' heading
5220 LOCATE 3,10:PRINT "Are you sure ? (data may be los
t)";
5230 GOSUB 500 ' yes/no
5290 RETURN
5300 ' abandon file
5310 menu.number=1
5390 RETURN
```

As I have used the variable record a little carelessly, to indicate the current record as well as the total number of records the following is needed to ensure that ALL records are saved:

```
7215 record=0:WHILE file.data$(0,record)<>"":record=
   record+1:WEND
```

The main addition to the program enables data to be edited. It is not quite complete - an option to delete a record altogether needs to be added and it is a little hard to get out of if you decide the record does not need editing after all - I will fix this next time.

```
8000   edit record in memory
8010 head=12:GOSUB 8100 ' find record to be edited
8015 IF tick=0 THEN RETURN ELSE record=tick
8020 GOSUB 8300 ' display record
8030 GOSUB 8400 ' edit record
8090 RETURN
8100 ' find record
8110 GOSUB 400 ' draw record screen
8120 FOR field=0 TO fields-1
8140   GOSUB 900
8150 NEXT
8160 LOCATE (53-longest)/2,MIN(y.axis+5,23):PRINT"Which
 field to search by ? ";
8170 GOSUB 8500 ' find field
8195 IF check=0 THEN 8160 ELSE LOCATE (45-LEN(file.data
$(check-1,0)))/2,MIN(y.axis+5,23):PRINT "Type in the "f
```

```
ile.data$(check-1,0)" of the record you want";
8200 LOCATE ((30-longest)/2)+(longest+6),check+4
8210 caps=FALSE:length=48:control=12:GOSUB 200
8220 record=0:tick=0
8230 WHILE file.data$(1,record) <> "" AND tick=0
8240    IF UPPER$(LEFT$(user.input$,long))=UPPER$(LEFT$
(file.data$(check-1,record),long)) THEN tick=record
8250    record=record+1
8260 WEND
8270 LOCATE 3,MIN(y.axis+5,23):PRINT SPACE$(77)
8280 IF tick=0 THEN LOCATE 18,MIN(y.axis+5,23):PRINT "N
o such record !  Do you want to try again ? ";:GOSUB 50
0:CLS#1:IF yes THEN CLS#3:GOTO 8120
8290 RETURN
8300 ' display record
8310 IF mde<>2 THEN GOSUB 600:GOSUB 400
8320 CLS#3
8330 FOR field=0 TO fields-1
8340  GOSUB 900 ' field name
8350  PRINT file.data$(field,record);
8360 NEXT
8390 RETURN
8400 ' edit record
8410 LOCATE (58-longest)/2,MIN(y.axis+5,23):PRINT"Which
 field to edit ? ";
8420 GOSUB 8500 'find field
8430 IF check=0 THEN 8410 ELSE LOCATE (45-LEN(file.data
$(check-1,0)))/2,MIN(y.axis+5,23):PRINT "Type in the ne
w "file.data$(check-1,0)" for this record";
8435 oldlong=LEN(file.data$(check-1,record))
8440 LOCATE ((30-longest)/2)+(longest+6),check+4:PRINT
SPACE$(oldlong):LOCATE ((30-longest)/2)+(longest+6),che
ck+4
8450 caps=FALSE:length=48:control=12:GOSUB 200
8455 IF long=0 THEN RETURN
8460 IF long<=oldlong THEN MID$(file.data$(check-1,reco
rd),1)=SPACE$(oldlong):MID$(file.data$(check-1,record),
1)=LEFT$(user.input$,long) ELSE file.data$(check-1,reco
rd)=LEFT$(user.input$,long)
8470 LOCATE 3,MIN(y.axis+5,23):PRINT SPACE$(78)
8480 LOCATE 27,MIN(y.axis+5,23):PRINT"Is this record O.
K. now ? ";
8485 GOSUB 500:IF yes=TRUE THEN RETURN ELSE LOCATE 3,MI
N(y.axis+5,23):PRINT SPACE$(78):GOTO 8410
8490 RETURN
8500 ' find field
8510 caps=TRUE:length=longest:control=10:GOSUB 200
8520 field=0:check=0
8530 WHILE check=0 AND field<fields
8540    IF LEFT$(user.input$,long)=LEFT$(file.data$(fie
ld,0),long) THEN check=field+1
8550    field=field+1
8560 WEND
8570 LOCATE 2,MIN(y.axis+5,23):PRINT SPACE$(78)
8590 RETURN
```

This is a neat little "one record at a time" or "browsing" display of the file in memory.

```
9000 ' display file
9010 record=1:continue=TRUE:head=13
9020 WHILE file.data$(0,record)<>"" AND continue=TRUE
9030   GOSUB 8300 ' display record
9040   GOSUB 9100 ' last, next, finished
9050   record=record+1:IF record<1 THEN record=1
9060 WEND
9090 RETURN
9100 ' Last, next finished
9110 LOCATE 3,MIN(y.axis+5,23):PRINT SPACE$(77)
9120 LOCATE 4,MIN(y.axis+5,23):PRINT "Press [P] for pre
vious record, [Q] to finish, any other key to continue"
;
9130 caps=TRUE:length=1:PEN 0:control=12:GOSUB 200:PEN
1
9140 IF byte$="P" THEN record=record-2 ELSE IF byte$="Q
" THEN continue=FALSE
9190 RETURN
9200 ' find record
9210 head=9
9220 GOSUB 8100    ' find record
9230 record=tick
9240 GOSUB 8300    ' display record
9250 GOSUB 800     ' press any key
9290 RETURN
```

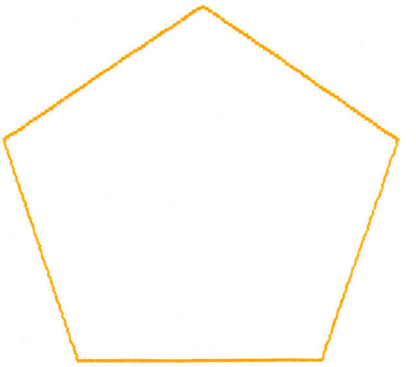
Finally, we have a couple of new "headings", which are added to the program with these lines:

```
13200 ' Headings
13210 DIM heading$(14)
13220  RESTORE 40200
13230  FOR i=1 TO 14:READ heading$(i):NEXT 'Heading val
ues


40200 ' DATA for heading$(n)
40210 DATA "Main Menu","New Data File","Defined data fi
le","Old Data File","Catalogue","Name File","How Many F
ields ?","Name Fields","Current Record","Save File","Ch
ange drive","Edit record","Display file","Abandon file"
```

DR. LOGO, PT 2

In his second and last article in this informative series, Peter Schmidt takes the Amstrad user through the finer points of Logo programming, with more powerful commands and routines.



Last issue, you may recall, we looked at some of the simpler routines available with Turtle Graphics. We also wrote a couple of formats to draw a square, and then a circle. We shall continue this month with a few more automatic shape formats (variations of which you might have worked out for yourself). These will be followed by some more commands which will alter our shapes and then fill them out.

But first we can make life a bit simpler by making Logo self loading. To our self-booting disc add the files:

PALETTE.COM
SET.COM
SETKEYS.COM

Then create a file (name doesn't matter) and key in:

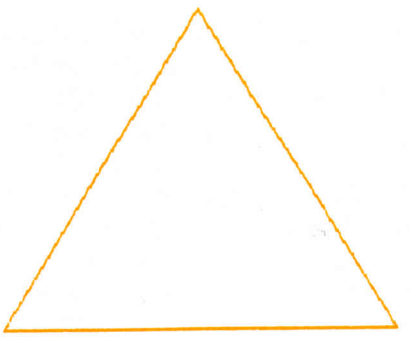
```
setkeys keys.drl
palette 1 0
logo
```

The palette will change the screen from green on black to black on green and is optional according to taste. Once this file has been keyed make an Ascii file and call it PROFILE.SUB. Then reset your machine and you will find that the keys will set and logo will be loaded automatically.

After booting your disc and Logo has loaded, type DIR and you should find Lesson1 listed (along with any other experiments you have tried yourself). Now type LOAD "Lesson1 to reload the system. You should notice all the previous routines such as square and circle are listed. To these we now add a few more.

Begin with the triangle:

```
to tri : width
pu bk (:width / 2.3) lt 90 fd (:width / 2)pd
repeat 3 [rt 120 fd (:width)]
pu rt 180 fd (:width / 2) lt 90 fd (:width /
2.3) pd
end
```



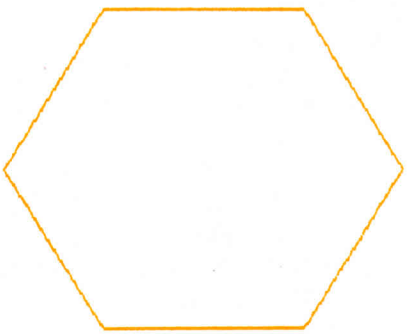
You might notice that, unlike last month, I have begun abbreviating the names. This is simply for ease of typing, but if you prefer the full names that is OK. You might also note that I have tried to make all of my routines return to their point of origin. This is not an essential feature, but it does help to let us know exactly where we are and where we are going.

Any shape is possible, but we shall restrict ourselves to the most common. For the Pentagon type in:

```
to pent :width
pu bk (:width / 1.3) lt 90 fd (:width / 2) pd
repeat 5 [rt 72 fd (:width)]
pu rt 180 fd (:width / 2) lt 90 fd (:width /
1.3) pd
end
```

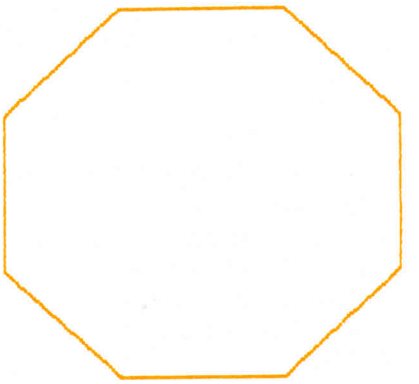
and for the Hexagon type in :

```
to hex :width
pu bk (:width / 1.14) lt 90 fd (:width / 2)
pd
repeat 6 [rt 60 fd (:width)]
pu rt 180 fd (:width / 2) lt 90 fd (:width /
1.14) pd
end
```



leaving only the Octagon to type:

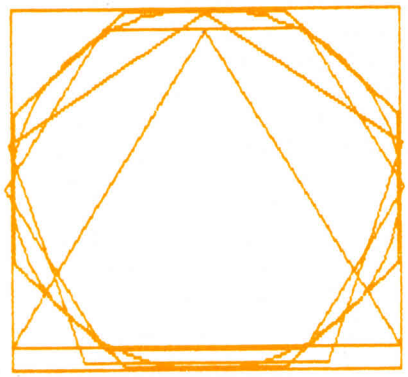
```
to oct :width
pu bk (:width / 0.825) lt 90 fd (:width / 2)
pd
repeat 8 [rt 45 fd (:width)]
pu rt 180 fd (:width /2) lt 90 fd (:width /
0.825) pd
end
```



So now you can at any time call out any of these shapes simply by typing the name (e.g. Oct) plus the value of the overall width. We could have simplified matters by giving the value of each side rather than overall width but this would have been confusing if using shapes in conjunction with each other. For example if you now type in :

```
tri 300 square 300 pent 300 hex 300 oct 300 circle 300
```

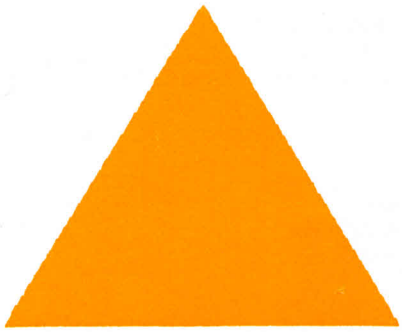
you will notice that each fits nicely within the square so that before typing you can visualise exactly how that shape will appear whereas if the side alone had been defined the size of the shape would increase with the number of sides.



We shall now introduce our next primitive FILL which fills the area within which the turtle is situated. Try typing fill and see what happens. Probably, but not necessarily, nothing happened at all. This is dependent upon where the turtle is situated at the time - it will not work from a line. That is the reason for the next procedure which shifts the turtle 10 units right, fills the area, and then returns the turtle back to its point of origin. You could possibly have a FillL and FillR so that you can fill in either direction.

```
to filll
pu lt 90 fd 10 pd fill
bk 10 rt 90
end
```

For an intriguing concept, now try typing CS SETSCRUNCH 1 CIRCLE 150. This distortion works between 0.1 and 10 (default being 0.468) and can be constantly changed.



Because we are now changing the basic parameters I have found a return to setup routine helpful. This routine can be typed in first thing to setup the split screen and can incorporate commands such as HT (Hide Turtle), CS (Clear Screen), WRAP which wraps the screen allowing the turtle to wander off one side of the screen and onto the other (as opposed to FENCE which fences the turtle onto the screen). Then if you include SETSCRUNCH 0.468 you will return to default each time you alter the setscrunch. This routine would appear something like the following (but can include any routines you prefer):

```
to setup
setsplit 2
cs
wrap
setscrunch 0.468
end
```

To simplify the setscrunch command I have found it useful to incorporate the following routines:

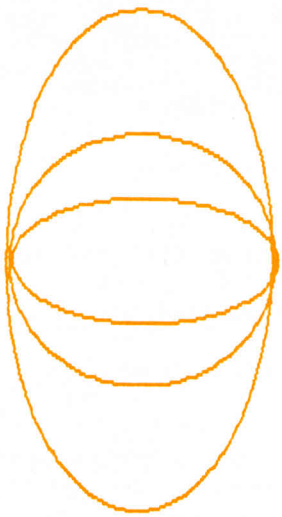
```
to flatten
setscrunch 0.234
end
```

which flattens the screen to 50% (e.g. SQUARE 100 would give rectangle 100 wide by 50 deep) and :

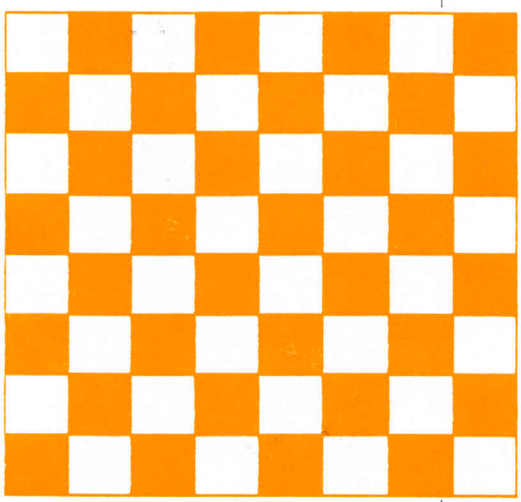
```
to stretch
setscrunch 0.936
  end
```

which would stretch the SQUARE 100 command 200% giving a rectangle 100 wide by 200 deep. As well you could normalise the setscrunch with the following routine (if you didn't want to SETUP a new screen) with:

```
to normalise
setscrunch 0.468
end
```



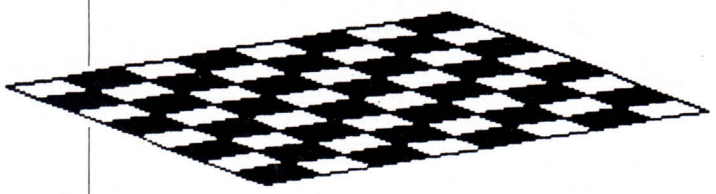
To give an appropriate example of how you might use these commands try typing the following procedures exactly:



```
to brd
pd repeat 4 [square 60 pu rt 90 fd 60 lt 90 pd square
60 filll pu rt 90 fd 60 lt 90 pd]
```

```
end

to board
cs pu setpos [-280 230]
repeat 4 [pu brd pb bk 60 lt 90 fd 60 lt 90
pd brd pu
fd 60 lt 90 fd 60 lt 90 pd]
end
```



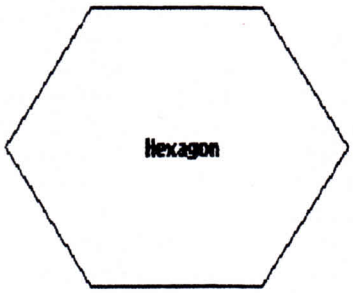
Following this try:

```
to board2
cs pu setscrunch 0.117 setpos [-280 210]
lt 30
repeat 4 [pu brd pu bk 60 lt 90 fd 60 lt 90
pd brd pu
fd 60 lt 90 fd 60 lt 90 pd]
end
```

An explanation might be helpful at this point about the quality of the lines which appear on the screen. Although they are straight and unbroken they appear distorted because of the low pixel rate of our PCW screen and not due to the program. All graphics programs on the PCW would show and print the same.

Finally, if you need to incorporate some text in your graphic try this routine by PRINT HEX 200.

```
to print
ts ct
setcursor [42 15]
type [Hexagon]
fs
end
```



Each line would need its own setcursor position and I have found it rather impractical for a lot of text. I much prefer to position my paper in the printer roughly where I require the illustration to be printed and then design my Locoscript document around it - positioning Bold Pitch17 type for the illustration headings and leaving a hole in the text for the actual illustration. This I print out on light paper and hold up to a light or window to position in the required position, adding to and taking from, as required.

If this is done just before the final draft this only needs to be done once and looks rather good, especially for science or mathematic papers which need little more than lines with arrows (a very small triangle filled). These printed sketches can look very professional if a little patience is used. Remember that your command lines would also be printed if you let the printer finish its cycle so pull the bail bar back just before the printer begins printing these lines.

Next month we will go back to the SETPOS commands which we encountered last month and attempt to plot and draw a map - BYE.

MASTERFILE III

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

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MASTERFILE III is now firmly established as THE filing system for the CPC6128.

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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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This is the sister program to the famous MASTERFILE III, and is a fast and friendly spread-sheet program with high capacity (over 7,000 cells) and impressive speed. Like MASTERFILE, it is entirely machine coded. Like MASTERFILE, it needs just one disc drive and does not use CP/M and it uses the same optimised RAM bank-switch code. "Another exceptional utility from Campbell" said Popular Computing Weekly of the original MASTERCALC. The "128" edition is more powerful.

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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.

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CP/M+ - JUST THE FACTS MA'AM

This month, Mike Turner starts a new series on CP/M+. This is essential reading if you want to get the most out of your Amstrad.

Greetings fellow Amstrad owners and users of CP/M Plus in general. This is the first of a series of tutorials on CP/M Plus as used on the CPC 6128 and the PCW range of computers. They will cover just about everything you were afraid to ask The Amstrad User for fear of being laughed at and hopefully much more. I hope to provide you with helpful hints and the necessary background information about this particular operating system, in order for you to get the best out of your computer.

For those of you out there who have been readers of the Amstrad User for some time you may remember the excellent series of articles last year called 'CP/M Re-Visited". This series of tutorials isn't intended to cover old ground. From time to time it will be necessary to cover a few basics for the benefit of new members of the Amstrad fold; but generally I will be dealing with some of the more sophisticated ways to use CP/M Plus.

There are two schools of thought when it comes to teaching people about a computer's operating system. One is that the operating system should be shielded from the user as much as possible. These days this is quite possible. Many of the applications packages available for computers are designed to be "user friendly" and can be operated with little or no knowledge of the operating system behind the scene.

The other school of thought is that a computer user should become intimately acquainted with the computer's operating system in order to obtain the best from the machine. Well which is correct? The answer is both. When you stop and think about it, the two ideas aren't really at odds, but rather complement each other.

WHY LEARN ABOUT CP/M?

You can survive quite nicely learning just enough about your computer to get by and running various programs by slavishly following the instructions. But by doing this you also run the risk of not knowing what to do when disaster strikes and you encounter some sort of equipment of software malfunction. A better knowledge of your computer's operating system can help you overcome these and other problems as well as giving you the satisfaction of becoming a sophisticated user and mastering your machine.

Mind you, not everybody is interested in knowing what goes on deep in the bowels of the computer. So these tutorials will be a bit of a compromise. They will be primarily aimed at those people looking for ways to make the computer easier to use for other members of their family, or for that matter other users at work. Even if you are the only user of the machine, you can save considerable time by automating a lot of the drudge work involved in properly managing a computer system. This brings me to my next point, being system management.

Lots of Amstrads are finding their way into small (or not so small) businesses. It is in this environment that computer users are most prone to disasters, especially if there are multiple users of the system. There is always the danger that inexperienced or inept users will destroy valuable data, and that can cost your business big bucks. So we will be talking about how to properly use your system and what precautions you should take to keep things up and running smoothly.

As you can see there are a lot of things to cover and it will take some time. However, I will cover these and other topics in simple, logical steps, and intend to provide as much help as possible in the space available. Also each month, I will be including a glossary of terms to do with that particular article. Hopefully that will also increase your knowledge of computing in general. To those of you who may feel this approach is a bit condescending, I make no apologies. My aim is to help users gain as much knowledge as possible in the space available, and to do that I have to cater for the novice at times. So lets get started.

If you bought your PCW primarily as a word processor and haven't quite been game to get your feet wet with CP/M Plus yet, you are in for a pleasant surprise. Similarly for CPC owners; once you have zapped as many space invaders as will fit on a Mode 0 screen at one time and played with programs like Tasword and Masterfile; you might be wondering where to go from here. CP/M Plus is not as hard and unfriendly as some would have you believe.

Lets be honest folks. You've all had to use CP/M Plus at some stage (PCW 9512 owners excepted), just to format discs if nothing else. So the sight of an A> prompt shouldn't strike terror into your hearts. But there is much more to CP/M Plus than the utilities provided on the system discs that came with your computer. Being able to use CP/M Plus effectively opens up the door to a whole new world of software. There are lots of powerful applications packages that can be run

under CP/M Plus; but before we get into those lets look at a few basics to get you started on the road to mastering this operating system.

THE GENESIS OF CP/M

For newcomers, the term CP/M Plus refers to a series of programs written by Digital Research Inc. CP/M stands for Control Program for Microprocessors. There is no one version of CP/M Plus for all computers. The basic set of programs that make up the system isn't sufficient for users to get the best out of their respective computers. So manufacturers of computers supply additional programs specifically tailored to suit their particular machines and Amstrad is no exception. The version of CP/M Plus that comes with a PCW 8256/8512 will have a few different files on the distribution disc from that which comes with a 9512 or a CPC 6128.

I will try to cater for these differences when they crop up. However, for the moment we will be dealing with utility programs that are common to all Amstrad CP/M Plus machines. You will undoubtedly add more programs to your collection as you progress. These may come from public domain utility discs or CP/M software that you purchase; or they could be programs that you develop yourself.

For the benefit of the newcomers, let's look quickly at how CP/M is loaded. When you start up your PCW, it sits there displaying a blank illuminated screen and mindlessly whirring away with its A drive. This is because it is basically a dumb machine. I mean that in the nicest possible way. It is waiting for you to insert a disc containing some sort of operating system into the A drive so that it can commence working for you. Locoscript as well as being a word processing package is also an operating system in its own rite. It allows you to move files around, copy them, delete them and so on. CP/M does the same sort of thing. The major difference between the two is that CP/M was designed to be a platform on which other third party applications packages can be run.

6128 owners are a little more fortunate here as their machine is slightly more user friendly on start up. The 6128 loads Locomotive Basic from ROM (see box) and presents you with a ready prompt. You may now start programming your machine straight away or can easily load and run Basic programs with a couple of simple commands. As well as loading Locomotive Basic the 6128 also provides access to AMSDOS (see box) immediately on start up.

GETTING STARTED

To get CP/M up and running on your machine you have to load it into the computer's working storage or RAM (see box). For PCW owners simply insert side 2 of your master discs that came with the machine into the A drive and stand back. After the loading process accompanied by lots of horizontal lines across the screen you will be presented with the A> prompt. If nothing happens when you put the disc into the drive, it could simply be that you have waited too long between turning on your computer and inserting the disc. The PCW won't keep running the A drive's motor forever and goes into a sleep mode. Simply hit (or should I say press gently) the space bar to nudge the sleeping PCW into life. To load CP/M on a 6128, insert side 1 on your system discs into the drive. 6128 owners must then issue a command at the READY prompt. Just type in |CPM (RETURN), where | is a shifted @ key. Again after the loading procedure you will be presented with the A> prompt.

Now it's homework time, folks. Before next month's tutorial you will need to have a few things at your disposal. First you will need to have two or three blank discs to use as project or work discs during the tutorials. These of course can be reformatted and used for other things later, so you won't be wasting any money. With one of those discs I want you to make a working copy of your CP/M Plus master disc. Those of you who already are using CP/M should be able to bypass this step as you will already be using a working copy to start up your system - won't you! NEVER, I repeat NEVER experiment or fool around with the master discs that came with the computer. You should always use working copies and keep the masters in a safe place, as they are quite expensive to replace.

HAVING A LOOK AT THE DISC

Once you have the A> prompt in front of you, use the DISCKIT program to copy the master disc. To load the program on a PCW type DISCKIT (RETURN) and on a 6128 type DISCKIT3 (RETURN). Then follow the on-screen prompts and copy the master disc changing discs in the drive when prompted. The DISCKIT utility is quite well covered in your user manual and I don't intend to waste time covering the same ground here, with one exception, 6128 owners please note that the numeric selections you make when using the DISCKIT3 menus are by way of the number keys on the numeric keypad on the right hand side of the keyboard, not the numbers along the top row.

To make life easier you will also need a text editor of some sort as we will be writing some command files next month. PCW owners are well catered for with the RPED.BAS file on your master disc, but more on that next month. 6128 owners may use TASWORD to write these files or any other word processor that produces simple ASCII (see box) files. It is also possible to use PIP.COM and ED.COM for this purpose. The added advantage of this being that these come free with the CP/M discs. Again we will discuss these further next month.

To further assist yourself in getting used to CP/M may I suggest that you have a look at the help utility that is supplied on your master discs. How to use this program is set out fairly well in

GLOSSARY OF TERMS

AMSDOS
The AMstrad Disc Operating System. It is a program that allows Locomotive Basic as supplied with the CPC 6128 access disc files. It uses similar commands to those in CP/M for file management.

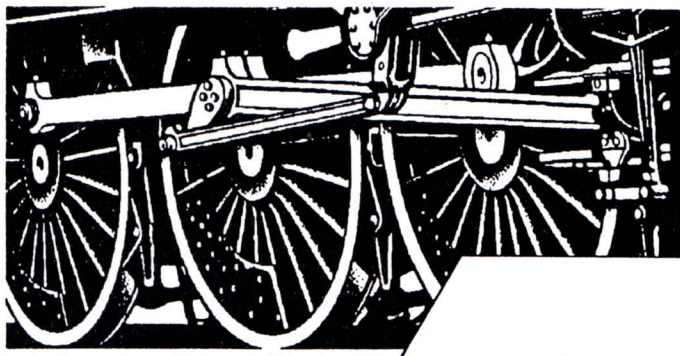
ASCII
The American Standard Code for Information Interchange. It is a standard way of representing letters, numbers and other symbols either input on the computer keyboard or invoked by other commands. It defines the binary representation of characters in computer storage. The ASCII code is almost universal among small computers and common in large ones.

RAM
Random Access Memory. This refers to the computer's fast access working storage. It is memory that utilises the computer's internal circuitry and may be both read from and written to. Unless backed up by some sort of battery system this memory is volatile and everything in it will be lost the moment power is taken away from the computer.

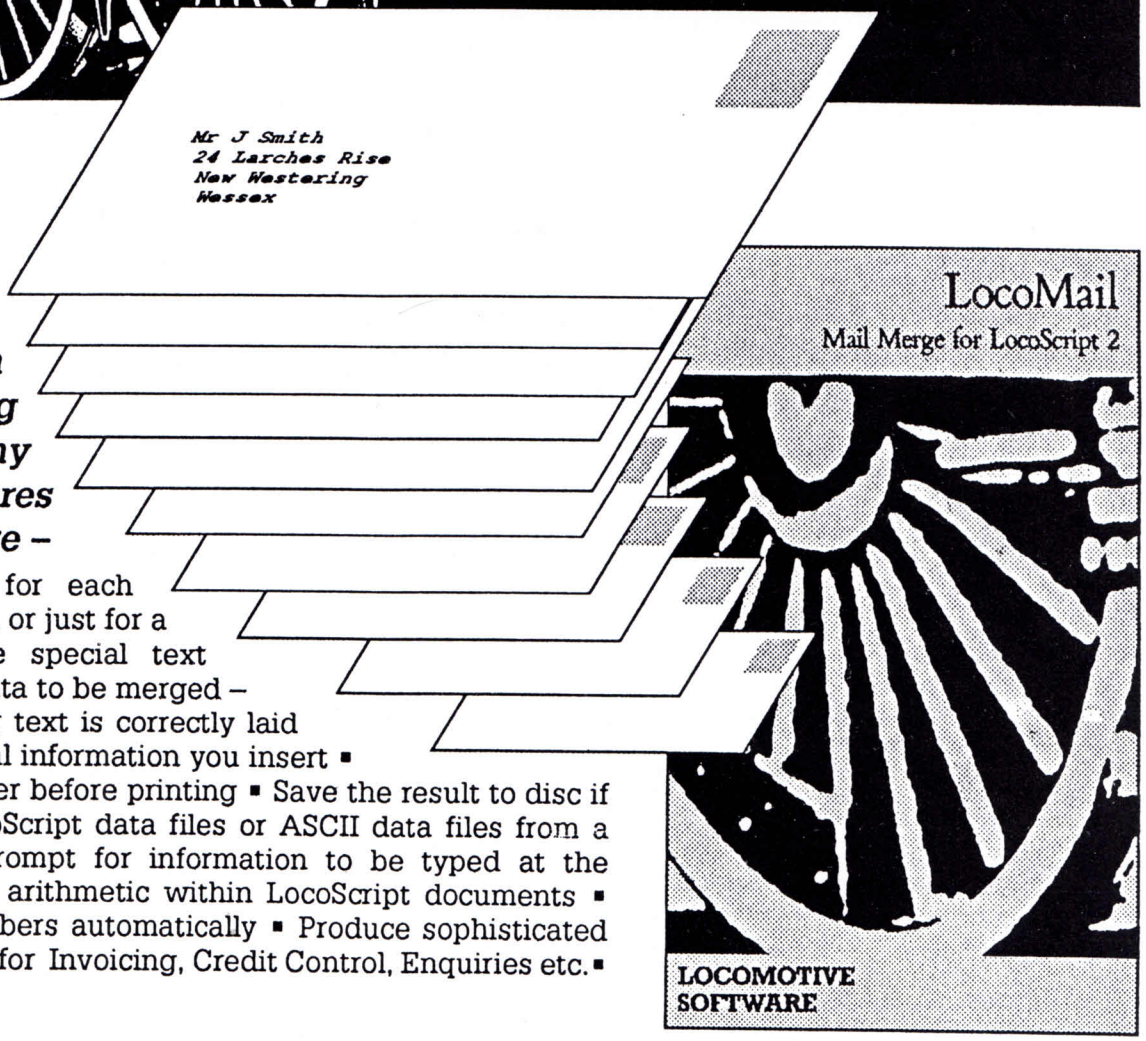
ROM
Read Only Memory. This is similar to RAM in that it refers to a fast access storage chip within the computer. Major differences are that ROM is normally set at the factory and cannot be altered by the user and it is not lost on shutting down the computer. Most computers have some very basic software on ROM, just to allow them to start-up and load other programs.

your user manual. Load CP/M as described above and then insert the appropriate side of the master discs containing the files HELP.COM and HELP.HLP. To invoke the program, type the command HELP (RETURN) at the A> prompt. Help is virtually an electronic reference book. Don't worry if you don't understand all the terminology used. But at least have a look through the various topics offered and get a feel for just what software you possess on those magic master discs.

That's about all for now. Next month we will be looking at how to organise your discs effectively and how to automate the loading and running of various programs. The utilities we will be dealing with in particular are SUBMIT.COM, SETDEF.COM, PALETTE.COM and SETKEYS.COM. We will also touch on other utilities like PIP.COM but will cover these others in detail later on in the series. Until next month, happy computing.



LocoMail for LocoScript 2



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DOING THIS, DOING THAT

Doing instructions form an important part of the construction of algorithms. In part three of his series, Gary Koh investigates these as well as the four steps to writing your algorithms...

As promised last month figure 1 shows the flowchart version of that algorithm. This month we will be looking at the steps in writing an algorithm but first I need to tell you about the doing instructions. Doing instructions form the third type of instruction and cover all the remainder of commands that you will see. As their namesake, doing instructions generally 'do' things that interact with the user, which is commonly called input/output.

Input/output is sending processed information to the outside world and receiving information from the outside world. Things like plotting a point on the screen, accessing the screen or getting input from the user through the keyboard are all examples of doing commands. The best way to understand these is to look at algorithms.

All these types of instructions, doing, control constructs and assignments are what algorithms are composed of and it is armed with these that they can solve problems. The real trick of course is assembling an algorithm from these small building blocks. The following listing is for an algorithm to "Choose a book".

```
Go to library
IF library is closed OR IF library card
limit is reached OR have a book
overdue
    THEN go back home
Choose which topic you want to read
WHILE have not gotten book DO
    BEGIN
        Select a book randomly from the
        shelf of the relevant topic
        IF I have already looked at book
        OR IF I have read book
            THEN put it back
        Read a few pages
        IF I like that book THEN keep it
        ELSE put it back on the shelf
    END
Borrow book
Go back home
```

This algorithm, although not real is made up of a lot of doing commands. These commands here instruct what sort of other actions to do and are written in an explicit way so you can see better what they are supposed to do.

Doing instructions vary from one language to another and also depend on what computer that language is in. Therefore there are no rules for describing doing commands in pseudocode. Like the algorithm above, you have to describe them but that depends on a few things. If you are dead certain which language you are going to code the algorithm in you can if you want to, depart from the normal rules and write out the doing instructions in terms of that language. This should only be used if you are sure.

The main steps in writing an algorithm are:

1. Define the problem. This is a very important step unless you happen to want to write an algorithm that has no purpose. Unless you are a nutcase of the third degree you would not find that very interesting, which is why this stage was put in in the first place.

In this step you have to write out the function and description of the algorithm, what memory it needs for its variables and what its exit and entry conditions are. You do not need to point out the memory used by the algorithm unless it happened to need a lot for its variables or for some other major reason. The only types of variables that would use up a lot of memory in this case would be an array or strings. There is no real point in mentioning the other types of variables as they do not take up much room.

For instance, with a sorting algorithm its function would be (we wait with baited breath) to sort out data and the memory for its variables used could be, say 2 arrays with 50 elements each. Entry conditions would have a variable pointing to where the data to be sorted was, and the exit condition might have a flag to signify whether the sort was completed successfully.

The other thing you have to put in, which is the description, are any strange quirks or peculiarities and any limitations that the algorithm might have. You also put in here any assumptions the algorithm makes on data that is given to it.

2. This is where the fun starts. Now you can put the entire algorithm into pseudocode. You can just put it wholesale into pseudocode, if you have a simple algorithm but it is much harder to do this with more complicated algorithms. With the more complicated algorithms you have to do what I call implementing in various levels.

Firstly you set the algorithm out more literally and with more wide acting instructions. Then depending

on the complexity of it you progressively expand it, by replacing these wide ranging instructions with more detailed instructions until you have fully expanded it.

If you don't get this, an example or two might help. To start with you might put in the instruction, "Wait for key to be pressed". After that you might expand it to this:

```
Repeat
Get a key from the keyboard
Until a key is pressed
```

Sometimes you might have to have more than 2 stages of expansion, it just depends on how complex the algorithm is and how good you are.

3. Called desk checking, this step is really debugging without a computer. Debugging without a computer you might say aghast; how is it possible? Well, it is called desk checking and when you put in the word desk it usually means sitting behind a slab of wood doing something boring. Actually, believe it or not, after a bit of practice you will find that your brain is at least good, if not better than a computer at "debugging".

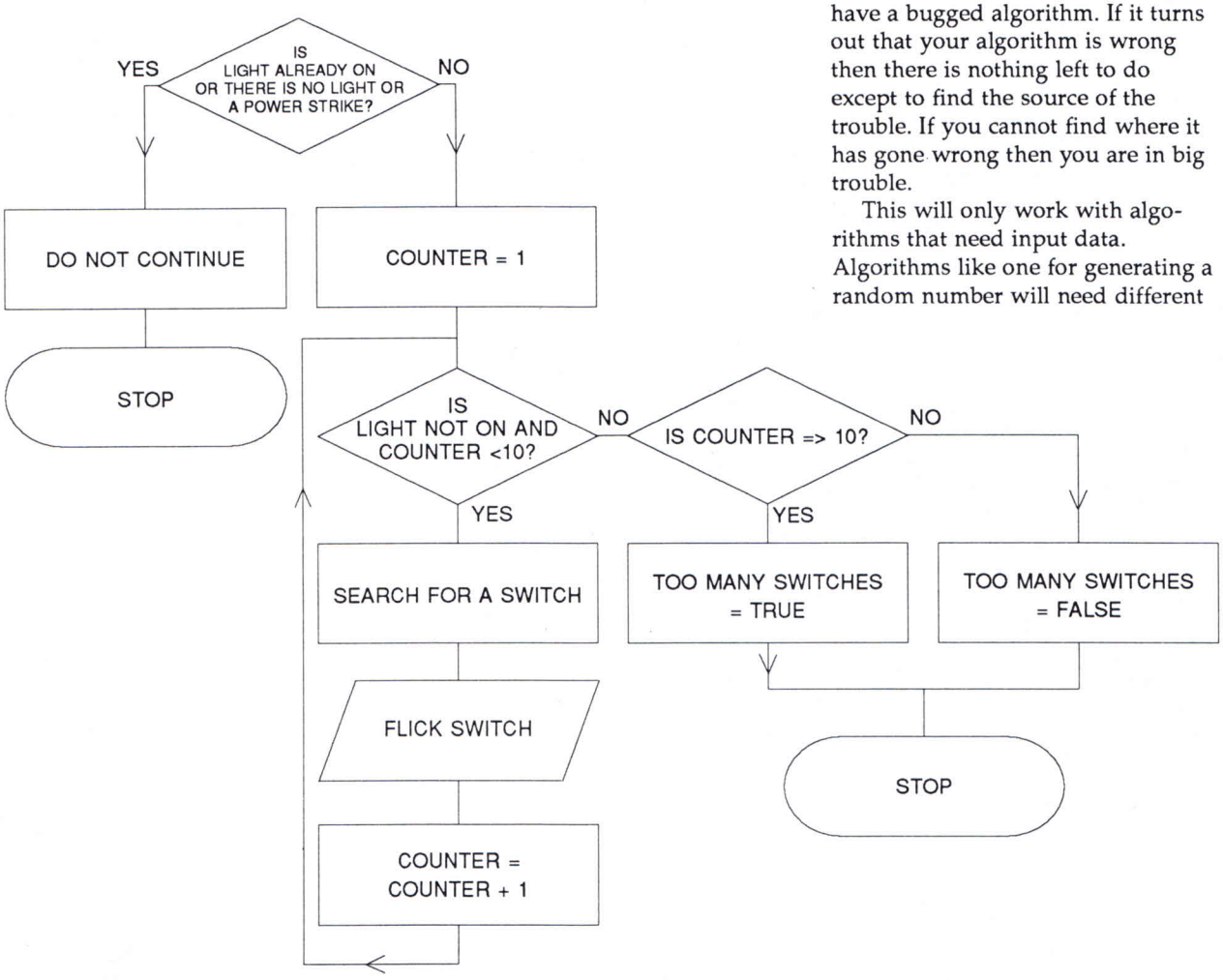
This is one of the most important steps and also the most boring. Getting the mistakes out of the works at this stage takes up less time than debugging the final code on the computer but it tends to be less exciting. Most of you will probably not believe me until you try to do the debugging after encoding the algorithm in the target language and find it takes a longer time to do.

Desk checking involves two steps. First of all, look through the algorithm casually and see if there are any silly or logic mistakes. The second stage is much more complicated and is meant to find out any of the more subtle mistakes.

The second stage can only be applied if the algorithm relies a fair bit on entry data. First of all you set up a table containing data values to give to the algorithm and the results you expect to obtain. As the idea here is to find the bug, purposely put in values that might make the algorithm go all funny, like zeroes and negative values. If at the end of this you get a value that is unexpected then go back through and do it again with the same input value.

If it still turns out to be the wrong value then either you worked out the wrong value or you have a bugged algorithm. If it turns out that your algorithm is wrong then there is nothing left to do except to find the source of the trouble. If you cannot find where it has gone wrong then you are in big trouble.

This will only work with algorithms that need input data. Algorithms like one for generating a random number will need different



treatment. Other times you might have to twist around the above method a bit, like confining it to just a part of the algorithm instead of the whole of it.

4. This is the last step and simply involves translating the algorithm into the target language. The best way to translate it is to write it out firstly on paper in the target language. Then skim through it to see if there are any mistakes you can find. After that all you have to do is to type it into the computer.

This is also when all manner of other problems start creeping in. Algorithms are not actually the truly universal things that they are made out to be, so what I have said earlier in this series about language independence is not quite strictly true. Most problems arise when the target language does not support a particular control construct. The easiest way out of this is simply to not include that particular construct in the algorithm.

In Basic, there is no Case of or Repeat until, so you will have to stay right away from them. Yes, I know that contradicts what I have said before. What I said before was what all the textbooks have ranted and raved about, (so don't blame me). In any case, knowing both sides of the story helps give you a more open mind about this. I am now discussing the real practicalities of all this and where the theory goes wrong.

Language independence is only really needed if you are not sure what language you are going to encode the algorithm in, if you are a professional programmer or if you plan to encode it in more than one language. Other than that it is up to you what course you want to follow, language independence or non-language independence. There are other problems than these but they are more complex and will be discussed later.

The last thing left to do now is to run it on the computer and see if there are any bugs in the algorithm. Sometimes some bugs will only be sorted out when you run it on the computer, these are the more obscure bugs. If your algorithm relies fairly heavily on data to function then you can test it now by doing something like desk checking. You set up a little test program that feeds either pre-determined or random data to the algorithm and see what results it comes up with. If a wrong exit piece of data turns up then it is onto a debugging session.

And there you have it, how to write algorithms in 4 easy (then again...) steps. From now on we will be dealing with real algorithms that actually work and how different techniques can be applied.

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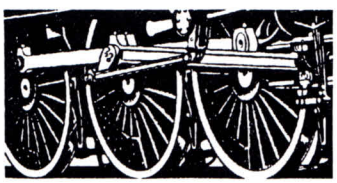

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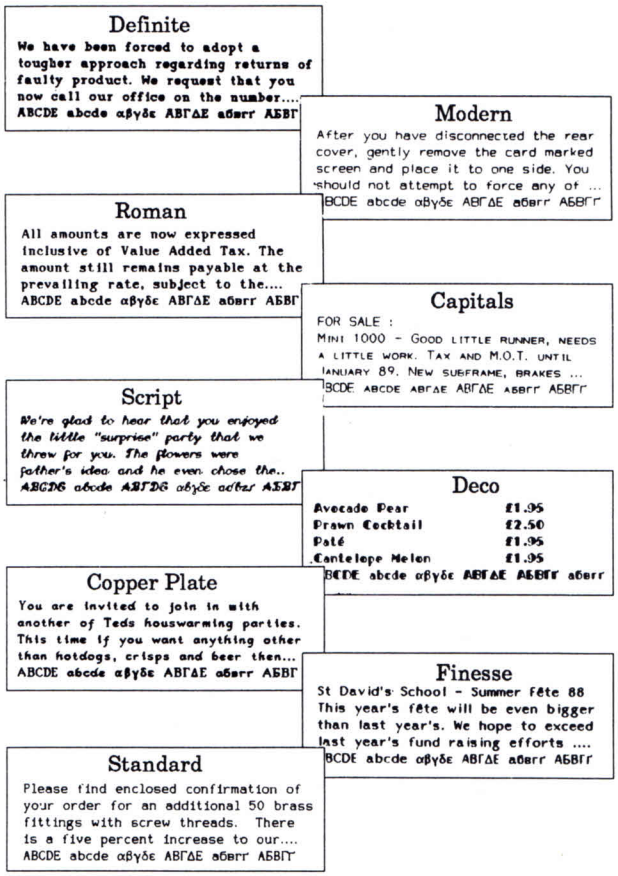
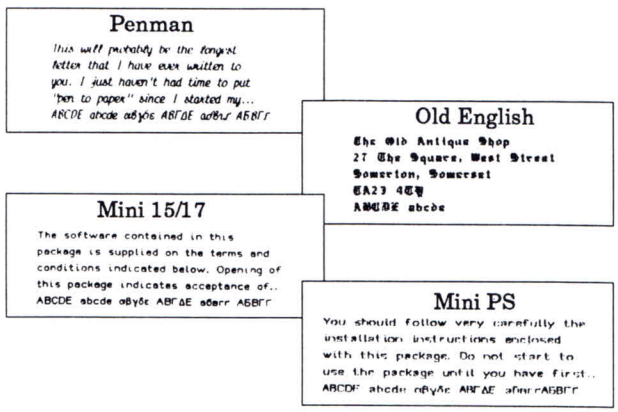


LocoFont - Set 2



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SMALL C INTERPRETER

In his next few articles, Roger Williams will be investigating the C Interpreter found on Public Domain discs #612 and #812. Here's an introduction to programming in C...

The C programming language, and its first cousin BCPL (Basic Combined Programming Language) are examples of general purpose structured programming languages designed for both the systems and the applications programmer. This makes them much more powerful than languages such as BASIC, FORTRAN and COBOL, which are only really suited to applications programming. Various versions are available for the CPC and PCW range of AMSTRAD computers. The Small C Interpreter (SCI) available from this Magazine on Public Domain discs, is an interesting (and quite cheap) way to experiment with C, provided you have CP/M PLUS. SCI will not run under CP/M 2.2; when I tried on a CPC6128, I was dumped back into AMSDOS! Although SCI only caters for a subset of the complete language, and even then does not always conform to the "standard", it can easily be adapted to enable you to learn the elements of C programming.

When (if) you buy a copy of SCI, the very first thing you must do is make a backup copy of the disc, and then store the original in a safe place. Next, you should print out a copy of SCI.DOC and of SHELL.SCI. Later I will be suggesting various alterations to the SHELL.SCI program to improve and enhance the performance of SCI. After reading through SCI.DOC, you should concentrate on the section called THE EDITOR. Don't be put off by the rather strange operating instructions for this in-built editor, and don't despair if you have followed my previous articles on using ED; you will have occasion to use both while learning to use SCI effectively.

KEYBOARD CHANGES

Before you rush in to the MY FIRST PROGRAM section, you need to discover some facts about your keyboard. Depending how you start CP/M, some of the keys may not perform according to their visual labels. In particular, on a CPC6128, the key labelled ESC may not generate the proper escape code. The escape code expected by SCI is ASCII 27; the guaranteed way of sending this code is <ctrl-[> (i.e., hold down the CONTROL key (CPC) or ALT key (PCW) and then press the [key). SCI may also ignore the DEL key; it only recognizes <ctrl-h> to backspace and delete a typing error.

Now find and read the section in SCI.DOC labelled MY FIRST PROGRAM. Ignore the underline character at the end of several lines in this section; it is supposed to show the position of the input cursor, but it is incorrectly placed in some cases. DO NOT type in this underline character. If you already have a copy of SCI, try this program as an exercise; if not, you will have to use your imagination. The program to be typed in is:

```
hi()
{
puts ("hello, world\n");
}
```

Notice that C programs are typed in lower case, although you may change hello to Hello in the third line, if you prefer it that way.

Load CP/M Plus, and call up SCI from your working disc (it's a long program, so be patient while it loads). Enter the program as described, remembering to use <ctrl-h> for typing errors and <ctrl-[> for escape. If you don't catch a typing error before hitting <cr>, SCI will give you an error message. You cannot correct a line while in line insert mode, so type in the rest of the program, exit from the editor with two escape characters, and check your stored program by typing list<cr>. Use the in-built editor to correct any errors. When you get the program to work, the result will be slightly different from what SCI.DOC indicates. On my CPC6128 I get:

```
>hi()
hello, world
0
>
```

The reason for the zero after the message is "buried" in the structure of the SHELL.SCI program. For now, just accept that a number, not always zero, will be printed at the end of every program you try to run, unless SCI reports an execution error. When the latter occurs, a string of "garbage" will appear after the line which contains the error; just ignore this and use the internal editor to correct the mistakes.

Already, you must be aware that a C program is vastly different from a BASIC program. Line numbers are missing, for a start. The line numbers displayed by the in-built editor are just like the line numbers displayed by ED; they tell you where you are in the text file, but they are not a part of the file. The same result could be achieved by the following in BASIC :-

```
100 PRINT "hello, world"
110 RETURN
GOSUB 100
```

Notice carefully the subroutine structure of this BASIC equivalent. All C programs consist of a collection of routines which call, and are called by each other. In "standard" C, the controlling routine has the name main (), and I suggest that you get into the habit of using this with SCI, even though it is not enforced. If you really want to learn to write "proper" C, you will have to avoid a number of non-standard language elements permitted by this interpreter. Always place semicolons at the end of statements, and do no use the sys(...) functions except in the shell.

In BASIC, there is a clear distinction between a function, with a name starting with FN, and a subroutine which is called by a GOSUB statement. In C, the distinction is less clear. Both functions and subroutines have "proper" names, both accept formal parameters, and the calling routine can choose to treat a function (which returns a value) as if it was a subroutine by not assigning the value to a variable. DON'T PANIC!! This is part of the flexibility of C which you will quickly learn to appreciate.

Let's try a simple example, and at the same time, learn a little more about C programming. If you already have SCI, reset your computer, load up CP/M PLUS and call up SCI. Enter the in-built editor with edit<cr>, then enter line insert mode with <shift-I>. Type in the following, using <TAB> for the indenting, and <ctrl-h> to correct typing errors BEFORE pressing <cr> at the end of each line (if you don't yet have a SCI, you should still be able to follow this example).

```
main ()
{
int i; char string[81];
puts("Using gets(.) as a subroutine\n");
puts("Type a short sentence : ");
gets(string);
puts("Your input sentence was -");
puts(string);
puts("\nNow using gets(.) as a function
\n");
puts("Type the sentence again : ");
i=gets(string);
printf("The value returned was %d\n",i);
}
```

Return to the shell by typing two escape characters (i.e. <ctrl-[> twice), and list your program by typing list<cr>. Check for typing errors, and use the in-built editor to correct any mistakes. When you are satisfied that the program is correct, type main()<cr>. Follow the instructions issued by this program, i.e., actually type something when asked for a short sentence, remembering to finish with <cr>, and then retype the same input when instructed. If you compare the program listing with the results of running it, you should have no trouble understanding what the program is doing.

Now type list<cr> so that you have line number references on the screen to refer to (if you don't have SCI, number the lines in the program above from 1: to 13:). Line 1: identifies this routine as the controlling routine; even though no formal parameters are being passed to this routine, the () is necessary. Line 2: marks the beginning of the routine. In line 3:, ALL variables used by the routine are declared. Unlike BASIC, which automatically creates variables whenever they are first referenced, C requires that all variables are specifically defined; in this program we have one integer variable and a character array which can store either 81 separate characters, or a string of maximum length 80 characters (because a string must be terminated by a null character).

Lines 4: and 5: produce output to the screen (puts is an abbreviation of put string), and line 6: accepts the user's input from the keyboard (gets is an abbreviation of get string). Lines 7: and 8: verify that the input was successful. Lines 9: and 10: should be self explanatory. Line 11: is the one which highlights the difference between Basic and C routines; not only does gets input and store the characters typed on the keyboard, but it also acts as a function and returns a numerical value to the variable i. In this case, the value returned is very definitely NOT what "standard" C requires; can you work out what the value returned by gets is? Line 12: is C's equivalent of BASIC's PRINT USING, and line 13: is the end of routine signal, which in this case is equivalent to BASIC's END statement.

Within this program, we have used three library routines: put(.), gets (.) and printf(.) You will find a complete list of the library routines near the top of the listing of SHELL.SCI. Notice that the shell program is written in C, and when executed by SCI.COM, enables the user to write and execute C routines. That should convince you of the power of the C language! It also makes SCI very easy to modify and extend.

FOR THOSE WANTING TO GET SERIOUS

If you are interested in learning C, you will need to buy a good introductory text on the language. If you have, or intend to buy a copy of SCI, don't expect to just type in programs from books or articles and have them run successfully. Some will be okay, but many will need to be modified; I mentioned earlier that SCI only implements a subset of the complete C language. Next month I will attempt to outline some "workarounds" for non-implemented features, and also suggest some modifications to the shell. In the meantime, if you are experimenting with SCI, here are a few tips. The supplied shell does not have a new command - trying to load a non-existent file will do the job for you. The save and load commands must be followed by a single space, and, because you are working under CP/M, the file names MUST NOT be enclosed in quote marks. Any extension required must be included in the file name - there is no default. Although "standard" C uses the extension .C, I tend to use .SCI for my program files.

LocoScript & LocoSpell

THE BETTER FASTER WORD PROCESSOR FOR YOUR PCW

LOCOSCRIPT 2 GIVES YOU:

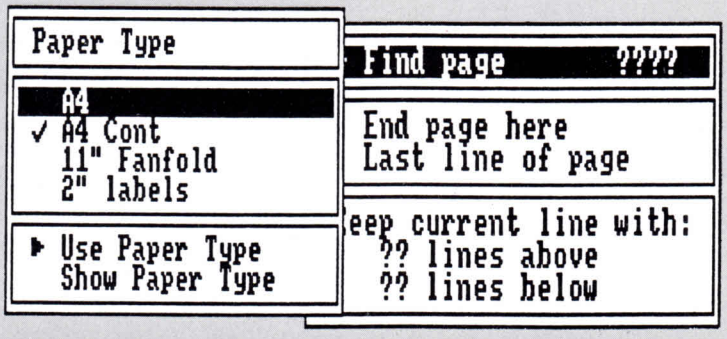
Faster movement through your documents

Move direct to a given page

Better word processing facilities - operated more simply

Unparalleled printing facilities - in every European language

A huge range of special characters



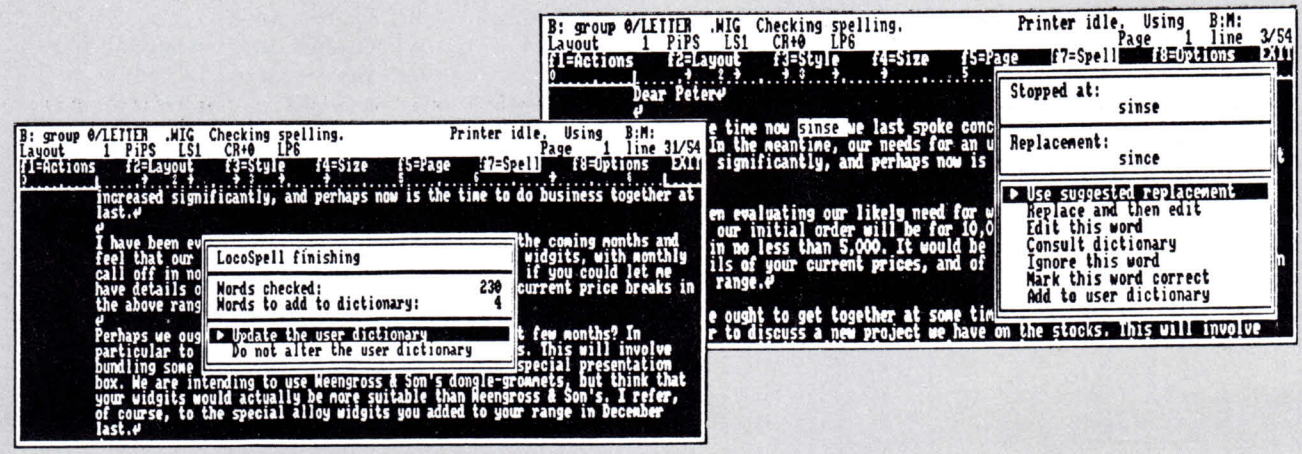
LOCOSPELL OFFERS:

Spelling checker within LocoScript

Longman's 78,000 word English dictionary

An automatic correction facility

A word count for Locoscript



TOGETHER LOCOSCRIPT 2 AND LOCOSPELL MAKE YOUR PCW MUCH BETTER - BUT THAT'S NOT ALL...

INTRODUCING SYDNEY'S BBS

To give Amstrad users everywhere a really good look at what a Bulletin Board System is all about, Helen Bradley peeps into Riccay Schmahl's Amstrad BBS. Fascinating reading!

In this second (and final) part of her series on communications Helen Bradley looks at the Amstrad Bulletin Board in Sydney, a Mecca for Amstrad computer users Australia wide.

WHAT IS THE AMSTRAD BBS?

The Amstrad Bulletin Board is a Sydney Bulletin Board run by Sysop Riccay Schmahl. It was opened by Riccay in January 1987 using a PCW with one telephone line and some software that Riccay wrote himself in Basic. It was set up with the idea that its membership would consist solely of Amstrad computer users.

Since then the Board has seen a number of changes. The software that now controls the Board is the very popular OPUS software and the machine is no longer a humble PCW but a whopping 386 clone controlling the two telephone lines and supporting a 320 meg hard disc. Finally perhaps the biggest change is the one that is happening right now, Riccay has decided (in consultation with the Board's members) to open the Board's membership up to users of non Amstrad computers.

On the board you will find a number of message areas containing information, discussions, questions and answers on a number of different topics. A list of the message areas on the board is shown in figure 1, and in figure 2 are some extracts from the message areas (heavily edited) to give you a taste of what you will find there and from how far afield some of the messages come.

Also on the Board is a file area containing files and programs that you are welcome to download onto your own computer. You are also encouraged to upload programs from your computer to the Bulletin Board for other users to benefit from. In figure 3 is a list of the file areas.

CONNECTING TO THE BOARD

The phone numbers for the Board are (02) 981 2966 and (02) 982 6320 (accessible 24 hours) and the speeds that are supported are 300, 1200, 1275 and 2400 baud. The other settings that you will need for your modem are: 8 bits, 1 stop bit and NO parity.

When you connect to the Amstrad Bulletin Board you will get an opening screen that looks something like figure 4 and you will be prompted to enter your first and last names. You should log on using your real name and give correct information as these items are checked to maintain board's integrity.

If you have not previously accessed the Board you will be asked the type of computer that you own and if you do not own or use an Amstrad you will be requested to hang up and try a different board as the Board is specifically on line for Amstrads (this will change shortly when the Board is opened up to users of other brands of computers).

You will also be asked your address and home and work telephone numbers. Without this information you will not be allowed full access to the system. This information will be kept confidential by the Sysop.

The next step is to select your secret password. A password must be a single word (and cannot contain spaces). It can be as long as 15 characters and can include letters, numbers, or punctuation and there is

```
Message Areas:
1  ...General Interest
2  ...Comments TO and FROM the SYSOP
3  ...CP/M (Int)
4  ...CPC 464,664,6128 Domain
5  ...PCW Australia Group Messages
6  ...PC1512, 1640 & PPC Domain
7  ...Network Mail
8  ...Amstrad Conference (Int)      22 ...Multitasking (Int)
9  ...Technical (Aus)               23 ...Dbase (Int)
10 ...For Sale (Aus)                24 ...DESQview (Int)
11 ...Pams (Aus)                    25 ...No Piracy (Int)
12 ...Laptop (Int)                  26 ...80XXX (Int)
13 ...UFO (Int)                     27 ...Hard disks (Int)
14 ...C (Int)                       28 ...Consulting (Int)
15 ...Local Area Networks (Int)     29 ...QNX (Int)
16 ...Business (Aus)
17 ...Kids (Int)
18 ...Teen (Int)          [(Int) denotes International conference]
19 ...TradeWars (Int)     [(Aus) denotes Australian conference.  ]
20 ...TradeWars (Aus)
21 ...Trailblazer (Int)
```

FIG1

```
Msg #7, 23-Jan-89 06:06pm
Subject:  viruses

I have a virus on my system (I think), when I do a DIR on A: and then change
diskette, if I do another DIR on A: it appears to be the same DIR as the first
diskette. (almost instantaneous, no time to copy disk) I think it might be writing
the FAT table from disk number 1 directly onto disk number 2. ( I can still see all
the files on the disk using utilities but cannot access them )
Have you ever heard of such a virus (if it is one) and what ....do I do ??/
* Origin: Amstrad OPUS + CybERpUnk of the Pacific
*** There is a reply. See #28.
                                        *****
Msg #28, 22-Feb-89 11:33am
Subject: viruses ?

Ok well first get Flu Shot Plus a very powerful virus detector... if it does detect
it then isolate your computer and run the suspect disks from another machine to
confirm that they are infected then use Nortons to trace the code which activates the
virus and then search all your other disks for that specific code. Confused leave me
another msg and I'll explain further.
 * Origin: Amstrad OPUS + CybERpUnk of the Pacific +  (3:714/903)
                                        *****


Msg #5, 21-Feb-89 12:20am
Subject: Telecom

We may be in need of additional consulting professionals around the country. Have
briefcase, will travel. Not entry level. May need hardware analysts, network
(local-exchange and/or toll) analysts, trainers, lecturers and others. Resumes (no
headhunters) to Communications Network Solutions -- HR Dept., P.O. Box 9530, Austin,
TX 78766-9530. No phone calls, please. If we had time to talk on the phone, we
wouldn't be looking for help!
* Origin: Forbidden Planet II,WOC'n RiverCity Austin TX! (Opus 1:382/10)
```

FIG 2

no difference between uppercase and lowercase letters.

It is suggested that you:

1. write down your password so you'll remember it next time.

2. don't use the same password on more than one system;

and

3. (for added security) use a long password (at least 6 characters).

When you have typed in your password you will be asked to repeat it just to check that it was understood correctly by the system.

Now you will be asked if your system supports ANSI screen controls. In general you will find that only Amstrad IBM compatibles will support ANSI screen controls. CPC and PCW owners should press N for no at this point. If you have answered Yes to the 'ANSI' question (ie you own an IBM compatible) then you will be prompted to answer another question - whether your system uses the OPed full-screen editor (answer N for no if you are unsure).

When you have done all that you will be welcomed to the Amstrad Bulletin Board and you will be given a few pointers for using the system.

You will not have access for downloading files until you are registered by the sysop and this will usually take between 12 and 48 hours. In the meantime, however, you can start off in a good way by uploading some programs! You are free to look around at the message areas although some of the commands that make using the message areas easier to use will not be available to you until you are registered.

There are some rules for uploading and downloading and these are published on the board and the following information has been extracted from the notes on the Board.

```
  File Areas:
 1 ... Files of General Interest
 2 ... CP/M for PCW's & CPC's
 3 ... CPC464 Specific
 4 ... CPC664 & 6128 Specific
 5 ... PCW Australia Group
 8 ... HAMstrad Section
19 ... Unsorted CP/M Area

  Files for the PC200/1512/1640/2086/2286/2386 & PPC512/640

 6 ... General/Utils/Applications
 9 ... New Unsorted
10 ... Graphic Applications
11 ... Games
12 ... PC Testing Progs
13 ... Utilities
14 ... Readmac & Adult files
15 ... Tutorials & Miscellaneous
16 ... Databases, Spreadsheets & Statistics
17 ... Languages & Code
18 ... Personal & Financial Management
  Select: 13
```

FIG 3

UPLOADING/DOWNLOADING

The Amstrad BBS has a download/upload ratio of 50:1. Which means that for every fifty kilobytes downloaded you should upload at least one kilobyte. You are asked to upload files into the appropriate directory, eg: put CP/M files into the CP/M area etc.

As space is at a premium on the Board, if you are uploading a program which comprises more than one file, you are encouraged to archive the files into one file and to upload the archived file.

If you are using CP/M - the utility NULU which creates archived files (those with the .LIB extension) is available for downloading from CP/M file area 2. The file name you should look for is NULU151.COM. If you use MS-DOS then the utility to use is PK090.EXE which creates archived files using the ZIP utility - you will find this in File area 6. If you are downloading you will need these same utilities to unarchive all your archived files. In the future Riccay plans to change over all the archiving to the file compression/archive program ZIP when it is available in other than just the MS DOS format.

TRAVELLING AROUND THE BOARD

To travel around the Board simply

follow the menus and prompts. If you get lost, type ? for help and you will usually find that adequate help is available to get you out of most predicaments.

I suggest you download the OPUS user manual called OPUSER.DOC which is located in file area #1, as soon as you can as this contains a lot of useful information and instructions for using OPUS Bulletin Boards.

The Opening Bulletin for the Board looks something like this:

```
Menu Manager 3.71 (C) David Musson
l988
AMSTRAD -Menu Beta Site
A) 22 Feb 89 - What's the latest???
B) 26 Oct 88 - Rules of uploading -
   essential reading
C) 23 Sep 88 - TRADEWARS<(-=Now
   showing =-)>
D) l8 Feb 88 - Do you want to become a
   POINT?
E) 29 Oct 88 - People who have
   donated to help run the bbs
F) 25 Feb 89* The people who don't
   read messages
G) 09 Dec 87 -System usage and
   statistics
H) 25 Feb 89* When this bbs was busy
during the past week
I) 25 Feb 89* The best uploaders
J) 25 Feb 89* Top callers of this system
   Press the letter of your choice,
   or ENTER to go to the main menu:
```

I suggest you have a look at some of these options (press A,B,C,D, or E etc and then <ENTER> to select your choice) and when you have finished exploring the options from this menu simply press <ENTER> to go to the main menu.

THE MAIN MENU

After you have been accorded full access to the system the Main Menu that you will see on your screen will look like this:

```
MAIN MENU:
M)essage section      F)ile section
G)oodbye (logoff)     S)tatistics
A)ns Questions        B)ulletin
Y)ell at Sysop        C)hange setup
U)ser list/search     E)ntry
V)ersion              Select:
```

Pressing S will give you your statistics for the system. These statistics include your download/upload ratio and how long you can stay on the board until you will be disconnected (the time limit is 45mins).

Pressing M will get you into the message area where you can read messages from any of the areas shown in figure 1. Simply select the number of the area that you are interested in and follow the prompts and menus to bring the messages onto the screen to read.

You will find that a facility to capture screen information to disc is useful when looking at the message areas. If you can save the messages to disc as they scroll continuously up the screen then you can read them at your leisure when you are offline. STD users, in particular, will appreciate the benefits of this.

When you are in the message area you can leave a message for other users - leave private messages only if you really want them to be private, otherwise leave them for every one else to read too. If you have a question or a comment leave it in the appropriate message area - chatting to other users and exchanging tips and ideas with them is what the Board is for.

To go to the File menu (this allows you to access the menus for Uploading and Downloading files) press F and follow the menus from there. To upload or download files your communications software will need to support one of the following protocols:-

Z modem,	Modem7
X modem,	Sealink,
Y modem or	Kermit.

For PCW users who followed the first article on communications (TAU Jan '89) this will mean purchasing either a commercial or Public Domain communications package. The MAIL232.COM program (while it allows you to access Bulletin Boards) does not support any of these protocols and therefore is not suitable for downloading or uploading programs.

Pressing E for Entry will give you a menu from which you can select option G for a Guide to Opus. This guide has lots of useful information on using OPUS Boards and is helpful to read particularly if you are a newcomer to Bulletin Boards.

When you are ready to finish your communications session (ie to logoff) simply press G for Goodbye. You will be asked to confirm that you want to logoff and whether you want to leave a message for the Sysop. The steps for writing a message are all menu driven so you should not have any problems with leaving a message and logging off. When you are prompted to disconnect make sure you give your modem the command to hangup so the telephone line is disconnected.

I hope this two part introduction to communications and to the Amstrad Bulletin Board will encourage lots of Amstrad users to leave the security of their living rooms and to enter the world of communications. Riccay's Amstrad Bulletin Board is a very friendly and well run Board and he and I (and the other members of the Board) look forward to meeting you there very soon.

My personal thanks go to Riccay for his help in producing this second part of the Communications series.

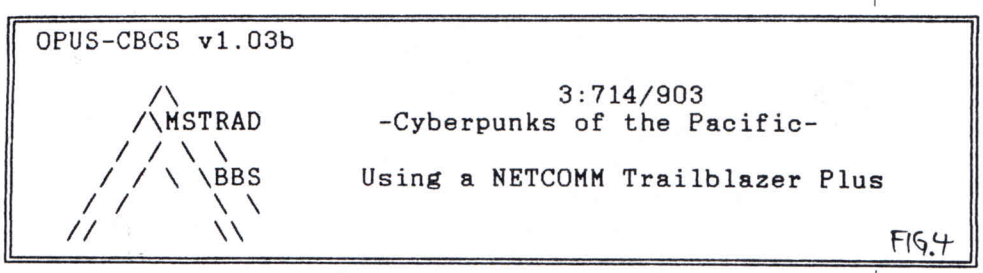


FIG.4

PCW POT POURRI

There's nothing you can't know - it's just a case of finding someone who can tell you! Here are some attempts at tips and answers...

RENUMBER A BIT

I am a beginner at BASIC programming, so don't always allow enough lines between routines etc. to add new bits of program.

I know I can overcome this by using the RENUM command, but that just rushes through and renumbers all the subroutines as well. Is there any way of renumbering say lines 10 to 2000 only?

Gill Smith

Although you can't renumber a section of program on its own in Mallard BASIC, you can renumber from any point in the program to the end. The three parameters to the RENUM command are new-line-number, old-line-number and increment. If you want to renumber a routine which currently starts at line 100, so that it begins at 1000, you would type RENUM 1000,100,10.

If you then list the program and spot the beginning of the next routine at 1210, for instance, you could renumber it to start at, say 2000, with the command RENUM 2000,1210,10. You can continue through your program in this way until you have renumbered the entire listing to your satisfaction. There's no short cut, I'm afraid.

A QUESTION OF LETTERS

I have a number of questions that I hope you will be able to help me and others with.

1. I use LocoScript 2 with LocoSpell. As I am dyslexic this is the best investment for me. I have the Amstrad PCW 8256 with memory and drive upgrade, and I wish to use Supertype 2 as well as LocoSpell. Can you please tell me if there is any way to load my start of day disc in drive B on a 760k disc as this will allow the space to use all the functions that I need, thus saving me chopping and changing files from disc to disc.

2. Can you tell me if there is any way to convert Fleet Street Editor Plus and Mini Office Professional to load in drive B and to continue to run in B?

3. Can you tell me the name of a good book that covers in detail the functions of CP/M on the PCW?

And a quick note of praise for your mag. and the Amstrad PCW. It has changed by life, before I had the PCW I never did anything that involved pen and paper but now as you can see I am sending letters and so much more.

Mark Malcolm-Brown

If you start up LocoScript with a disc in drive B which has a dictionary in group O, it will automatically be copied to the memory on starting up. That should solve your first problem.

There is absolutely no way to load Mini Office and continue to run it from drive B. It is impossible. Nobody in the world can do it. (This is the best way to get someone to write in saying how it can be done).

The standard book on CP/M is the CP/M Plus Handbook by Digital Research.

Dyslexia is the butt of a lot of feeble jokes, and its image is clouded by the fact that it is commandeered by a lot of people as a fashionable excuse for just being bad spellers. So it's nice to know that those who have it also benefit from the quiet technology revolution. The PCW isn't just for businessmen and writers!

PRO-SCRIBED

I use Protext as well as LocoScript, though for different purposes. I have occasionally needed to transfer text from one to the other. Transferring LocoScript text to Protext is easy, using the ASCII conversion option in LocoScript, but I haven't yet found a way of doing the reverse. If I try to insert a Protext document into a LocoScript template I sometimes get practically nothing apart from the first word or so, and on other occasions get the whole text, but with some odd substitutions in many of the words. Can you help?

M.S. Ruddock

To insert a Protext document into LocoScript, first put a ruler line at the top of the Protext original which is, say, two thousand characters wide, format the document with ft and save as normal. When you 'Insert' this ([f1] LocoScript 2,[f7] LocoScript 1) into a Loco document it should be OK, certainly in LocoScript 2 anyway. The occasional capital sigmas and lower case alphas can be removed by [EXCH], using 'Super Shift' to enter the Greek letters to be replaced.

DUMMY RUN

I use a DMP off the par socket as the main printer on my PCW 9512 which will not work if the internal printer is unplugged. This is a nuisance to anyone who has to move the machine about.

Is there a dummy plug which will fool the 9512 into thinking its own printer is connected?

When I phoned Amstrad to enquire, I must have got their telephone answering parrot which kept repeating "We don't publish technical information", even when I gave up and asked what the weather was like down their way.

D.C.A. Layzell

At least Amstrad would tell us what the weather was like down their way (cloudier than yesterday) but not much else. Locomotive however (famous for their printer support) said they are trying to track down why this should be so. As soon as they find out, we'll tell you. Meanwhile all you can do is keep trying - apparently the PCW does recognise the dot matrix without the daisy plugged in half the time. At the moment, though, no one knows why.

THE COMPLETE PC PUBLISHER?

Graeme Kidd reviews the desktop publishing package with "everything" - Finesse from AMS. It's packed with power but won't make you get a bank loan. Here's the first of two parts.

The Company Advanced Memory Systems (AMS) came into being about four years ago, and started life as a peripheral marketing and distribution company. The AMS Mouse, available for a number of systems, was the product line for which the company became best-known, and today a goodly number of AMS mice are scurrying over mats next to computers.

Logically, if mice are a large part of your business, it's worth thinking about other product lines that will help get your mice used. So AMS went into Desktop Publishing, launching Finesse V1.0 a little while ago as a low cost (but nevertheless competent) package for the PC. Equally logically, if mice and DTP software become a large part of your business, it's worth thinking about...etc. AMS realised that there are only two peripherals, other than a mouse, that a DTP user is likely to want - either a laser printer to output finished pages with 300 x 300 dots per inch resolution, or a device for scanning images which can be incorporated into documents.

Sensibly AMS steered clear of the laser printer market - there are already plenty of printers out there, and the competition is getting keen. And there is no way you can come up with a 'budget' laser printer - whatever you add in the way of memory and controlling firmware, your laser printer has got to incorporate an 'engine' which is the laser and effectively most of the guts of a photocopier. You just ain't going to get laser printers into the market for less than $3500 a throw.

Anyway, someone doing DTP on a budget could always use a dot matrix printer to proof pages, and then go to a bureau for laser printed or typeset output of the final document...

So AMS looked at scanners. People like pictures. Whether they're photographs, charts or diagrams, pictures brighten up the page and can add considerably to the impact of the message that you are trying to get across. At the high end of the market, scanning devices are available that can import mono, or even full colour images in mega-high resolution but there's no real sign of a scanning bureau market developing. What the world wants, AMS figures, is a hand-held device that can sit on the desk next to one of our mice... a device that is used to scan images and store them on a computer file. A device that is 'affordable' and one that will bring some of the power of expensive flatbed scanners within the reach of many more people.

So AMS made one.

Once the original version of Finesse had been around for a while, Version 1.1 was produced with a number of refinements based on the experience of users, and released with GEM V3.0. Instead of just selling mice, scanners and software separately AMS put together 'DTP Solutions', combination packages that offer the would-be desktop publisher all that is needed to turn a PC into a DTP workstation.

The AMS DTP solution 3 includes the AMS Mouse and driver software, the AMS scanner and driver software and Finesse V1.1 bundled with most of the GEM V3.0 operating system and two typefaces that can be installed for dot matrix and laser printers (other than Postscript printers, theoretically).

The whole caboodle which is currently unavailable in Australia, would still be a fair bit cheaper than 'top class' DTP software-only packages such as Ventura.

Sound too good to be true? Well it isn't. Obviously, there have to be compromises when producing a DTP program that sells for around $299, but few corners have been cut,

and the user with time and a little imagination can circumvent most of them - or buy out of the problem.

Whether you're mixing and matching from the AMS product range, or going for the all- singing, all- dancing DTP Solution 3 pack, you're unlikely to be disappointed with your purchase. The mouse performs just as a mouse should, the scanner is excellent - much more than 'a toy' and quite remarkable for the price - and Finesse itself is not a bad piece of software at all. Professional typesetters might quibble with the typographical limitations - you have very little real control over leading (the space between lines of type), there's no hyphenation dictionary so you have to enter all word-breaks manually, and the justification routine happily inserts quite large l e t t e r s p a c i n g which can make the copy look a little inelegant.

An image taken from a comic strip using Microscan and later cropped. Cropping allows details to be removed from the main scene, and emphasis given to the subject. Using the scale to fit option and changing the proportions of the picture box has dramatic effects, as shown opposite.

Anyone thinking about embarking on PC-based DTP for the first time would do well to lash out on Finesse and Microscan (and the mouse, if you need one). Good results can be achieved quite quickly, and once you've got to grips with the concept of DTP, you could always upgrade to another, more typographically powerful DTP program if the limitations of Finesse became intolerable. The chances are that you will be more than happy with what you have got though.

THE AMS MOUSE

A mouse is a mouse is a mouse, really. There's not a lot of point in disassembling the AMS mouse on these pages and examining it in fine detail. AMS claims that its mouse is the largest-selling mouse in UK at the moment, excluding mice produced by companies such as Amstrad. The company is probably right - their product is reasonably priced, offers all you want from a mouse and works well. Picky people might say you don't get a long enough cable to connect the mouse to a serial port, but I discovered no problems. You're going to need a mouse and mouse driving software if you want to get into DTP, and if you haven't got one...

THE AMS MICROSCAN

This is the really interesting component of the AMS DTP Solution.

The scanner consists of a hand-held 'head' which is moved over images to be scanned, a board which needs to be installed in an expansion slot, and the driver software which may be configured to work under MSDOS, GEM or Windows.

The scanner board needs a vacant slot. Don't be put off if you've never had the back off your PC before - installing the board into an expansion slot is about 10 minutes work with a screwdriver and the manual explains what you should do in a clear and friendly manner. The review unit was installed in a tired old clone, and once in place everything behaved impeccably. You may encounter problems if another device on your system clashes with the scanner board, which is configured to use interrupt level three, but this configuration may be amended simply by moving a jumper on the scanner board and typing in a few lines when setting up the driver software. Once again, the manual takes you through these steps in a clear and friendly manner, should you have to take them.

The scanner unit itself draws power from the board installed in your PC and trundles along on little wheels (which help you drag it over the image being scanned in a straight line). You have three controls to play with - the button you press and hold while scanning an image, a contrast wheel which affects the way in which the scanner perceives half-tones and a dither switch which may be set to black and white or to one of the three positions used when scanning in colour images.

The temptation to play with the new toy, the moment it has been installed, is irresistible. All you have to do is run the software, press ALT and S to get the computer waiting for the arrival of a scanned image and press the button on the side of the scanner, holding it as you move the scanner head over your selected image. As you move the head over the image, the scanned image 'peels' onto screen... and... wow!

It takes quite a while for the novelty to wear off, but by the time you have seized just about everything in range and scanned it in 'just to see how it comes out', you'll realise that judicious use of the dither settings and the contrast wheel can make a considerable difference to the quality of the scanned image.

Microscan offers a resolution of 200 dpi - perfectly adequate for most applications. It is happiest with strong images made up of black, white and greys, but copes reasonably well with most colour images if you take time to fiddle around with the settings. One approach that sometimes helps when an awkward piece of colour artwork refuses to give acceptable results to the scanner, is to photocopy it on a decent plain-paper copier first, and then scan in the photocopied image. Why not just stick the photocopy in place? Well, if it's a logo you're capturing for frequent use, then the effort pays dividends in the future. It takes but moments to scan an image, so it's well worth fiddling with the controls and re-scanning until you capture the best representation

possible. The contrast wheel affects the unit's sensitivity to greys - turn it up, and half-tones fade out, turn it down and half-tones move towards black.

Colour images present more problems to scanners than those posed by black and white. Scanners work by shining light onto the material being scanned and then analysing the light that is reflected back, converting it into a pattern of dots. A black and white image is essentially binary - black bits reflect all the light. Coloured images can contain an enormous range of shades, which all reflect light differently, so a mono scanner has to work out some way of representing the shades when the light reflected back from a coloured image is converted into a pattern of dots.

Dithering is the one way in which shades of colour may be represented in a monchromatic scanned image, and Microscan has three dither settings. The Microscan board can translate shades picked up by the scanner into patterns of dots, which are then passed on to the scanner software and incorporated into a pattern of dots held in a file. Shades are converted into patterns made up of square cells, each containing four dots - so there are sixteen 'cell' patterns available. The dither switch on the scanner can be set to three colour positions, which govern the way in which the scanner board interprets the information when it is making up patterns of dots.

Dithered images can appear a little strange - it is as if the image has been 'screened' for printing in a newspaper, and there is often a distinctive moire pattern in the file. The final effect of scanning a colour image is rarely as true to life as the result of scanning a black and white picture, but used creatively the effect can be quite striking.

HELPING THE SCANNER ALONG

Microscan can save an image to files compatible with GEM Paint (IMG), PC Paintbrush (PCX or PCC), Windows Paint (MSP) or in TIFF format (.TIF - used by a lot of scanner programs to communicate with graphics or DTP packages). A selected area of the image may be saved rather than the whole scan, allowing for rough cropping, and the image may be rotated through 90 or 180 degrees before it is saved - particularly useful as you may have been forced to scan an image sideways, owing to the 110 mm width of the scanning head.

Once an image has been scanned in and captured by the software, you can save it straight to disc or fiddle around with it for a while... A saved file can be loaded into an art package of your choice for editing, or the built-in facilities of the Microscan software may be called into play. No matter how smoothly you pulled the scanner across the original and no matter how clear the original was, a few stray dots are likely to have crept into the image. And as often as not, a little bit of retouching will pay dividends in the quality of the final image.

The editor supplied allows you to scroll around the captured image file, enlarging it by a factor of two or four before commencing fine work. (It is likely to be larger than life anyway - you try displaying 200 dpi images on a low-resolution PC screen). The toolbox includes a rubber, a pencil that draws dot-thick lines, and a paintbrush that can capture the dot pattern found in a selected chunk of the image and then repeat the pattern to your whim. Using the paintbrush after 'dipping' it into a section of the background, quite radical retouching jobs can be done and no-one will ever see the join!

Even if the scanner can't cope too well with an image, no matter how many times you alter the settings, a fair bit of 'repair work' can be undertaken on your best attempt before the file is saved.

All in all, the Microscan is an excellent product, capable of quite wonderful work if you consider the price. Anyone who is already using a PC-based DTP system should seriously consider investing in a Microscan if their software can accept the files it creates - the sheer convenience of having your own personal scanner on the desk, available to scan in logos, pictures, graphs or extracts of text whenever you want them is likely to improve the quality of your finished work. And the device is a lot of fun to use...

AVAILABILITY CLOUDY

Due to information regarding the recent sale of software rights of AMS software to Database still being rather hazy, we have no firm confirmation of prices at this point. The prices structure is believed to be changing but no confirmation has been given as yet. The effect of all this on importing is that none of the 'Solution' packages will immediately be available. However Finesse (discs and manual only) is currently available from The Amstrad User.

SLIPPED DISC BUSTER!

Alan Solomon, well known U.K. "Disc Doctor", is a genius when it comes to retrieving 'lost forever' data. So if your hard disc goes bung, who ya gonna call?!

It was hot. The air clung to you like a computer insurance salesman, and slid down your throat like warm beer. I was sitting in my office with my feet on the desk, wondering how I was going to pay the next instalment on my Model 80. This business was getting me down, why did people always get into so much trouble, and then wait until their problems festered? I chewed on my wine gum reflectively, and wished I'd gone into double glazing or used cars.

The sign on my door said 'Doctor Solomon's Surgery', but I wasn't a real doctor, just another computer quack, doctoring discs, a disc quack. I just used my doctorate as an excuse to charge a bit more. The downside was the wisecracks about aches and pains in the back, but I have a standard answer off pat - 'Take off all your clothes'.

In the outer office, Janet searched for letters on her keyboard. Janet wasn't hired for her typing speed; her talents lay in other directions. I picked up a wodge of printout, and fanned myself, wondering if I should go home, or whether I should make a few phone calls to drum up some business. I decided it was too much trouble, but the phone thought otherwise, and made its cute trilling noise.

'Hi. Alan Solomon here'.

'Doctor Solomon - I have a problem'.

I pulled my keyboard towards me and started writing. Her name was Melanie, and she was in deep trouble. Her hard disc just seemed to have vanished - DOS didn't recognise it. That's a common occurrence, and one I can often handle. Norton and suchlike utilities can't touch these cases, of course, but I never use kids' stuff like that anyway.

I grabbed by box of tools and my Filofax, and set off. 'Dunno when I'll be back, Jan', I said. She looked up, reproachfully. Why do I always feel guilty about leaving her to mind the office? That's what I hired her for, well, that and two other things. Before she could say anything, I wasn't there.

Outside, the heat struck me like a hot bath. London in July can be pretty muggy, and this was the Big Smoke at its worst. I decided to hail a cab, remembered what was in my bank account, and took a tube instead. The journey was foul at first, crammed in with about a million other cattle, but as we came into the leafy suburbs, things were a lot better. By the time my stop came, I was feeling a bit more human, but the walk from the station to Melanie's left me hot and sweaty again.

The house was something else. Big and posh; the place reeked of money. The drive was about a mile long, and the door had a notice saying 'Please ring', but on principle I never do what notices like that say. I knocked. A French maid in a frilly apron answered the door, and I gave her my card, 'Dr. Alan Solomon, disc doctor'. She showed me into a salon, where a stunning redhead reclined on a settee. She stood up gracefully, and I wondered what Janet was doing tonight.

'I can't do anything with it; can you help me, Doctor?, she said, and for a moment I wondered what she was talking about. Then I pulled myself together, and put on my professional manner. With a great effort of will, I suppressed my favourite line, and asked to see the computer. Melanie had a computer room. I have a shambles; usually half a dozen machines using each others' discs, screens, keyboards. System units are piled on top of each other, manuals in stacks on the floor, printout in heaps on chairs. Sometimes I have to cart a couple of computers outside just to make a bit of working space - an utter shambles.

Melanie had fluorescent strip lighting, air conditioning and a Proper Computer Workdesk. I was very impressed, especially with the Workdesk, but I couldn't see the point of the mirrors on the ceiling, until I realised that they meant the room was better lit because of them. I like well-lit computer rooms - I have 350 watts in mine. Her manuals were in a neat row on the manual shelf, the printer had its own stand, and the whole setup looked like it had never been used. 'Can you fix it?', she said, hopefully.

I don't usually make promises, especially when I haven't even powered the thing up, but it you'd seen Melanie fluttering her eyelashes, you'd understand why I confidently boasted 'Oh yes, piece of cake'. Actually, I was fairly sure that this computer had never been really used, so all I would have to do was reformat the hard disc, reinstall her software, relieve her of some surplus cash and go celebrate by paying Janet her back wages. I powered up, and sure enough, it said 'Drive error', so I switched off.

'Can you do anything?' she asked

anxiously? I grinned confidently as I unbuttoned her and took off her cover. Her chassis was clean, and I pressed all the chips home with my thumb, just in case. Then I saw the problem; the power lead had come off the disc drive! This will be the easiest £500 I've ever earned, I thought as I powered up and waited for the C prompt. 'Drive error'. I blinked. Then I realised. 'Has your dealer had a look at it?' I asked. Yes, her dealer had come round, had a look, charged her a call-out, and left, saying it was unfixable. OK, I thought, we do this the hard way.

I took off my jacket and rolled up my sleeves. This is a good ploy; it shows that you're about to do something difficult. Melanie responded in exactly the way I wanted - she offered me coffee. 'Strong, black and lots of it', I said. 'Yes', she said, 'That's the way I like it, too. But the way she said it, left me badly confused for a few minutes, and by the time she came back with the jugs, I'd only got as far as sticking in my floppy and firing her up.

'Oh, you've got it working', she said. But I shook my head, and showed her that DOS didn't believe there was a drive C. We sat down at a coffee table (that was some computer room) and I asked her what she had loaded. She came back with all the usual list, Supercalc, Wordstar, Wordstar 2000, Sidekick and Norton. And for relaxation, Leather Goddesses of Phobos. I wished she wouldn't keep doing that - just when I was beginning to get my cool back, she'd set me off again. Actually, Goddesses is quite a good game; a bit naughty in places, but all text, and nothing you wouldn't let your aunt see. It was the way she said it.

And then she hit me with the googly - 'And a few hundred Wordstar and Supercalc files'.

'Which version?'

'Wordstar 2000 and Supercalc 4. Oh, and a big PFS-File database; that's what is really important. And some Framework stuff'. It would be, of course.

The problem is this. Let's suppose you've got the disc to the point at which you can actually read sectors off it - if you can't, there's nothing you can do anyway. If you're trying to get a straight ASCII files, it's easy, because you can see what you are doing, and if you leave a sector out, the file still works; it just has a bit missing. If a file has a bit more structure to it, like old Wordstar, it's a bit harder; for example if you have the bold-on flag, but lose the bold-off flag, then the whole of the rest of the file will be bold when it shouldn't be, and vice versa. Now this isn't the end of the world, and the user can read the file into her program, and fix it up.

But now let's look at something more structured, like a database. If you lose a chunk out of the middle, then you can't load the data into the program. The records are fixed length (say, 200 bytes) and if you lose 512 bytes out of the middle, the program gets confused about which field is which. Then you have to find the point of the cleavage, and wade in with Debug (Norton being quite useless, as usual) to patch things up. That's OK if the file has such a simple structure, but some databases seem to be expressly designed to fall apart under stress. PFS-File is one of these. dBase is a pleasure to fix, but PFS-File is a monster.

Spreadsheets are even worse. If you lose a small chunk out of the middle, the whole spreadsheet won't load. And the records aren't fixed-length; each record is different. A few years ago, I reverse-engineered the 1-2-3 and the Symphony file formats, and now I can read them like a book - most people can't get near them. But Framework is something else - totally obscure, and Ashton-Tate claim that not even they know the file format. I probably could reverse-engineer Framework, but it's used so uncommonly, it isn't worth the bother.

I opened my box of tools and took out a floppy disc. I stuck it into the drive, and typed READDISC. This is a little number I cooked up myself - it'll read discs that other programs think aren't there, and there's nothing like it on the market, and if you think I'm going to tell you how it works, you've been eating too many wine gums. I'll tell you this, though. It cuddles up real close to the hardware, and does a bit of heavy persuading.

READDISC worked a treat, and I printed out the fifty or so clusters on her laser printer. She had a Kyocera, of course, so I put it into small print out of habit. Laser printed output costs threepence a page, and this is irrespective of the amount of print. And money is tight, usually I tell Janet to use both sides of the paper on her dot-matrix, and only laser the final copy of a letter.

I spread the printout over the Persian carpet, and Melanie leaned over my shoulder to look at it. Her perfume tickled my nose, and her hair brushed against my cheek. 'You're getting it off', she said. 'Could I have another coffee?' I asked desperately. I pulled out my Filofax and had a look at the time - I'd spent an hour on this job so far, and it was looking good. The printout was interesting, very interesting.

The machine was a Tandon PCA-20, the 20 megabyte AT-clone. The disc was a Tandon 3.5 inch long 20 meg, with a Western Digital controller.

The partition table was impossible - I just didn't believe the information it held. It told me that I was looking at a 56 megabyte disc, with an impossible number of cylinders. Then there were sixteen sectors, and each sector was filled with 'c' (ASCII 99). Three of those sectors were unreadable, but I guessed that it wouldn't matter. Next came the all important FAT (File Allocation Table), and then the directory. The FAT and the directory seemed to be OK, but you couldn't really be sure. The partition table was what stopped the computer from recognising drive C.

Melanie came back with the coffee, and I explained to her that her hard disc was flaky. 'Oh dear', she said, 'Can you fix it?'

I explained that, in my opinion, you didn't fix flaky hard discs. You got the data off them, and junked them. If a hard disc has let you down, and you'd spent a fortune getting your data back, you'd be crazy not to spend £300 on a new disc drive. I also explained that I would normally copy the data straight off the old disc onto the new one, using a modification of my READDISC program.

'OK', she said brightly, 'Let's go and get a new disc'. Just like that. I usually have to spend hours persuading people not to trust defective equipment.

Outside, she opened the garage and drove out a bright red Porsche. I got in, and she shot off, much too fast. I closed my eyes. 'Where to?', she asked.

That was a problem. It was getting late, and it was a long way to the Big Smoke. We wouldn't be able to make it to one of the big dealers before closing time - it looked like we'd have to go to Sidtronics, and talk to my old friend Sidney Mincing. We arrived at the Fulham back street where Sid has his shop. I pushed the door, and it went Ding and opened. Sid had no truck with this newfangled electric stuff - his shop-door bell was the old-fashioned mechanical type. We went in.

The whole place was crammed with bits of computers. It was a hacker's wonderland. There were TI-99A keyboards, Zorba screens, eight-inch disc drives, dusty stacks of software. Melanie was delighted, and asked me to explain everything. I showed her Bernoulli boxes, tape streamers, printers, keyboards - I told her where each had come from, and what it was for. She kept saying 'And what's this' as we went around the shop until she came to a cloth-covered object in the corner. 'And what's this?' she asked, prodding it. The cloth covered object stirred, and turned round. 'Do you mind?' said Sid. 'I happen to be the proprietor of this emporium'. I said Hello, and shook the rather limp object he offered me. He was ogling Melanie, but I counted my fingers all the same, a habit I can't seem to break with Sid. It isn't that he's dishonest, or I wouldn't deal with him, it's just that he gives me that prickly, uncomfortable feeling between the shoulder blades.

'I want a Tandon 20 meg', I said. 'Do you a nice Blue Dragon 20 meg, only one owner, £200' said Sid. I frowned. I know the Blue Dragon - in the trade it's known as the Data Basher because of the way it loses data. There's a lot of Blue Dragons around, and I can't understand why people will buy such an inferior disc to store their precious data on. 'No', I said, 'I want something reliable. Have you got a Tandon?'

Sid quoted a price, I fell about laughing, we haggled, and finally settled on £300. He put it on the slate for me, and Melanie and I left.

Back in Melanie's computer room, I took out the old drive and put the new one in her computer. I ran the Tandon low level formatting program, which takes over an hour to test the disc thoroughly, and mark any bad sectors. When I'd got it started, I suggested that we have a cup of coffee and we talked about what she was doing on her machine. Apparently she wasn't just playing at computers. She told me about the business she was running with it.

She had a list of professional women, and a list of clients. Clients called her up whenever they needed servicing, and she would send an appropriate professional. 'I can't send just anyone', she said, 'It has to be a professional that understands the client's needs, and has the necessary skills to fulfill the job required'. She also had to develop new business, which was partly done by word of mouth, and partly by advertising in the appropriate magazines. As the business grew, she also had to recruit new professionals, with appropriate qualifications. 'The hardest thing is finding out the client's exact needs', she said. ' I usually do the first visit myself, because I'm much more experienced than my professionals, and I can get him to relax and open up to me.

I nodded, I've always thought that the hardest part of being a professional consultant is finding out what a client wants. They usually think that they've solved 90% of the problem, and just want your help with the last 10%. But often that last 10% is impossible, and you have to find out what the original problem was, because often there's an off-the-shelf solution already. Clients are usually reluctant to discuss the real problem, though, because in doing so, they will have to recognise that the 90% that they've already done, is wasted. I usually find that if I keep repeating 'Yes, but what's the real problem?' they'll eventually cough up.

The PFS-File database was her list of clients and professionals, and without that, she said, her business would collapse. The Supercalc stuff was actually time schedules for her professionals - obviously a professional couldn't service more than a dozen or so clients per day. The WP stuff was mostly letters to suppliers of goods - apparently, all client transactions were on a cash basis, which explained why her books were dead simple.

By the time she'd explained how her business worked, the Tandon had finished formatting, and I set to work. I had a nice simple plan, as the simplest schemes are usually the best. I took my little READDISC program, and modified it so that it would loop through the sectors on the disc, reading them in turn, and writing them to the other disc. You could use interrupts 25H and 26H for this, but be sure to pop the stack after each call. Microsoft say that this isn't a bug, but let me put it this way - that's not the way I'd have written DOS. Let's call it a documented feature. Actually I use a completely different method, but we disc quacks don't talk too much about the tricks of the trade.

I make the reads start with the first FAT sector, and had the program prompt for the last sector. I connected up the duff hard disc as drive D, and ran my modified

program. It worked fine, happily reading and writing sectors. After 20 minutes and 32767 sectors, the program bombed out and once again I cursed Turbo Pascal for not having four-byte integers. I fired up Turbo again, and altered the program. I'm not going to tell you how I altered it, because it's a very shoddy piece of programming, and I'm thoroughly ashamed of it, but it's a good hack that gives you the effect of four byte integers in Turbo. Roll on version 4.

I ran my program again, and this time it ran to completion. I powered off, took out the duff disc, and powered on again. The machine booted off the new hard disc.

There's a point in most disc recoveries when I just know that I'm going to get all the files back. There's also a point at which the customer starts to believe that just maybe I might be able to help him, but it's only a very tentative suspension of disbelief. After all, usually they've been told by several people that the disc is irretrievably lost, and they only come to me because I promise no fix, no fee.

But on the 90%-odd that I do get back, there's that wonderful, golden moment when the customer sees all their files, and suddenly knows that everything is going to be all right. You can see the misery being replaced by a glow of happiness, and I like to be present when it happens, because that moment is what makes it all worth while. Well, that and the money, I suppose.

I typed DIR, and watched Melanie's face. It's hard to describe her expression, as very few people get to see it. I suppose medical doctors get it when they tell someone that they will play the piano again, and plumbers probably get it when they fix burst central heating systems. But most people don't get to convert disasters into recoveries, and all I can say is, you're missing something special.

Melanie had that look on her face. Actually, she was being a bit premature, as seeing a directory doesn't prove that there's any data there. All it proves is that the directory sectors have been restored, and that usually means the first hundred or so sectors. But everyone makes that mistake, and I started wandering around her subdirectories, typing her files and showing her that Wordstar and Supercalc worked and could load up her files.

Then I loaded up her database, read some of her records, and went bright red. It would be most unprofessional of me to tell you exactly what was on her PFS-File database, but I can tell you it shocked me, and I've been around. I thought I'd seen everything. I thought I'd heard of all the immoral things that computers could be misused for, but Melanie took the biscuit.

Disc quacking is a dirty business, but there are some things that even I won't stoop to. I sat there and wished that I'd gone into something more respectable like used car sales, while Melanie happily displayed all the financial details of her sordid profession. I closed my eyes, and desperately thought whether there was anything I could do. I'd certainly stand to lose my disc quacking licence if I tried to undo what I'd done, and anyway, she'd only go to some other poor disc quack and flutter her eyelashes at him.

I opened my eyes, and saw she had her cheque book out. 'How much do I owe you?' she said. I stood up. At least I could keep my dignity. If you think I'm going to take your tainted money, you can think again. 'If I'd known what you were up to here, I'd never have helped you. You conned me, but you can keep your immoral earnings.'

I started to leave. I picked up my disc tools and screwdrivers, and headed for the door. 'You don't understand', she said. 'There's a very real need for my professional services.' 'Professional services?' I sneered, as I left. 'Let's not mince our words. You're nothing but a common.....' - it was some effort to get the word out - 'stockbroker'.

SPEAK TO ME SOFTLY

The good news is here - digital audio recording and playback technology is now available to the PC user! Joseph Tilli reports on the latest developments at Eletech...

Computers have long been used for applications requiring the recording, playback and editing of voice or music. Other merging applications include voice recognition and synthesis of the human voice tract. Many of us have heard and used products (including toys) which use voice synthesis. This article is about a new technology which is manufactured by Eletech which opens up a new world of applications using the PC and other sub-modules and chips manufactured by Eletech.

It is not the purpose of this article to go into the deep fundamentals of CVSD technology, instead the more practical application of the units will be covered.

Sounds are generated by vibrations from some source and transmitted through solids, liquids and gases like the waves you see when a stone or like object is thrown into a still pond. These pressure waves work on our eardrum or a microphone to convert into another form of energy which allows us to hear or in the case of a microphone converts to electrical energy which can be amplified, stored and played back as with our conventional tape recorder. The stored electrical waveform is played back through a loud-speaker thus re-generating pressure waves which "bridge the sound to our ears."

These sounds or electrical signals were all recorded as analogue signals until computers, Compact Discs and other digital technology came along. CVSD actually converts these sounds into a digital form and then converts that digital form back into an analogue form for playback. Let us narrow-down the new technology we are talking about. Why is it new? Well until recently the CVSD technology was not available at the PC level. The advance into PC level applications opens a whole new world for the PC user, software/hardware engineers and customer who has application for the technology. In analogy the technology simulates the audio tape recorded functions such as record, play, edit and store. Instead of using audio tape we use a Winchester, floppy, RAM, ROM, or other digital storage device. We have a microphone input, line input and speaker output all provided by a plug-in card to our PC AT/XT. We have software which allows us to record, playback and edit sounds. If we create a sound file this can be played back through the loudspeaker or burned into ROM. The applications are enormous for this technology. Here are some briefly described;

- Turn your PC into an audio tape recorder.
- With talking keyboard software learn how to touch-type.
- Create learning and safety products for blind and other handicapped people.
- Your PC can become an answering machine.
- Your PC can become a public enquiry system for stock exchange, weather, airline and other information services.
- Your voice file can be sent over normal communications lines to some other person for playback. VOICE MAIL.
- You can burn messages into ROM for playback.
- Replace audio tape recorded with reliable PC or board level product for ;

  — Public announcement systems.
  — Early fire warning systems.
  — Public transport announcement systems.
  — Mobile sound systems.
  — Message recording systems.
  — Telephone answer or message systems.
  — Create talking toys.
  — Programmed Learning systems.
  — Office and home security systems.

What is CVSD? Continuously variable slope detection is a fancy name for saving your memory costs. It means that the process only measures and records the change between the last sample and the new sample. As a result we can still store the sound naturally but in less memory than the other way which is called PCM (pulse code modulation). With PCM the absolute value of the sound waveform is recorded requiring more memory. Eletech have placed the whole CVSD encoder or decoder on a single chip. All processing is done by the chip requiring no slow software to achieve the process. With this system we achieve very good voice quality at sampling rates of 10 Kbits and up. You can choose the quality you desire by setting the sampling rate.

Enough technical jargon! If you require more please ask us for detailed data sheets.
Finally a brief description of the products which are available:

VP870 Voice Card **$227.50**
• Record, play, store and edit using your AT/XT
• Demo software for talking keyboard and special sounds.

VP890 Voice Card **$1537.90**
• Record, play, store and edit using your AT/XT.
• Talking keyboard generation software.
• ROM edit software.
• Touch tone decoder for telephone enquiry.
• Telephone answer software
• Demo software for talking keyboard and special sounds.
• Software to generate talking keyboard files.

DM1000 **$70.20**
• Playback card with ROM socket.

DM2500 **$70.20**
• Record and playback with mic and speaker.

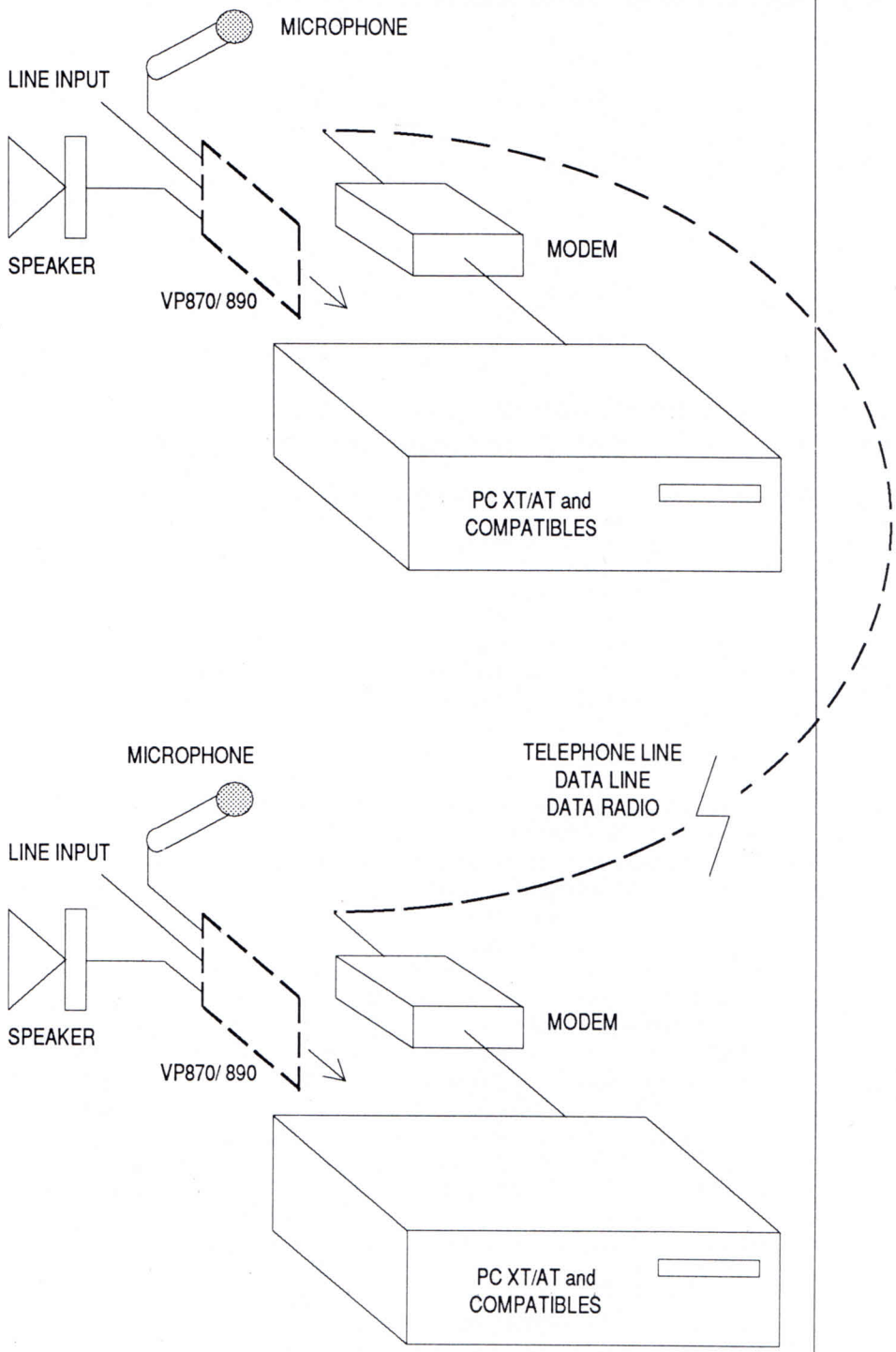
VM410 **$337.60**
• 10 phrase playback card with 2 watt amplifier.

VP1000 **$24.20**
• Single chip CVSD encoder/ decoder.

VP2500 **$24.20**
• Single chip CVSD encoder/ decoder.

ZM1000
• 12v playback for mobile use (car sounds).

For more information about these products please contact the Australian Distributor Zenology Pty. Ltd., 1/245 Springvale Road Glen Waverley Vic. 3150, Phone (03) 232-0577, FAX (03) 233 4146.



Creation, playback and transmission of a voice/ music file using VP870 or VP890 card and software provided.

LATEST PC UPDATES

Eyes scouring the PC horizon, Chris Collins brings the serious user the latest on software and hardware releases and more...

Hello, and welcome once again to Compatibles Corner. My apologies to one and all for the fact that this is a very short column, but business pressures and a long awaited short holiday which I had been looking forward to made time too short to actually sit down and write a lengthy column.

Updates that I have received this month include the newest version of QModemSST, the wonderful communications program written in Turbo Pascal. Version 4.00 has just been released, and is a wonderful improvement over the last edition. The new version of QModemSST no longer has an install program as before. When you start it QModemSST will look for a configuration file, and if it can't find one, QModemSST will automatically dump you into the set-up section of the program. ALT-N will also bring up this screen. The only real complaint that I have is that QModemSST still does not support Zmodem as an in-built protocol. For those of you not into communications, Zmodem is the fastest and most error free file transfer protocol available today. Not to have it built into QModemSST is an error that the Forbin Project (authors of QModemSST) should hang their heads in shame for. QModem SST is now on two diskettes containing five .ZIP files, a README!.COM file and the un-archiver, PKUNZIP.EXE. If you are into communications, this is one program worth having a look at.

There is a new archiving program available. LHArc has just been released into the public domain. This is a free program, not another shareware archiver. It is as slow as a wet week when compressing, but boy does it produce some very small files. The author also appears to have a sense of humour, as this new program uses a compression method called FREEZING. I am still doing a few more tests to check this out, but if it is as good as I think, it appears to be the way to go (although you need a lot of time up your sleeve). If you see any files around on the BBSs out your way with an .LZH extension, they have been produced with LHArc. There will be a new Archive Tools diskette out next month with this program on it!

The first set of diskettes that I have managed to arrange for this month is a group of four diskettes that are great for Mean 18 players. Mean 18 is an excellent golf game from an American company called Accolade. It works in both CGA and EGA so it will can be used on anyone's machine. Fortunately, it also has a Course Architect to allow people to create their own courses, rather than have to always buy them. I have managed to build a collection of 42 courses that will work with Mean 18. They occupy 4 diskettes, and total 13 COURSE.ZIP files. Before anyone asks, they are broken down into groups of three courses per ZIP file because only 3 courses will fit onto a 360K floppy diskette. Also on the first diskette for the hard disc players of this game is a menu utility that will allow you to have 42 courses in a directory, and choose one of them to play. The little program will then load Mean 18 for you as well. Each diskette in this group is available at a price of $7.50 including postage.

To finish off this month, I want to have a look at the ASSIGN command. ASSIGN is used to tell DOS to swap disc I/O requests from the first drive specified to the second drive specified. ASSIGN has been supplied with DOS to assist you with applications that don't allow you to specify the drive that you wish to work with. The correct syntax for this command is as follows:

```
ASSIGN [x[=]y]
```

As we have seen before, any switch inside the square brackets is optional, so we don't necessarily have to worry about it. But, if we don't we won't learn how to use ASSIGN correctly. Please remember that all drives in an ASSIGN must physically exist, be they either floppy, hard or RAM drives. A command such as the following:

```
ASSIGN A=C B=C
```

would force DOS to route all calls to either drive A, or drive B to drive C. This can be handy with an applications that doesn't support a hard disc. If the command is supplied as follows:

```
ASSIGN
```

this will reset all previous command assignments, so that a call to drive A will actually get you drive A, etc.

Well, that's all for this month; until July, have fun computing.

MASTERFILE PC

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

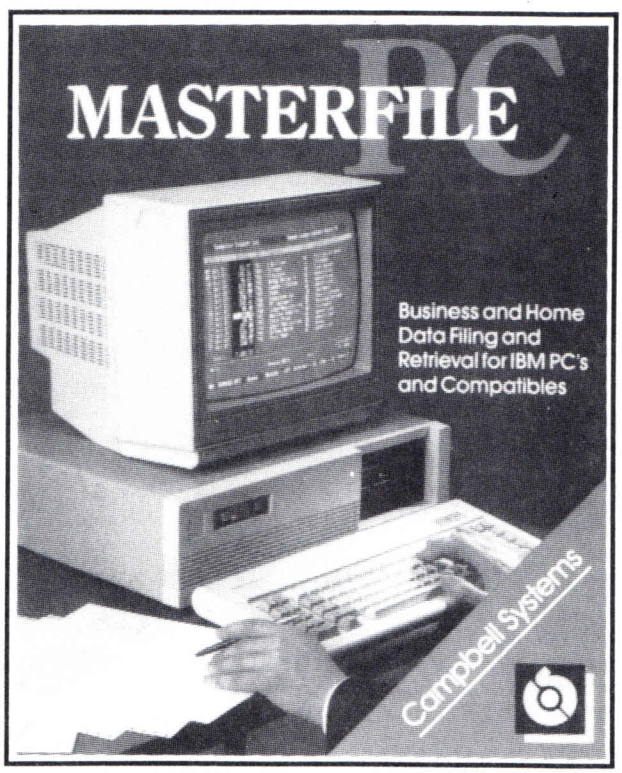
MASTERFILE has earned the respect of tens of thousands of Z80-based computer users - many of whom mourned it's absence when converting to the more powerful PC. But now MASTERFILE PC has arrived, with many more features to make best use of your PC. We are told the price ($199) is too low for a full relational 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. MASTERFILE 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:

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ADVENTURER'S ATTIC

Philip Riley this month provides his compaction listing, your latest questions and a few answers as well. So what are you waiting for?

We start off this month with a quick apology, I mentioned a map last month but did not give it to the editor for publishing, so it is in this month's mag. Sorry about that folks.

Now down to business. This month's column is devoted to the second routine in the encode/decode series. Last month we took a look at the input routine that allowed us to input our data into the computer. This month we compact that data using - surprise, surprise - the compact routine.

We will start off by looking at the end of the program first.

As you can see it is a data statement, this data is POKEd into the computer and is in fact the group of characters we looked at in the first encode article. The computer takes your data, character by character and compares it with the POKEd characters for a match. When it finds a match it records the character's group number and then checks the next character in the data. If this character is in the same group it is recorded. Once all the BITs have been filled or a character is found that is not in that group, the value that has been recorded is POKEd into memory and the procedure starts all over again, until all of your data has been compacted. The whole lot is then saved to tape or disc.

To run the program simply type in RUN and the proggy will do the rest. If the words "illegal character" are printed onto the screen, don't panic. It means that your data contains an illegal character (pretty obvious really), so just type in a new character to take its place, or type in 0 (zero) to ignore the character completely.

You still cannot do anything with the compacted data and please note that this program has no real visible effect except to load and save data. Please do not write to me saying that the program has not done anything because if you have typed it is correctly, it does work. One last point to remember is that it will not work if it has no file to load at the beginning. The only way you can get a file for it to load is to first use the input routine and save a file from that proggy.

Well, that's it for the compact routine, now for a few more points on the grouping of the characters. Some of you may be wondering why I have so many spaces in the groups. This is because you use spaces in between all of the words in your data and this is the most common character used. You will need at least one space but the others can be replaced with any other character that you wish. For instance, you could replace them with numbers. Just remember that you will have to change the corresponding characters in the data statement at the end of this month's proggy. Look in the back of your user manual for the ASCII codes of the characters you wish to use. You don't have to stop there either. You can in fact change any of the characters for any of the other ASCII characters, but remember that you can only use the characters that you poke in from the data statement. Any other characters will be classed as illegal characters and will have to be changed or ignored when you compact the data.

Enough for another month, have fun and don't try killing any nasty green giants, it really makes them mad and besides - they are much bigger than you.

```
10 PRINT
20 MEMORY 10000
30 LOAD"data",22600
40 GOSUB 380:po=42600:op=po
50 IF PEEK(po)=0 THEN po=po-1:GOTO 60 ELSE po=po-1:GOTO
 50
60 a=PEEK(op):oo=10070:c2=0:c1=1:PRINT op
70 IF PEEK(op)=0 THEN POKE po,no:SAVE"data1",b,10100,32
501:END
80 IF PEEK(op)=35 THEN op=op-2:GOTO 300
90 IF PEEK(op)=32 AND bb=0 THEN 310
100 aa=PEEK(oo):IF aa=a THEN 150
110 IF aa=255 AND a=32 THEN bb=1:GOTO 60
120 IF aa=255 THEN SOUND 1,500,150,7:GOTO 340
130 oo=oo-1:c1=c1+1:IF c1=5 THEN c2=c2+1:c1=1
140 GOTO 100
150 IF l1=1 THEN 220
160 l1=1:d1=c1:d2=c2:op=op-1:bb=0
170 no=no+c2:IF c1=1 THEN no=no+16
180 IF c1=2 THEN no=no+32
190 IF c1=3 THEN no=no+64
```

7 kitchen	8 pantry	9 back entrance
4 passage	5 dining room	6
1 hall	2 lounge	3 library

Long Lost Map from May

```
200 IF c1=4 THEN no=no+128
210 GOTO 60
220 IF d2<>c2 THEN 290 ELSE IF d2=c2 AND c1<=d1 THEN 29
0
230 d1=c1
240 IF c1=1 THEN no=no+16
250 IF c1=2 THEN no=no+32
260 IF c1=3 THEN no=no+64
270 IF c1=4 THEN no=no+128
280 op=op-1:IF PEEK(op)=0 THEN 70 ELSE 60
290 oo=10070:d2=0:d1=0:l1=0:POKE po,no:po=po-1:no=0:IF
po<10100 THEN END ELSE 150
300 bb=0:oo=10070:d2=0:d1=0:l1=0:POKE po,no:po=po-2:no=
0:IF po<10100 THEN END ELSE 60
310 old=PEEK(op+1)
320 aa=PEEK(oo):IF aa=old THEN 100 ELSE oo=oo-1:c1=c1+1
:IF c1=5 THEN c1=1:c2=c2+1
330 GOTO 320
340 PRINT"ILLEGAL CHARACTER ";CHR$(a)
350 INPUT"INPUT NEW CHARACTER ",a$
360 IF a$="0"THEN op=op-1:GOTO 60
370 POKE op,ASC(a$):GOTO 60
380 t=10070
390 READ a:IF a=255 THEN POKE t,a:RETURN ELSE POKE t,a:
t=t-1:GOTO 390
400 DATA 105,110,103,32,115,116,46,32,104,101,114,32,11
3,117,97,32,99,111,119,32,98,108,121,32,106,109,44,32,1
07,120,100,32,83,102,112,32,65,66,122,32,67,68,69,118,7
0,71,72,73,74,75,76,77,78,79,80,81,82,84,85,86,87,88,89
,90,255
```

QUESTIONS

The first question this month is from Mrs. Olive Cotter and her daughter who are having trouble with House of Dracula in the family fun pack #1. Seems they are stuck in the house but have given us no real details, perhaps they could give us some more information as to what they have already accomplished; I should then be able to help them.

Next we plunge into Seabase Delta with Jacqueline Macleod, she would like to know where is the authority release for the mini sub, and is the missile disarmed by turning off the beam?

Next we are in space with Elite and Barry "let's ask a million questions" Hancock. When and how do you get a mission and what are they? What is the order of the angels of mercy? How do you obtain items like cloaking devices with hacking? Are Thargons the only alien objects available? How do you get to a world classified as dangerous? Are there such things as generation ships and how do you find them? Are there such things as Dodecahedral (DODO) space stations, and how do you find them? And is it possible for Thargoids to capture you?

Damian Roy is having trouble with Venom. He cannot get past the venomite priest after climbing out of the hole that Beris is in.

Troy Scorer is in trouble with Dan Dare - he cannot locate the third piece. He has looked in every part of the third section, so will anyone dare to send in any help for Troy?

Michael Pite would like to know how to enter the second door to the right of the well in Fairlight. It is next door to the one with the sorcerer and the cross at the top of the stairs.

ANSWERS

Mark Eaton has given us this answer for Lancelot. To free Sir Gawain: once you are inside the prison wait for Maledison to come and take her goblet of love potion. Answer no to her question and she will leave, then wait for the maiden to come and give her the wine. She will then set you free so that you can free Sir Gawain. Once you have done that go to Elaine and she will step out of her bath and invite you to Corbin Castle.

Damian Roy has sent in an answer for Knightmare: to get out of dungeon V you have to get the food on the floor and give it to the old man. Also give him some water and then ask the old man - he should give you a spade. Also grab the rock in dungeon V and VI. Go into dungeon VI and stand against the closed door, then dig ground; you will go down to the next room. Two guards wait for you here. Just pull the joystick down to get away. You should now be able to explore as much as you wish.

Michael Pite also has sent in some answers for Fairlight. To get past the sorcerer, place the cross on top of the other cross then kick it towards the sorcerer and he will disappear; the cross is found under the throne. When you have the hour glass, go towards the sorcerer and use the hour glass. This will paralyse him (but only when you are in the room or draw bridge). You will also find that the potions make the sorcerer disappear.

John James McVey would like to point out that you cannot enter Bastow Manor through the front door, but you could try the doorbell. John also gave us all of the info for getting into the manor, but as we have published this recently we won't go through it all again.

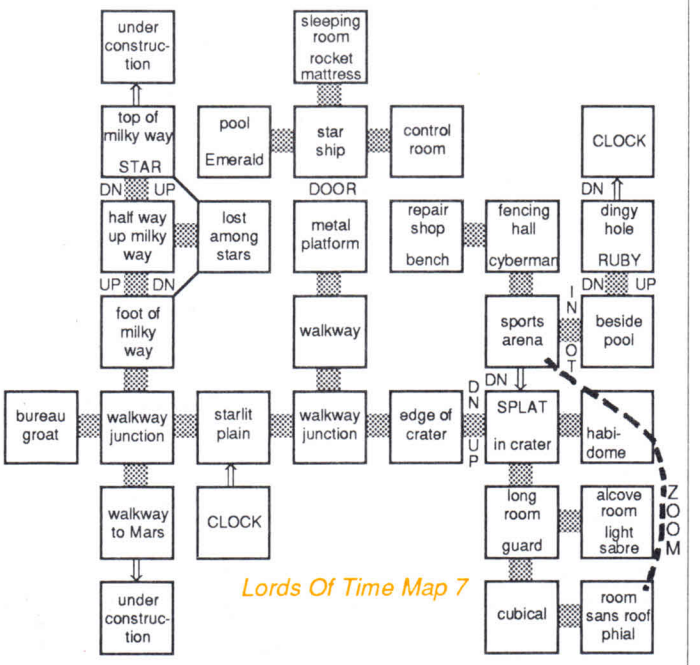
To whet your appetite for next month, there'll be a whopping big tip for View To A Kill titled HOW TO GET INTO ROOM 23. However, you'll have to wait till next month, as we're all out of room.

Till then, merry adventuring and see you later.

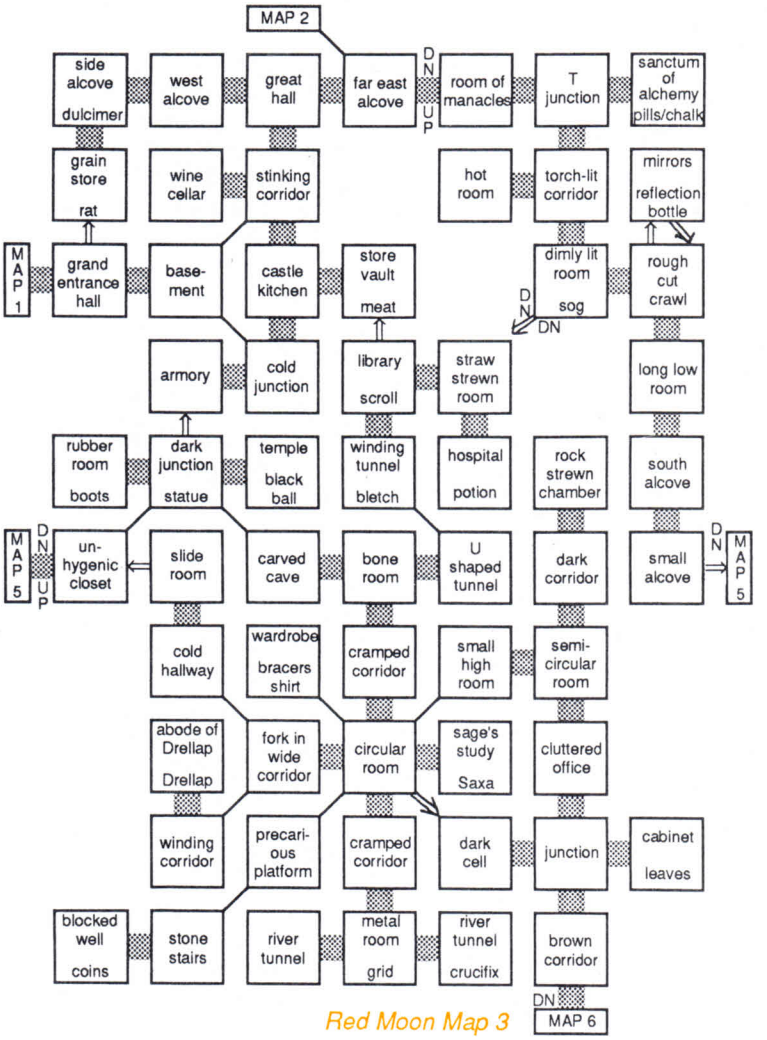
Don't forget to look over the page at James Green's Time & Magik maps. This month we look at Lords Of Time maps 7-9 and Red Moon maps 1-3.

LORDS OF TIME AND RED MOON

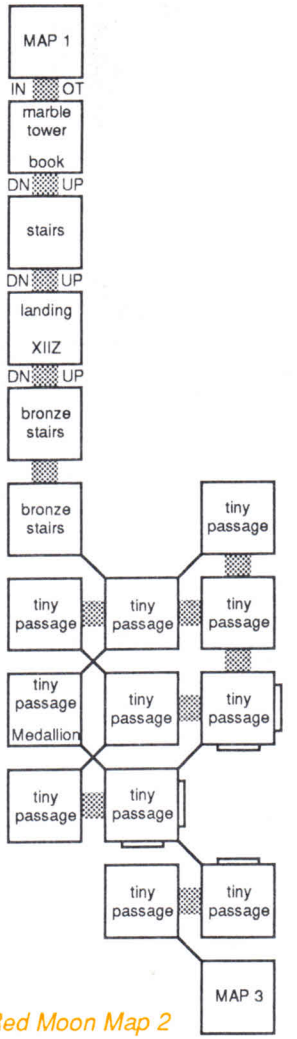
After a month's absence James Green returns with his Time And Magik maps. Bet you look!



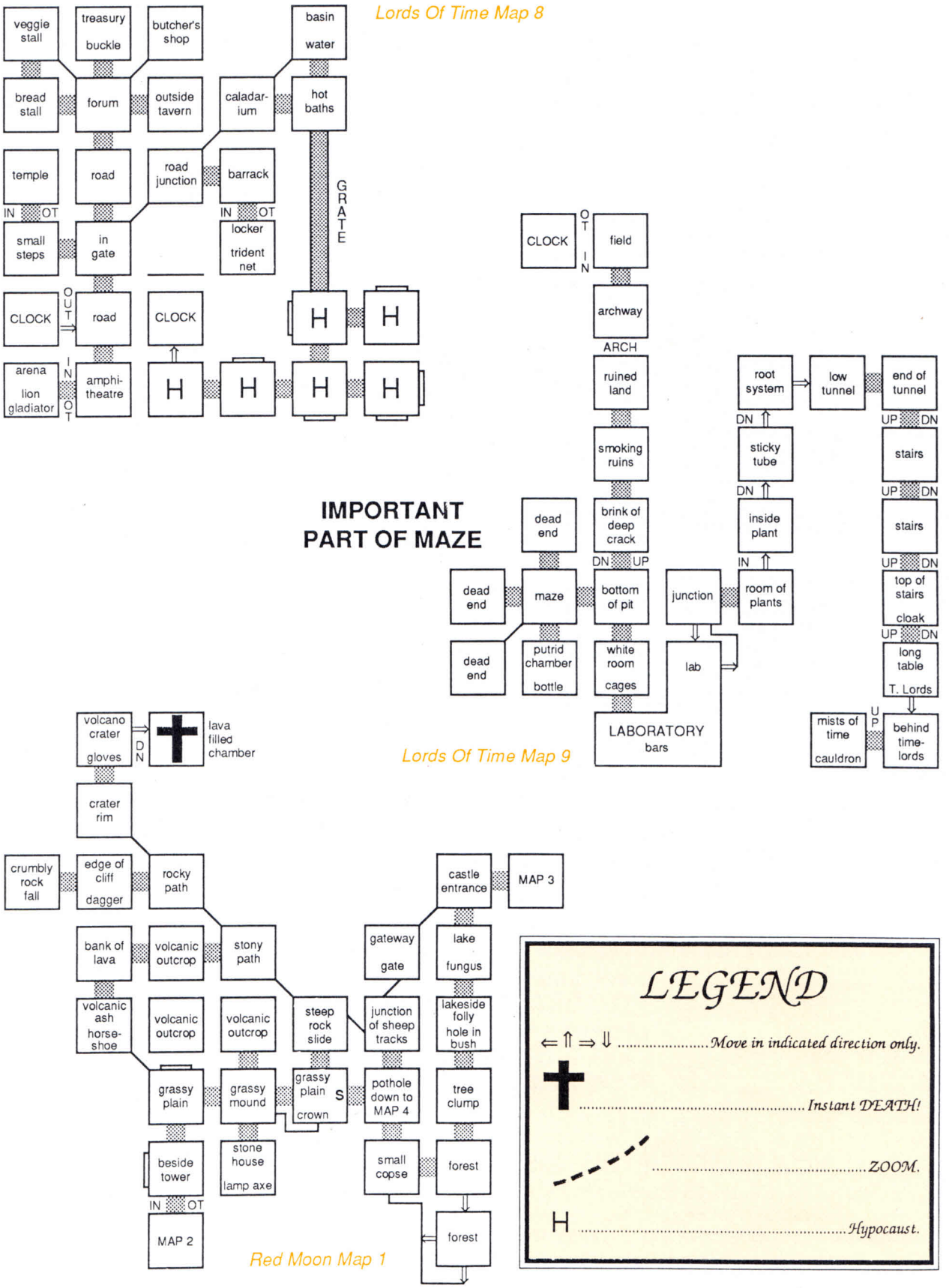
Lords Of Time Map 7



Red Moon Map 3



Red Moon Map 2


Lords Of Time Map 8
veggie stall
treasury buckle
butcher's shop
basin water
bread stall
forum
outside tavern
caladarium
hot baths
temple
road
road junction
barrack
GRATE
IN
OT
small steps
in gate
locker trident net
CLOCK
OUT
road
CLOCK
H
arena lion gladiator
IN
OT
amphi-theatre
CLOCK
OT
IN
field
archway
ARCH
ruined land
smoking ruins
brink of deep crack
dead end
DN
UP
dead end
maze
bottom of pit
junction
room of plants
dead end
putrid chamber bottle
white room cages
lab
LABORATORY bars
root system
low tunnel
end of tunnel
DN
UP
sticky tube
stairs
inside plant
stairs
top of stairs cloak
long table T. Lords
mists of time cauldron
behind time-lords
IMPORTANT PART OF MAZE
Lords Of Time Map 9
volcano crater gloves
lava filled chamber
crater rim
crumbly rock fall
edge of cliff dagger
rocky path
castle entrance
MAP 3
bank of lava
volcanic outcrop
stony path
gateway gate
lake fungus
volcanic ash horse-shoe
volcanic outcrop
volcanic outcrop
steep rock slide
junction of sheep tracks
lakeside folly hole in bush
grassy plain
grassy mound
grassy plain crown
S
pothole down to MAP 4
tree clump
beside tower
stone house lamp axe
small copse
forest
IN
OT
MAP 2
forest
Red Moon Map 1
LEGEND
Move in indicated direction only.
Instant DEATH!
ZOOM.
H
Hypocaust.

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 • *DisckitA* - 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/Mv2.2 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 reload • *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*** •
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Mount Waverley, Victoria 3149.
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Our list of software, peripherals, books and consumables for the Amstrad range of computers continues to grow with nearly 100 new lines added to the following pages this month.

We remind readers (and visitors to our retail shop in Mount Waverley) that this list is produced at least four weeks before printing. Coupled with the fact that most lines are imported, the availablilty of certain items and some prices may change. Mail Order customers are advised to check first or provide an alternative choice if possible.

This list is updated every month, so be sure to have the latest copy of The Amstrad User when considering a purchase from the largest range you'll likely to find on this side of the globe!

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1. For all book orders over $20 please add $5.00 (overseas $7.00). If ordering the TV modulator please add $7.50 (overseas $9.50). All other orders are currently supplied post free (overseas add $5.00).
2.When ordering by mail, if possible, always quote one or two alternatives. Otherwise call us first to check availability.
3. Most orders can be reserved for up to 7 days pending payment after which they will be released for others to buy.
4. Please allow at least 14 - 21 days for receipt of goods.
5. This list is prepared some 4 weeks before publication and reflects the stock holding at that time and anticipated releases advised by producers. The latter are often optimistic.

Amstrad CPC Range 464, 664 and 6128
(unless otherwise stated)

GAMES	Discs	Tapes
4x4 Off-Road Racing	39.95	29.95
500cc Grand Prix	32.95	24.95
1942	24.95	19.95
1943	44.95	29.95
Academy (Tau Ceti 2)	49.95	-
Acrojet	49.95	39.95
Adventure 4-Pack	32.95	27.95
After Burner	44.95	29.95
Airborne Ranger	44.95	-
Andy Capp	-	29.99
Artura	44.95	29.95
ATF	44.95	29.95
Bactron	-	9.95
Bard's Tale, The	44.95	29.95
Basil, the Great Mouse Detective	-	29.95
Batman - The Caped Crusader	44.95	29.95
Bedlam	-	29.95
Beyond the Ice Palace	34.95	34.95
Bionic Commando	44.95	29.95
Black Tiger	44.95	29.95
Blasteroids	**39.95**	**26.95**
Blood Brothers	44.95	29.95
Bob Winner	39.95	-
By fair means or foul	44.95	29.95
Captain Blood	49.95	39.95
Charlie Chaplin	44.95	29.95
Chicago 30's	**39.95**	**26.95**
Chubby Gristle	44.95	29.95
Chuck Yeager's Adv. Flt .Trainer		**soon**
Classic Quest Adventures:		
Goblin Towers (mod.)	49.95	-
Forestland (hard)	49.95	-
Witch Hunt (very hard)	49.95	-
Cluedo	39.95	29.00
Combat School	44.95	29.95
Corruption (6128s only)	59.95	-
Crazy Cars 2	49.95	34.95
Cybernoid	44.95	-
Dark Fusion	44.95	29.95
Darkside	44.95	29.95
Deep, The	**39.95**	**26.95**
Desolator	44.95	29.95
Dragon Ninja	44.95	29.95
Driller	44.95	29.95
Echelon	44.95	29.95
Eddie Edward's Super Ski	39.95	29.95
Empire Strikes Back	49.95	34.95
Espionage	44.95	29.95
F-15 Strike Eagle	49.95	39.95
Fernandez must Die	44.95	29.95
Fifth Axis	19.95	-
Flippit	29.95	24.95
Fury, The	34.95	34.95
Galactic Conqueror	49.95	39.95
Game Over 2	**39.95**	**26.95**
Games, The - Winter edition	35.95	29.95
Garfield	44.95	29.95
Gauntlet II	44.95	29.95
Gee Bee Air Rally	-	29.95
Giant Killer - maths adventure	49.95	-
Gnome Ranger	44.95	29.95
Gothik	39.95	-
Gm. Gooch's Cricket	29.95	-
Gryzor	-	29.95
Guerilla Wars	44.95	29.95
GunShip	59.95	49.95
Head over Heels	-	29.95
Hopping Mad	34.95	34.95
Hot Shot	37.95	29.95
Human Killing Machine	**39.95**	**26.95**
Hunt for Red October	-	39.99
Impact	49.95	-
Impossible Mission II	39.95	29.95
Incredible Shrinking Sphere	44.95	29.95

CPC - continued

Ind. Jones and Temple of Doom	-	29.95
Ingrid's Back	49.95	34.95
Inside Outing	44.95	29.95
Iron Lord	49.95	39.95
Jack the Ripper	44.95	29.95
Karnov	-	29.95
Knight Orc	49.95	34.95
Lancelot	49.95	39.95
Last Duel	**-**	**26.95**
Last Ninja 2	44.95	29.95
LED Storm	44.95	29.95
Live and Let Die	39.95	29.95
Living Daylights	49.95	32.95
Mad Mix - Pepsi Challenge	44.95	29.95
Mach 3	32.95	24.95
Major Motion	44.95	29.95
Marauder	-	29.95
Mercenary Compend. (2 games)	29.95	19.95
Mega Apocalypse	34.95	34.95
Monopoly	39.75	29.00
Motor Massacre	44.95	29.95
New Zealand Story	**39.95**	**26.95**
Nigel Mansell's Grand Prix	49.95	35.95
Night Raider	44.95	29.95
North Star	44.95	29.95
Not a penny more...	49.95	-
Operation Wolf	44.95	29.95
Outrun	44.95	29.95
Outrun Europa	**39.95**	**26.95**
Overlander	39.95	29.95
Pacland	44.95	29.95
Pacmania	44.95	29.95
Pegasus Bridge	34.95	29.95
Platoon	44.95	-
PHM Pegasus	34.95	34.95
Power Struggle	44.95	29.95
Professional 4 Soccer Simulator	**34.95**	**24.95**
Pro Tennis 3-D	24.95	-
Psycho Pigs	44.95	29.95
Raffles	**39.95**	**26.95**
Rambo III	44.95	29.95
Real Ghostbusters	**39.95**	**26.95**
Red Heat	**39.95**	**26.95**
Renegage 3	**39.95**	**26.95**
Return of the Jedi	34.95	29.95
Road Blasters	44.95	29.95
Robocop	44.95	29.95
Rolling Thunder	-	29.95
Roy of the Rovers	44.95	29.95
R-Type	44.95	29.95
Running Man	**39.95**	**26.95**
Run the Gauntlet	**39.95**	**26.95**
Salamander	44.95	-
Sapiens	39.95	29.95
Savage	39.95	29.95
Scalextric	**-**	**29.00**
Scrabble de luxe (6128)	44.95	-
Scrabble (standard)	39.75	29.00
Slaine	35.95	-
Skate Crazy	44.95	29.95
Sorcerer Lord	44.95	-
Space Racer (Space jet bikes)	32.95	-
Star Glider (6128 only)	59.95	-
Star Wars	49.95	35.95
Street Fighter	44.95	29.95
Technocop	44.95	29.95
Terramex	34.99	29.99

CPC - continued

Tetris	34.99	29.99
Thunder Blade	44.95	29.95
Thunderbirds	**39.95**	**26.95**
Time Scanner	**39.95**	**26.95**
Tiger Road	44.95	29.95
Total Eclipse	44.95	29.95
Train, The	44.95	29.95
Trivial Pursuit		
Young Players edition	-	22.95
Baby Boomer edition	27.95	22.95
Trivial Pursuit - a new beginning	42.95	35.95
Turbo Cup	39.95	29.95
Typhoon	44.95	29.95
Vigilante	**39.95**	**26.95**
Vindicator, The	44.95	29.95
Vixen, The	34.95	34.95
WEC Le Mans	44.95	29.95
Wizard Warz	44.95	29.95
Wizball	-	29.95
World Class Leaderboard	44.95	-
Wolfman	44.95	29.95
Yes Prime Minister	49.95	39.95

DOUBLE GAME BUDGETS

Battle of Britain/Dynamite Dan I	22.00	17.00
Bruce Lee/Zorro	22.00	17.00
Cerberus/Guzzler	22.00	-
Dizzy Dice/Joe Blade	22.00	-
Fairlight/Saboteur	22.00	17.00
Riding Rapids/Nuclear	22.00	-
Who Dares Wins/Spitfire 40	22.00	17.00

BLOCKBUSTER BUDGETS

Activator	19.95	12.95
Advanced Pinball Simulator	**-**	**11.95**
BMX Simulator	**-**	**9.95**
Bobby Bearing	19.95	-
Brainache	-	12.95
Core	-	12.95
Fruit Machine Simulator	**-**	**9.95**
Future Knight	19.95	12.95
Grand Prix Simulator	**-**	**9.95**
Jet Bike Simulator	**-**	**21.95**
Metal Army	-	12.95
Professional BMX Simulator	**-**	**21.95**
Professional Ski Simulator	**-**	**9.95**
Storm	-	12.95
Super Stuntman	**-**	**9.95**
Tanium	-	12.95
Trailblazers	-	12.95
Westbank	19.95	12.95

COMPILATION PACKS

Daley Thompson's Olympic Challenge (not 664s)
10 Decathlon events 49.95 39.95

Elite Collection
with Bomb Jack I and II, Frank Bruno's Boxing, Commando, Airwolf, Paperboy, Ghost 'n' Goblins, Battleships 49.95 39.95

Elite Six-Pack - Vol 1
with Shockway rider, Eagle's Nest, ACE, Batty, Int. Karate and Lightforce 39.95 34.95

Elite Six-Pack - Vol 3
with The Living Daylights, Ghost 'n' Goblins, Paper Boy, Dragon's Lair, Escape from Singes Castle (on tape only) and Enduro Racer 39.95 34.95

Fists 'n' Throttles
with Thundercats, Ikari Warriors, Dragon's Lair, Enduro Racer and Buggy Boy 39.95 34.95

Four Smash Hewson Hits
with Zynaps, Exolon, Ranarama and Uridium Plus **39.95 29.95**

Flight Ace
with Air Traffic Control, ACE, Spitfire 40, Strike-force Harrier, Tomahawk, ATF 49.95 39.95

Game, Set and Match II
with Super Hang-on, Basket Master, Ian Botham's Test Match, Championship Sprint, Steve Davies Snooker, Match Day II, Nick Faldo's Open and Track & Field events 49.95 39.95

Giants
with Gauntlet II, Outrun, California Games, 720° and Rolling Thunder 49.95 39.95

Gold, Silver, Bronze
Three discs or tapes containing Summer Games 1 and 2 and Winter Games 59.95 49.95

In Crowd
compilation with Karnov, Gryzor, Barbarian, Platoon, Combat School, Crazy Cars, Target Renegade and Predator **- 39.95**

Karate Ace Compilation
with Way of the Exploding Fist, Bruce Lee, Kung Fu Master, Avenger, Samurai Trilogy, Uchi Mata etc. 49.95 39.95

Konami Arcade Collection
with Shao-Lin's Road, Jail Break, Mikie, Yie Ar Kung Fu I and II, Hypersports, Green Beret, Nemesis, Jackal and Ping Pong 49.95 39.95

Leaderboard Par 3
with Leaderboard, Leaderboard Tournament, and World Class Leaderboard 52.95 42.95

Live Ammo Compilation
with Green Beret, Rambo, Top Gun, Army Moves & Great Escape 49.95 39.95

Magnificent Seven Compilation
with Wizball, Short Circuit, Arkanoid, Head over Heels, Great Escape, Cobra, Franki goes to Hollywood + FREE Yie Ar Kung Fu 49.95 39.95

Space Ace
with Venom strikes back, Xevious, Cybernoid, North Star, Zynaps, Trantor and Exolon 49.95 39.95

Straight Six
Loriciel's compilation with 3D Fight, Billy, Soccer, MGT, Flash and ZOX2099 29.95 19.95

Supreme Challenge
compilation with Elite, Sentinel, Tetris, ACE II and Starglider **49.95 39.95**

Taito's Coin Op Hits
with Rastan, Arkanoid 1, Arkanoid 2, Slap Fight, Bubble Bobble, Legend of Kage, Renegade and Flying Shark. - 39.95

TAU Games + *(6128s only)*
Dominoes, Snakes and Ladders, Mah-Jong, 3-D Noughts & Crosses, Trucking, Tycoon plus Graphic Designer and Sprite Designer 32.95 -

Ten Great Games Vol III
with Iridis Altha, Tenth Frame, Firelord, Ranarama, Fighter Pilot, Leaderboard, Rebounder, Alley Cat, Eagles and Last Mission - 39.95

Ten Mega Games Vol 1
with North Start, Cybernoid, Deflektor, Triaxos, Blood Brothers, Mask 2, Tour de Force, Hercules, Blood Valley, Masters of the Univ. - 39.95

Time and Magik trilogy (disc for 128k only)

CPC - continued

Lords of Time, Red Moon and Price of Magik	49.95	45.95
We are the Champions *with Renegade, Barbarian, SuperSprint, Rampage and International Karate*	49.95	39.95

AMSTRAD USER YEAR DISCS

Containing all the monthly type-ins published

Year Disc 1 - Issues 1 to 12	50.00	-
Year Disc 2 - Issues 13 to 16	22.50	-
Year Disc 3 - Issues 17 to 20	25.00	-
Year Disc 4 - Issues 21 to 24	25.00	-
Year Disc 5 - Issues 25 to 28	25.00	-
Year Disc 6 - Issues 29 to 32	25.00	-
Year Disc 7 - Issues 33 to 36	25.00	-
Year Disc 8 - Issues 37 to 40	25.00	-
Year Disc 9 - Issues 41 to 44	25.00	-
Year Disc 10 - Issues 45 to 48	25.00	-
Year Disc 11 - Issues 49 to 52	25.00	-
Separate tapes for each issue's type-ins are also available : each	-	5.00

SERIOUS SOFTWARE

Advanced Art Studio (Rainbird) Graphics package (128k only)	69.95	-
Brainstorm - ideas and reporting system(6128s only)	99.00	-
Cardbox - card index system (6128s only)	129.00	-
Cardbox Plus - enhanced version of Cardbox (6128s only)	199.00	-
Expendiport - cheque management and analysis sytem	39.95	-
Extra Extra - a disc full of ready made graphics, fonts and clip art compatible with AMS Stop Press	89.00	-
Masterfile III - the best relational database system (128k only)	109.00	-
Mastercalc 128 - spreadsheet program for 6128s (or 464 with disc drive and memory expansion)	99.00	-
Matrix - spreadsheet with text editing facilities, database, mail merging etc.	79.95	-
Mini Office II	59.00	49.00
Money Manager - powerful cash book program	59.95	-
OCP Art Studio (Rainbird) Graphics package similar to 'Advanced' but without Mode 0 facility (128s only)	59.95	-
Personal Excellence Package - High quality Mental performance analyser	109.00	-
Plan-It - desktop organiser	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 - high speed w/p	89.95	-
Protext Filer - pop-up database module for Protext. (Requires Promerge & Protext)	69.95	-
Protext Office - pop-up add-ons for Protext including mailmerge and invoice generator. (Needs Promerge & Protext)	99.95	-
Prospell - spell checker	79.95	-
Promerge - mail merger	79.95	-
Stockmarket - monitors shares etc.	49.95	-

CPC - continued

STOP PRESS from AMS

The ultimate Desktop Publishing package for CPC 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 needs 128k)

Stop Press (disc only)	**159.00**
With AMX MkIII Mouse	**289.00**
Extra Extra clip art	**89.00**

Tasword 464	-	48.00
Tasword 464/D	63.00	-
Tasword 6128	63.00	-
Tas-spell	45.00	-
Tasprint	36.00	26.00
Tascopy	36.00	26.00
Tasdiary	36.00	-
Tas-sign	69.00	-
Touch 'n' Go - Typing tutor (6128s only)	69.00	-
Ultrabase - easy database	69.95	49.95

EDUCATIONAL

From SCHOOL SOFTWARE

Play School (3-7)	29.95	22.95
Magic Maths (4-8)	29.95	22.95
Maths Mania (8-12)	29.95	22.95
Better Maths (12-16)	29.95	22.95
Maxi Maths (12-16)	29.95	-
Physics (12-16)	29.95	22.95
Better Spelling (9-99)	29.95	22.95
Chemistry (12-16)	29.95	22.95
Biology (12-16)	29.95	22.95
Weather/Climate (12-16)	29.95	22.95

From LCL SOFTWARE

Micro Maths (9-11)	59.95	49.95
Mega Maths (9-11)	59.95	49.95
Micro English (9-11)	59.95	49.95
Primary Maths (7-11)	79.95	49.95

From FERNLEAF SOFTWARE

(Developing Reasoning, Logic, Estimating and Forward Planning skills).

1. Treasure/Perfume Hunter (7-10)	49.95	39.95
2. Fletcher's Castle/Raider(8-12)	49.95	39.95
3. Thorn Sea/Ferry Captain (9-13)	49.95	-

From FUN SCHOOL: three discs in the series each containing 10 educational programs.

Vol 1 - ages 2 to 5	29.95	-
Vol 2 - ages 5 to 8	29.95	-
Vol 3 - ages 8 to 12	29.95	-

(All reviewed Issue 48 - Jan '89)

From DATABASE EDUCATIONAL SOFTWARE: A Fun School 2 series of three discs or tapes each containing 8 educational programs.

Fun School 2 - Under 6	34.95	24.95
Fun School 2 - 6 to 8	34.95	24.95
Fun School 2 - Over 8	34.95	24.95

The Magic Sword - Full colour reading book and complementary child's adventure	39.95	-

CPC - continued

Three Bears - graphic adventure to improve logic, deduction and reasoning	34.95	

PERIPHERALS

AMX MOUSE Mk III - with superior ball technology and high resolution movement this updated mouse from AMS gives total control and flexibility, and compatibility with AMS Stop Press. Comes with an interface for CPC owners 150.00

COMPUTER/TV MODULATOR CONVERTER
This Amstrad unit (MP3) allows a CPC colour monitor (CTM644 only) to be used as a colour television - all you need to connect is a TV aerial to watch your favourite stations 149.00
(Please add $7.50 for certified post & packing)

KEMPSTON MOUSE - comes complete with Blueprint, a comprehensive graphics package 199.00

MOUSE MATS - keeps Mouse clean 19.95

RS232 Serial Interface - for 464/664/6128 229.50

64k Memory Expansion (464/664)
Converts the 464 into a 6128 (except for the ROMs) and gives 128k of memory. Is supplied with bank switching software in the form of RSXs to use the second 64k RAM as storage for screens, windows, arrays and variables. Allows the use of CP/M Plus as supplied on the 6128. 149.00

256k Memory Expansion (464/664)
Converts the 464 into a 6128 (except for ROMs) and gives a total memory of 320k. Is supplied with bank switching software in the form of RSXs. The 256k can store 16 full 16k screens or four extra banks of 64k. Allows the use of CP/M Plus. 289.00

256k Silicon Disc System (464/664)
Provides 256k of RAM disc accessible many times faster than the conventional drive and with a greater disc capacity. It can be logged on as drive B or in a two drive system as drive C. Data can be transferred onto the silicon disc from a normal disc or from RAM, application programs can then work on the data at vastly increased speed. Will accept all normal Amstrad disc commands such as LOAD, SAVE, CAT etc. 329.00

256k Memory Expansion (6128)	289.00
256k Silicon Disc System (6128)	329.00

UTILITIES

Disc Demon - comprehensive menu driven disc utilities	69.95	-
Fido - unique disc catalogue and menu maker program	-	o.s
Model Universe - 3D rotating drawing program	54.95	-
Rampak - nearly fifty machine code subroutines	44.95	37.95
Rembrandt - multi mode icon driven drawing prog.	o.s	-
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

CPC - continued

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, 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

Dust Covers - Australian made vinyl fabric dust covers in light grey colour for:

464 monitor and keyboard	35.00
6128 monitor and keyboard	35.00
DMP3160 Printer	17.00

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

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

PCW - continued

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	49.95
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
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

PCW - continued

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
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

PCW - continued

CPS8256 - serial interface for PCWs for communications or adding extra printers 145.00

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

DUST COVERS

Australian made vinyl fabric dust covers complete for the following PCWs:

8256/8512 monitor, keyboard and printer 55.00

9512 monitor, keyboard and printer 60.00

TASMAN RANGE

Tasword 8000 65.00

Tas-spell 8000 45.00

Tasprint 8000 39.00

Tas-sign 8000 69.00

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. 2.26) 87.00

LocoScript 2 + LocoSpell 130.00

LocoMail2 105.00

LocoSpell2 75.00

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 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

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**

PCW - continued

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

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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 (Please state 9512 when ordering):

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. Items marked with a "#" symbol are supplied with 5.25" and 3.5" discs.

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2000 leagues under the sea **39.95**

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4th and Inches (Grid Iron) 44.95

4th and Inches Construction Set 35.95

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Alter Ego (female version) 47.95

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B-24 69.95

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Battle Chess (needs 640k) 69.95

Battle for Normandy 69.95

PC - continued

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

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Advanced User Guide	21.95
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Introduction to CP/M Plus (CPC/PCW)	32.95
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(English imported mag.)

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THE AMSTRAD USER
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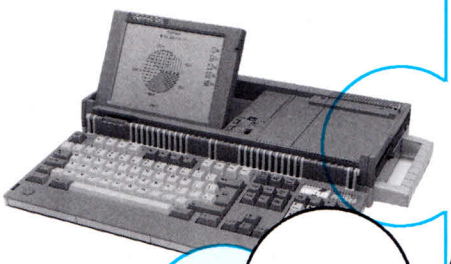

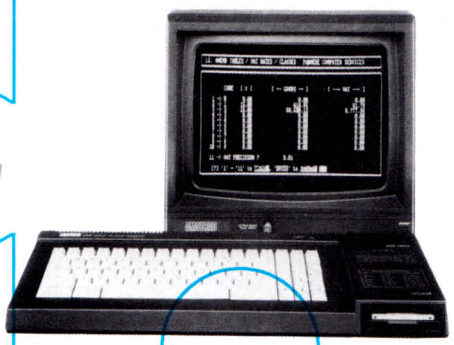

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MASTERFILE 8000

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.

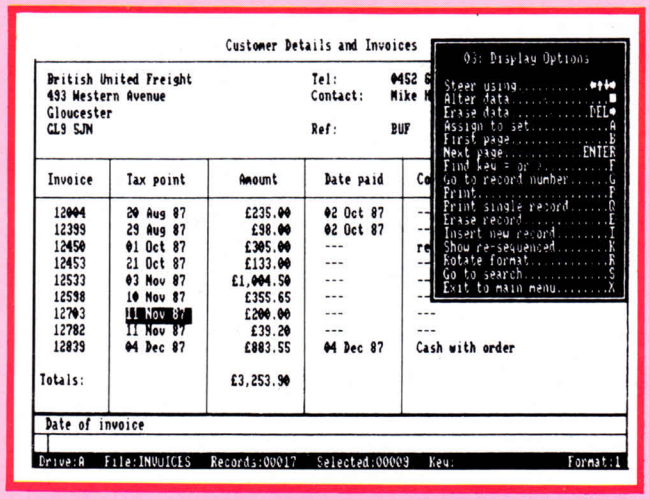
Other products offer a choice between fast but limited capacity RAM files, and large capacity but cumbersome fixed-length, direct access disc files. **MASTERFILE 8000** and the PCW RAM disc combine to offer high capacity with fast access to variable-length data. File capacity is limited only by the size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

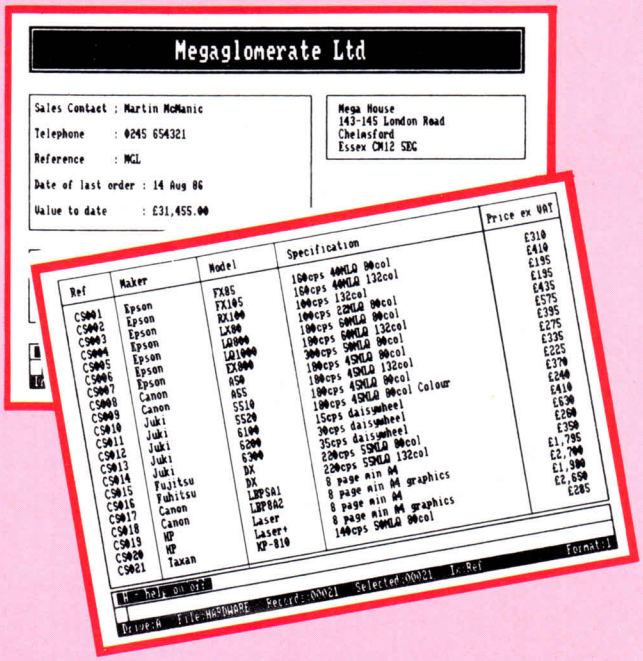


Keyed files are maintained automatically in key sequence, with never any need to sort. You can have unkeyed files too, where records can be inserted at any point in the file.

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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