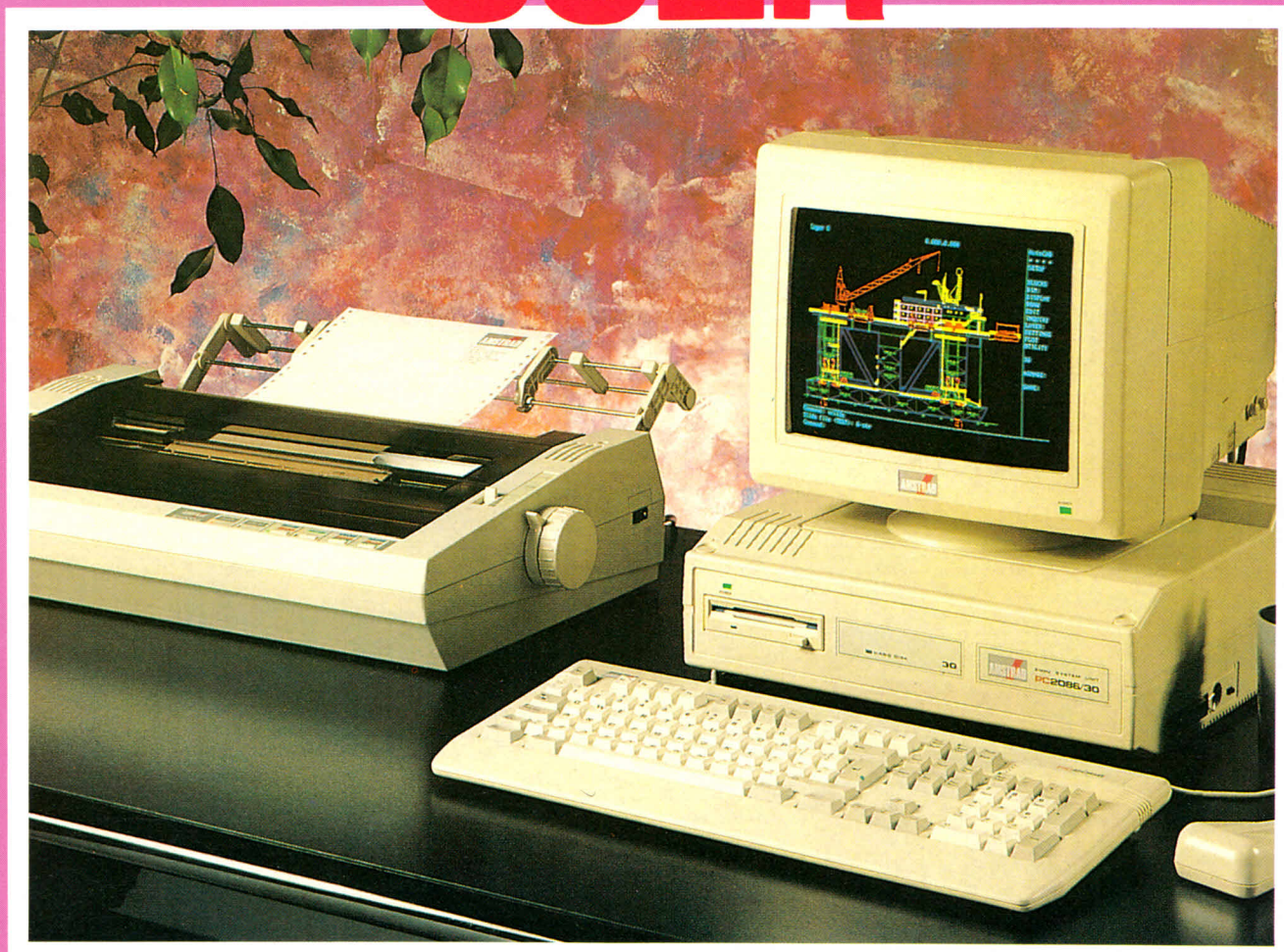
The Aussie Mag for Amstrad owners

THE AMSTRAD USER

Issue No. 54 $4.25 July 1989

WOW! The Amstrad User and Melbourne House Discount Pack! Over 50% off these top CPC titles! See page 29 for all the details...



- *Cheat Mode returns + Review of new Fun School 2 + 4 page "Spiders" CPC type-in + Time & Magik maps*
- *More PCW Pot Pourri + Programming in C + CP/M Plus Tutorial continues + delving deeper into Algorithms*
- *Look at PC Accounts and Sage + New PC Pot Pourri*

FOR THE NOVICE & EXPERIENCED USER

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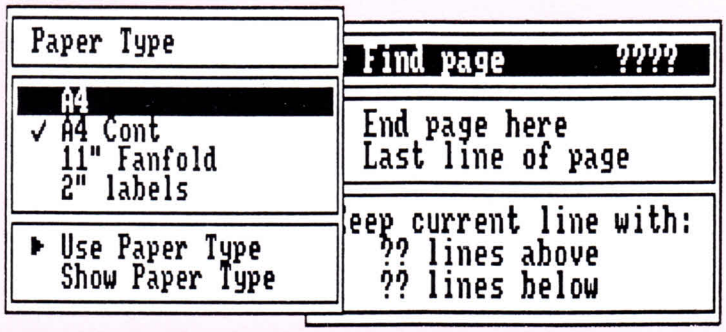


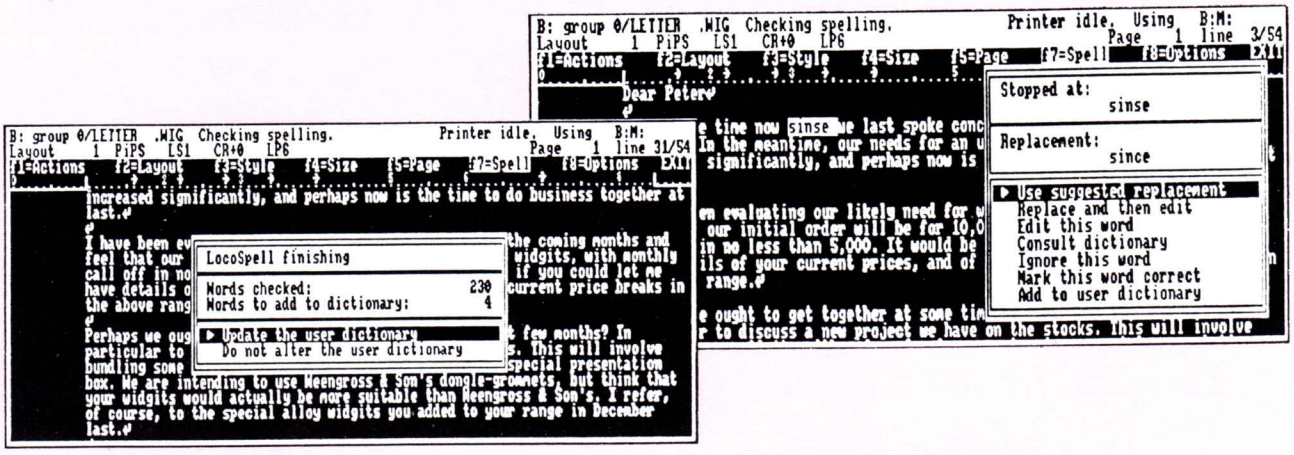
LOCOSPELL OFFERS:

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...

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THE AMSTRAD USER

Issue No. 54 - July 1989

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All enquiries and contacts concerning this Publication should be made in the first instance by writing to The Amstrad User, 641 High Street Road, Mount Waverley, Victoria 3149, Australia. Urgent matters can be phoned through on (03) 233 9661.
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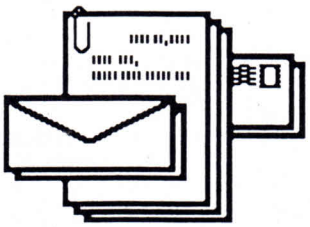
Please note that whilst every effort is made to ensure the accuracy of all features and listings herein, we cannot accept any liability whatsoever for any mistakes or misprints.
Contributions are welcome from readers or other interested parties. In most circumstances the following payments will apply 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.

The following comments were found on the back of subscription renewal cards and highlight the sort of problem we have formulating our editorial policy around the wishes of our readers:

"There must be an increasing percentage of your readers with PC's nowadays; I suggest more PC material and MUCH less CPC material."

"PLEASE PLEASE MORE GAMES type ins for CPC's - more cheap modes for disc drives and especially LESS ARTICLES ON PC which currently is 50% of magazine."

I have a few questions to ask you.

1. Why is there so much price difference for games between England and Australia eg. in English computer games magazines (ACE, G & VG, TGM) the advertised prices on most new games are £15, which is about $36A. Yet in your magazine you sell them for $45. Why the difference?

2. Why don't you sell hardware? eg disc drives, computers etc.

3. My monitor has just blown its fuse, and although I can easily replace it, I would like to know of any repair centres specialising in Amstrad computers (I live in Sydney).

4. I have got a couple of game hints for you for Cybernoid and Cybernoid 2. On the key define section, type in the following. You should hear a jingle and have infinite lives. Then just define your normal keys.

Cybernoid	Cybernoid 2
Left: Y	Left:O
Right:X	Right:R
Up:E	Up:G
Fire:S	Fire:Y

5. Why does it take so long for games to come to Australia from England where they are released up to four/six months earlier?

6. You should have a screenshot of every game you are reviewing.

7. Like other magazines you should have free game demos on tape stuck to the front cover of your magazine.

8. You should award game prizes for the best letters; as well as surveys for best computer game, best software house etc.

9. Thank you.

Anon.

1. Simply because the people who freight the software down under aren't nice enough to do it for free; and we also need to make just enough profit to continue our current services to our customers.

2. We do - in The Amstrad User Computer Shop on the corner of Blackburn and High Street Roads in Mount Waverley, Victoria.

3. Ring Amstrad in Sydney on 360 3933 and they will give you the details of the closest repair centre.

4. Thanks - see our Cheat Mode section for these and more!

5. If we could get them over any faster we would, believe us!

6. Yes, but the distributors don't always give us screen shots and we don't take our own, but we're working on it.

7. This would be great for a CPC464 specific magazine, but what would our 6128, PCW and PC readers do with their tapes?

8. Thanks for the ideas.

9. Our pleasure.

I am hoping that there is someone out there who can help me in the matter of fitting a 5.25" disc drive to a PCW 8256. In a letter in TAU April '89, Jenny Gill refers to such a device having been "advertised" in TAU. I am fairly sure that this is not the case, but would be pleased to be proved wrong.

Ron Hawthorne (TAU July '88) made it sound very easy using a particular unit from Magnetic Data Services in Sydney. I have written to this firm indicating my desire to spend some $300 with them but have had no reply. I tried telephoning but the man who could deal with my query "had slipped out for a few minutes".

An article on the same subject in Your Amstrad PCW (November 88) shows that the operation is not quite so simple with most other disc drives, although quite possible. For one thing, disc drives usually come with a 34-way connector instead of the 26 way connector used in the PCW so a special cable has to be made up to mate one to the other. Another cable is needed with appropriate connectors at each end to connect power to the disc drive. The drive has to be configured to be drive B: To do this a particular link has to be identified on the drive printed circuit board and "selected" (whatever that means in this context). Then terminating resistors on the signal lines have to be

identified and removed.
Probably none of this is particularly difficult but I hesitate to pay out a few hundred dollars for a disc drive chosen more or less at random with no guarantee of successful operation. I would like to know if anyone can tell me of a 80 track double sided 5.25" disc drive readily available in Australia (by post if necessary) which can be used with the PCW 8256.

John Neate, Blackwood SA

It is probably an idea to persevere with MDS, as we have been receiving pretty good feedback from their customers. There might however be someone else out there who knows something more...

I have a PCW8512 and I wish to attach an Amstrad LQ 3500 printer onto it. I want to use LocoScript with that configuration.

I understand that I need LocoScript 2 for such a configuration. I guess I could get LocoScript 2 and Locospell at the same time. But do I need the LocoScript 2 upgrade or just the standard LocoScript 2? And do I need the "24 pin Printer Driver", or the "Extra Printer Drivers" discs or is LocoScript 2 sufficient?

Dale Gerke, St. Peters SA

The drivers for the LQ3500 are supplied as standard on the LocoScript2 master disc and so we don't believe you will need any upgrades.

I am writing to ask a simple and straight forward question. The question has to do with the Amstrad PC 20, so here is the question. Will you ever be printing any type-ins for use on a PC that uses GW Basic as the PC 20 does? Other than this I think that TAU is a great magagine so keep up the good work.

Darryl Lawrence, Burleigh Heads Qld.

Absolutely! We'd love some type-ins by readers using GW-Basic. They'll be considered for publication like anything else.

I would just like to say how much I enjoy your magazine since my first issue #49. I am currently the owner of a new PC20 after years of an alternate make.

My problem is that I am as yet still very much a novice to the Amstrad world. The main area is within the GW-Basic language. I am understood to believe that your "CPC Type-in" section requires a few line changes to be run on my machine. Don't think that I am lazy, I have tried to gain help although I think my dealer is getting the s...s and still with no joy.

If possible could you please include these edits in each issue or print my address so that someone out there could send them to me. The mail cost would happily be

returned.

Frustrated and Confused,
Parafield Gardens SA.

Don't be. Although it is possible for a programmer to take a CPC type-in and translate it to GW-Basic, we don't think anyone would do it for you! Just sit tight as those type-ins written for your computer are certainly going to be coming in soon.

A few months ago, someone asked how to clear the screen of a PCW from CP/M+. The following assembly language program requires only one small file on the working disc. The listing must be typed into an ASCII file, CLS.ASM, using RPED or a wordprocessor. If you use LocoScript, you must convert the LocoScript file to a text only ASCII file with the name CLS.ASM. This file is then your source code which must be assembled into CLS.COM before it can be run.

```
        org     100h
boot    equ     0000h
bdos    equ     0005h
        mvi     c,02h
        mvi     e,1bh
        call    bdos
        mvi     c,02h
        mvi     e,45h
        call    bdos
        mvi     c,02h
        mvi     e,1bh
        call    bdos
        mvi     c,02h
        mvi     e,48h
        call    bdos
        jmp     boot
```

The program loads the characters <ESC>, E, <ESC> and H, which have the ASCII codes 1bh, 45h, 1bh and 48h respectively, into register e of the Z80 CPU chip then uses BDOS call 02h to print them on the screen. To assemble the program, you will need the files MAC.COM and HEXCOM.COM, which are on the side 3 of your system discs, as well as CLS.ASM. Copy all three files to the M: drive using PIP. The command sequence to assemble your program is:-

```
M:
MAC CLS
HEXCOM CLS
```

If all has gone well, the file CLS.COM will now be on the M: drive. This is your assembled program. Copy it onto the disc(s) where you want to use it. To run it, type CLS followed by return at the A> prompt.

A.L. Palmer, Trangie NSW.

"PENPALS WANTED" - preferably CPC owners. I don't mind getting heaps of replies, I shall reply to all letters received.

Please write to me: Paul Tacey, RMB 5134, Shepparton Vic. 3631.

Re Geoff Camp's TURBO program in April TAU - Har Har! The laugh's on me cos it took me much hair pulling to get the data statements correct, and when I ran the piece - I nearly fell off me chair....

On yer Geoff - may your keyboard runneth over in coffee! Right-o all you programmers out there, how about putting a total at the end of every line of data numbers. This will help to overcome some of the difficulty in deciphering the printed program. Some of those B8 and BB statements were not very kind on the eyes. Thanks to all the contributors to the mag. especially Anthony Trost for introducing me to the bank manager. I finally came to grips with it, and now have a 470 name and address file which uses just 11% of the second ram bank. If you haven't used it yet for data storage, you don't know what you're missing. It shows the speed of searches as nothing else will. Happy computing folks.

Rod Dent, Iluka NSW

This letter is my way of introducing "In Home Training" to your company. In Home Training is designed to complement your business by training your clients on the operating system used by IBM compatibles (i.e. DOS).

Six months ago I had an idea; my idea was to provide computer training, and this training would be done after business hours and on a one-to-one basis. Well, six months down the track quite a few people have taken up my offer of after hours training.

I now want to extend my service to your company.

My objective is to help your clients learn the basics of DOS. This in turn makes them much more efficient on their computer so they're able to do more in less time. This is an important feature as time is precious to most of us.

My service is based on after hours training. The training would be done at the client's home and at his convenience. I can also relate to the nine-to-five office hours routine; by the time most people arrive home and have dinner it's already 7.30 p.m or later. This is where I come in. I would train them at their convenience; they could be instructed after the children have gone to bed, after dinner or even after the lawns have been mown on Sunday. It's entirely open.

Unlike other training courses, where you may have fifty people in one class, with classes running twice weekly over five or six weeks, my service is a one-to-one learning system. Basically I teach people DOS or I just answer questions, so that my clients obtain the greatest benefit in the shortest amount of time. Usually two hours training is all that is required for most people to have a good understanding of DOS.

If you feel In Home Training could be of service to you or to any of your clients, please phone me on 572-2544 (BH) of 509-8310 (AH) so we can organise a suitable time to increase your clients understanding of DOS.

Brian McMahon, Armadale Vic.

Address all letters to:
The Editor, The Amstrad User
641 High Street Road
Mount Waverley VIC 3149

CLASSIES

FOR SALE

CPC6128 Disc drive, colour monitor, joystick, games, original manuals and additional books, typing program. Hardly used - $650 ONO (02) 523 1097 Cronulla

Amstrad CPC6128 with monochrome monitor, 5.25" DSDD drive, powor spike, joystick, over $700 worth of software, two programming books, lots of PD software and magazines - $1000 ONO. Will separate (03) 553 0793

PCW8256 Hardly used. Original manuals/ software plus training disc & audio tapes - $800 ONO. Ph. (07) 359 7280 after 6pm.

SWORD OF POWER - large RPG written in Microsoft Basic for IMB PCs and compatibles. Take five characters on an epic quest. Send cheque/MO for $15 payable to Adam Roberts, 69 Edis St, Kyabram VIC 3620. Phone (058) 52 3086

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 095 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

A CHEAP second-hand modem and RS232 interface for the CPC6128. Modem must be V21 and V23. Write or phone: David Quinn, BOX 24, Port Victoria SA 5573. Ph. (088) 34 2082

SERVICES

CAN'T READ your PCW 3" disc? Don't despair! Send it with formatted disc and $10.00 to Disc Reader, 6/25 Bellevue Pde Hurstville NSW 2220

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.

DISPLAY ADVERTISING DEADLINES

Issue	Booking by	Copy by
SEP'89	10/07/89	21/07/89
OCT'89	10/08/89	18/08/89
NOV'89	11/09/89	22/09/89

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.

Personalised Stationery - an ideal gift for any occasion. 100 sheets of high quality paper with address and phone number printed plus 50 matching envelopes. See page 25 for details.

Just $7.50 gets you a spot in our Classies reaching over 8000 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 .....
Credit Card Expiry date .....
Name .....
Address .....
.....
Telephone .....

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

AMS MOVES TO DATABASE

Database Software, producers of Mini Office, Fun School 2 and other well known software packages, has acquired the rights to the AMS range of software products from Logitech. The titles include Stop Press for both the CPC and PCW and Extra Extra. Shipping delays to Australia are now expected to be resolved and supplies should be reaching these shores at the beginning of June. Only one product has been dropped from the range, AMX 3D Zicon, a 3D modelling program which apparently had not been selling very well.

AMS Software is in fact owned by a company called Logitech who are now left to concentrate on PC based products such as Finesse. AMS/Logitech General Manager Nick Pearson comments "As Database specialises in fields relevant to the AMS products we felt that this company would be best suited to look after the existing user base and carry forward the AMS range of 8-bit products."

DATEL BUYS OUT RAM

RAM Electronics who amongst other products produced the dk'tronics range of expansion units was purchased recently by Datel. Mike Connors, the MD of Datel, confirmed that his company was now in full production on the full range of Dk'tronic products and "may even have one or two new products to offer too."

This news should free up supplies to Australia. Coupled with the Database takeover of AMS products (mentioned elsewhere in Newsbreak) it should give confidence to CPC users that there are a number of large companies in the UK who are actively supporting the lower end Amstrad range.

NEW PAGE PROCESSOR FOR PCs/PCWs

Due to be launched shortly in the UK by Creative Technology is a new page processing package called MicroDesign II. The PCW version runs under CP/M+ and boasts a page processor which provides all the essential features of Desktop Publishing and Graphic Design.

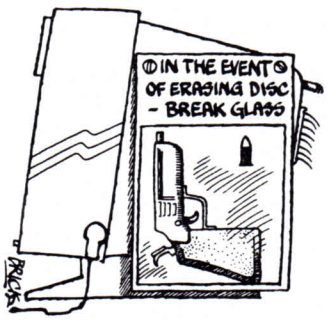
A page will accommodate up to eight columns of text with automatic margins, gutters and dividers. Page templates can be saved to preserve general layouts for frequent publications. Graphics Art and Design facilities provide lines, shape and pattern fills, rescale, rotate and reflect plus a library of over 400 patterns and symbols.

An integrated font designer is also included in the package. Text files can be loaded or merged from LocoScript2, Protext or WordStar. MicroDesign II is fully compatible with AMS Stop Press, NewsDesk International, MasterScan and The Desktop Publisher and can be used via the keyboard or with an AMX Mouse or Kempston Mouse. It also comes with a 120 page manual.

The PC version has similar specifications but many additional features over the PCW version. Australian prices are not yet available, nor do we have a delivery date, but as usual, we will keep you posted.

AMSTRAD QUICK ON THE DRAW

We reported in the April '89 issue that a 'light gun' for the CPCs was under development by Electric Studio. Unfortunately for them they were too late. A joint venture between Amstrad and Virgin/Mastertronic has produced a package called the Magnum. The gun looks a little like the Sega version but will not be compatible. Although Virgin/Mastertronic will have exclusive marketing rights, the light gun itself will be manufactured by Amstrad. Already five games have been produced to work with the gun but Amstrad have not yet, at the time of writing, commenced production. If it gets to Australia, it is our guess that the cost for the software/gun package will be around $75.00.



REACH FOR THE SKY

Sage Software have announced the impending release of new generation Sky Software. First in the list is Skymaster 4, a fully integrated set of accounting modules handling all the day-to-day needs (except payroll) of a wide variety of businesses. Whilst Skymaster 4 may perform most of the straightforward needs, it is rare that any package is flexible enough to embrace all the immediate demands of a user. This is where Skymaster 4 scores as it has the capability of allowing the user to add information to files, redesign screens and change reports. Used in conjunction with Skybase 4, an application development system, an upgrade path from single to multi-user and even one operating system to another can be achieved.

Every Sky customer receives a Skymos package. This is essentially a 'front-end' to the operating system controlling the way operators can use the system (access, menus and so on) and creates an environment of plain English menus rather than operating system jargon. Skymos will act as an interpreter between the user and operating commands, particularly important for Xenix/ Unix customers.

More details can be obtained by ringing PCS on (02) 923 2899 or OCC on (03) 329 2384.

CALLING ALL MEDICOS

Dr. Martin Knapp, Director of the unit of Medical Information Technology at the University of Nottingham Medical School and also Medical Director of Medstat, a software publishing company that specialises in medical and scientific software, is visiting Australia. He has been based at the Austin Hospital, Heidelberg, Victoria.

Dr. Knapp would be interested to make contact with users of a PC and/or PCW in medicine or related areas, especially if they have developed programs that need a distributor in Europe, or if they have needs that might be resolved by programs he uses. Contact can be made by post to the Renal Unit, Austin Hospital, Vic 3084, by phone on (03) 450 5111 or by fax on (03) 458 4779 with reference RENAL.

PORN CORN?

Strip Poker games have come and gone, most leaving the player feeling somewhat cheated (always assuming the player was male of course, and no letters about sexist comment please). It will therefore be interesting to see how a new game from Coktel Vision called 'Emmanuelle' shapes up. It actually sounds closer to a 'Leisure Suit Larry' style of game rather than cards. The game consists of searching for a sex superstar somewhere in Brazil, but committing 'sins of the flesh' in order to continue.

Apparently the game is under icon control with the player interacting with the background in some clever graphics. Don't hold your breath, but we will let you know if it is worth the effort or money when we get a copy.

WRONG NUMBER

The article entitled "Speak to me softly" concerning digital recording and playback on the PC in the June issue of The Amstrad User had a wrong phone number contact. The private citizen whose number was published has kindly referred all calls to the correct number which is (03) 232 0599. Please make note before tempers flare.

MASTERFILE III

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

FIRMLY ESTABLISHED...

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

For the benefit of newcomers to the CPC machines: MASTERFILE III is a powerful and flexible data filing and retrieval system. All "database" systems require that your data is organised into fields and records. Unlike most, MASTERFILE does not commit you to field lengths or formats, since ALL data is variable-length and optional. Files are not preformatted, and only used bytes are saved to disc. Also, unlike the rest, MASTERFILE allows multiple user-defined ways of viewing/printing your data. And unique in its price range, MASTERFILE offers RELATIONAL FILE options, whereby common data can be entered just once and shared by many records. Maximum field size is 240, maximum fields per record is over 50, and maximum file size is 64K. Room for 1,000 full names and addresses, for example. Only one disc drive is required. It is menu driven throughout, and comes with detailed illustrated manual, and example files.

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.

MASTERCALC 128

THE MODERN CPC6128 SPREADSHEET SYSTEM

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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THE GAMES REVIEWED THIS MONTH:
Incredible Shrinking Sphere
Blasteroids • Chicago 30s
Human Killing Machine
Real Ghostbusters
Computer Yahtzee
Crazy Cars II

MORE GAMES PEOPLE PLAY

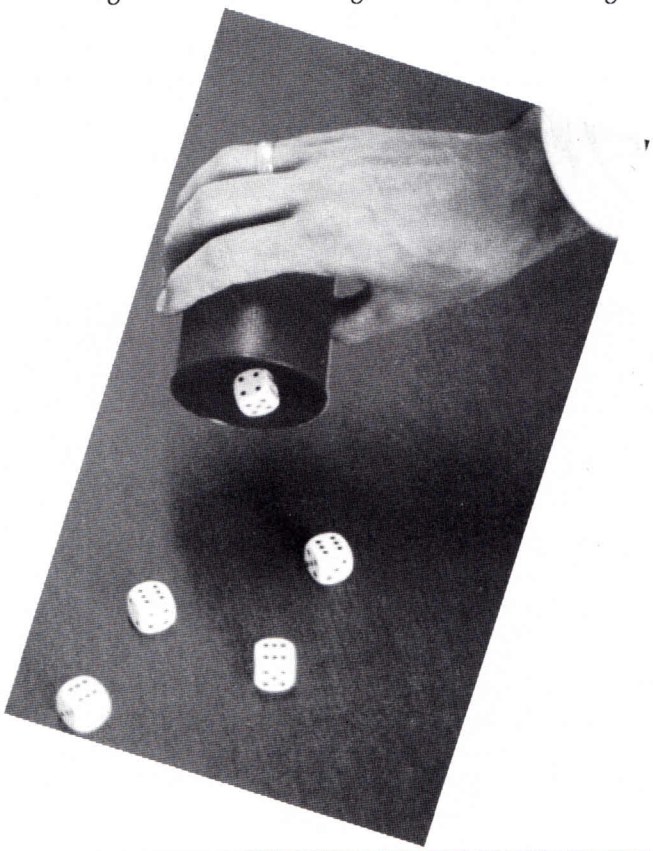
The Joystick Wizard returns with a pile of new and exciting games for the whole range of Amstrad computers. The selection is varied...

COMPUTER YAHTZEE

Strategy plus a roll or more of the dice — **PCs - Dual 3.5" and 5.25" - $29.95**

The game of Yahtzee has been around for much longer than I, but is new, comparatively speaking, to computers. An adapted version for Amstrad CPCs by Alf Azzopardi was published in The Amstrad User in April 1986 and others for bigger brother PCs have popped up from time to time through the Public Domain. The latest version for PCs is by Jeurgen Loechner and distributed by Reckon Software.

The game consists of rolling five dice and matching the roll to a number of predetermined combinations. There are twelve combinations to achieve, six "above the line" and six below. Those "above the line" are simply three 'ones' through to three 'sixes' and score at face value. Those "below the line" consist of poker-like hands including a full house (three of a kind and a pair) or a large straight (a sequence of five, say, two through to six). "Below the line" scores are awarded higher points, but an additional 35 is scored if the "above the line" total is greater than 63.



As it is unlikely that the first roll will give an immediate match, the player can choose to roll all the dice again or just some of them to attempt a match. One more try is allowed after which the player must make a final decision on the combination to match against upon which a score is calculated. A YAHTZEE scoring 50 points is obtained by throwing five dice of the same number.

Computer Yahtzee follows the rules very closely and the scoring layout is very similar to the standard Yahtzee score sheets one can buy. Optional rules can be read on the screen (alas with at least one spelling error) at the opening of the game and a choice of between one and four players selected. An option to play the computer is also included with fast or slow mode. The five dice are represented on the right side of the score table and flick round when "rolling".

The game play is simple - press the space bar to make the first roll, then choose to keep that throw or select any number of dice to hold and throw the rest. Once the sequence of throws has been completed the numbers showing must be allocated to the relevant combination in the table. This is where the strategy comes in. For example, if you were trying to throw sixes but ended up with only two along with a couple of ones and a two, the maximum score you could get would be 12 if the 'six' combination was chosen as the match. You

may however decide to have another go at them later, so you could match against 'ones'. Although this would only give you a score of one, it leaves the table open to score higher later. The trick is to make sure you don't leave it too late.

The computer plays a fair game, I mean it doesn't cheat and in the main seems to make sensible decisions in terms of what it will roll again and where it will make the final match. Of course, you don't have to include the computer in a game, but if there is only one player, it makes for a bit of competition. At the end of the game the names of the players are entered into the high score chart (this can be reset if required) and saved to disk. Even the PC will get a mention if it has done well enough!

Computer Yahtzee cannot be compared with shoot-em-ups. It's the sort of game which will be played for an hour then put away to be played another day. It will become a perennial while the arcade games will be long forgotten. I enjoyed the light relief it provided. The game was tested on a PC2086 (3.5" format) although the pack also comes with a 5.25" disc. I applaud this trend to 'dual' formats in one pack.

HKM (Human Killing Machine)

US Gold's globe-trotting punch-em-up

CPC Disk $39.95 Tape $26.95

It's interesting watching the trends in software. Martial Arts type games were the go a little while back. Now that theme has evolved into street fighting, gang-land type thuggery. The trouble with these newer games is that I can never work out whether I am supposed to be the good baddie or a bad goodie.

The hero(?) in HKM is Kwon armed only with a pair of boxing gloves, under your guidance of course, and is pitted against a Russian soldier, some Arabs, two Germans and two Dutch ladies. Oh, I nearly forgot the Spaniard, a bull and a dog. Each adversary has a particular weak spot, but as no clues are given on the packaging, you have to find out for yourself. This involves a great deal of thumping and kicking, and I mean that, because if you fail you have to return to the beginning again. Some people may not mind that but I find it frustrating to have to go through it all again.

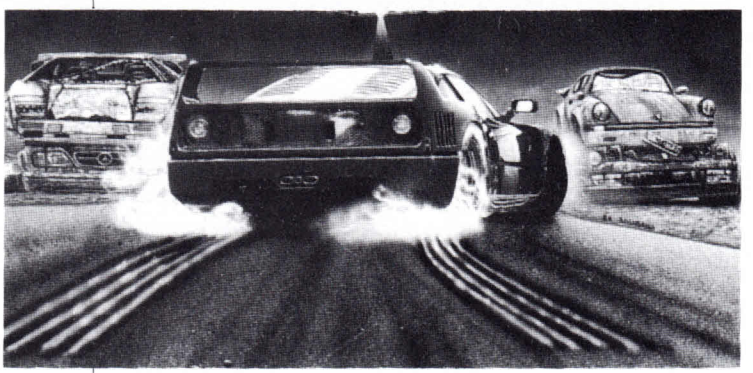
The characters are all well represented on the screen (OK on green screens too) and a cartoon-like touch is added by flashing up a 'ZAP' on the screen when a direct hit has been made. The colour of the 'ZAP' indicates who made the hit. Kwon starts in a healthy state but the more hits he receives the weaker he becomes to tackle future adversaries. It is important to preserve as much as you can to proceed further into the game. For the life of me I cannot understand why the game includes knocking a dog senseless or for that matter two ladies of the night, Helga and Maria. A bit distasteful I'd say and about sums up the game as far as I am concerned.

Initially you will find the HKM difficult, but once you have worked out the opponents weaknesses the game will lose interest. That is easy to say, because it will take quite a while to work it all out - just make sure your joystick will stand up to the job.

CRAZY CARS II

Drive the ultimate car without the ultimate cost

CPC Disk $49.95 Tape $34.95



If you could afford to buy about 24,000 copies of Crazy Cars 2 on disc then you could afford to buy a Ferrari F40. A mere $1.2 million (and that includes on road costs) will get you 478bhp at 7000rpm, 0 to 100kph in just 3.9 seconds and a top speed of over 320kph. If you don't like red then you'll have to choose another make because Ferrari only produce red cars. But what has this to do with Crazy Cars 2?

The answer lies in the plot of the game. A stolen car racket is being run by some dishonest policemen. In order to break the racket you need to avoid the police and inevitable arrest while racing across four states (in America).

The graphics are superb from the burning rubber on the road as you accelerate, the panorama, through to the (alas too often) explosion as you collide with a street light or telegraph pole. The sound effects too have been carefully thought out. Police car sirens change pitch as you pass them (the Doppler effect) and the Ferrari's engine noise is linked to the revs of the car. Owning a green screen means you own a green Ferrari but that is the only problem you'll have.

The faster you drive the more difficult it becomes to control the car. It takes a while to get the hang of taking corners or overtaking at speed - fortunately no lives are lost. Time is of the essence in this car chase and the police will do just about anything to slow you down. Crash, and you may find them waiting for you further up the road. Tail gate, and you'll also be in trouble.

You would be right if you thought that the game was difficult, but in contrast it is easy to pick up. You would be wrong however, if you thought that the game was ultra fast. Despite the type of car being driven, it doesn't quite match the Afterburner speed, but is nevertheless fast enough otherwise it would be too difficult to control. There is plenty of road provided to get you across the four states (it took me two weeks to manage to get across just two) and plenty of police to mess things up for you.

If you had fun with the original Crazy Cars you'll find Crazy Cars II a heap better and probably the only chance you'll get at driving a Ferrari F40.

REAL GHOSTBUSTERS

A muddy conversion from Activision

CPC Disk $39.95 Tape $26.95

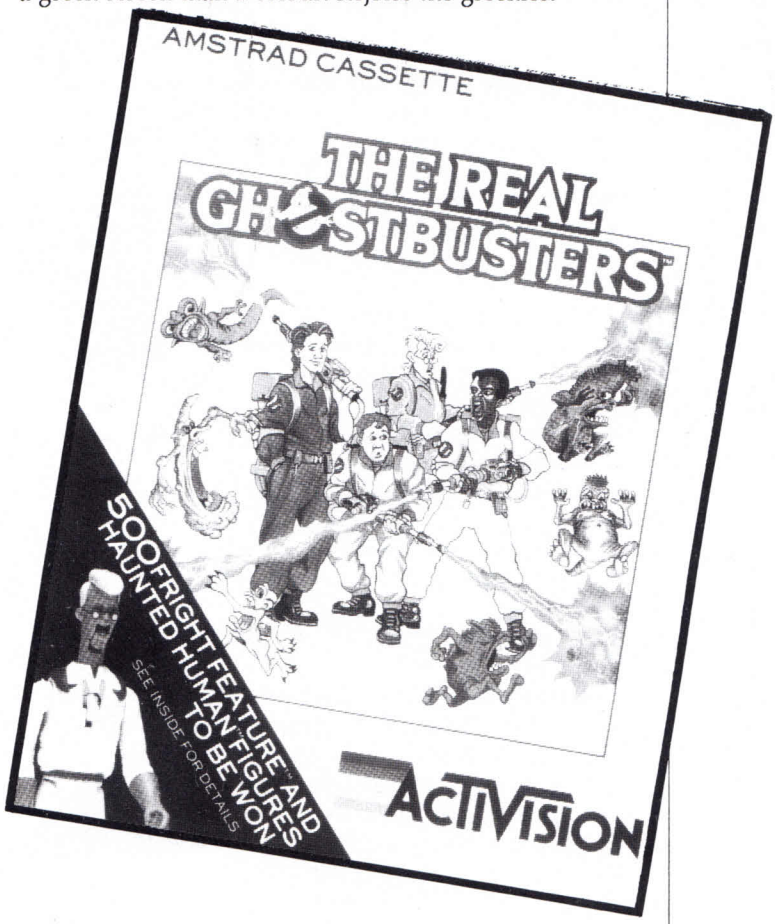
For once, green screen owners get a better deal than colour screen owners, but before I get into that argument I'll give you the gist of the game.

Based on the TV cartoon series (based on the film etc.) you are required to remove all the ghouls, ghosts, phantasms, mummies, umbra and the like from the city. Actually, you can rope in a friend as there is a two player option but he/she will have to use the keyboard. You also get some help from Slimer but it is necessary to earn his assistance by performing ghost-busting feats.

The feats are generally performed with streamer guns which first immobilise a ghostie (just one press of the fire button) and then suck the remains into your backpack (a continual press on the fire button). The energy in the backpacks is limited and has to be replenished every so often by picking up units which have been discarded by objects previously blasted or by simply brushing past the occasional energy pack. It's curtains if you fail to recharge your pack and run out of energy - the ghosties seem to know that you are helpless and will slime all over you. Some ghosties are exceedingly potent as you seem only to pass near them and you're dead. Perhaps it's a case of bad collision detection or designed that way - we will never know. This deficiency is made up somewhat by the sound effects and in particular the introductory music.

There are a number of levels, each loaded separately. The first starts in a skyscraper, but as you progress the terrain and type of ghosties will change considerably. The playing area is larger than the screen so scrolling is invoked and smoothly too. There are a number of different ways of getting through each level, and at the end of each a guardian has to be destroyed to enable further progress.

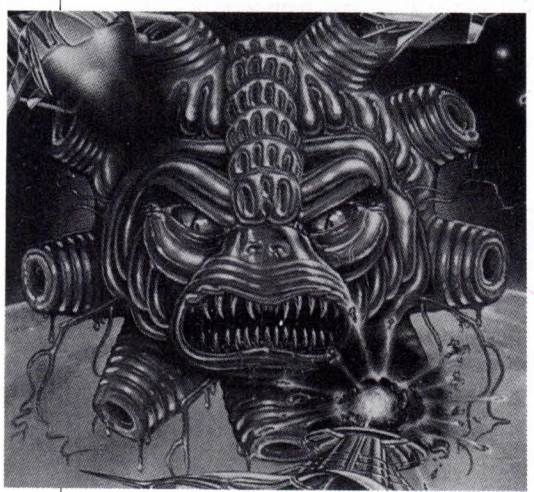
In all, Real Ghostbusters is an enjoyable and challenging game. The major criticism I have is that the choice of colours is less than good. Perhaps the designers were trying to instill a little atmosphere by keeping the colouring dark and muddy. OK, it works in some sections of the game, but in the main I found it a nuisance. I would go further and say that I did better on a green screen than a colour. Rejoice the greenies!



SHORT 'N' SWEET

Some new CPC games in brief

BLASTEROIDS - following in the footsteps of Asteroids, Blasteroids is meaner and harder. It has a classic if well-worn plot of clearing a screen of alien hordes and asteroids with a super-laser before being allowed to continue to the next screen. There are leeches which stick to your craft and suck the energy from it, expanding asteroids and seekers - most requiring more than one hit to despatch.



Energy is a consideration of course, and is consumed when you fire your laser or get hit. Run out of energy and you're finished, but it can be topped up by collecting the correct tokens. Other tokens can provide useful tricks such as increasing fire power. Another trick allows you to change the size of your ship - small is agile but lacks fire power, large is slow but packs a punch.

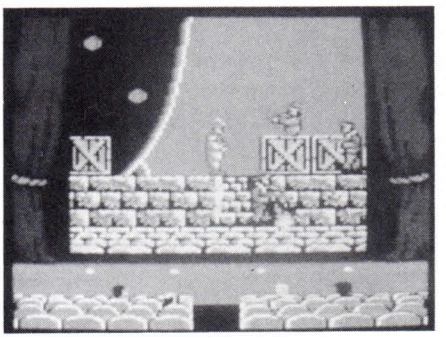
Two people can play the game clearing the strange creatures from the screen and can vie for the tokens. Once the screen is clear, the first player to exit through the portal gets bonus points. The final screen has the inevitable battle with a big guardian.

Blasteroids is a good conversion, perhaps a little hackneyed, but good fun.

(CPC Disk $39.95, Tape $26.95)

CHICAGO 30s - a new US Gold title with a different theme from the norm. It involves you as Elliot (Ness?) in the task of clearing the streets of Chicago of hoods through four levels and then destroying an illegal alcohol store.

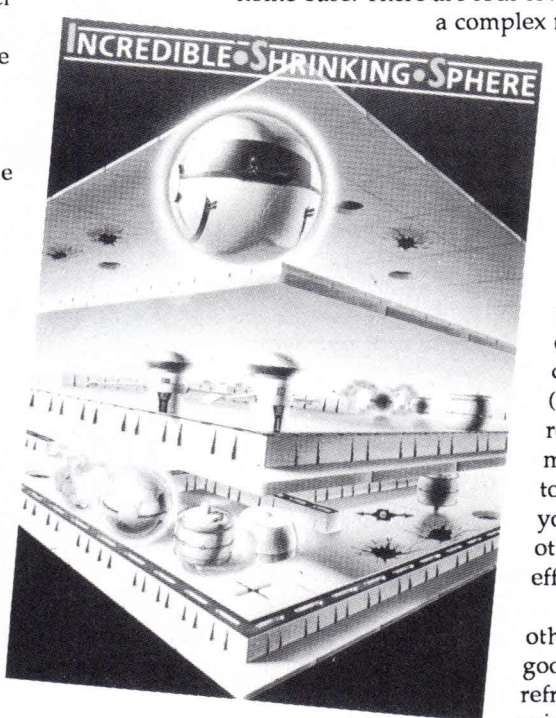
You are armed with a Thompson machine gun and really need your wits about you and finger on the trigger most of the time. Armies of hoods appear from all over the place and with just four lives, Chicago 30s can be classed as hard to win. The hoods drive cars at you, throw petrol bombs and just about anything else to hand. Couple this with shocking collision detection making bullets which clearly miss you have the fatal effect.



The whole game takes place on a cinema screen. Every time you lose a life one of the four patrons clears off. It's colourful with good graphics, but oh so hard to complete.

(CPC Disk $39.96, Tape $26.95)

INCREDIBLE SHRINKING SPHERE - a 3D 'corner-down' style presentation in which you have to search for a stranded sphere and return it and passenger to the home base. There are four levels to negotiate each with a complex maze. Some of the gaps are difficult to squeeze through, so by travelling over particular 'tectonic tiles' your sphere will shrink enabling you to pass through the narrow areas. Changing size also changes the velocity of the sphere. Naturally, there are plenty of obstructions, the most common of which are IAGs (Ismo Assassin Generators) responsible for generating mutant spheres and touching them will cause you problems. Passing over other tiles gives different effects.



Although a little jerky, I otherwise found the graphics good. The game concept is refreshingly different and I enjoyed playing it.

(CPC Disk $44.95, Tape $29.95)

Pactronics

First with the Best!!

NEW AMSTRAD CPC/PCW/PC ENTERTAINMENT SOFTWARE

LOMBARD RALLY - PC

The best selling driving/racing game on the Amiga and Atari ST now bursts onto your PC screen. It features "3-D" scrolling landscapes, realistic car interior views and an animated driver which is controlled by your joystick.
The game itself is an accurate recreation of the famous Lombard RAC Rally around Great Britain. The rally consists of five stages, each of three legs, over terrain that changes from daytime to night time, mountains to flat, normal conditions to driving through heavy fog.
There is a workshop to repair "those little accidents", and there are TV interviews to attend to earn money to pay for those repairs.

4 SMASH HITS - CPC (Disk and Tape)

4 Smash Hits is a collection of the greatest arcade games ever to be released on the Amstrad CPC. The four games are:

• *Zynaps* • *Exolon* • *Rana Rama* • *Uridium*

All of these are top sellers, and with all four on the one disk, 4 Smash Hits represents the greatest game playing value around.

EMMANUELLE - PC

Do you like a good time? Do you thirst for adventure? Do you hunger after lusty women and bold action? If not, DON'T buy EMMANUELLE, for it contains all the above and more. The program is centred around your search for EMMANUELLE, the woman of your dreams. You must try to catch up with her somewhere in steamy locations around Brazil.
To complicate matters, there are others who also dream of Emmanuelle, and will fight desperately to win her charms. Throw in the small matters of smuggling and a synthetic aphrodisiac, combine it with stunning graphics that take full advantage of the Amstrad PCs extended colour palette, and you've got one of the best games ever released onto the PC.

CLASSIC INVADERS - PCW

The all time arcade classic springs to life on your PCW - a great game.

PCW BUSINESS SOFTWARE

SUPERTYPE II - PCW

The only criticism that can be levelled at the PCW is its printer. This program offers PCW users 8 new, radically different typestyles that work with ALL CP/M software. Each of them has its own distinctive, professional appeal, giving your documents an original facelift.
SUPERTYPE II is unique in that it will work with any CP/M software, including LOCOSCRIPT1 and 2, LOCOMAIL, LOCOSPELL and MINI OFFICE PROFESSIONAL. It supports all of the printers "high quality" modes, including bold, emphasized and italic.

DATASTORE II - PCW

Are you looking for fast access to stored information? Want to create customised reports, mailing lists or label prints? Stop looking around, and start looking at DATASTORE II. It has been researched, developed and written exclusively for the PCW, and it fully utilises all the facilities of your computer.

- **Fully menu-driven with prompts**
- **Full tutorial for beginners**
- **Uses RAM disk and 1 or 2 drives (No repetitive swapping)**
- **Can provide automatic calculations (Sales tax extensions etc.)**
- **Lightning fast search. (Typically under 4 seconds)**
- **Up to 32 fields**
- **Up to 32000 records**
- **Up to 1498 characters per field**
- **Fully compatible with SUPERTYPE II**

Available from: **John Martins, Harris Scarfe, West End Computers (Vic & Qld), Harvey Norman, Grace Brothers, Computer Base (Castle Hill & Bankstown), Maxwells of Rockdale, Ettalong & Melbourne, B & B Computers of St. Mary's or other retailers around Australia.**

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CHEAT MODE

GOLDEN OLDIES

We're back with more Cheats this month, and isn't it about time! Keep those pokes coming in - they are always in great demand.

First off the pile is a duet for Defend or Die. The first Tape poke is from Nick Sutherland of Prospect, SA and provides infinite lives and infinite smart bombs. Chris Wooton has offered the equivalent for disc users as well as a second for Grand Prix Rally II providing infinite time to complete the stages.

DEFEND OR DIE

```
1 'Defend or Die - tape poke
2 'by N. Sutherland
3 'wind past loader
4 'for infinite lives
5 'and infinite smart bombs
6'
100 OPENOUT"!"
110 MEMORY 16383
120 LOAD"!"
130 POKE 24783,0
140 POKE 24065,0
150 CALL 16384

1 'Defend or Die - disc poke
2 'by Chris Wooton
3 '
100 MEMORY &3FFF:LOAD"defend",
&4000
110 '
120 'Infinite Lives
130 POKE &60E9,0
140 'Infinite Smart Bombs
150 POKE &5E08,0
160 '
170 CALL &4025
```

GRAND PRIX RALLY II

```
1 'Grand Prix Rally II - disc poke
2 'by Chris Wooton
3 'Poke provides infinite time to
4 'complete each stage
5 '
100 OPENOUT"a":MEMORY 999
110 LOAD"ralbin",1000
120 POKE &13D5,&7F
130 POKE &2D59,&0
140 POKE &2D5A,&BF
150 FOR a=&BF00 TO &BF15
160 READ a$:POKE a,VAL("&"+a$)
170 NEXT
180 DATA 3a,9a,15,a7,20,06,3e,01
190 DATA 32,b6,13,c9,3d,32,9a,15
200 DATA 3e,02,32,a5,0b,c9
210 ENV 1,3,5,1,50,0,2,15,-1,5
220 CALL 1000
```

We figure we're on a good thing with Nick Sutherland - he's obviously been hard at work. So while we've got him, how about a few more real Golden Oldies.

NONTERRAQUEOUS

```
1 'Nonterraqueous - tape poke
2 'by N. Sutherland
3 'infinite lives
4 'infinite bombs
5 '
100 INK 0,0:BORDER 3:MODE 0
110 OPENOUT"!":MEMORY &BB7
120 LOAD"!",&BB8
130 CALL &BBB,&FFFE,&3FFF
140 CALL &BBB,&9FFC,&9088
150 FOR x=1 TO 7
160 READ a$,b$:a=VAL("&"+a$):b=VAL
("&"+b$):POKE a,b
170 NEXT
180 DATA 1E08,0,1080,C3,1081,97,
1082,10,10BA,0,10BB,0,10BC,0
190 CALL 4000
200 END
```

SUBTERRANEAN STRYKER

```
1 'Subterranean Stryker - tape poke
2 'by N. Sutherland
3 'wind past loader and loading screen
4 'infinite lives
5 'infinite fuel
6 'infinite shield
7 '
100 CLS
110 OPENOUT"!":MEMORY 999
120 LOAD"!",1000
130 FOR x=32055 TO 32060
140 POKE x,0
150 NEXT
160 POKE 30671,0:POKE 34584,0:
POKE 34683,0
170 CALL 31881
```

MOLECULE MAN

```
1 'Molecule Man - tape poke
2 'by N. Sutherland
3 'infinite time and pills
4 '
100 MEMORY &1387
110 LOAD"!m1"
120 LOAD"!m2"
130 MODE 1
140 POKE 27204,0
150 POKE 27205,0
```

```
160 POKE 27206,0
170 CALL &A8C
```

ASTRO ATTACK

Here's a poke for Astro Attack from Mark Eaton, from Keysborough, VIC. It's his very first poke and we hope not the last. This one provides infinite lives, infinite time and invulnerability to ships. Just wind the tape to the beginning of the machine code section.

```
1 'Astro Attack - tape poke
2 'by Mark Eaton
3 'My FIRST poke!
4 '
100 MEMORY 19999:LOAD"!"
110 PRINT"INFINITE LIVES?"
120 INPUT A$
130 IF UPPER$(LEFT$(A$,1))="Y"
THEN POKE &86a6,0:GOTO 180
140 PRINT"NO. OF LIVES (1-255)?"
150 INPUT a
160 IF a<1 OR a>255 THEN 140
170 POKE &7a5d,a
180 PRINT"SHIPS DON'T KILL ON
CONTACT"
190 PRINT"DON'T DIE BYT EXPLOD-
ING RANGE"
200 INPUT B$
210 IF UPPER$(LEFT$(B$,1))="Y"
THEN POKE &85e8,0
220 PRINT"INFINITE TIME?"
230 INPUT C$
240 IF UPPER$(LEFT$(C$,1))="Y"
THEN POKE &64b3,0:POKE &83d9,0:
POKE &83da,0:POKE &83db,0:POKE
&83dc,0:POKE &83dd,0
250 CALL 35800
```

BLAGGER

Another busy poker is Daniel Vost of Riverstone, NSW who has sent two pokes for Blagger and Electric Freddy. Both, (we think) are tape pokes entered using method 1.

```
1 'Blagger - tape poke
2 'by Daniel Vost
3 'lots of lives (255??)
4 '
100 MEMORY &1700
110 LOAD"!BLAG2"
120 MODE 0
130 DATA 0,29,2,6,18,8,9,26,10,20,20,
15,0,0,26,0
140 FOR Z=0 TO 15:READ A:INK Z,A,
A:NEXT
150 ENT -3,10,1,5,1,-10,1
160 ENV 3,14,-1,20
170 ENT -1,100,1,2
180 ENV 1,15,-1,20
190 ENT -2,10,1,1,1,-15,1
200 ENV 2,100,0,1,14,-1,15
210 ENV 5,13,-1,5
220 ENV 6,15,-1,7
230 ENT -6,1,1,2,1,-1,2
240 POKE &9c02,0:POKE &9c03,0:
POKE &9c04,0:POKE &9c09,0
250 POKE 32517,50 'lives
260 CALL &7f56
```

ELECTRIC FREDDY

```
1 'Electric Freddy - tape poke
2 'by Daniel Vost
3 '255 lives (?)
4 '
100 MEMORY 10000
110 INK 0,0:BORDER 0:CLS
120 LOAD"!A1"
130 LOAD"!A2",20000
140 RESTORE 90:FOR N=10000 TO
10014:READ T:POKE N,T:NEXT
150 CALL 10000
160 POKE 39355,255
170 CALL 39323
180 DATA 33,&20,&4E,17,&0D,&A3,1,
&FF,7,&ED
190 DATA &B0,&C9
200 DATA 0,0,0,0,0
```

CYBERNOID & CYBERNOID II

Last but not least is a pair of tips (well, they're not pokes at all, really) for Cybernoid and Cybernoid II. They were sent in by Dion Lucke but credit should also go to Grahame Welsh who sent in the tip for Cybenoid I. No doubt you would have figured out Cybernoid II if you had it, Grahame!

The tip is simple: load the games as normal but select the key redefinition options from the main menus (on both games). For Cybernoid type "Y X E S" in that order and for Cybernoid II type "O R G Y", also in that order. These provide infinite lives on both games, proving you don't always have to know machine code to cheat!

POKE METHODS FOR TAPE

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

Method 1

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

Method 2

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

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

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

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

SCHOOL'S IN WITH FUN SCHOOL 2!

Database software have delivered their 'pièce de résistance' of CPC educational software with the release of the Fun School 2 series, and the gloss and quality go beyond just the packaging.

With the release of their Fun School 2 series of educational packages, Database Software have proved themselves a force to be reckoned with. They have improved considerably on their previous efforts and the evidence is seen in the eyes of the youngsters sitting glued to their CPCs, attentively working through the exercises. Fun School 2 is a series of software packages really worth looking at. Let's do just that.

NO COMPROMISE ON PACKAGING

The quality of this software is evident even before the shrink-wrap is taken off the boxes. Time has been taken to create packaging that is colourful and inviting to the child. The boxes stand out on the retailers' shelf, which is already a good sign. A great idea was the inclusion of a badge with each pack. Children love badges and where there is more than one child in the house, the fight is going to be over who gets it.

The three packs provide an educational tool for children up to about the age of twelve (as we indicated in our last review, precise pidgeon-holeing is not possible). The first for the under-6s, the second for 6-8s and the third for over-8s. This is certainly the best pitching of age levels for these three packages but certain children will prove exceptions to the rule, so parents and teachers need to know where the child is presently at, and take things from there.

To the credit of the software designers, they have maintained wherever possible a standard throughout the three packages. As a consequence, the child need initially only learn the position of the space bar, arrow keys, numbers (on either the numeric keypad or the top row) and <return>. Some of the separate programs within the packages (or suites, as they are called) are also based on similar formats. This saves the programmers a bit of work but also saves the child learning everything anew when he/she moves on to the next suite.

FUN SCHOOL 2, UNDER 6s

Suite one for the under-6s is divided up into 8 programs or exercises. Contrary to some other packages, all instructions and information to the adult are in a manual off-screen, thus not discouraging or confusing the child. The booklet provided is short and to the point, providing the adult with an explanation of what each program involves, what difficulty levels can be set for each one and what helpful hints there may be. Realising that this package is not a 'stand-alone' affair, the designers have offered ways of adding or integrating other exercises into the lesson. Naming colours as they appear on the screen, voicing the phonetic sounds of letters as they are typed or customising the selection of words used in the spelling exercise all increase the effectiveness and scope of the programs. These tips also encourage more interaction between the child and the adult, which if practicable (perhaps not in a classroom environment) is a good thing.

Each program features 'Teddy', the yellow teddy bear who becomes the child's 'friend' as the child progresses through the programs. Children like him and know they're doing well when be waves his arms around.

Another point teachers will appreciate: all on-screen text is written in lower case. Since children learn lower case letters first, it would have been wrong to include upper case type on the screen, but it is surprising how some software designers ignore the research aspect of programming which would have revealed this.

The eight exercises feature number counting, colour and shape recognition, letter recognition, simple word spelling, logic development, coordination and a program to allow the child to write a simple letter. Here the on-screen colours can be changed from one character to the next and upper case characters are allowed. For posterity and the sense of achievement it gives, the letter can be dumped to a printer, to be given/sent to someone.

FUN SCHOOL 2, 6-8 YEAR OLDS

Evidently, this suite becomes a little more involved, requiring of the child an understanding of simple addition and subtraction as well as the ability to spell larger words and grasp more complicated logic exercises.

The 'friend' this time is a bouncing frog who waves his 'arms' in the same way as the bear did, every time a task is performed correctly. There are again eight programs to work through, most with an option for the adult to alter the difficulty levels according to the child's progress.

The programs include a maths maze where the frog works his way through the maze, answering a mathematical question every time he confronts a robot guard, a shopping game where the child has

to guide the frog into the correct shop according to what is being bought, a treasure hunt where by quoting a pair of coordinates, the child looks for a treasure on an island (the computer responds with a warmer/colder/hot-type response until the treasure is found), a packing exercise where shapes have to be arranges to fit in a box, and more. All said, there is a lot to do on this disc and the child can spend a lot of time on each of the eight programs without getting bored. Multiplication tables, perhaps THE dread of children and adults alike, are nicely brought to life in a game where the child has to get frog from one side of a river to the other, by stepping only on lilies containing a multiple of the selected number. The emphasis is placed on developing an understanding of multiples and the motivation is no longer to memorise tables, but to get frog across the river.

As in suite one, there is the opportunity in one of the programs, to enter a customised vocabulary for use in testing the child's spelling. So yes, there is now a quick way of teaching the spelling of the names of all the relatives and the words in the school spelling book!

FUN SCHOOL 2, OVER 8s

This program is again far more complicated than the last two and is in fact taxing at times, even on the adult mind! Consisting again of eight modules, Fun School 2 for over 8s also borrows in part from the previous suite, giving children a bit of a head start in understanding the system, if they've used previous suites - a good feature, of course.

Someone was thinking when they realised that children over the age of eight would probably do a good job of reading the manual, and so a separate solution and hint sheet has been provided for the parent/teacher. This means that the child can also have the challenge of reading the manual and the instructions in it. Adult support might be needed here.

The programs in this suite are all linked together, in that on successful completion of each of the first seven, the child is presented with a keyword that will need to be written down.

The eighth program is a maze of rooms and doors where these seven keywords need to be entered to progress further. So program eight is in a sense the culmination of all the child's work.

The skills tested in this suite are the same as in the previous two and include: reflexes, logic, arithmetic, spelling, layout and so on. Also included here is a program called Souvenirs which has the child travelling through Europe, starting in the U.K., spending money on souvenirs from the various countries. All purchases are in Pounds Sterling (this IS an English Software House) and the child needs to calculate simple ratios and percentages to determine what can be bought with the money in hand.

All up, this is a package which will be useful even to children considerably older than eight years old; adults can even feel challenged on a few of the programs!

TO PARENTS AND TEACHERS

Fun School 2, if used correctly can be a great help and an effective teaching tool. The personal computer will never replace the teacher or parent, though. And so these software packages must be seen in their rightful place, next to library books, paint easles, building blocks, leggo, textas, television programs or whatever other teaching tools are being used. The adult needs to be present to help the child along (certainly in the first two suites), altering the difficulty levels where needed, lending support and encouragement to the child and answering questions.

As a teaching tool, the Fun School 2 software is impressive and highly reccommended. Full of colour, easy for children to grasp, appropriate to their needs and right-on for content, this software is sure to prove an asset to the parent/educator. All of this praise beckons the question: can we please see lots more, Database?! For now a pat on the back.

The Fun School 2 series is distributed by Pactronics and is available from various software dealers throughout Australia, by mail order from The Amstrad User or (in Melbourne) from The Amstrad User Computer Shop. CPC Disc - $34.95, CPC Tape - $24.95

COBWEB OF INTRIGUE

Arachnophobiacs, grap your vacuum cleaner and Mortein because 'Spiders' is here & these starved fiends haven't seen Homo Sapiens in weeks.

There are a lot of CPC type-ins around and one could be excused at times for getting a bit bored with the mindless creations one occasionally comes across. What a thrill therefore to experience 'Spiders'. This game is full of fast and furious action as you, the bounty hunter go in search of treasure, scattered across the many levels of each screen. You move from level to level using the fastest elevators you've ever seen. If you don't get off in time you're squashed painfully onto the ceiling, and if you make it safely around with the elevators, there's always a spider nearby!

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10 REM          House of Spiders
20 REM             By J.Pugh
30 REM     The Amstrad User, July '89
40 REM
50 ENT 2,5,1,1,1,0,10,5,-1,3:ENV 2,1,0,5,1,0,5
60 DEFINT a-z
70 DIM gr(18,18)
80 MODE 1:CLS:PRINT"Please wait while initialising.."
90 GOSUB 1240:ERASE gr
100 SYMBOL 253,0,96,64,110,42,110,8,10
110 SYMBOL 254,2,2,18,43,56,40,0,224
120 SYMBOL 255,64,64,72,8,8,8,0,8
130 MEMORY 19999:GOSUB 1720:RESTORE 140:FOR t=0 TO 13:R
EAD a:INK t,a:NEXT
140 DATA 0,26,1,2,3,11,14,13,20,18,9,16,8,24
150 INK 14,2,11:INK 15,6
160 RESTORE 160:FOR t=1 TO 4:READ ani(t):NEXT:DATA 1,2,
3,2
170 FOR t=1 TO 6:READ mem(t):NEXT:DATA 31348,31672,3199
6,32320,31024,30700
180 MODE 0:PAPER 0:CALL 29631:FOR t=1 TO 10:hi(t)=0:hi$
(t)="Amstrad":NEXT
190 BORDER 0:GOTO 1140
200 REM New Game
210 CLS:sc=0:li=3:le=1:scrn=1
220 REM Set Up Screen
230 WINDOW #1,2,19,2,19:CLS #1
240 FOR t=0 TO 19:CALL 29900,t,0,7:CALL 29900,0,t,7:CAL
L 29900,19,t,7:CALL 29900,t,19,7:NEXT
250 loc=mem(scrn):FOR y=1 TO 18:FOR x=1 TO 18
260 CALL 29900,x,y,PEEK(loc):loc=loc+1:NEXT:NEXT
270 jc=0:px=72:py=32:pd=12:pa=1:bx=18:by=16:fall=0
280 CALL 29800,px,py,pd:CALL 29800,px,py+2,pd+ani(pa)
290 PEN 5:LOCATE 1,21:PRINT"Score:";sc:PEN 12:PRINT"Liv
es:";li
300 PEN 9:PRINT"Level:";le
310 REM Main Game Loop
320 IF fall>5 THEN 890
330 IF jc=10 THEN 970
340 CALL 29600,bx,by:q=PEEK(29699):CALL 29600,bx,by+1:w
=PEEK(29699)
350 IF q=0 AND w=0 THEN 360:ELSE IF q<8 OR q>15 OR w<8
OR w>15 THEN 850
360 IF INKEY(71)=0 OR INKEY(74)=0 THEN 440
370 IF INKEY(62)=0 OR INKEY(75)=0 THEN 490
380 IF INKEY(27)=0 THEN GOSUB 820
390 CALL 29600,bx,by+2:q=PEEK(29699):IF q=7 THEN 430
400 IF q=16 THEN mv=3:GOTO 540
410 IF q=17 THEN CALL 29600,bx,by+3:w=PEEK(29699):IF w=
0 THEN mv=4:fall=0:GOTO 540:ELSE mv=3:fall=0:GOTO 540
420 IF q=0 THEN mv=4:GOTO 540
430 mv=0:fall=0:FOR t=1 TO 70:NEXT:GOTO 540
440 CALL 29600,bx-1,by:q=PEEK(29699):CALL 29600,bx-1,by
+1:w=PEEK(29699)
450 IF w=18 THEN PRINT CHR$(7):GOSUB 700:CALL 29900,bx-
1,by+1,0:GOTO 480
460 IF q<>0 OR w<>0 THEN 390
470 CALL 29600,bx,by+2:IF PEEK(29699)=0 THEN 390
480 mv=1:fall=0:pd=12:GOTO 540
490 CALL 29600,bx+1,by:q=PEEK(29699):CALL 29600,bx+1,by
+1:w=PEEK(29699)
500 IF w=18 THEN PRINT CHR$(7):GOSUB 700:CALL 29900,bx+
1,by+1,0:GOTO 530
510 IF q<>0 OR w<>0 THEN 390
520 CALL 29600,bx,by+2:IF PEEK(29699)=0 THEN 390
530 mv=2:fall=0:pd=8:GOTO 540
540 IF mv<3 THEN 560
550 FOR t=1 TO 50:NEXT:CALL 29500:CALL 29700
560 IF mv=0 THEN 690
570 ON mv GOTO 580,610,640,660,690
580 pa=pa+1:IF pa=5 THEN pa=1
590 CALL 29800,px-4,py,pd:CALL 29800,px-4,py+2,pd+ani(p
a)
600 CALL 29800,px,py,0:CALL 29800,px,py+2,0:px=px-4:bx=
bx-1:mv=0:GOTO 390
610 pa=pa+1:IF pa=5 THEN pa=1
620 CALL 29800,px+4,py,pd:CALL 29800,px+4,py+2,pd+ani(p
a)
630 CALL 29800,px,py,0:CALL 29800,px,py+2,0:px=px+4:bx=
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bx+1:mv=0:GOTO 390
640 CALL 29600,bx,by-1:q=PEEK(29699):IF q<>0 THEN 850
650 CALL 29800,px,py-2,pd:CALL 29800,px,py,pd+ani(pa):p
y=py-2:by=by-1:GOTO 690
660 CALL 29600,bx,by+2:q=PEEK(29699):IF q=16 THEN 310
670 fall=fall+1:py=py+2:CALL 29800,px,py+2,pd+ani(pa):b
y=by+1
680 CALL 29800,px,py,pd:CALL 29800,px,py-2,0:GOTO 690
690 IF mv>2 THEN 310:ELSE CALL 29500:CALL 29700:GOTO 31
0
700 REM Pick Up Gem
710 jc=jc+1:sc=sc+10:PEN 5:LOCATE 7,21:PRINT sc;:RETURN
720 REM Play Tune
730 READ tn:IF tn=255 THEN RETURN
740 READ lg:SOUND 7,tn,-lg,15,2,2:GOTO 730
750 REM Complete Screen Tune
760 DATA 358,2,268,2,268,4,358,2,213,2,213,4,179,2,213,
2,179,2,213,2,268,2
770 DATA 268,2,268,2,268,5,255
780 REM Lose Life Tune
790 DATA 319,4,319,2,213,5,213,2,284,4,268,3,284,4,319,
7,255
800 REM Death March
810 DATA 716,3,716,2,716,2,716,4,602,4,638,2,638,4,716,
2,716,4,804,4,716,7,255
820 PEN 3:LOCATE 1,24:PRINT"Paused...Press Space";
830 WHILE INKEY$<>" ":WEND:LOCATE 1,24:PRINT SPACE$(20)
;
840 RETURN
850 REM Lose Life
860 li=li-1:IF li=0 THEN 1010
870 RESTORE 790:GOSUB 720
880 FOR t=1 TO 2000:NEXT:GOTO 220
890 REM Fall Too Far
900 CALL 29600,bx,by+2:IF PEEK(29699)<>0 THEN 940
910 FOR t=1 TO 70:NEXT:CALL 29500:CALL 29700
920 CALL 29800,px,py,0:py=py+2:by=by+1:CALL 29800,px,py
,pd:CALL 29800,px,py+2,pd+ani(pa)
930 GOTO 900
940 PEN 15:LOCATE bx+1,by:PRINT CHR$(253):LOCATE bx+1,b
y+1:PRINT CHR$(254)
950 LOCATE bx+1,by+2:PRINT CHR$(255)
960 GOTO 850
970 REM Complete Screen
980 sc=sc+100*le:le=le+1:scrn=scrn+1:IF scrn=7 THEN scr
n=1
990 RESTORE 760:GOSUB 720
1000 FOR t=1 TO 2000:NEXT:GOTO 220
1010 PEN 13:LOCATE 6,11:PRINT"GAME  OVER":RESTORE 810:G
OSUB 720:FOR t=1 TO 2000:NEXT
1020 IF sc<=hi(10) THEN 1140
1030 p=7:FOR t=7 TO 1 STEP -1
1040 IF sc>hi(t) THEN p=t
1050 NEXT
1060 CLS:PEN 3:PRINT"  Congratulations!":PEN 9:PRINT
1070 PRINT"      That's a":PEN 12:PRINT:PRINT"    HIGH
 SCORE!"
1080 PEN 3:PRINT:PRINT:PRINT"  Enter Your Name.":WHILE
INKEY$<>"":WEND
1090 PRINT:INPUT a$:IF LEN(a$)>10 THEN PRINT"Up to 10 c
hars.":FOR t=1 TO 1000:NEXT:GOTO 1090
1100 FOR z=7 TO p STEP -1
1110 hi(z)=hi(z-1):hi$(z)=hi$(z-1)
1120 NEXT
1130 hi$(p)=a$:hi(p)=sc
1140 CALL 29631:FOR t=0 TO 19
1150 CALL 29900,0,t,7:CALL 29900,t,0,7:CALL 29900,t,19,
7:CALL 29900,19,t,7:NEXT
1160 CALL 29900,1,1,3:CALL 29900,17,1,3
1170 PEN 3:LOCATE 5,2:PRINT"HALL OF FAME"
1180 FOR t=1 TO 7:LOCATE 3,t*2+3:PEN t:PRINT hi(t):LOCA
TE 8,t*2+3
1190 d$=hi$(t):IF LEN(d$)<10 THEN FOR y=1 TO (10-LEN(d$
)):d$=" "+d$:NEXT
1200 PRINT d$:NEXT
1210 LOCATE 2,21:PEN 14:PRINT"Press Space For Game":EVE
RY 8,0 GOSUB 1230
1220 WHILE INKEY$<>" ":WEND:z=REMAIN(0):GOTO 200
1230 CALL 29500:CALL 29700:RETURN
1240 REM Read Screen Data
1250 RESTORE 1420
1260 loc=30700:scr=1
1270 FOR x=1 TO 18:FOR y=1 TO 18:gr(x,y)=0:NEXT:NEXT
1280 READ a,x,y:IF a=255 THEN 1380
1290 ON a GOSUB 1310,1320,1330,1340,1350,1360,1370
1300 GOTO 1280
1310 gr(x,y)=5:gr(x+1,y)=6:RETURN
1320 gr(x,y)=3:gr(x+1,y)=4:RETURN
1330 gr(x,y)=17:RETURN
1340 gr(x,y)=16:RETURN
1350 gr(x,y)=18:RETURN
1360 READ j:FOR t=1 TO j:gr(x,y)=1:gr(x+1,y)=2:y=y+1:NE
XT:RETURN
1370 READ j:FOR t=1 TO j:gr(x,y)=7:x=x+1:NEXT:RETURN
1380 FOR y=1 TO 18:FOR x=1 TO 18:POKE loc,gr(x,y):loc=l
oc+1:NEXT:NEXT
1390 scr=scr+1:IF scr=7 THEN RETURN
1400 GOTO 1270
1410 REM Screen Data
1420 DATA 6,2,1,1,6,9,1,1,6,11,1,2,6,16,1,3,1,2,2,1,9,2
,2,11,3,2,16,4
1430 DATA 5,1,4,5,9,4,5,18,4,7,1,5,4,3,5,5,7,8,5,6,7,15
,5,4,5,2,10
1440 DATA 6,2,6,1,6,10,6,2,6,12,6,3,4,7,7,5,16,8,5,17,8
,1,2,7,1,10,8,1,12,9
1450 DATA 7,15,9,4,4,6,10,4,1,11,7,2,11,4,6,2,12,2,5,9,
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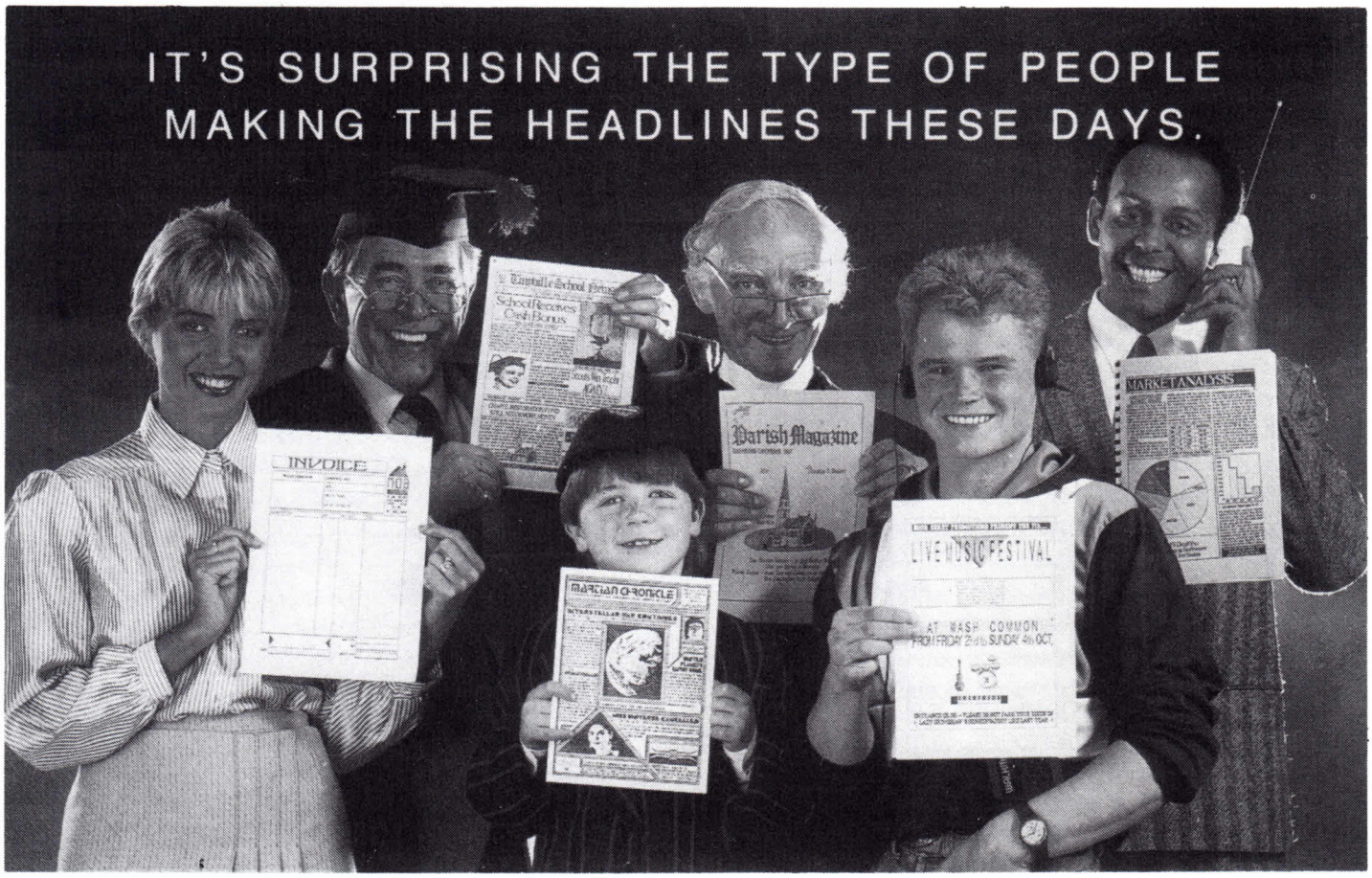
12
1460 DATA 5,10,12,7,8,13,6,3,14,11,1,2,14,6,9,14,2,2,9,
16,5,2,17,5,11,17
1470 DATA 7,2,18,4,7,8,18,6,7,15,18,4,255,0,0
1480 DATA 6,12,1,3,5,17,2,5,4,3,1,12,4,7,15,3,4,7,3,4,3
,6,16,4,4,5,8,6
1490 DATA 6,3,5,4,4,6,7,3,7,7,7,8,7,2,1,16,8,1,3,9,5,12
,9,5,3,10,4,10,10
1500 DATA 7,11,10,3,5,18,10,7,2,11,4,6,11,11,2,7,15,11,
4,6,3,12,2,5,8,12
1510 DATA 4,1,13,7,8,13,2,2,11,13,2,3,14,5,3,17,5,8,17,
5,11,17,7,3,18,4,7,8,18,2
1520 DATA 7,11,18,3,4,14,18,7,15,18,4,255,0,0
1530 DATA 6,16,1,1,1,16,2,5,18,4,5,6,5,7,15,5,4,4,5,6,7
,6,6,2,6,16,6,2,2,16,8
1540 DATA 5,9,9,3,8,10,7,9,10,2,5,16,10,5,18,10,7,15,11
,4,5,6,13,5,12,13,7,6,14
1550 DATA 2,4,11,14,7,12,14,2,5,3,17,5,6,17,5,12,17,3,1
4,14,4,1,18,4,2,18
1560 DATA 7,3,18,2,7,6,18,2,7,9,18,2,7,12,18,2,7,15,18,
4,255,0,0
1570 DATA 5,5,2,7,3,3,3,5,11,3,7,10,4,4,5,4,6,5,5,6,7,3
,7,4,5,12,7,7,10,8,6
1580 DATA 6,4,8,3,6,11,9,1,1,4,11,2,12,13,4,1,12,4,2,12
,4,7,12,5,11,12,5,4,13
1590 DATA 7,10,13,4,5,18,13,7,3,14,4,7,16,14,3,6,11,14,
2,1,11,16,5,4,17,5,11,17
1600 DATA 7,3,18,4,4,8,18,4,9,18,7,10,18,4,4,14,18,4,15
,18,7,16,18,3,1,11,10,255,0,0
1610 DATA 6,1,1,1,6,7,1,1,6,11,1,2,6,17,1,1,1,1,2,2,7,2
,1,11,3,2,17,2,5,1,4
1620 DATA 5,9,4,5,10,4,5,17,4,7,1,5,3,7,5,5,10,7,16,5,3
,5,8,9,5,11,9,4,4,10,4
1630 DATA 15,10,7,7,10,2,7,11,10,2,3,9,12,3,10,12,5,3,1
3,5,8,13,5,11,13,5,16,13
1640 DATA 7,2,14,2,7,8,14,1,7,11,14,1,7,16,14,2,7,1,18,
4,7,7,18,6,7,15,18,4
1650 DATA 4,5,18,4,6,18,4,13,18,4,14,18,255,0,0
1660 DATA 5,16,2,5,3,3,7,15,3,2,7,3,4,2,5,10,4,4,12,4,6
,3,5,2,7,10,5,2,6,10,6,4
1670 DATA 1,3,7,7,5,5,2,5,16,7,6,5,6,3,7,15,8,2,2,5,9,4
,13,9,4,14,9,7,3,10,2
1680 DATA 1,10,10,5,18,10,5,10,11,5,5,12,7,9,12,4,7,5,1
3,2,4,7,13,4,8,13,7,17,11
1690 DATA 2,6,10,13,3,5,3,14,6,5,14,1,7,16,14,1,7,3,15,
2,2,5,15,1,10,16,5,5,17
1700 DATA 4,1,18,4,2,18,7,3,18,4,7,9,18,4,7,15,18,4,5,1
0,17,255,0,0
1710 REM Machine Code/Sprite data
1720 RESTORE 1720:ln=1810
1730 FOR adr=&72D8 TO &7790 STEP 13
1740 READ byte$:chk=0
1750 FOR i=0 TO 12
1760 v=VAL("&"+MID$(byte$,i*2+1,2))
1770 POKE adr+i,v:chk=chk+v
1780 NEXT
1790 IF chk<>VAL("&"+RIGHT$(byte$,3)) THEN PRINT"ERROR
in LINE";ln:STOP
1800 ln=ln+10:NEXT:FOR c=28900 TO 28999:POKE c,PEEK(c+5
00):NEXT:RETURN
1810 DATA C5E52C3E11CDD574E1C1C34B7375E
1820 DATA C5E53E01CDD574E1C1C5E53E0278B
1830 DATA 24CDD574E1C1C5E52CCDA673E1879
1840 DATA C1FE0028163E03C5E5CDD574E16DF
1850 DATA C1C5E5243E04CDD574E1C1C34B797
1860 DATA 73C5E52C3E05CDD574E1C1C5E57EE
1870 DATA 2C243E06CDD574E1C1C34B73005CD
1880 DATA 00000000000000000002118130104D
1890 DATA 3B730AFE05283CFE1128140B2539A
1900 DATA 3EFFBC2803C3427326132D3EFF53F
1910 DATA BDC8C34273C5E53E00CDD574E17DC
1920 DATA C1C5E52CCDA673E1C1FE00280C751
1930 DATA 3E10C5E5CDD574E1C1C34B73C37F4
1940 DATA E470C3F17000000000000003E043BA
1950 DATA CDD574E1C1C313743E00CDD574756
1960 DATA C3F9740000DD6602DD6E00E5265CB
1970 DATA 002929E5D1292919014871O9E541B
1980 DATA D1E16C260000C3FA73C921000055E
1990 DATA 3E00E5CDD574E1243E14BC2803577
2000 DATA C3C2732C3E19BDC82600C3C27361E
2010 DATA DD6604DD6E02DD7E00F5E53E2B632
2020 DATA CDD574E1F1F53E2C24E5C31B747A2
2030 DATA 00220174197E320374C9000A002AA
2040 DATA 00210000014871OAFE032846FE352
2050 DATA 10281403243E14BC2803C30A742ED
2060 DATA 26002C3E19BDC8C30A74C5E53E557
2070 DATA 00CDD574E1C1C5E52DCDA673E1856
2080 DATA C1FE00280C3E11C5E5CDD574E16E3
2090 DATA C1C31374E5C52D3E10CDD574C1707
2100 DATA E1C313743E00C5E5CDD574E1C17CB
2110 DATA C5E524C39673C3F97401DD6604712
2120 DATA DD6E02DD7E00E56F2600292929449D
2130 DATA 2929232B01307509E5D1E1D5164D1
2140 DATA 007DCB3F300216206F7C2600D53D5
2150 DATA 29292929E5D1292919D15F19D14DF
2160 DATA 06C00E00090100001AFE00280021E
2170 DATA 77043E04B8201406000C3E08B92BA
2180 DATA C8C501FD07093004O150C009C14AA
2190 DATA 2B2313C3A574DD6604DD6E02DD5AE
2200 DATA 7E00F5E5E526002929444D2929498
2210 DATA 09E5C1E16C2600091148711977485
2220 DATA E17C8787677D876FF1C37174E17BF
2230 DATA C1C5E52DCDA673E1C1FE01281775E
2240 DATA 3E05C5E5CDD574E1C1C5E5243E7B1
2250 DATA 06CDD574E1C100C31374C5E52D6DF
2260 DATA 3E03CDD574E1C1C5E52D24C38C743
```

```
2270 DATA 730000000000000000000000000073
2280 DATA 000000000000000000000000000000
2290 DATA 000000000000000000000000000000
2300 DATA 000000000000000000000000000000
2310 DATA 000000000000000000000000000000
2320 DATA 000A0000000A0000000A0000001E
2330 DATA 0A0000000A0000000A0000000A028
2340 DATA 0000000A0000000000000C300000CD
2350 DATA C3870041820500874A050505052F7
2360 DATA 0F0A05000A0A0A05000A0A050005A
2370 DATA 0F0000000F0F00000A050A000A050
2380 DATA 850F000F0A0A0A05000A05000A0DF
2390 DATA 0505000A0505000000C30000C31A4
2400 DATA 870041C20500870A050505050F243
2410 DATA 0A05000A0A0A05000A0A05000F05A
2420 DATA 0000000F0F00000A850A000A050C6
2430 DATA 0F000F0A0A0A05000A05000A0505F
2440 DATA 05000A0505B830B830B830B8303B9
2450 DATA B830B830FCFCFCFC30B830B8307C0
2460 DATA B830B830B830B8FCFCFCFC0000760
2470 DATA 00000000F00000F0F00050CCF04DC
2480 DATA 00E4E4E5BAE4D88A45E4F08AC58E5
2490 DATA F0E5CFCF44CDCF8A44CCCC00CC885
2500 DATA 4CCC88CC4CCC88CC8CCC03CC8C78B
2510 DATA 8902010201000003000044CDCF272
2520 DATA 8A44CCCC8804CCCC8804CCCC006AE
2530 DATA 004CCC00008C8800018C880000341
2540 DATA 03030044CDCF8A44CCCC0044CC55C
2550 DATA 8C0044CC8C88CCCC4C88CC88CC73C
2560 DATA 884688448801030103000000022A
2570 DATA 00F0000000F0F00000F0CCA045571
2580 DATA DAD8D88A45E4D8CA45F0D8CFCF98A
2590 DATA DAF045CFCE8800CCCC8844CC8C7F0
2600 DATA CC44CC8CCC03CC4CCC01464CCC67A
2610 DATA 0002010200000030045CFCE88442B6
2620 DATA CCCC8844CCCC0800CCCC0800CC670
2630 DATA 8C0000444C0000444C020003031B4
2640 DATA 0045CFCE8800CCCC88004CCC8862A
2650 DATA 444CCC88448CCCCC44CC44CC446B0
2660 DATA 88448903020302FCFCFCFCC0C06CF
2670 DATA C0909030303030E8303074549030540
2680 DATA A800B8740000054A800000000002D0
2690 DATA FCFCFCFCC0C0C09090303030E88C8
2700 DATA 303074549030A800B874000054410
2710 DATA A80000000000000102000042030F0
2720 DATA 0001810302030303030303030309F
2730 DATA 0103030200030300000102000012
```



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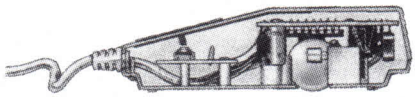

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DYNAMIC DATABASE

Joseph Elkhorne was quite impressed with the small database system on Public Domain disc #602/802. See what you think...

This one is a ripper! Easing into it, we find three .DOC files on Side A and a menu program which saves you a few keystrokes but is otherwise useless. It is almost as worthwhile as the CATALOG file on the same side.

The heart of the information is in DBQ.DOC, a 64K file which serves as the user manual. Ideally, you should dump it to hard copy straight away, unless you've a photographic memory. If that is the case, you probably don't need a database, anyway. After two extended sessions with this program, I would further advise you to use a word processor to edit out the command summary, and syntax and example for each command. Otherwise, you will do a lot of page flipping, as I did. (The file will squeeze into Tasword 6128 operation).

Printing out the manual could present a challenge. It depends on your equipment set-up. The hard copy dump could be done in CP/M. Be warned there are embedded control characters of some kind within the file. Eventually, you end up with a 40 page reference book.

Side B of the disc contains the actual working database program, DBQ.COM, and some sample files. Even without a copy of the manual to hand, the program can teach you something, for a demo facility has been included. There is also on-board help file capability. The first thing you will do is, of course, make a backup copy of the original disc (You always do, right?).

A hacker's approach - jumping straight in - will probably prove unfruitful, even if you are experienced with database operation. This PD program is surprisingly sophisticated, yet esoteric in many places.

I, therefore, again STRONGLY recommend going for hard copy. Whilst you are doing that, you can also print out the DEMO.CMD file. This is equivalent to batch file or submit file operation. My advice is the voice of experience. I didn't do it that way. After very few minutes in the program, I attempted to enable my printer and dump the demo file. 'Memory full' and 'syntax error' messages were the result.

Before we jump into the 'how to drive it' area, what would you use a database for? DBQ is a relational database structured query language. Wow! you say, what does it all mean? Relational is the ability to marry data from two or more files. For example, you might start off by cataloguing your video collection. The information you initially enter might be title and length. Later, you start another database on movies, with film-name and directory data.

With DBQ or other relational programs, it is possible to extract those entries from both files that have common data. Your video "Alien" of some two hours in length would match up with the movie entry "Alien" and present you with the director's credit, Ridley Scott. This ability to relate data to common points gives you great flexibility in manipulating it. There might be a thousand records in each file, and only three that relate to one another. The end result, when the right questions are asked, is a listing of the valid three.

Structured refers to the English-like commands for manipulating the data. Being a language, it has its own syntax, but gives you enormous flexibility in the area of asking questions regarding the database.

The other approach to database operations is menu-driven. This sort of program is far easier to use for a beginner; its limitation is often slower operation, and the fact that you are tied down to the programmer's approach.

Once in CP/M, you type DBQ [return] to get going. If a file DBQINIT.CMD is present on the disc, it will be invoked. This means you can customise the program to suit your needs. Looking at that by means of the TYPE command of CP/M, we see that every line begins with the # character. This is like a REM in BASIC or the ; in assembly files. What this particular example does is tell you that you can run the DEMO program or access the HELP files. Otherwise, it in itself is a do-nothing program. This feature gives you the ability to auto -start an application.

In starting out with DBQ, I created a database on the fly. CREATE VIDEO TITLE CHAR 30 LENGTH NUM 4 2 typed at the DBQ> command level prompt generated a new database. CREATE does what it says; VIDEO is the filename, which has a type of .DBQ. The remainder of the information describes the requirements for a single record.

A record is like a 5x3 catalog card in a library. The information on that card could be: Dewey decimal number, book title, and author. Each of these in computer terms is a field. "Long Day's Journey Into Night"

would just fit the title field size. Actually, when you enter data, the program does not care if you slop over - it simply ignores the excess. No exasperated BEEPs to admonish you.

DBQ is told that this is CHARacter data. The length, on the other hand, is NUMeric, with a field size of 4 which includes two decimal places. The maximum quantity it can hold is 9.99 - yes, the decimal place is one column in the field. Unlike some other database programs, DBQ does not hold files open in memory. This means more disc access in operation, but an almost zero chance of losing data through human error or power glitches.

At the DBQ> prompt, no data file is ever actually open. Only when accessing data (read/write) is the database vulnerable to the cat tripping over the power cord or other catastrophe. Therefore, when you CREATE a database, DBQ first writes a header to disc and returns to the command level.

To actually get information into that file you then just enter INSERT VIDEO. The fields are presented one at a time with the sizes marked by brackets. When you are finished with data entry, you hit [return] on an empty first field.

Now, to check your work you enter PRINT VIDEO. Instead of a listing on screen, you meet the most-common operational error in DBQ: an incomplete command. The secondary prompt of an indented > signifies this. Normally entering ; will complete the process. It is possible to enter another command, which will effectively delimit the first one and activate it.

The user manual explains each keyword in the command set with its syntax, details and an example (Curiously, they forgot DELETE). I would have preferred a practical example as used in the demo for the elucidation. A common example did hold through the documentation, however. One whinge about the manual: when "they" capitalise keywords for clarity, but then put one in quotes, would you not expect that to be the way it should be entered? Wrong. Perhaps they should read TAU - Mike Turner could set them straight about documentation!

At any rate, you're able to create a database, enter information, and inspect it. Now, there are all kinds of commands to manipulate it. Oh - you've misspelled an entry. You can UPDATE information. Oops! There's one that doesn't belong to the set - DELETE it. Editing options with DBQ are not as flexible as in dBase II, for example. No BROWSE or record pointer; on the other hand, if you must specify things, it is less difficult to get into strife. Actually, you can do a simulated BROWSE by doing UPDATE filename and using [return] to step through items you do not wish to change. This could take time with a large database.

Incidentally, with this program, the maximum database file size is 64K. This in itself need not be a limitation, for it is possible to JOIN databases. Other maximums are 10 decimal places; 12 bytes numeric field, including sign and point; limit for character fields is 128 bytes; up to 30 fields; field name length of 10 characters. (If you have a long field name but short field length, a PRINT truncates the label).

Obviously, you are not going to be able to run your multi-national empire with this program. If you're new to databasing, though, it will be some time before you outgrow it. The real power of DBQ lies in its programming language capability. One can use "procedures", which are sequences of commands you specify, which then execute by entering keyword. Also, variables can be used, as well as literals.

Let's look at the procedure for a procedure. We'll program the word "fox". You enter the phrase "define fox" and DBQ returns the prompt DEFINE> at which point you enter the phrase "enter name" [return]. A [return] on an empty DEFINE> prompt line terminates the procedure definition. Now, fox [return] will prompt you with the phrase, enter name. Perhaps you type in Glynis Barber. Then, to prove to yourself that something has happened, you use SHOW name.

Glynis Barber

is the result. If you summon fox again, the name variable contains whatever you enter. The contents of name can be used for comparison to records in the database; accessed by another procedure; and changed as required.

Relational operators include equal, greater than, less than, greater or equal, less or equal, not equal, and contains. The latter allows substring search capability. The } or right brace key is used. You might, for example, create a procedure that asks for a word and then searches the database for all occurrences of that word. Invoke the procedure again, enter a different word, and a new set of records is extracted.

Using the right brace of } symbol for comparison, a response to fox of "star" might yield star wars, a star is born, starry night, and the last starfighter. It would not, however recognise The Star Rover. Yes, DBQ is case sensitive. Further, the numeric handling is VERY literal. If you specify two decimal places, be consistent in your data entry or you will get surprises.

OILS AIN'T OILS

My VIDEO database for review purposes had eighteen entries, with lengths ranging from .45 to 1234. A sort on length of an entry subset yielded this:

1 - 5 - 2. - .45 - 1.1 - 2.2 - 777 - 1.51 - 1234 - 2.25 - 3.15

You perceive what I did wrong. What seems normal to the "fuzzy logic" of human beings is interpreted another way by the computer, a dumb but fast beast. This is what makes Artificial Intelligence so difficult - computers are literal, not lateral in their approach.

A further test on other data "proved" that .48 was less than 0.45. The program seems to handle

numerics like strings, passing them from the left. Condition yourself for fixed formal number entry.

FINDing records establishes a CURRENT.DBQ file. This file is not necessarily temporary. If you exit immediately after a FIND, it is there, in the directory. It can be manipulated like any other database file. If you TYPE a .DBQ file whilst you are in CP/M, it certainly looks memory efficient - one long string. Don't fool yourself; examine one with DUMP.COM. You will see nulls padding out the fields. Each record that is valid will start with 01; a deleted record starts with 02 and has 20hex at the end of the first field.

Back in DBQ, if you PRINT filename; you get the valid entries. The deleted ones are still part of the file. Prove this to yourself with the command EXPORT DELETED filename. It is possible to export deleted records into a .DAT file for protection purposes, also. EXPORT and IMPORT commands mean you can interchange data from other databases, word processor files, or BASIC. If you're sure you really want to get rid of the data, then you use the COMPRESS command. Now it's gone for good.

I've been working on this review for three days and have only scratched the surface. Let me conclude by saying that this database is very useful to an individual who does not want to mortgage the house to get a piece of software. With a few hours of trial-and-error, the user can learn to handle data quite well. Like any language, it will require study for fluency.

DBQ is versatile; it has its limitations, but can probably do almost any personal database job asked of it. I recommend it highly.

NASTY SURPRISE DEPARTMENT

A reader attempted the screen demo published previously, only to find it did not work. Before he went into complete panic mode, he took the problem to his user group.

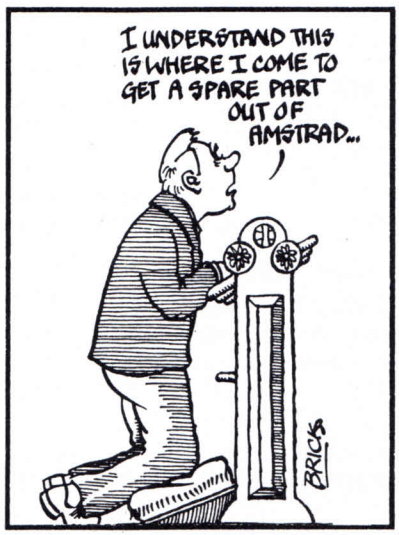
The difficulty apparently lay in one of the comment lines at the head of the listing - as he had entered it. I do not know what word processor program he had used, but it probably dropped in a control character, invisible on screen, that interfered with the assembly process.

On assembling his program example, an error was displayed for every line. Most unusual. The moral of the story is: don't panic; take things a step at a time. And, belonging to a user group is helpful!

Don't take things for granted, nor jump to conclusions. Magazines do make mistakes - but writers and editors try their very best to get it right the first time. When you make an environmental change, the unexpected is likely to happen. Just think about rabbits.

We know ED produces files that MAC can process. Yes, it is possible to get into strife even with ED, but more likely as a result of your own errors. What we do not know in the wonderful world of computers is the real compatibility factor.

If a total listing bombs, drop back to fundamentals. Prove to yourself that your word processor can produce valid output to be assembled, even if a test program consists of but a few comment lines. Then try a simple routine you know works. Most complex things are combinations of simple ones. Good bug hunting!



ITERATION & RECURSION

Adding gloss to our near-finished product, Paul Gerard explains the concept and use of repetition repetition repetition repetition repetition repeti...

By now you probably realise that what computers do best is to repeat the same action over and over again with infinite patience, great precision, and enormous speed. From the programmer's point of view the most common form this repetition takes is called iteration. You have used this technique every time you have ever employed a loop, either a FOR-NEXT, WHILE-WEND or even (naughty word) GOTO. An iterative loop simply performs the same operation repeatedly until an "exit condition" is met - as in this example, a "bubble sort" routine, where the iteration ceases when the array is in order. If you want to use this routine in a program of your own - it is designed to sort a one dimension numerical array called point(n) - as always, there is no need to add obviously redundant spaces unless you want to make the setting out clear. (Incidentally, I am assuming you have set up TRUE to be -1 and FALSE to 0 in your initialisation, as we have for "Structured data").

```
9565 swop.flag=TRUE:stretch=record-1
9570 WHILE swop.flag
9580   swop.flag=FALSE
9590   stretch=stretch-1
9600   FOR i=1 TO stretch
9610     IF point(i)>point(i+1)
                                    THEN swop=point(i):
point(i)=point(i+1):point(i+1)=swop
     :swop.flag=TRUE
9620   NEXT
9630 WEND
```

In the other kind of repetition the routine calls itself until the exit condition is met. This is called recursion. Actually there is no real reason for using true recursion in BASIC. One reason is that we soon run into "nesting "problems -

Although a BASIC subroutine CAN "call itself", BASIC has a limit to the number of subroutines that can be called by subroutines (this involves something called a "stack" which we needn't go into here). To demonstrate - try running this little program:

```
10 I=1:GOSUB 100
20 END
100PRINT I"times we've gone round now!!"
110I=I+1
120GOSUB 100
130RETURN
```

The "memory full" message you get after about 80 repetitions simply means that BASIC can't keep track of any more sub-routine calls - it would be virtually impossible to get this effect in any other way, although it is handy to know that the limit is there!

The other reason why recursion is not really an option in BASIC (except in BBC BASIC anyway) is that we have no facility for variables that are local to a particular routine. Almost all really useful recursive routines involve a value or values that are not disturbed by repeated callings of the routine (unlike "I" in the above little piece of nonsense) - and this we simply cannot do in a dialect of BASIC in which all variables are global, that is common to the whole program.

Now because of this most books on BASIC either avoid the whole question of recursion altogether, or just mention that BASIC, unfortunately, does not allow recursion. This is not strictly true! In fact the sort routine that follows simulates recursion rather cleverly by creating its own set of "local variables". These reside in the two arrays local1(n) and local 2(n), which we ERASE when we are finished with them. We use iterative loops simply because there is simply nothing to be gained by making them truly recursive, and to avoid nesting problems - but the end result is an effective implementation of a QUICKSORT, an essentially recursive routine. Again, this routine sorts a simple numerical array and you may well like to adapt it to your own programs. It is just possible that you will run out of "local variables" if you are sorting a really massive array - this could be cured by increasing the size of local1(n) and local2(n). You will notice the odd GOTO - note that these are used (as sanctioned in an earlier article in this series) to form a simple loop that could not be so neatly expressed in terms of FOR-NEXT or WHILE-WEND.

```
9570 DIM local1(16),local2(16)
9580 recur=0:top=1:bottom=record-1
9590 WHILE top<bottom
9600   pivot=point((top+bottom)/2):subtop=top:subbot=bo
ttom
9610   WHILE point(subtop)<pivot:subtop=subtop+1:WEND
9620   WHILE point(subbot)>pivot:subbot=subbot-1:WEND
9630   IF subtop<subbot THEN t=point(subtop):point(subt
op)=point(subbot):point(subbot)=t :subtop=subtop+1:subb
ot=subbot-1:GOTO 9610
```

```
9640   IF subtop=subbot THEN lobot=subbot-1:hitop=subto
p+1 ELSE lobot=subbot:hitop=subtop
9650   recur=recur+1:lotop=top:hibot=bottom
9660   IF (lobot-lotop)<(hibot-hitop) THEN local1(recur
)=hitop:local2(recur)=hibot:top=lotop:bottom=lobot ELSE
 local1(recur)=lotop:local2(recur)=lobot:top=hitop:bott
om=hibot
9670 WEND
9680 IF recur>0 THEN top=local1(recur):bottom=local2(re
cur):recur=recur-1:GOTO 9590
9690 ERASE local1,local2
```

Incidentally this routine is based on one from the Stephenson & Stephenson book Filing System and Databases for the Amstrad CPC464 - as I have already mentioned, an excellent investment if you are lucky enough to find a copy - the chapter on sorting, for example, includes several types of sort we don't have room for here - it is also a very good general introduction to the topics of databases and structured programming, even though the authors have a rather different approach in some ways to these things than me (hemmed he, infallibly).

Now the trick is to add either the bubble sort or the quicksort to "Structured Data". This is simpler than you might think, because we are NOT going to try to sort the string data itself. I never bother sorting strings, the process is slow, excessively expensive of memory, very liable to induce ye olde garbage collectione, and in any case quite unnecessary. What we want to sort are integers (see my article a few months back on variable types for the reason for this). How do we manage it, when the intention is that we will be able to list our data (in the form of strings) in sorted order? The trick is to use an array of pointers. A pointer is simply a variable that enables us to locate another variable. Pointers often refer to the location of a variable in memory (if you have a CPC464 and have to type in "/ERA,@a$" you will realise that Locomotive BASIC uses the "@" sign for this kind of pointer). The kind of pointer we are going to use is an array of integer variables that "point" to the location of a variable within an array. The only special string value we will need (and then only for the quicksort) is Pivot$,more about this one when we have a closer look at the quicksort itself) which we will change using MID$, thus avoiding the chance of a cumbersome "garbage collection" - apart from this the string data will remain intact in memory.

Pivot$ and point (n) need to be "declared" in our initialisation routine :

```
13075  pivot$=SPACE$(254) '  only necessary for quicksort
13400  '  Dummy dimensioning of data and pointer arrays
13410  DIM file.data$(1,1),point (1)
```

Point(n) is actually properly initialised when the data array is dimensioned - either in the "load file" routine, or when a new file is started:

```
4222   ERASE file.data$,point
4224   DIM file.data$(fields-1,records),point(records)
4225   FOR i=0 TO records
4226          point(i)=i
4228   NEXT

3330 ERASE file.data$,point
3340 records=INT(FRE("")/20)\fields
3350 DIM file.data$(fields,records),point(records)
3355 FOR i=0 to records
3357   point(i)=i
3358 NEXT
```

At this stage, you will notice, point(1) has the value 1, point(2) has the value 2 and so on. Thus a listing of our data in the form -

```
FOR i=1 to records:PRINT file.data$(1,point(i)):NEXT
```

will have the same effect as -

```
FOR i=1 to records:PRINT file.data$(1,i):NEXT
```

If on the other hand we "sort" the integer array point(n) on the relative values of the string array we can produce a listing of the string array in sorted order. The following lines will put the "bubble-sort" routine into Structured Data.

```
9500 ' sort file
9510 record=0:WHILE file.data$(0,point(record))<>"":rec
ord=record+1:WEND
9520 IF record<3 THEN CLS:LOCATE 5,10:PRINT"NOTHING WOR
TH SORTING HERE !"            :t!=500:GOSUB 700:RETURN
9530 CLS:head=15:GOSUB 100 ' heading
9540 LOCATE 2,10:PRINT"Which field to sort on >
    ";
9550 LOCATE 29,10:GOSUB 8500
9560 IF check=0 THEN RETURN
                                ELSE LOCATE 1,10:PRINT TA
B(MAX(1,((18-LEN(file.data$(check-1,0)))\2)));
"Sorting file on field ";file.data$(check-1,0);"    "
9565 swop.flag=TRUE:check=check-1:stretch=record-1
9570 WHILE swop.flag
9580   swop.flag=FALSE
9590   stretch=stretch-1
9600   FOR i=1 TO stretch
9610     IF file.data$(check,point(i))>file.data$(check
,point(i+1))                    THEN swop=point(i):po
int(i)=point(i+1):point(i+1)=swop:swop.flag=TRUE
9620   NEXT
9630 WEND
9800 LOCATE 12,15:PRINT"Sort completed !"
```

```
9810 GOSUB 800
9990 RETURN
```

For data files of the size you are likely to be actually using in a "small" system like Structured Data this is probably reasonably efficient, however for really long arrays the following adaptation of our "Quicksort" technique will be faster. The main drawbacks of the quicksort routine is that it is actually a little slower than a bubble sort for small arrays of data and that it requires more memory, both for its own larger bulk, and for the considerable number of variables involved. On the other hand, by the time you have 50 records in your data file the speed difference is already over 100% - around 20 seconds for the bubble sort as opposed to less than 10 seconds for the quicksort. The difference goes on getting bigger as the number of records increases - for a hundred records and more the quicksort may well be twenty times and more as fast as the bubble sort.

```
9500 ' sort file
9510 record=0:WHILE file.data$(0,point(record))<>"":rec
ord=record+1:WEND
9520 IF record<3 THEN CLS:LOCATE 5,10:PRINT"NOTHING WOR
TH SORTING HERE !":t!=500:GOSUB 700:RETURN
9530 CLS:head=15:GOSUB 100 ' heading
9540 LOCATE 2,10:PRINT"Which field to sort on >
   ";
9550 LOCATE 29,10:GOSUB 8500
9560 IF check=0 THEN RETURN ELSE LOCATE 1,10:PRINT TAB(
MAX(1,((18-LEN(file.data$(check-1,0)))\2)));"Sorting fi
le on field ";file.data$(check-1,0);"    "
9570 DIM local1(16),local2(16)
9580 recur=0:top=1:bottom=record-1
9590 WHILE top<bottom
9600   MID$(pivot$,1)=UPPER$(file.data$(check-1,point((
top+bottom)/2))):long=LEN(file.data$(check-1,point((top
+bottom)/2))):subtop=top:subbot=bottom
9610   WHILE UPPER$(file.data$(check-1,point(subtop)))<
LEFT$(pivot$,long):subtop=subtop+1:WEND
9620   WHILE UPPER$(file.data$(check-1,point(subbot)))>
LEFT$(pivot$,long):subbot=subbot-1:WEND
9630   IF subtop<subbot THEN t=point(subtop):point(subt
op)=point(subbot):point(subbot)=t:subtop=subtop+1:subbo
t=subbot-1:GOTO 9610
9640   IF subtop=subbot THEN lobot=subbot-1:hitop=subto
p+1 ELSE lobot=subbot:hitop=subtop
9650   recur=recur+1:lotop=top:hibot=bottom
9660   IF (lobot-lotop)<(hibot-hitop) THEN local1(recur
)=hitop:local2(recur)=hibot:top=lotop:bottom=lobot ELSE
 local1(recur)=lotop:local2(recur)=lobot:top=hitop:bott
om=hibot
9670 WEND
9680 IF recur>0 THEN top=local1(recur):bottom=local2(re
cur):recur=recur-1:GOTO 9590
9690 ERASE local1,local2
9800 LOCATE 12,15:PRINT"Sort completed !"
9810 GOSUB 800
9990 RETURN
```

Actually the only way to sort a really big array of string data quicker than the above is to use a machine code routine - Stephenson & Stephenson have a nice one - however even if you use machine code there are all sorts of advantages to not sorting the strings themselves, but using pointer arrays instead. Apart from the speed advantage, you can actually have several pointer arrays in memory representing "sorts" by different fields - this has all kinds of advantages, especially when you have put your data into your "back" memory. For those of you familiar with dBASE - it actually gives you an equivalent of a dBASE "index file", thus it is possible to use binary searching routines simultaneously on several fields (very "powerful", and stupendously impressive, as you can demonstrate an apparently instantaneous "sort" of a computer full of string data) !

One thing that IS necessary is to change every mention of a particular element of our data array so that the pointer is used instead of a direct "array address" - thus for instance line 3612.

```
3612 WHILE file.data$(0,point(record))<>"":record=record+1
:WEND
```

instead of:

```
3612 WHILE file.data$(0,record)<>"":record=record+1:WEND
```

There is little point (sorry!) in listing every line in the program in which a change like this is necessary now - if you are relying on your own typing for a working version of the program instead of cheating (getting the complete listing off the tape for the month) then the following lines will need changing - actually I did it with the "search and replace" feature of my word processor!

3612,3770,7215,7260,8230,8240,8350,8435,8460 and 9030.

One more little change will be necessary so as to make the search routine available through the menu and to add our new heading - to save messing about at this late stage we will put it on the menu where "calculations" was going to be, thus:

```
40   ON choice GOSUB 3000,4000,5000,6000,80,3100,3200,3
300,3400,3500,8000,9000,9200,20,9500,7000,5100,20,20,20


13200 ' Headings
```

```
13210 DIM heading$(15)
13220  RESTORE 40200
13230  FOR i=1 TO 15:READ heading$(i):NEXT 'Heading val
ues
40115 DATA "Edit record","Display file","Find record","
Search file","Sort file","Save file","Abandon this file
","Select drive A","Select drive B","Select drive C","R
eturn to main menu"
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"
,"Sort file"
```

One more little thing before we finish for the month - one of my potential users (a close relative) has found one "undesirable feature" and one plain bug in last month's listing. The first is that the "load old file" routine will try to load a non-existent file and crash, in spite of precautions to prevent this: fix this with the following -

```
4025   IF dir.lines=0 THEN RETURN
4115   IF dir.lines=0 THEN CLS#3:LOCATE 7,10
       :PRINT"No data files on this disc":t!=500
       :GOSUB 700:RETURN
```

The other thing is that allowing for an average field size of 38 characters, is probably a bit much - it is most unlikely that your average field will be more than about 20 characters. Changing these lines to take account of this will allow a little more room for records - although you may prefer to leave these lines as they are if you want to have lots of room in each record rather than lots of records!

```
3340   records=INT(FRE("")\20)\fields
3620   roomfor=MIN(((FRE(0)\20)\fields)-(20-fields),records-
record)
```

Next month we will tidy up "Structured Data" a bit and add a search routine, plus a few minor features still missing - but the program is just about finished. How useful is it in its present form? We will talk a bit about that too - and discuss ways in which you might be able to extend its power (especially by using your extra RAM, if you have any). That will be the end of this series as such, although if the editor is agreeable we may start a new series of articles on "User Reaction", using a "conversation program" as the vehicle.

Joined up writing on a PCW8256? Yes, use LocoFont!

LocoFont Set 1 & 2 give you ten distinctive typestyles on the PCW's built-in matrix printer.

With LocoFont your PCW printer can print in a variety of different typestyles. A total of fourteen styles are available in Set 1 and Set 2.

A set of LocoFont typestyles consists of a disc including a "character set" file for each of the extra typestyles, together with full installation instructions. Except for Old English, all styles include all of the characters provided by LocoScript2. Briefly, all you need to do to access the fonts is to copy the files to the Start-of-Day disc and update the Settings file. To use one of the new typestyles, simply select the appropriate character set.

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

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

Note that a document can only use a single style.

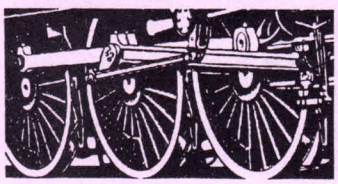
LocoFont Set1 & 2 are available from The Amstrad User at $75.00 and $65.00 respectively.

LocoScript2 - *New Edition!*

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

Not only have we released LocoFont (which only works with LocoScript2), but for LocoScript2 itself now comes with two highly quality typestyles. And if you want to use a different printer, we now support over 250 matrix, daisywheel and laser printers - but for some, you may need the Printer Drivers Disc

The new edition of LocoScript2 costs $87.00. Buy LocoScript2 together with our spelling checker LocoSpell for $130.00 saving $32 on the combined price. To complete the family, add LocoMail for $105.00.



LOCOMOTIVE SOFTWARE

Allen Court, Dorking, Surrey RH4 1YL
Phone (0306) 740606

LocoFont - Set 1

Definite
We have been forced to adopt a tougher approach regarding returns of faulty product. We request that you now call our office on the number....
ABCDE abcde αβγδε ΑΒΓΔΕ αδβrr ΑΕΒΓ

Modern
After you have disconnected the rear cover, gently remove the card marked screen and place it to one side. You should not attempt to force any of ...
ABCDE abcde αβγδε ΑΒΓΔΕ αδβrr ΑΕΒΓ

Roman
All amounts are now expressed inclusive of Value Added Tax. The amount still remains payable at the prevailing rate, subject to the....
ABCDE abcde αβγδε ΑΒΓΔΕ αδβrr ΑΕΒΓ

Capitals
FOR SALE :
MINI 1000 - GOOD LITTLE RUNNER, NEEDS A LITTLE WORK. TAX AND M.O.T. UNTIL JANUARY 89. NEW SUBFRAME, BRAKES ...
ABCDE ABCDE ABΓΔE ABΓΔE ΑδβΓr ΑΕΒΓr

Script
We're glad to hear that you enjoyed the little "surprise" party that we threw for you. The flowers were father's idea and he even chose the..
ABCDE abcde αβγδε αδβrr ΑΕΒΓ

Deco

Avocado Pear	£1.95
Prawn Cocktail	£2.50
Paté	£1.95
Cantelope Melon	£1.95

ABCDE abcde αβγδε ΑΒΓΔΕ ΑδβΓr αδβrr

Copper Plate
You are invited to join in with another of Teds housewarming parties. This time if you want anything other than hotdogs, crisps and beer then...
ABCDE abcde αβγδε ΑΒΓΔΕ αδβrr ΑΕΒΓ

Finesse
St David's School - Summer Fête 88
This year's fête will be even bigger than last year's. We hope to exceed last year's fund raising efforts ....
ABCDE abcde αβγδε ΑΒΓΔΕ αδβrr ΑδΒΓr

Standard
Please find enclosed confirmation of your order for an additional 50 brass fittings with screw threads. There is a five percent increase to our....
ABCDE abcde αβγδε ΑΒΓΔΕ αδβrr ΑδΒΓr

LocoFont - Set 2

Penman
This will probably be the longest letter that I have ever written to you. I just haven't had time to put "pen to paper" since I started my....
ABCDE abcde αβγδε ΑΒΓΔΕ αδβrr ΑδΒΓr

Old English
The Old Antique Shop
27 The Square, West Street
Somerton, Somerset
TA23 4EW
ABCDE abcde

Mini 15/17
The software contained in this package is supplied on the terms and conditions indicated below. Opening of this package indicates acceptance of..
ABCDE abcde αβγδε ΑΒΓΔΕ αδβrr ΑδΒΓr

Mini PS
You should follow very carefully the installation instructions enclosed with this package. Do not start to use the package until you have first..
ABCDE abcde αβγδε ΑΒΓΔΕ αδβrr ΑδΒΓr

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AT THE C SIDE

Roger Williams has a further look at the small C Interpreter found on Public Domain disc #612/812

SCI is a partial implementation of the C programming language. Only single-precision integer and character variables are allowed - short, long, unsigned, float and double variables are not permitted. Arrays are restricted to one dimension. Increment and composite assignment operators are not supported. Neither the for, nor the do... while statements are recognized. Pointers are only partially implemented.

Sounds like a "don't bother" message? WRONG!!! SCI is one of the best PD offerings around. As distributed, it nowhere near achieves its potential. But, with some alterations to SHELL.SCI, and a few work-arounds for unsupported features, you will be in a position to write some very useful programs in C. Remember that SCI is meant to be a stepping stone from BASIC; learn the elements of C programming from SCI, and then move on to a more complete implementation if you need to.

In my previous article, I allowed for readers who had not bought a copy of SCI (PD disc#612/#812); from now on I am writing on the assumption that you have a copy of SCI, and have printed out copies of both SCI.DOC and SHELL.SCI. Look at the list of library functions in SHELL.SCI. Included in this list you will find sprintf(...) and printf(...), which are abbreviations for string-print-formatted and print-formatted respectively. The latter sends its output to the screen, while the former stores its output in a sting in memory. Both these functions are part of "standard C" and the SCI versions support many of the normal formatting modifiers, including field-width, left justification and display of leading zeros. Signed decimal, unsigned, octal and hexadecimal conversions are supported for integers.

For formatted input, only sscanf(...) is supplied. To input two integers from the terminal we have to write

```
int i,j; char string[81];
gets(string);
sscanf(string," %d %d,&i,&j);
```

whereas in "standard" C, we would only need

```
int i,j;
scanf(" %d %d",&i,&j);
```

Since scanf(...) is the normal way to input data from the terminal, its omission is rather "strange". Fortunately, SCI is one of the easiest PD programs to modify that I have ever reviewed, and providing a scanf(...) routine is quite easy.

CREATING A SCANF(...) ROUTINE

The following instructions assume that you are using the CP/M Plus version of ED; if you are using a different text editor, you will have to make the appropriate changes. Start with CP/M PLUS loaded, and your SCI work disc in the default drive. (Copy ED.COM to this work disc if it is not already there). Rename SHELL.SCI to SHELL.ORI by typing

```
ren<sp>shell.ori<sp>shell.sci<cr>
```

(.ORI is my abbreviation for original.)Invoke ED by typing ed<cr>. If no file name is specified on the command line, ED prompts for both input and output files. When asked for the input file, type SHELL.ORI<cr>, and give SHELL.SCI<cr> as the name of the output file. Now load the input file into the buffer and display the first page with #aOp<cr>. Lines 16 and 17 show the code for scanf(...) by typing

```
18:i<cr>
scanf(a0,a1,a2,a3,a4,a5,a6,a7,a8,)<cr>
(char b [128]; gets(b);<cr>
return
sys(b,a0,a1,a2,a3,a4,a5,a6,a7,a8,6)}<cr>
(ctrl-z>
bOp<cr>
```

Check the typing of these new lines VERY carefully, and also check that line 21 starts with atoi(b).

While we have the shell program in our editor, we may as well add a proper 'new' command; loading a non-existent file "works" (see my previous article), but is not very elegant. Move to, and display line 88 by typing 88:t<cr>; it should just contain the word else. Enter insert mode with i<cr>. Press the space bar 9 times and then type

```
else if (!strncmp(line,"new",3))<cr>
```

Now enter 12 spaces and then type

```
{size=1; program[0]=90-}<cr>
```

Now exit from insert mode with <ctrl-z>, and save the changes with e<cr>.

Let's check that our modified shell is okay. Load up SCI. If your typing was accurate, the usual sign on messages, and the > prompt should appear; if not, use ED to correct typing errors, and try again. Use the inbuilt editor to enter the following test program, remembering to use <ctrl-h> to correct typing errors, and <ctrl-[> for the escape character.

```
main()
{
int i,j;
puts("Enter two integers, separated by a
space\n");
scanf(" %d %d,&i,&j);
printf("The two numbers typed were %d
and %d\n",i,j)
}
```

Try it out by typing main()<cr>. Provided you separate your two values with at least one space, or a <tab>, everything should work okay. If not, you will again have to check your modifications to the shell program for typing errors. Try it several more times (type main()<cr> each time). Investigate what happens if you separate the values with a comma, or type something that is not an integer. You will find that C does not bother too much about errors; if you want error checking, you have to write it into your programs. Modify the program above by declaring a third integer k in line 3, inserting k= in front of scanf, and adding the following as line 6 :-

```
printf("Successful conversions =
%d\n",k);
```

The modified program looks like

```
main()
{
int i,j,k;
puts("Enter two integers, separated by a
space\n");
k=scanf(" %d %d",&i,&j)
printf("Successful conversions =
%d\n",k);
printf("The two numbers typed were %d
and %d\n",i,j);
}
```

DEALING WITH ERRORS

Run this program (by typing main()<cr> several times, trying all sorts of "silly" input errors. The scanf(...) routine stops at the very first error it encounters, but, unlike BASIC, it NEVER prints an error message; it simple returns a number (k in our program) which indicates how far it was able to proceed. If you want an error message, you must check the value of k, and act accordingly. When LOCOMOTIVE BASIC (CPC models) detects an error in an input line it prints *?Redo from start*. We can make our program perform similarly by making the following changes - delete line 6 (the first printf(...) statement), and replace it with :-

```
while(k!+2)
{puts("?Redo from start\n");
k=scanf(" %d %d",&i,&j);}
```

The complete program now looks like

```
main ()
{
int i,j,k;
puts(Enter two integers separated by a
space\n");
k=scanf(" %d %d,&i,&j);
while(k!=2)
(puts(?Redo from start\n");
k=scanf(" %d %d,&i,&j);}
printf("The numbers typed were %d and
%d\n",i,j);
}
```

Try this one out; it should not terminate until scanf(...) has successfully converted two integer values. (It will ignore any extra data on the input line which BASIC would normally detect).

When you have finished playing with this program, don't forget that we still have to test the extra command which we added to the shell. Type list<cr> for a final look at the program we have developed. Now type new<cr> and then list<cr> again. Did you get 1:<EOF>? If not, there is a typing error in your modification to the shell program - find it and correct it!

The program just deleted, although it provided some form of error checking, was a rather poor example of C coding. The variable k is totally unnecessary, and its use makes the program less efficient in terms of execution speed, and longer than necessary in terms of the source code. A much better version is as follows:-

```
main()
{
int i,j;
puts("Enter two integers separated by a
space\n");
while(scanf(" %d %d, &i,&j)!=2
puts(?Redo from start\n");
   printf("The numbers typed were
%d and %d\n",i,j);
}
```

Providing a scanf(...) routine was easy because the sscanf(...) routine was already available via a sys(...) call. Coping with the non-implemented 'for' statement requires a bit more ingenuity; the only way is to recode each 'for' block as a 'while' block, an example of which was included in the error checking programs above. The 'for' statement in C is somewhat different from the 'FOR...NEXT' construct in BASIC in that it uses a continuation test rather than a termination test. The format in C is

```
for(initialize; continue test; increment/
decrement);
```

For comparison we have, in BASIC

```
FOR I=1 TO 21 STEP 2
...
NEXT I
```

and in "standard" C

```
for(i=1; i<=21; i=i+2)
{...}
```

BASIC ends the loop when I is greater than 21 (termination test) whereas C continues the loop if i is less than or equal to 21 (continuation test). In this case, recoding as a 'while' block for SCI is relatively easy; the initialization is written first, the continuation test is written as the 'while' test, and the increment/decrement is the last statement in the block, giving

```
i=1;
while(i<=21)
{...;
i=i+2;)
```

A BASIC loop with an implied increment of 1 i.e.,

```
FOR J=1 TO 10
...
NEXT J
```

would be coded in "standard" C as

```
   for (j=1; j<=10; ++j)
{ ... }
```

Unfortunately, SCI does not recognize the ++ increment operator, but since it is only a shortened form of j=j+1, the recoding to a 'while' loop is just as easy -

```
j=1;
while(j<=10)
{ ...;
j=j+1;}
```

Now that scanf(...) and a workaround for the 'for' statement are available, you should be able to adapt and run some programs from introductory books on C programming. Certain non-standard features of SCI may still cause difficulties - there is no #include command to load header or library files, there is no #define command, and some of the library functions in the shell do not behave as "standard" C expects (such as the puts(.) and gets(.) routines).

WHEN WE MEET AGAIN

Next time we will look at the possibility of creating user libraries and the provision of the equivalent of a #include statement. We will also further modify the shell so that both puts(.) and gets(.) behave as they should in "standard" C. In the meantime, here is a puzzle for you to work on - type in and run this program : -

```
main()
{
int i;
printf("Type an integer :");
scanf(" %d",&i);
printf("The number is %d",i);
}
```

Why is the number apparently multiplied by 10?

POT POURRI FOR THE PCW

There's queries and quandries pouring in from everywhere, but room for just a few this month - more later!

PRINTERS

I own a PCW 8256 (with original printer) and am now finding the printer unbearably slow in NLQ, and noisy - my work involves printing very long documents.

I would like to replace it with a new dot matrix printer of similar or higher quality of print, faster, less noisy and compatible with my 8256(using LocoScript 2).

Could you suggest any that would not be too expensive? Would I need an interface to operate it?

Martine Garbacz

What you want is a 24 pin printer. Because of the extra number of pins these don't need to do two passes to print a line of NLQ as your built-in printer does. You'll also need an RS232 interface.

Now that Locomotive sell printer drivers for 24 pin printers, you'll be able to use the Amstrad LQ3500, LQ5000, the Epson LQ500 or the NEC P6 Plus.

CHARACTER BUILDING

Are there any peek valves by which the computer can find out if a pixel (or character) is printed at a point on the screen? Further are there any ways of directly plotting characters, or pixels to the screen using any POKE valves. If so does anyone know what they are?

Peter Bricknell

You've obviously cut your programming teeth on the Spectrum or similar favourite home computer. You can't get at the screen memory directly by PEEK/POKE from BASIC because of the way the PCW is designed (for boffins, the screen's memory is in a different bank to BASIC's), and anyway the screen memory stores pixels not character codes. However, you can achieve the desired effect in BASIC itself:

```
DEF FNat$(r,c,c$)=
CHR$(27)+"Y"+CHR$ (r+32)+
CHR$(c+32)+c$
```

sets up to print a character or string at any row and column you like. PRINT FNat$(2,3,"z"); *will print "z" at row 2 column 3.*

LOGO TEXT

In answer to J.C. Flenning's enquiry in his letter 'NOGO LOGO', he can combine text and graphics in the same area. Listed below is a short LOGO procedure which will do what he asks, together with an explanation of each line.

```
to square
cs
repeat [fd 100 rt 90]
setcursor [49 12]
pr [Bill]
end
```

name of procedure; clears screen and 'homes' the turtle
draws a square
sets the cursor to position 49,12
prints 'Bill' at cursor position
ends the procedure

W.J. Stonham

Simple when you know how. Have you been conferring with Peter Schmidt?!

CP/M+ - JUST THE FACTS MA'AM

Mike Turner continues his in-depth series on CP/M Plus. If you're unsure of your footing, this is essential reading.

Once again it is time to delve into the depths of CP/M Plus. This month we will be looking at how CP/M Plus does its job and how to use this to our advantage. We will start looking at how to organise your discs and introduce the concept of automating commands.

To make the best use of CP/M Plus, it is necessary to know a bit more about how it works. I promise to keep it simple, (like me). We will look first of all at file names and attributes as well as user numbers.

Firstly file names and attributes. When you save some information onto a disc it is saved in the form of a file. These files have names so that you (and the computer), can tell them apart. A file name may consist of up to eight characters or numbers followed if necessary by a full stop and a three letter or number suffix. Note that adding a suffix is not always necessary, nor is it always available to you. Some programs like Mini Office Professional, D.R. Draw and Printmaster add their own suffixes to files created. They do this so that the program can tell what type of information is contained in each file. If this is the case with the particular program you are using, then you will be limited to just eight letters or numbers in the name.

It is best to choose file names that mean something to you and also that indicate the contents or the function of the file. For example on my word processor, I have called this article CPM_2.TUT; as it is an article on CP/M. It is also the second in a series and it is a tutorial. Note that I have used an underscore in place of a space in the file name. Spaces are not acceptable to the operating system. Stick to letters of the alphabet A-Z a-z, numbers 0-9 and maybe an underscore if you need a space in the name. Keep right away from punctuation marks and other symbols such as asterisks, as these often have a specific meaning and their improper use could cause problems.

Next let us look at file attributes. Files may have a DIR or a SYS attribute assigned to them. If the file has a DIR attribute then it will show up in a directory of what is on the disc when you type in the command DIR [RETURN]. On the other hand if there are files on the disc which have SYS attributes they will not show up on a directory. Instead a message will appear on the screen saying "Systems Files Exist". To list these files to the screen you must type in the command DIRS [RETURN]. But apart from being a convenient method of hiding certain files on the disc a SYS attribute has another very important function which will become clear in a moment when we look at user areas and their associated numbers.

The next thing to consider is the use of user areas to partition off work onto different parts of the disc. These user areas are particularly useful for those people with large capacity disc drives. PCW 8512 or 9512 owners have this facility. 6128 owners may find user numbers are not worth the trouble as they can only store 178k on a data format disc. However, we will press on with an explanation of their use for the benefit of the majority. Who knows, some 6128 owners may decide to go out and purchase a second large capacity disc drive to make better use of CP/M Plus. I did this with my 6128 and found it very helpful.

CP/M Plus organises its discs so that they can be partitioned off into different user areas. There are sixteen in all from user 0 through to user 15 inclusive. This allows you to break up the directory of what is on your disc into easily digestible chunks. There could be hundreds of files on a 720k capacity disc and keeping track of them becomes a bit of a nightmare. Another problem is that each file must have a unique file name, or else you will overwrite the previously existing file of the same name. Are you with me so far?

So you can see that it would be handy if we could break up the directory into smaller units. This is particularly handy if (for example) you have several people all using the one word processing disc to store their letters. Each could have his or her own user area and not interfere with anyone else's files. They could all have files identically named if necessary, and they only see and have access to those files in their particular user area. People who operate with hard disc drives find it essential to split up their discs in this way.

Let's look at an example of somebody using a word processing package such as Wordstar. They allocate different user areas to each member of the family or split them up according to the type of document. Each time they use the package they must get themselves into the correct user area. They do this by typing the following command at the A> prompt:

USER n [RETURN]

The letter 'n' in this example stands

for the number of the user area. Try it for yourself now. Start up CP/M by whatever method you use on your machine. Now get yourself into user area 1. Type:

USER 2 [RETURN]

You will find that the A> prompt has changed to a 2A>. The number reflecting the user area. Try this several more times to swap between areas, and when you have finished return to USER 0 by typing:

USER 0 [RETURN]

Now to explain something about file attributes and how they relate to user areas. Make sure that you have a copy of your CP/M Plus master disc in the A drive and type in the following command:

SHOW A [RETURN]

You will now see a message showing how much space there is left on the disc. Now change to user area 1 and type in the SHOW command as before. Don't be alarmed when you get a reply from the computer: SHOW.COM NOT FOUND. It can't find the necessary command file in user area 1. Imagine that this is a word processing disc. Do we have to have a copy of Wordstar in each user area that we wish to use for storing documents? The answer is NO. If we did, it would be counter productive and waste more disc space than it would save. CP/M Plus has a neat feature that allows different user areas to share common software stored elsewhere on the disc.

If the file SHOW.COM in USER 0 had a SYS attribute, it would be able to be accessed from any other user area on the disc. Let's prove that now by going back to USER 0 and setting a system attribute to the file. Are you back at the A> prompt? Good, now let's set the attribute to the file. To do this we use the file SET.COM in the following way:

SET filespec [options]

The filespec is the name of the file; in this case SHOW.COM and the options we are concerned about are either SYS for a systems attribute or DIR for a directory attribute. So the command that we would end up using to change SET.COM's attribute to a system one would be:

SET SHOW.COM [SYS] [RETURN]

A status message will appear telling you the current state of the file. Now go back to USER 2 or any other user area and try to use the SHOW A: [RETURN] command again. This time you will find that it works from any area. To reverse the process go back to USER 0 and type:

SET SHOW.COM [DIR] [RETURN]

The resulting status message will confirm that the file attribute has been changed back to DIR. There are other options available when using SET.COM. They can be used for making the file READ ONLY to prevent accidental erasure, or for such things as archiving or setting passwords. We will look at the full uses of SET.COM in a future tutorial together with SHOW.COM. But for now you can at least use these two programs in a limited way. Consult your manual and the HELP utility in the mean time if you wish to learn more. Hands on experimentation is the best method of learning. Don't be afraid to have a go.

By now the more experienced users of CP/M Plus will have noticed a slight change in direction with these tutorials and are starting to wonder when I am ever going to get into the more meaty subject areas. I will very soon, I promise. It's just that I have had a bit of a change of heart and decided to pitch these tutorials at a slightly lower level in an effort to better cater for the newer members of the CP/M Plus fold. If you think this is a little beneath you, think back to Helen Bradley's article on becoming a power user in Issue No. 51 of TAU. She stressed that going back over the basics even when you think you have gained sufficient knowledge can sometimes reveal gaps in that knowledge. Keep reading, you may pick up something you had previously missed or glossed over too quickly to gain full benefit from it.

Now as promised last month, we will look at some other programs on the CP/M Plus system disc so make sure that your system disc is still in the drive and we will press on. The first program to look at is PALETTE.COM. This program is used to control the screen display of foreground and background colours on a 6128. On the PCW's it allows you to swap between normal and inverse video displays. First let's look at the case for PCW's. The default display on starting CP/M Plus is for normal video or light letters on a dark background. To change this, type in the following command:

PALETTE 1,0 [RETURN]

This sets reverse video, or dark letters on a light background. The first number after the word palette, controls the letters and the second number controls the background. The numbers must be separated by a comma. So the command PALETTE 0,1 [RETURN] would restore normal video to the screen. Now it is time for PCW owners to drool and 6128 colour screen owners to smile smugly. The palette program works in exactly the same way on the 6128 except that a whole range of very pleasing and some not so pleasing colours can be displayed. Are you sick of a dark blue screen with bright white letters? I certainly was after a while. Try this command:

PALETTE 34,0 [RETURN]

You will now have black letters on a light grey background. This is my personal favourite for word processing as it is very easy on the eyes. The range of numbers and their corresponding colours are

given in your computer manual. Look it up and have a play with different combinations until you find the ones that are to your liking. Write them down somewhere for use later. Remember that the first number controls the colour of the letters and the second controls the colour of the background. Play with them and have fun. You won't hurt the machine and any changes you make are only good until you either turn off or reset the computer.

The next program I wish to look at is SETKEYS.COM. This program allows you to configure the keyboard for a specific task. Let's say you wish to run Wordstar on your Amstrad. You will find that some of the keys on your keyboard behave in strange ways within this program, and some won't work as advertised unless you correctly configure the keyboard for word processing. A classic example is the ESC key on the 6128 or the EXIT key on the PCW. If you interrupt a command in Wordstar you are prompted to press the ESC key to continue. Imagine your horror when you press the key and nothing happens. You may be lucky and discover by trial and error that CONTROL+[(or ALT+[on the PCW) has the same effect. But what a pain to have to remember that each time.

You can use the SEYKEYS program to solve this problem. There are advanced uses of this program which I will cover at a later date. But for now you can use the program with the help of some ready made keyboard configuration files supplied on your system disc. Aren't the people at Amstrad thoughtful? You will notice some files on the disc called KEYS.WP KEYS.CCP and KEYS.DRL. If for example you wanted to configure your keyboard as a word processor you would type in the following command:

SETKEYS KEYS.WP [RETURN]

The keyboard is magically transformed and the ESC or EXIT keys work as they should in Wordstar. Similarly, to set up your keyboard to use D.R. Logo you would use the command: SEYKEYS KEYS.DRL and so on.

Well time and column space are rapidly running out for this month. But before I sign off, let's introduce briefly the concept of command files. These allow you to automatically carry out a series of commands and even start up a particular program without having to remember and manually key in all the various commands each time. The program that allows us to do this is called SUBMIT.COM. We will be covering command files in a lot of detail next month; but here is an example to get you started.

Suppose you want the computer to carry out the following tasks automatically on starting up CP/M Plus.

1. Change the screen colour to your preference,
2. Set up the keyboard as a word processing one,
3. Show how much space is left on the disc, and
4. Start up a program called MYPROG.COM

You could go about the task in the following manner. Make sure you have a freshly formatted disc, onto which you copy the following files:

1. C10CPM3.EMS or equivalent for your machine,
2. SUBMIT.COM,
3. PALETTE.COM,
4. SETKEYS.COM,
5. KEYS.WP,
6. SHOW.COM,
7. MYPROG.COM (use a real program file if you like), and
8. PROFILE.SUB (this is the file that will do all the hard work)

If you are not sure how to copy files, have a look at the section in your manual on PIP.CPM or use the HELP program to get some information. I will be looking at PIP in detail next month as part of this process of automating disc housekeeping.

Next you create a file called PROFILE.SUB using a text editor like Wordstar, Tasword, ED.COM, PIP.COM or RPED.BAS. It should look like this:

PALETTE n,n (where n stands for the numbers of your choice)
SETKEYS KETS.WP
SHOW A:
MYPROG (or the name of your program)

Try this out for yourself for homework if you like. Look up the appropriate section of your manual for additional help if required. If you have all the correct files on the disc and you have created the PROFILE.SUB file correctly, interesting things will happen when you next start up CP/M Plus. You will see a series of messages scroll up the screen as all your commands are automatically carried out for you. Why is it so Professor? All will be revealed next month in enough detail to keep even the more experienced users happy. If it didn't work for you, don't worry. Next month's tutorial will clarify things for you, so, until then keep reading about and experimenting with your working copy of the CP/M Plus system disc and have fun. Happy Computing.

"Homebase to database - your dinner is ready!"

BREAKING THE CODE

Continuing his series on algorithms, Gary Koh discusses string manipulation, as a means of further explaining the use of pseudocode...

To make things simpler for us we will be using Basic string manipulation functions (like Mid$, Instr$) in our algorithms. I know this is against language independence but it makes things much easier because in pseudocode there are no functions to manipulate strings (Unless you want the convoluted Pascal way).

The reason we are doing this is that the first algorithm, although simple, makes use of strings to a fair degree. To describe the string functions it uses in an English like way as one would normally do, would complicate things to no end and would make the algorithm very messy.

Also from now on we will be using other functions (if we need them) like ABS and SQR. Other people might do different things but this is the way we will have it here. For the sake of an easy explanation, and to make it easier for people to understand we will be using a lot of references in Basic. In the real world things are different from this, so keep this in mind as well, and don't take everything I say for granted as right. And also, remember, there is no right or wrong way to do this, there is no accepted standard (at least, not in home programming, there might be in professional programming) so, it is up to you to do what you think is right.

Not so many years ago there was not much in the way of good graphics on computers and before that the only way to communicate with them was through punch cards. Algorithms developed then did not have much in the way of doing statements, there was not much in the way of things to do and they were really meant to manipulate data in different ways. Now, on a microcomputer with high resolution graphics, sound, keyboard and a cassette or disc an algorithm would be very different.

In this sense, an algorithm would consist of many doing instructions, because these now play a much bigger role. These algorithms might not be algorithms as in the true sense, but they still are algorithms.

The function of our algorithm will be "to take a string of a length up to 255 characters and to place it on the screen so that the words will wrap onto the next line and do not get broken in half. In addition, putting the character '@' in the string will cause it to go to the next line (ie. a line feed). This algorithm should preferably be as fast as possible".

What use would an algorithm like this be, you may ask? Well, this could be used by an adventure program to print the location descriptions. Normally either you would have a lot of print statements or you had to have the entire location in one single print statement but you had to plop in a lot of spaces here and there so that a word would not get broken across the edge of the screen. Also, if you had to change something in the message or whatever you might wreck the justification and would have to re-arrange the spaces. With this algorithm all you do is type in the message with no breaks in it and let the algorithm do the rest. If you want to print a line within the message you can put in the '@' character.

The entry conditions at this stage are just one string variable to hold the message to be printed on the screen in the above manner and one variable to hold the width of the screen in characters. There are no exit conditions. There is no need to list the variables as they hardly take up any space.

This is our first stab at the problem.

```
word.pointer=1
message$=string to be printed
For string.pointer=1 to length of message$ Do
   Begin
      If character pointed to by string.pointer="@" Then go
      onto the next line
      Else if character pointed to by string.pointer=" " Then
      Begin
         word.segment$=(word.pointer<=messagew$<=string.
         pointer)
         If word,segment$ will not fit onto the screen Then
            Begin
               Go onto next line
               Print word.segment$ onto the screen
            End
         Else Print word.segment$ next to the previous word
         word.pointer=string.pointer+2
      End
   End
```

I have put this listing in pseudocode and described the string manipulation things literally so it might look a bit long and messy. This at the moment is just a general outline of the algorithm. Now we need to expand it more. The next listing uses a for-next loop to scan through the text for the breaks between words.

```
If string to be printed="" then do not continue
word.pointer=first character in message string
While end of string has not been reached Do
```

```
Begin
   If word pointed to by word.pointer="@" Then go onto
   the next line
      Else If word pointer to by word.pointer will not fit onto
      the line
         Then
            Begin
            Go onto the next line
            Print that word
            End
         Else print the word next to the previous word
word.pointer=start of the next word in string
End
```

It does not take a lot of thought to work out that you could have used Instr and make the routine much faster. I made it like that to give it some language independence so it would be easier to implement it in another language. The idea here is to make the algorithm as fast as possible so the next listing is much more closer to Basic and looks very different from the previous listing. This time it makes full use of Basic's string manipulation functions.

Split side of screen algorithm

```
wide=0
word.pointer=1
string.pointer=1
message$=message$+" "
While string.pointer<>len(message$)-1 Do
   Begin
      string.pointer=instr(word.pointer,message$," ")-1
      word$=mid$(message$,word.pointer,string.pointer-word.
      pointer+1)
      If word$="@" then Go onto next line Else
         If word.pointer=1 then print word$ onto the screen
         Else
            If wide+len(word$)>modewidth Then
               Begin
               Go onto the next line
               Print word$ onto the screen
               wide=0
            End
         Else print " "+word$ next to the previous word
      word.pointer=string.pointer+2
      wide=wide+1+len(word$)
   End
```

The first part of it sets up the variables. Wide is used to keep track of how many characters have been printed across the screen and is used to detect when to put a word onto the next line. Word.pointer points to the start of the word and string.pointer to the end of the word. You need to have an extra space at the end of message$ because of the way the word is detected. A word is detected by the space character at the end of it, that is why the last word has to have a space after it.

The first thing the while loop does is to set string.pointer to the end of the word, then it sets up word$ to be the word that was detected. Now it goes into a battery of Ifs. The first thing the If does is to see if the word is '@'. If so then it goes onto the next line and skips the rest of the Ifs. The next thing it does is to see if the word happens to be the first one and if it is then it just prints it there. The reason for this is because the bit that prints the word next to the previous word also prints a space before it as well, so that would make it look funny.

The next bit checks if the word is going to go off the edge of the screen and if it does then it resets the variable wide and prints that word on to the next line. The last stage of the If just prints that word to the previous one, as long as it does not go over the edge.

Word.pointer is then set to point to the next word. If you want to, you can put in any extra spaces you want, the routine will not crash if you do so. Wide is then updated with the length of the new word.

From this we can easily make a Basic routine. Listing 1 gives a Basic subroutine made up from this. The actual routine itself starts at line 1010. If you want to use it just remove all the lines below 990.

Line 1110 is an extra line that is needed because of the nature of the print command on the computer. The pseudocode listings I have presented try to be fairly language independent. When you deal with a specific computer and dabble a lot in doing instructions you often have to deal with funny things about the way the computer handles that particular thing.

Sometimes a word will finish exactly at the edge of the screen. When this happens it automatically wraps over to the next line. If we have made it keep printing linefeeds all the time, when it comes across something like this it would insert a line where it would not be needed and wreck the whole thing. Line 1110 takes care of this. Lin$ holds the string to be printed at the end of the screen to go to the next line. When the If-Then detects a line which is right on the edge it makes lin$ a null string, so that nothing gets printed on the next line and everything stays nicely displayed together.

As the routine scans for spaces only, in order to increase speed, the @ characters to do a linefeed have to have a space after and before them, otherwise the @ is not detected. The string length can only have a maximum length of 254 characters. This is because to detect the last word the last character has to be a space; the routine adds this in automatically.

To call the routine, message$ contains the string to be printed. Modewidth contains the width of the screen in characters. If you want to print the string in a specific part of the screen then you will have to put in Locate before Gosubbing the routine.

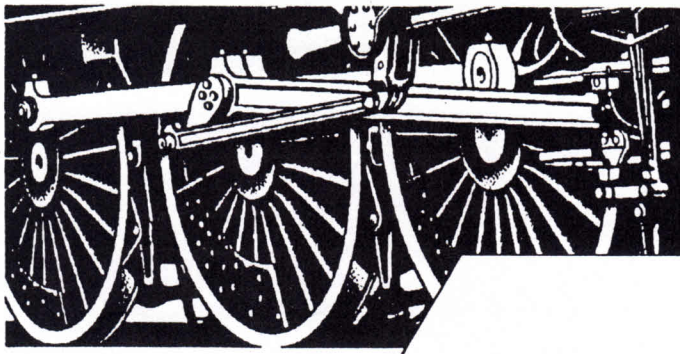
For something in Basic it is reasonably fast, but it is still a bit slow. Is it possible to speed it up? Unfortunately, no, unless you want to turn to machine code. Remember though, algorithms written in pseudocode

are meant to be as language independent as possible, which means it should be just as easy to translate this into machine code if you wish to.

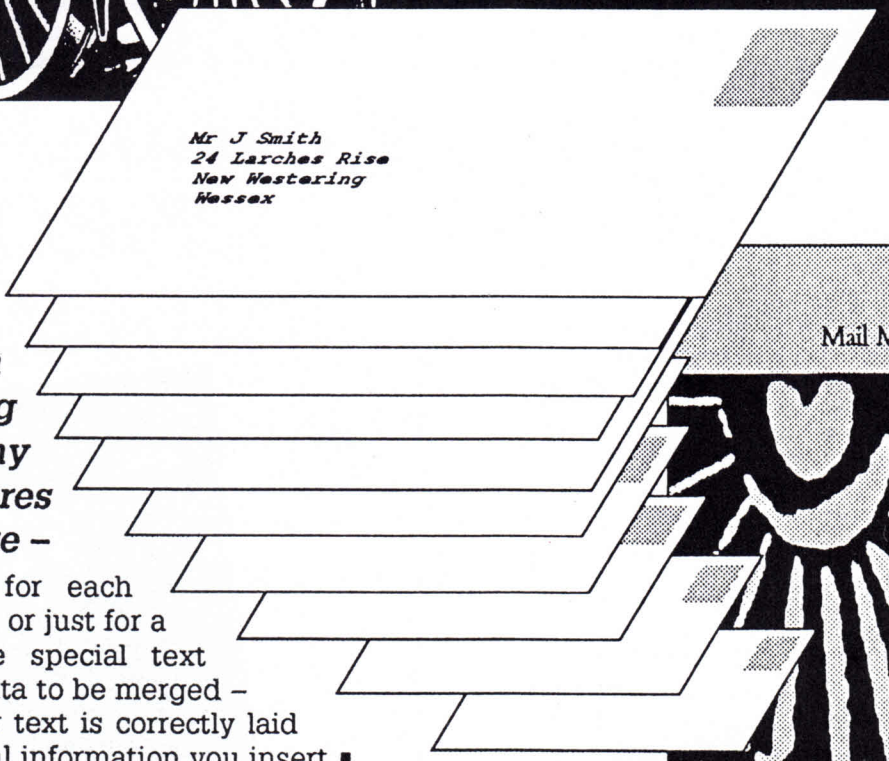
That is one of the great things about writing this in pseudocode, because later on, if we want to write the algorithm in a different language, it is made easier. Otherwise we would have had to translate from one language directly to another, which is more difficult. Alternatively, if you want to translate from one language to another, you can enter an intermediate stage by translating that into pseudocode, then translating the pseudocode into the final language. This may seem more laborious, but surprisingly, it can end up taking less time than translating directly.

As always, it is up to you what you want to do. I am not promising anything, but a series on algorithms and pseudocode in machine code may be appearing soon.

```
1 'Split words algorithm
2 'The Amstrad User - Jul 89
3 'by Gary Koh
4 '
100 ' Call the routine
110 modewidth=40
120 MODE 1
130 message$="You are in a dim lit house. There is only
 one grubby window near the door. Looking around you se
e what you think is a wooden trap door in the floor. Su
rrounding it are narrow tubes pointing upwards that loo
k suspiciously like gun barrels."
140 GOSUB 1010
150 message$="@ @ You can see: @ an old rusty stove in
a corner @ rusty nails"
160 GOSUB 1010
170 END
1000 ' Split words algorithm routine
1010 wide=0
1020 word.pointer=1
1030 string.pointer=1
1040 message$=message$+" "
1050 WHILE string.pointer<>LEN(message$)-1
1060 string.pointer=INSTR(word.pointer,message$," ")-1
1070 word$=MID$(message$,word.pointer,string.pointer-wo
rd.pointer+1)
1080 IF word$="@" THEN PRINT:wide=modewidth+1 ELSE IF w
ord.pointer=1 THEN PRINT word$; ELSE IF wide+LEN(word$)
>modewidth THEN PRINT lin$;word$;:wide=0 ELSE PRINT " "
;word$;
1090 wide=wide+1+LEN(word$)
1100 word.pointer=string.pointer+2
1110 IF wide<40 THEN lin$=CHR$(13)+CHR$(10) ELSE lin$="
"
1120 WEND
1125 PRINT
1130 RETURN
```



LocoMail
for LocoScript 2



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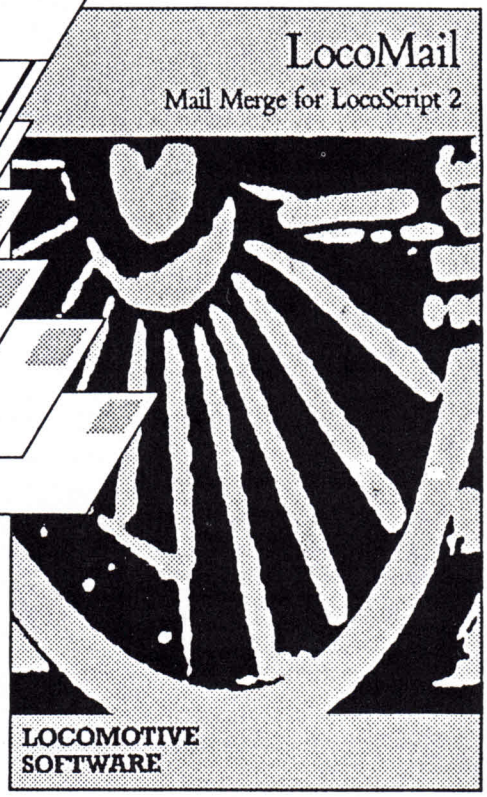

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All the examples described in the User Guide are supplied on the LocoMail master disc. In case you're just buying the new User Guide, they are also supplied on the LocoMail Examples Disc, available separately

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POT POURRI FOR THE PC

Letters come in from everywhere with all sorts of questions. Here are some of them with some courageous answers...

DIRECTING OUTPUT TO THE PRINTER.
I have no doubt that you will receive many hints and tips on the operating of the PC1512. I have not had mine long enough to come across anything especially useful. I offer one small fact I have discovered. SHIFT+PrtSC will dump the screen as the manual describes, CTRL+PrtSc has the interesting feature of making everything subsequently sent to the screen also go to the printer until another CTRL+PrtSc is entered. I found this very handy when trying to get a hard-copy of the DIR command (I am still trying to make a comprehensive list of all the bundled utilities and odds and sods on my 4 supplied discs).

Yes this is one way of directing output to the screen. ^P serves the same function (as former CP/M users may recall). Alternatively, if you want output to go to the printer and not to the screen, you can use "command line redirection": you add to the end of the command ">PRN" (without the quotes). The ">" is the MS-DOS redirection symbol and "PRN" the name used for the printer. Similarly, if you want to store output on a file you could add ">filename" or even ">>filename". The latter appends output to the end of any existing data on the file. Incidentally all these methods only work with programs which use MS-DOS standard output calls to send information to the screen: many programs bypass MS-DOS and write directly to the screen themselves and you can not then use these methods to get printed copy (Shift PrtSc still works though).

CON - "DUZZN'MADDA"
I think I may have found a system bug, when I try calling up a file called CON. On my computer the system locks.

CON has a special meaning in MS-DOS: it refers to the "console". This is an old mainframe computer term for the operator's screen and keyboard. Similarly PRN refers to the printer, AUX to the serial port and NUL to nothing (you can use NUL in a batch file as in "COPY GEM.BAT C:GEM.BAT> NUL" to avoid getting the "One file copied" message). If you type COPY CON TESTFILE the computer will wait for you to type text in from the keyboard until you press CTRL and Z (then end of file marker) then RETURN. This can be a good way of entering short batch files etc.

INCREASING MS-DOS'S SPACE.
A colleague of mine has shown me a copy of Microsoft C which includes a utility called SETENV- this allows you to change the size of the environment area; unfortunately it only works with MS-DOS 1 and 2, not MS-DOS 3. Do you know of an equivalent utility which will work for the 1512 (or of any other solution to the problem)?

You do not need any special utility. Just include the following line in your CONFIG.SYS file

SHELL=COMMAND.COM/p/e:<size>

where <size> is a number between 160 (the default) and 32768. You can also include a path specification for COMMAND.COM.

GRAFTABL
Do you know how to use the GRAFTABL command that isn't covered in the manual? Presumably it operates on some kind of graphics file holding the 8-bit patterns of the new characters. What characters can you re-define and do you set up the data file?

You do not need to use the GRAFTABL command unless you are using some software such as GWBASIC that uses GRAPHICS MODE (not under GEM). It is not needed in the ordinary text mode used by most programs, for GEM applications, or for graphics applications which draw their own characters on the screen.

In the ordinary text mode all 256 codes have characters assigned to them. But in graphics mode the BIOS has a much harder job since it has to draw each character, pixel by pixel on the screen. To save space in the ROM IBM chose only to define the first 128 characters in the ROM - you need to run this program to get the rest when using graphics mode. These characters however are only likely to be needed for graphics programs: most other programs will keep the screen in text mode because it is so much faster to let the hardware draw the characters than to do it by setting each pixel. The GRAFTABL command takes no parameters - the table of character codes is incorporated inside it - and there is no provision as such for users to redefine characters. Peter Norton's book "Inside the IBM PC" gives quite a lot of information about using graphics modes including a program that allows you to look at character patterns. You may be able to adapt this to redefine the characters in GRAFTABL. Note though that any such redefinitions would only work in graphics mode programs and would have no effect in text mode.

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	MONTHLY				YEAR-TO-DATE			
	Actual	Ratio(%)	Budget	Variance	Actual	Ratio(%)	Budget	Variance
SALES INDUSTRIAL	290000.00	61.4	319000.00	-29000.00	568177.00	61.4	634000.00	-65823.00
SALES DOMESTIC	182000.00	38.6	174000.00	8000.00	357494.00	38.6	344000.00	13494.00
Sales	472000.00	100.0	493000.00	-21000.00	925671.00	100.0	978000.00	-52329.00
COST OF SALES INDUSTRIAL	205682.00	43.6	221000.00	-15318.00	406782.00	43.9	440000.00	-33218.00
COST OF SALES DOMESTIC	125729.00	26.6	125000.00	729.00	247874.00	26.8	246000.00	1874.00
Purchases	331411.00	70.2	346000.00	-14589.00	654656.00	70.7	686000.00	-31344.00
WAGES	26497.00	5.6	28700.00	-2203.00	52675.00	5.7	57200.00	-4525.00
ELECTRICITY	3280.00	0.7	4200.00	-920.00	6452.00	0.7	8200.00	-1748.00
PACKAGING	2265.00	0.5	0.00	2265.00	4361.00	0.5	0.00	4361.00
DEPRECIATION	3000.00	0.6	3000.00	0.00	6000.00	0.6	6000.00	0.00
	35042.00	7.4	35900.00	-858.00	69488.00	7.5	71400.00	-1912.00
Gross Profit	105547.00	22.4	111100.00	-5553.00	201527.00	21.8	220600.00	-19073.00
ADVERTISING	2300.00	0.5	4000.00	-1700.00	4464.00	0.5	7000.00	-2536.00
WAGES	13078.00	2.8	7000.00	6078.00	25267.00	2.7	14000.00	11267.00
SALARIES	20178.00	4.3	17500.00	2678.00	36677.00	4.0	35000.00	1677.00
MOTOR EXPENSES	3872.00	0.8	5000.00	-1128.00	8028.00	0.9	10000.00	-1972.00
ENTERTAINING AND TRAVEL	2477.00	0.5	3500.00	-1023.00	5125.00	0.6	7000.00	-1875.00
LIGHT AND HEAT	1906.00	0.4	1500.00	406.00	3771.00	0.4	3000.00	771.00
STATIONARY	714.00	0.2	750.00	-36.00	1593.00	0.2	1500.00	93.00
TELEPHONE	2411.00	0.5	2500.00	-89.00	4609.00	0.5	5000.00	-391.00
SUBSCRIPTIONS	482.00	0.1	250.00	232.00	905.00	0.1	500.00	405.00
INSURANCE	1389.00	0.3	1450.00	-61.00	2778.00	0.3	2900.00	-122.00
PROFESSIONAL FEES	250.00	0.1	1000.00	-750.00	575.00	0.1	2000.00	-1425.00
ACCOUNTANCY FEES	1000.00	0.2	1000.00	0.00	2000.00	0.2	2000.00	0.00
RATES	2326.00	0.5	2300.00	26.00	4652.00	0.5	4600.00	52.00
DIRECTORS FEES	4500.00	1.0	4500.00	0.00	11250.00	1.2	9000.00	2250.00
DEPRECIATION	1000.00	0.2	1000.00	0.00	2000.00	0.2	2000.00	0.00
FINANCE CHARGES	326.00	0.1	750.00	-424.00	787.00	0.1	1500.00	-713.00
REPAIRS AND RENEWALS	1642.00	0.3	2200.00	-558.00	3579.00	0.4	4400.00	-821.00
	59851.00	12.7	56200.00	3651.00	118060.00	12.8	111400.00	6660.00
Nett Profit	45696.00	9.7	54900.00	-9204.00	83467.00	9.0	109200.00	-25733.00

Example printed output from Sage Accounting - Management Budget Report

Accounting practice defines a number of key areas in the operation of a business which can dramatically affect its performance and profitability. If these key factors are carefully and regularly monitored, profits can often be dramatically improved and the early warning signs of potential business problems are revealed before it is too late to remedy the situation.

Of course no computer program will ever replace the flair and judgement of the successful business person, but it can and should provide the flow of information which will enable the making of realistic and informed decisions.

It is a well know phenomenon that many fast growing and highly profitable companies do fail. It is not enough simply to be profitable - overtrading is one of the most common causes of business failure and overtrading is essentially a failure to properly manage the resources of a business.

THE ACCOUNTING ESSENTIALS

Some of the key areas which every business needs to monitor and manage more closely are:

Gross profit - is the business buying and/or producing and selling efficiently?

Stock Management - stock represents cash and there is always an optimum level of stock holding. Efficient buying is part of the same discipline.

Cash management - the timing of all cash collections and disbursements can affect the ability of a business to survive.

Debt control - for a business granting credit to its customers, an effective credit control system is a prerequisite to the avoidance of bad debt and the maintenance of good cash flow.

Budgeting and reporting - the preparation of an annual budget and its regular monitoring against actual performance should be standard procedure in any well run business.

In addition, the company manager should have ready access

to a regular flow of information, tracking changing conditions both inside and outside the business. Most company records actually do contain all the data that management needs in this regard, but all too often either the means or the time to extract the information in a meaningful way, simply does not exist.

WHAT YOU NEED

It is worthwhile examining just what accounting systems should encompass.

The debtor's ledger - accurate recording of customer accounts and details - is usually regarded as a company's most important accounting function and provides the key to cash flow and debt monitoring. Any debtor's ledger accounting system should be capable of tracking each individual customer account, providing vital sales and marketing information - which products are moving? Which is the best/worst sales territory? Who is a regular customer or who buys only spasmodically?

The creditor's ledger can be equally important. For most companies, every dollar saved on buying goods or services can be regarded as a dollar extra profit. Well-run organisations will want at their fingertips detailed information about suppliers and the state of their ledger accounts. Such information can affect buying policy and decisions about payment - especially when cash flow is a problem and deciding who to pay becomes important. Needless to say, the creditor's ledger should automatically integrate to the nominal one.

Undoubtedly, the core of every accounting system is the general ledger. Here, all the other accounting elements are collated into the one vital system, and from here are produced the two key management reports - the profit and loss account and the balance sheet.

An efficient general ledger should be genuinely 'real-time' with all transactions updating every other part of the system as they are entered.

Apart from these 'core' applications, several other aspects of accounting are expected to be covered by an effective package. Stock or inventory control is one of the classic applications, with order processing and invoicing following close behind.

An effective report generator which provides for easy access to your accounts 'information bank' is a must, and with the tough competition faced in virtually any small business, a job costing module completes the ideal system.

The Sage Solution

There are many accounting software packages on the Australian market, and all are claimed to answer the above problems to some degree. Many of these programs originated as comprehensive mainframe offerings, consequently, their effectiveness when run on a personal computer is sometimes suspect.

The Sage range is totally logical and provides solutions for all kinds of business, whether trading in cash or credit. And when your business has outgrown a single computer, you can easily move up to a Sage networked accounting system utilising the company's practical and simple-to-install MainLan package.

Remember, all Sage accounting programs are truly integrated and the user can start with any of the programs' many functions and build up gradually to using the full system. It is quite common for a customer to start with the Debtors Ledger and go on from there.

Sage is 'state-of-the-art' software from one of the top business software publishers - a company with more than 100,000 customers world-wide, and one that is continually striving to improve its offerings while retaining integrity with its existing customers.

The Victorian Connection

Your Amstrad computer has many useful facets, not least its flexibility as a business tool. Running the right software - and where accounts are concerned, that could mean Sagesoft - the small package on your desk can act as a real business friend, keeping you closely in touch with the way your enterprise is going, and providing early danger signals of any problems.

Objective Computer Consultants (Victorian distributor for Sage products), admit to a certain bias on their behalf, but they made the decision to represent Sage only after careful examination of what the market offered, and have been more than pleased with the performance and customer feed-back.

Always a front runner in the cost-effective, high quality software area, Sage started with attractively priced accounting systems, gradually increasing its range until it now covers most of the principal applications for which the average businessperson uses a computer.

In effect, Sage maintain that they can transform your Amstrad into a live-in accountant - and one that doesn't charge a fortune for its services.

Contact OCC in Melbourne on (03) 329 2384.

WHAT'S IN A DATABASE?

Read on, as Shane Kelly explains the wherefores and whynots of using Database Management Systems for profit and pleasure.

Databases are a fundamental part of business life these days. Working in an office it is impossible not to come into contact with either computers or computer-generated lists. The lists will in all probability be from a database package and the computers will be running some form of database package. This article will try to give you some background into databases and how they may be used for business and at home.

Firstly, lets distinguish between a database and a database management system (DBMS). A database is a collection of raw data, usually structured in some way so as to make data retrieval easy. A database management system (DBMS) is a program or collection of programs that allow you to create, modify and access a database. For instance, dBASE III+ is a database management system, the files it works on are databases. Raw data goes into a database, but INFORMATION comes out. The information may be either useful or useless, but it is still information. The real power of DBMS is the easy way it allows us to access and report on the data contained in the database. Depending on how the database is structured, we may be able to elicit information that is not readily apparent without the DBMS' assistance.

If we consider for a moment a card file system. It usually consists of a small box with index cards tabbed with the letters A-Z so that they stand out above the ordinary sized cards, and cardboard cards with your data on them. For the purpose of our example, lets say that you were the secretary of a club and you had all the club members' names and addresses on your cards along with their subscription renewal rate and club usage statistics on their interests within the club. To find any item of information that we require, we must follow these steps:

a) Open the box.
b) Go to the tabbed card that has the first letter of the member's name.
c) Search through the cards until we find the one with the information we require.
d) Extract the information
e) Use the information

Two things will become apparent from the example of the card box. The first is that if we don't find the information under the tabbed card that has the first letter of our member's name, then we are reduced to searching each card individually. And the second thing is that this process is a natural for computerisation because it involves sorting, searching and reporting which are three things that a computer can do faster and more accurately than any human.

To find any item that is less than a full card, we must first locate the full card, then read it through to extract the information from it. The question of structure comes up here. If we structure the information on our cards so that the data for each card appears in the same place on each card, it will reduce the time taken to locate that information because we can scan the cards, looking in only one spot on each. This will take far less time than if we had to read all the cards right through. The ideas to come from the above discussion are that the database needs to be structured and it needs to have many ways of finding or referencing the information contained in the database. The way search paths are implemented in most DBMS' is to index the database. An index is analagous to a book index, i.e. a subject is mentioned and all occurrences of that subject are then listed with the relevant page numbers, making it quick and efficient to find the relevant text. The DBMS' index are just the same idea. A subject is listed then the position of that subject in the database. Because the subjects position is now known, we can access it straight away, without reading all the intermediate cards.

RECORDS AND FIELDS

As with all things computer-related, jargon rears it's ugly head. The jargon in this article will be kept to a minimum, but we need to know some of it if we are to talk on a competent level with other computer literate people. If the small pieces of data on each card are the smallest item in our database then they are referred to as 'fields'. So a field is the smallest piece of data to be considered by our DBMS. A collection of fields is known as a 'record' and is the same as our card. That is, it holds all the relevant information in the fields about one club member. A collection of records is called a database. It is also called a file in computer terms, but file is generally used much more loosely than this in computer jargon. File can also mean a program or a document held in electronic form or

any of the several other types of computer information. For this reason we will be referring to databases rather than files.

Now that we have some background into how a DBMS is able to improve on the manual storing of information, let's consider what else the DBMS can do for us. If we were to use the DBMS for storing data and for fast accurate retrieval of that information, then that would be enough to justify its purchase. But the DBMS can do much more than this. If, for instance, you wanted to know from your manual card system, how many people are on a certain subscription rate, you would need to look through all the cards in the box and tally up those that you were interested in. Most DBMS' are endowed with search functions whereby you can ask such a question and get an almost instantaneous response. If you also needed to know how much these subscription rates totalled, the DBMS could do that at the same time. Some DBMS' have extensive query options that let you ask almost any sort of question and get a rapid response. Some other types of DBMS' make you define a 'report' that extracts the information you want. The 'report' is like a form that the DBMS fills in on your behalf from the data contained in the database. These reports can then be printed out to give you a permanent record of your enquiry. Some DBMS systems also contain a programming language that can be used to generate applications using the database as an underlying structure and its reporting and querying functions as the output. Typical examples of this are accounting programs, stock control, licensing lists and one not so typical application is a horse racing system that will predict winners based on the history of the runners in the race.

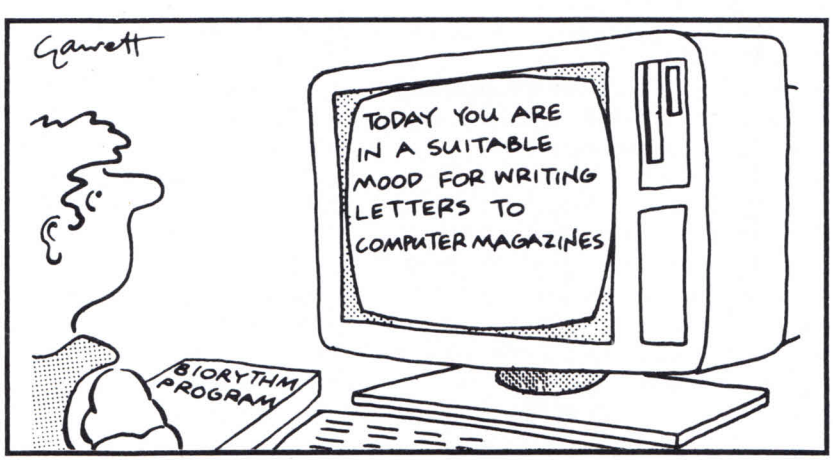
These are all typical business applications of DBMS'. What can we use them for at home? The most used application at home is probably a name and address list, closely followed by an inventory list for insurance purposes. If you are a collector of anything, then a DBMS could easily make your hobby more rewarding by reducing the tedious cataloguing required with any collection. To get use out of a DBMS it is not necessary to have the latest greatest whizz bang system. Most home applications are well catered for by the DBMS systems at the low end of the market. But if your DBMS needs are out of the ordinary for the average home user, then you may well have to consider an up-market offering.

BECOMING RELATIONAL

To guide you further (or confuse you more), I will now talk about types of DBMS systems. Consider once again our cardfile of club members. Suppose that within your organization you had several different types of members, based on what club services they used. You can see that several members may be using more than one set of services, necessitating keeping records of the different charges levied and perhaps level of usage also. Storing this all on one card for each member means having a lot of repeated data on each card. What if it was decided that some services were no longer to be offered? You would have to go through each card and alter the information on it to reflect the new structure of the club. Not an easy job, and there is a significant margin for error in this procedure. Wouldn't it be better to alter just one piece of information and have that reflected on all the affected members cards? With the manual card file and the computer DBMS that emulates a card file, this is clearly impossible. But what if you could have a database that lists all the services provided by your club in one database and then somehow link that to your basic information about the club member in another database? With some DBMS' you can do this. This sort of DBMS is called a "relational" DBMS and depending upon the power of the DBMS, it makes this sort of linking easy. So if you deleted a service from your clubs list, all member's details would reflect that fact with no further intervention by you.

As you can imagine, this sort of power does not come cheaply. The current standard for relational databases in business is dBASE IV. It is not cheap at around $1000, but if you require this sort of power, that is the price range you will have to be looking at. Most home applications do not require that level of sophistication and so the DBMS that emulates a card system (so-called 'flat-file' DBMS) will usually be good enough. There are numerous examples around, like Mini Office 11 and Ability and Ability Plus.

In the next couple of issues you will find in-depth reviews of some database packages. Hopefully I have given you enough background to evaluate those reviews to decide if they are applicable to what you want your DBMS to do for you.



THE LATEST FROM PC-LAND

Chris Collins has his ear to the tracks and knows what's going down before it happens, so there's no excuse for complaining you don't know what's the latest news for your PC!

Welcome once again to this month's Compatible's Corner. I hope that we will have something to keep everyone happy this month, but I very much doubt whether that is possible. However, as they say in the pictures, let us push on regardless.

What upgrades do I have to tell you about this month? Apparently, there has been a small upgrade to PC File:dB. This has jumped from version 1.0 to 1.1 and includes a few of the features that people have been asking for. The only advantage that I can see with V1.1 is that it allows you to name your index file with any name you please, rather than forcing you to use the name of the index field. This can be really handy if you have two databases of the same structure, but are using them to hold different data. I hope to have a copy of PC File:dB available, but I will be waiting for version 2.00 to arrive (due out in the last quarter of 1989).

THIS MONTH'S COMMAND

At the moment, I can't think of any more news, so I think that we will go onto our command for this month, JOIN.

JOIN is used to logically connect a drive to a directory on another drive to produce a single directory structure from two separate directories. Or in simple layman terms, it can be used to make a drive appear as a directory.

The full command line syntax is; JOIN d: d:\directory, or as JOIN d: /d.

This can be broken down into examples as follows where d: is a drive, and d:\directory is the name you wish to operate as.

EXAMPLE 1: JOIN A: C:\DRIVEA will attach drive A: to drive C:, and you will be able to access it by going to the directory called \drivea. If you attempt to do a DIR A:, you will get an "INVALID DRIVE SPECIFICATION" error message, as for all intents and purposes, DRIVE A: no longer exists.

EXAMPLE 2: JOIN will display all the current joins that are active at the moment.

EXAMPLE 3: JOIN A: /D will delete any joins that exist relating to DRIVE A:

MORE GOODIES FOR THE TAKING

The diskettes that we will look at this month include the new ARCHIVE TOOLS 4, CARTOONS, GRASP VIDEO and CROSSWORD CREATOR.

First away from the platform is Archive Tools 4. This new diskette collection includes LHAR112, the new Japanese archiving program. This new program is PUBLIC DOMAIN, not shareware as most of the other programs of this type are. It has, in tests that I have carried out, consistently produced .LZH files that are even smaller than PKZIP. However, it does have one major problem, and one minor problem. To achieve this compression, it sacrifices speed and is as slow as a wet week when compressing files. But, it does make those .LZH files bloody small. Another small problem with LHARC is the fact that it uses command line switches, like SEA's ARC program, to operate. This can be a problem for beginners to archiving. My recommendation is as follows; if you are a beginner to archiving or you only have an XT class machine (such as the PC1512/PC1640/PC2086 Amstrads) use PKZIP/PKUNZIP. If you have a faster machine, or you know your way around the archiving programs, use LHARC and get the slightly better compression.

Also on the same diskette are the following archive files:-

LHTOOLS.ZIP:- a collection of tools to help you use LHARC to it's best. From the same author as ZIP-KIT2 (also on this diskette) and PK-KIT71.

AM431.ZIP :- ArcMaster v4.31 is a menu driven file management utility. It also happens to include all the major archiving utilities as options. This new version includes PKPAK, PKZIP, PAK, ARC and LHARC so all are covered.

ZIP-EM.ZIP:- is a utility to convert ARC or PKPAK files to PKZIP files. Allows you to convert whole directories or whole disc volumes at one time. Requires PAK.EXE and PKZIP.EXE.

ZIP-KIT2.ZIP:- As spoken of above with regard to LHARC, this collection is to help you better use PKZIP.EXE.

ZIPQUIK5.ZIP:- This is another program to convert from the various other format to PKZIP.

The second diskette for this month is called CARTOONS. This is another GRASP animated demonstration, and includes a lot of scenes from Warner Brother's cartoons. The stars featured include Bugs Bunny, Daffy Duck, The Little Martian and many others. For those of you with only one disc drive, you may have trouble running this program as both GRASPRT.EXE and

CARTOONS.GL will not fit on the one diskette. However, any one that wants to try is quite welcome, and if you succeed please let me know how it is done.

GRASP VIDEO 1 is the second last diskette for this month, and is a collection of animated cartoons that work with GRASP. These include MTV (the MTV emblem doing wonderful things). MAXBALL (a pinball game played on Max Headroom's face) and VIDADI (an animated advertisement for a bulletin board in the USA). All of the GRASP diskettes include the GRASPRT.EXE run-time version of GRASP, and a RUN-ME.BAT file to make it very easy for you to use.

CROSSWORD CREATOR is the last diskette that we will look at this month. This is a program designed for all you crossword freaks out there. It allows you to create your own crosswords, write your clues and answers, and then give them to your friends to try to solve.

This program does include some demonstration puzzles for you to try, and they are pretty difficult to solve. Be sure to INSTALL CWC as per the instructions supplied, or the program will not run correctly. Also you may have to try more than one type of printer to get the best printouts, as some of the printers do not appear to print proper squares. Great fun!

We appear to have space to throw in another diskette, so here goes. Universe is a collection of EGA colour screens showing views of the universe and various objects from the sky. This runs under IBM's Story Teller Plus, and a run-time version is included. You will need EGA and a hard disc to run this demonstration, or at least a 720K disc drive as the pictures are so large that they occupy a grand total of 395k of disc space. Excellent pictures of CRAB. NEBULA, SATURN, JUPITER, EARTH, a QUASAR and THE MOON. If, like me, you are interested in space, this is an excellent diskette to have.

To make it easier for all to understand, I am again bringing the pricing structure to your notice. Any diskette that you purchase from now on will cost $7.50 each. No postage charges or other fees. If you purchase three diskettes, which appears to be the norm, it will cost you the same amount as before. Less than three per order, and it is less than before. I hope that this will clear up the problems regarding the correct amount of money to send. For 3.5" diskettes, order two diskettes and pay only $15.00 for each 3.5 diskette. Please remember that all 3.5" diskettes will hold two complete 360k diskettes, so make the best out of it. Also allow 14 days for me to get the orders out to you. Send your orders to the following address :

C.J. Collins, 1 Woods Street,
Newport 3015.

Well, that appears to be all for this month. Until we meet again, have fun with your computers!

FINESSE DTP

Graeme Kidd returns with part two of his review of 'Finesse' from AMS - the desktop publishing package with 'everything'.

FINESSE V1.1

Finesse runs under GEM, and unless you own an Amstrad PC clone, or already have GEM v3.0 on your system, your first task as a new Finesse owner is to install GEM. The documentation provided by AMS to help you achieve this is comprehensive, if a little unfriendly, and it might cause a fair bit of bafflement amongst GEM virgins attempting the task for the first time. In fact, the manuals - although well designed, tidily presented and supported by quick-reference charts - are perhaps the first weak point that one encounters with Finesse. Most of the weakness can be attributed to the fact that you get the manual for Finesse v1.0 with an addendum booklet that sets out the principal changes for v1.1. All well and dandy, but if you're the kind of person who likes to learn by following worked examples, be prepared for a spot of head-scratching. No doubt AMS is working on a new edition of the manual even as you read this, so the observation might be a little churlish on my part.

FONTWARE

The next major task on the pre-DTP agenda is installing some fontware. Finesse is accompanied by the Fontware installer software and most of the Dutch and Swiss typeface software from the Bitstream Fontware range.

Fonts have to be installed both for the screen display and for the printer. Using the Fontware installation package, you have to specify the devices you are using to a monitor and printer, and then select the point sizes you want and then wait for the program to make fonts. While GEM, and hence Finesse can theoretically handle fonts in any size from 6 point to 72 point, a system with a CGA card and monitor limits the smallest display font size to 10 point - and as Finesse doesn't support a magnification mode, 10 point becomes the effective minimum point size for your documents, even if the printer is capable of smaller things.

So if you want to use 10 point plain, plain italic, bold and bold italic you need to create and save eight fonts - each of the four faces in 10 point for the printer, and each of them in 10 point for the display. If you want to proof on dot matrix and then produce final output on a laser printer, you'll have to create the four faces in 10 point for the laser printer as well and pop into GEM setup when you want to change printers. Some savings can be made on the display fonts - GEM will use a 10 point screen font to display sizes that are a multiple of 10, and given the resolution of most PC displays this 'what you see is nearly what you get' should do fine for most people. You might get away with approximations of italic and bold faces at print-time as well, but for perfect results you are going to have to accept that fonts need to be created.

All these fonts can rapidly eat up hard disc space - you can fiddle around, sneaking fonts on and off floppy discs, but for more than casual Finesse-ing use of a hard drive with a fair bit of room is well advisable. Creating fonts can also take a long time - creating 30 font and face combinations for the purposes of this review (a modest selection of sizes in plain, plain italic, bold and bold italic for both Swiss and Dutch) took some three hours. Fortunately, you can call up a time and space estimate from the Fontware installation program before you start making 'em, and nip off to the pub while it all happens...

BACK FROM THE PUB.

Returning to your computer which now holds all the faces and sizes you plan to use, it's time to start exploring Finesse itself. If you're lucky enough to be running GEM v3.0 on a 286 machine, you'll be amazed at the speed - faster than yer average Mac SE guv...

Not surprisingly for a GEM program, Finesse is operated through a series of pull-down menus, which give access to a pretty powerful set of options. These pull-down menus are supplemented by options menus that appear in the left hand area of the screen, and once you get the hang of what you're doin, many of the commonly used commands can be accessed via keyboard shortcuts. In use, Finesse is certainly friendly.

FILE allows you to mess around with files to your heart's content, opening and closing them, changing their names and sending them off to the printer. You can also hop out to the scanner via the file menu, capture an image and then return to Finesse and the document you were working on - useful when you suddenly need a new graphic.

Up to sixteen A4 pages can feature in a single Finesse document, and they can be defined as left or right pages at your whim. The PAGE menu allows you to GO TO pages in the current document, add or delete pages or meddle with the design of master pages. Master pages? Yes, Finesse allows you to set up template layouts and save them empty, which avoids repetition when you want to produce a document with all the pages in the same format.

The empty page in front of your Finesse works on a box basis - boxes may contain an image file or text,

and can be drawn on screen or moved around or re-sized at will. The boxes, or frames, don't print - they exist purely as a guide for your convenience. Only one box can be active at a time - and the current box is the one you work on with the tools and menu bar options.

Text boxes can be chained together, so that your words automatically flow from the bottom of one column to the top of the next, for instance, and Finesse has a very friendly system of chaining that allows you to step forwards and backwards through a chain of linked boxes, adding or deleting boxes as you go if you so wish. You can either type text directly into a text box (tedious for large chunks of text as the display makes avoiding typos difficult and the program has to shuffle everything below the typing point down which takes time, but fine for captions and headlines), or import text from word processor files you prepared earlier. Thoughtfully, AMS includes several conversion utilities that prepare wordprocessor, and even dBase, files for DTPing, removing unwanted carriage returns and control characters which might get in the way.

Unfortunately you can't prepare text on your word processor, embedding format command for changes of face or point size, but that disadvantage can easily be lived with. Text may be edited using the mouse-driven cursor with cut, paste, find, replace and copy commands. Chunks of text can be highlighted by dragging the cursor over them with the mouse button held down and then popped into different faces, type sizes or alignments within the box. As you'd expect text can be ranged left or right, centered or justified to the boundaries of the text box holding it.

With a little exploration of the facilities, quite sophisticated things can be done with text boxes - you can fill a text box with a variety of tones and then place text over it, and overlay two text boxes, pushing one to the 'back' of the page and pulling the other to the 'front'. A box in the foreground can be set to a 'hollow' fill and can then be laid over a box in the background, and when the document is printed the two frames will not interfere with one another. This is useful if you want to place text in unusual positions.

Line spacing, or leading, can be altered, but there is a default setting which seems a little generous, particularly on some italic faces - you can increase leading from the default, but not reduce it. Illogically, for a program that deals with typesetting, Finesse only allows leading to be increased in hundredths of an inch or centimetre, and no-one, but no-one specifies leading in anything other than points. A strange shortcoming. More annoyingly, the leading sometimes misbehaves when you insert an italic or bold word in the middle of a line of text - the line spacing for that line tends to increase. Again, you can work around this, and the next version of Finesse will no doubt behave impeccably...

As you can see from this 10 point sample, the quality of text produced by Finesse on a laser printer with a 300 x 300 dots per inch resolution (supplied by Hewlett Packard for this review) is quite a bit better than output on a dot-matrix printer with a resolution of 120 x 144 dots per inch.

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Another pain is the fact that there is no automatic hyphenation facility, which means that if there are going to be any wordbreaks in your justified text, you are going to have to put them there. Careful attention needs to be paid to this, as Finesse will pad out a line with spaces between letters as well as with spaces between words which can produce ugly results, particularly if you are using a fairly narrow column measure.

And for some reason, if you have capital letters in the first line of a text box, Finesse has a habit of clipping a sliver off the top of the characters when the file is printed. Annoying, and partially solved by making the box a bit taller and putting in a line return before the text. Only partially solved, because if you flow the text into a column to the right, it proves impossible to align corresponding lines of text exactly. The kind of irritating thing that AMS will no doubt fix in version 1.n...

Individual paragraph definitions may be set up, with values, for first line indents, left and right indents for the whole paragraph and other such useful parameters - and then a paragraph style may be copied and implemented elsewhere in the document. A neat touch, even if you don't get to work in picas and points but remain stuck with decimal fractions of inches or centimetres.

Very much on the plus side, for typographical fusspots, is the kerning facility that allows you to adjust the spacing between letters in a word, closing up narrow charac-

As you can see from this 10 point sample, the quality of text produced by Finesse on a dot-matrix printer with a new ribbon is quite acceptable.

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ters or giving wider characters a little more room to breathe. Often a headline doesn't look quite right until you have diddled around with the spaces between individual letters, and the inclusion of a kerning facility earns Finesse several plus points.

PICTURES ON YOUR PAGE.

Finesse handles pictures very elegantly. Once you've drawn a picture box, you can import a bitmap file or metafile, which may have been prepared with the scanner or another GEM package, and automatically scale it so that it fits into the box in proportion to the dimensions of the original. If you really want to fill ALL of a picture box with an image that is not in the same vertical and horizontal proportion as the picture box you can 'scale to fit' which distorts the image somewhat. And herein lies a creative tool - if you capture text with an art package or the scanner and save it as a picture file, 'using scale to fit' opens up a whole new world of typography, especially for headlines. Want a condensed version of 20 point Dutch bold as a headline? Simple, type the headline in 20 point bold Dutch, print it out, scan it back in and then shrink it with 'scale to fit' until you're happy with the effect. Similar fun can be had with pictures, as the Dennis the Menace examples printed last month with this review reveal.

Pictures can be cropped as you import them - that was how the Dennis character was removed from the full cartoon frame - but they can't be flipped or rotated. You can only put a scaled version of what is in the picture file onto the page. Sadly, you can't run text around the shape of a picture or realistically overlay a caption into a picture, but this is not Ventura, after all. C'mon.

GETTING THINGS STRAIGHT.

Lining up your picture and text boxes can be made less painful by setting up a grid on the blank page - you can have horizontal as well as vertical gridlines, and the whole system can be toggled so that boxes snap to the nearest gridline as you move them around. Rules can be called onto screen to help you measure where on the page you are going to put an element, but you can't relocate the origin of the rulers, and it would have been helpful if the horizontal and vertical orientation of a box appeared on the rulers when you started moving it. You can work around these inconveniences, and might need to produce a couple of test printouts before you get your layout perfect.

Rules may be drawn on the page, virtually at will, in a variety of styles and widths, and don't forget - if you want particularly thick tone rules, fill an appropriately-sized text box with one of the fill patterns. And tabular work is made easy by the 'set tabs' option - without too much effort you can be producing sophisticated tabular material complete with rules and other titivations.

SEEING WHAT YOU GET.

Finesse allows a page to be viewed actual size - the only time you can really work on it - or an entire page or spread can be made to fit into the display area. It's a shame that Finesse doesn't allow you to work on an enlarged page, say two times actual size - it would make positioning the cursor in the middle of 10 point text on a CGA monitor much easier. And reading it, for that matter.

The 'show layout' option allows the contents of picture or text boxes to be 'suppressed' - the name of the text chain or the source picture file appears in a box, rather than the contents - and this can save quite a bit of time when moving around on a page, as areas of the screen no longer have to be re-drawn whenever they are moved or overlaid by a GEM window.

AND FINALLY

Don't be put off by the shortcomings mentioned in this appraisal. In getting to grips with Finesse, I came across quite a few niggles but was nearly always able to find some sort of cheat to let Finesse take me where I wanted to be. Which is the way you have to work with just about any DTP package, and Finesse compares very favourably with systems such as Quark Express (far more expensive and for which you have to buy a ludicrously expensive Mac to run the program on) or Ventura (again, in a totally different price league - over $1000).

Finesse on its own is pretty powerful. Add in the AMS Microscan and a mouse if you haven't got one, and you've got a bargain. Finesse is an excellent introduction to DTP, and there's every chance that you'll stick with it unless you want really mega-high-powered typographical results and a really lazy time getting them.

Just make sure you register with AMS and keep on the trail of Finesse upgrades.

Pactronics

First with the Best!!

PC - MAILSHOT PLUS

The worst job in most offices is printing labels. MAILSHOT PLUS overcomes all of the problems normally associated with label printing, and then has many unique features to further enhance its usefulness. It is designed around a true WYSIWYG appearance when your data entry area is an exact representation of your actual label, what you put on the screen IS EXACTLY WHAT YOU GET ON THE LABEL. One truly unique feature is that the program will automatically detect DUPLICATE ENTRIES, thereby saving you time and money, and saving your customer the frustration of receiving duplicated "junk" mail.

- **WYSIWYG - EXACTLY**
- **FULLY MENU DRIVEN BY KEYBOARD OR MOUSE**
- **AUTOMATIC DETECTION OF DUPLICATED ENTRIES**
- **SORT BY ANY LINE**
- **SEARCH FOR ANY DATA, ANYWHERE**
- **TABULATED REPORT SUMMARY**
- **UP TO 12 LINES PER LABEL, PLUS 4 NON-PRINTING MEMO LINES**
- **UP TO 48 CHARACTERS PER LINE**
- **UP TO 9 LABELS WIDE, UP TO 9 COPIES OF EACH LABEL**
- **UP TO 3000 LABELS PER DISK**
- **CONSECUTIVE LABEL NUMBERING (IDEAL FOR SERIAL NUMBERS)**
- **IMPORT ASCII FACILITIES**

PC - E-TYPE

E-TYPE will transform your computer and printer into a fully fledged electronic typewriter. It's the perfect program for all those "fiddly" little jobs, filling in forms, quick memos, addressing envelopes etc. E-TYPE is suitable for EVERY printer as it allows you to set up your own control codes.

- **FOUR MODES OF PRINTING**
  - Character by character
  - Line by line
  - Line by line justified (with optional wordwrap)
  - Line by line aligned
- **LOAD AND PRINT ASCII FILES**
- **ON-LINE HELP SCREENS**
- **USER DEFINABLE PRINTER SETTINGS**
- **FULLY 'WYSIWYG', ALL PRINTER SETTINGS (eg. BOLD) ARE DISPLAYED ON THE SCREEN.**

PC - DAY BY DAY

DAY BY DAY is the perfect electronic secretary. It incorporates a diary and an intelligent calendar into an efficient time management/scheduling tool. It has been carefully designed to provide a wide range of useful facilities for both home and office use.

- **FULL CALENDAR/DIARY/PLANNER FACILITIES**
- **STORE UP TO 1000 MESSAGE/ APPOINTMENTS**
- **SORTS APPOINTMENTS INTO DATE AND TIME ORDER**
- **"URGENT" NOTICEBOARD**
- **"OVERDUE" NOTICEBOARD**
- **MONTH/WEEK/DAY PLANNER**
- **ONE WEEK'S ADVANCE NOTICE OF UPCOMING EVENTS**
- **FULLY AUTOMATIC REMINDERS OF MESSAGES THAT ARE URGENT/ OVERDUE/UPCOMING IN ONE WEEK**
- **MONTH AND WEEK SUMMARY AT A GLANCE**
- **FULL PRINTING FACILITIES**
- **ABILITY TO GROUP RELATED MESSAGES**

Available from: **John Martins, Harris Scarfe, West End Computers (Vic & Qld), Harvey Norman, Grace Brothers, Computer Base (Castle Hill & Bankstown), Maxwells of Rockdale, Ettalong & Melbourne, Steve's (ACT) or other retailers around Australia.**

For the nearest retailer in your state contact:

NSW: Pactronics P/L, 33-35 Alleyne Street, Chatswood **(02) 407 0261**
VIC: Pactronics P/L, 51-55 Johnston Street, Fitzroy **(03) 417 1022**
QLD: Pactronics P/L, 12 Stratton Street, Newstead **(07) 854 1982**
SA: Baringa P/L, **(08) 271 1066** ext. 6132
WA: Pactronics WA, Unit 13, Rear 113 High Road, Willeton **(09) 354 1122**
NEW ZEALAND: Micro Dealer, 60 Terakau Drive, Palupanga, Auckland. **(09) 279 9300**
MAIL ORDER: The Amstrad User, 641 High Street Road, Mount Waverley, Vic 3149. **(03) 233 9661**

ADVENTURER'S ATTIC

Philip Riley spends some time this month looking at machine-code programming. "But this is the adventure section", you holler. Be not dismayed, everything will be explained...

I thought that as we are doing a series of articles on machine code encode/decode it would be wise to discuss using machine code routines before we actually look at any routines.

You may have seen machine code routines in mags before, in one of two forms. The most common form for mags is a mass of DATA that is POKEd into the computer. The other form is assembler mnemonics (what a word eh!). These cannot be put directly into the computer - you need an assembler to input them into the computer, assemble them and save them to tape or disc. Both forms do exactly the same and it matters not which form you use, so don't go rushing out to buy an assembler as you won't actually need one to run the routine that will be published next month (yes you have to wait until next month for the routine).

When looking at machine code routines you will have noticed many commands like HIMEM, CALL, MEMORY and of course PEEK and POKE. So lets take a look at them one at a time.

HIMEM is the highest point in memory available to the user. As you know you have 64K of memory on a CPC464 but only just over 42K is available for your use; the other being taken up by things like the screen and keyboard buffer and many other useful little bits and pieces, and to be perfectly honest if we took these things away your little Amstrad would not do too much at all.

When you write a basic program it starts near the bottom of memory (somewhere just over 300 if I remember rightly). As you add to your basic program it slowly claws its way upwards gobbling up memory.

Have you ever thought about Variables and what happens to them when you bring them into this harsh world? Even variables have to have a home, you know. Well, they reside in the top of the free memory. They start at himem and start crawling downwards also gobbling up memory as they go. The Amstrad is not a very good town planner, unfortunately, and it will allow string variables to move house frequently. In fact every time you change a string variable it moves down to the next piece of free memory and rewrites it. If you have been using a lot of strings then it can be wise to send in the bulldozers and clear out all the old unwanted strings. You can do this by doing a garbage collection as follows:

```
a=FRE("")>
```

But now we are getting away from the point a little. So HIMEM tells us the highest point in memory that we are able to use.

MEMORY commands changes HIMEM to a different point in memory, usually a lower point. Why would we wish to lower the amount of free memory available? Because machine code routines have to be put into a section of memory and used as needed. So we put them into the highest piece of memory available. We therefore lower HIMEM so that if any variables are used they will not overwrite the machine code routine.

CALL This command calls up our machine code routine. Machine code routines are not run in the usual way but are loaded into memory and used as required by CALLing them.

POKE We have looked at PEEK and POKE in previous articles but we will give them another quick look over today. POKE is a command that is used for putting data into the computer. As you have seen with DATA based machine code routines, the data is read and then POKED. What is happening is that the machine code routine is being put into memory one piece at a time.

PEEK will give you the value of a particular piece of memory and can be useful as can be seen in the previous routines in this series.

And thus endeth the lesson for this month. Next month is the big one, the machine code routine in person and what will be the last of this series on encode/decode. But, rest assured I have already got the next one planned. Hopefully I will be able to cram even more data into your Amstrad in a few month's time. But don't worry, I have another machine code routine planned for all you adventurers out there. So until next month keep on adventuring and don't forget to buy next month's mag for the big machine code routine (actually it's quite small really). *(Plug, plug - Ed.)*

QUESTIONS

Barry Ellbourn is stuck in the Firebird game Realm - so far he can get every planet except Saturn. The clue is that the switch needs oiling, but he cannot find a switch. He has found something that looks like a chain but nothing else.

Chris Maloney is stuck in Manhunter in New York. He is on day 3 and has got modules one, two

and three and is now completely stuck.

Chris would also like to know if The Attic is for fantasy role playing computer games. I don't see why not as really these are a type of adventure.

ANSWERS

We only have one answer this month and it actually was going to be part of last month's column, but we ran out of space. It's from John James McVey, a whopper, and concerns View To A Kill. It's titled How To Get Into Room 23:

Make your way to room 23 (well, that was easy wasn't it - no wait there is more here yet). On the right side there's a box of specks (not numbers or glasses, John would just like to add). Jump into it and go right. To get back use the grapling gun next to the left wall and move up bit by bit, testing for the way ahead.

The next section is just as John has given it to us:

Second helpings anyone?

Ya wanna have sumik daht wiihyooll bwoh ya mined????

Place thy person within any of the lift shaft rooms. Obtain the lift and proceed in a downwardly direction.

Once thou art in the locality of the base of the shaft, position thyself near the edge and jump.....(John sent in some pictures but we were not able to print them. I hope I have interpreted them correctly).

Once this task has been seen to, nudge thy joystick/keyboard until our hero finds himself (or herself) on the little sloping section to the left.

Obtain the lift. It should appear below the buffer restraints; board it and proceed once more in a downwardly direction. WARNING: the following scenes are highly explicit and.....

Wanna see a nude program (I'm not sure where John is leading us here)*??? Follow the above instructions and prepare for "My oh My" type stuff. Pretty neat, huh.*

(It's some weird graphics, not dirty scenes etc.)

Well, we can't top that one so we will finish it here. I just wish I knew what John was talking about! If anyone can work it all out please let us know. Talking of naughty scenes, if anyone out there has Death Wish 3, watch the scrolling screen for a few minutes and you will see a body being dragged away. Unfortunately it does not look like this at first glance.

Please note that James Green is not on the contact list at the moment as he is changing his address. We hope the move goes well for him and that he will be back with us on the contact list soon.

ADVENTURER'S CONTACT LIST

(Please don't abuse the help being offered)

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RYE VIC 3941

CPC: Bard's Tale, Necris Dome
PC: Bard's Tale, King's Quest I, II, III, IIII, Police Quest I, II, Space Quest I,II, Leisure Suit Larry in the Land of the Lounge Lizards Leisure Suit Larry Goes Looking for Love (in several wrong places), Mixed up in Mother Goose, The Black Cauldron, Demon's Forge, Hitch-Hiker's Guide to the Galaxy.

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The Pawn, Guild of Thieves, Jinxter

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The Hobbit, Forest at World's End

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

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

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

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Aftershock, Imagination, Seabase Delta, Necris Dome

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

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

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

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PC Games; Zork I, II, III, Bard's Tale I, Hitchhiker Guide To The Galaxy, Kings Quest I, II & III, Police Quest, Space Quest I, II, Land Of The Lounge Lizards, The Hobbit, Castle Adventure, Crime Adventure, New York Adventure, Ultima III, Buckaroo Bonzai, Wishbringer, Enchanter.

Bobby Lockett
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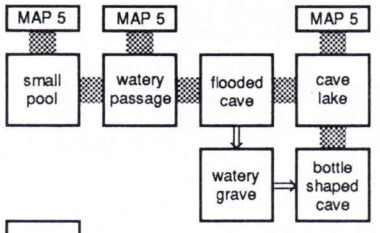
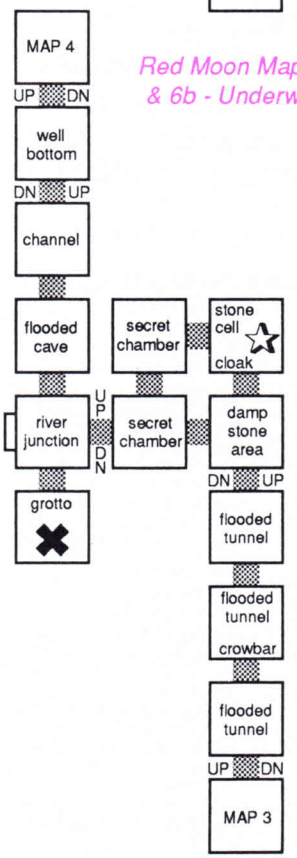
Prospect. Tasmania. 7250.

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

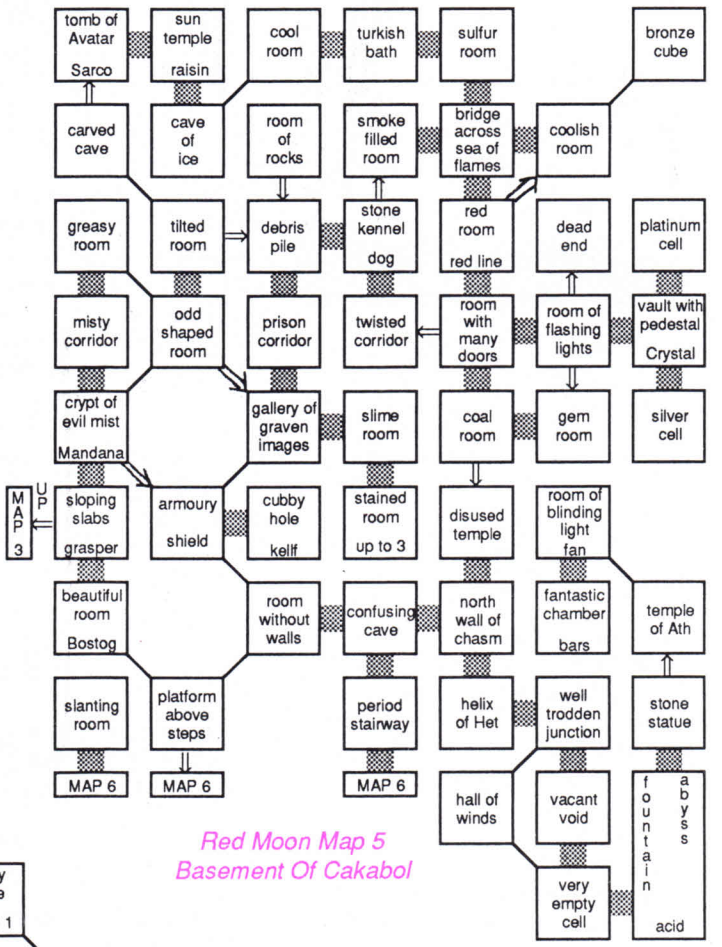
MORE MAGIK

Proving extremely popular, these maps are the creations of James Green, touched up by our workaholic Graphics Department. And there's even more coming next month.

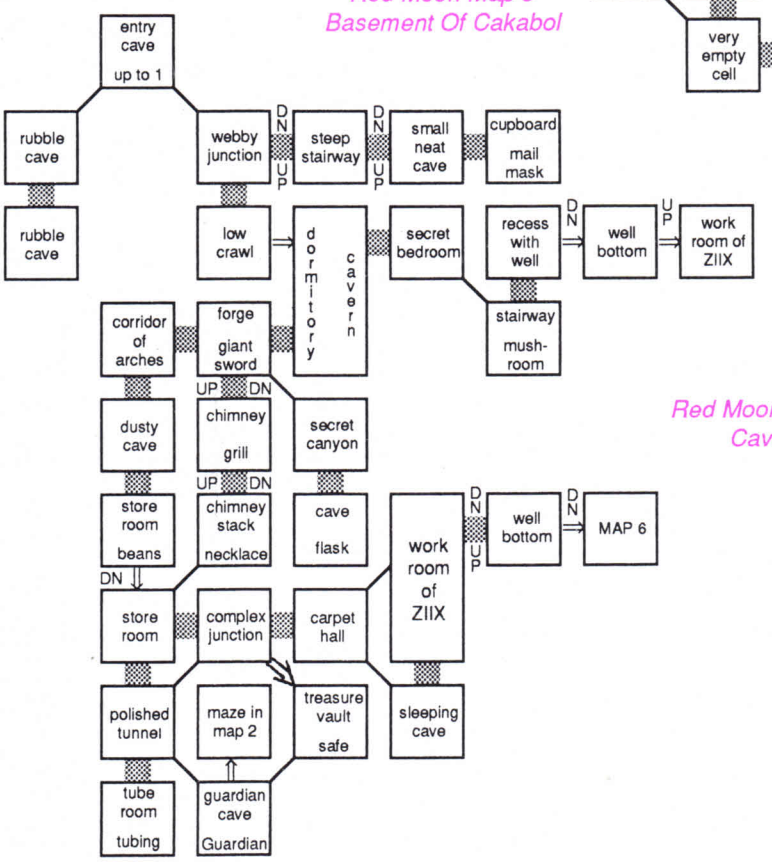




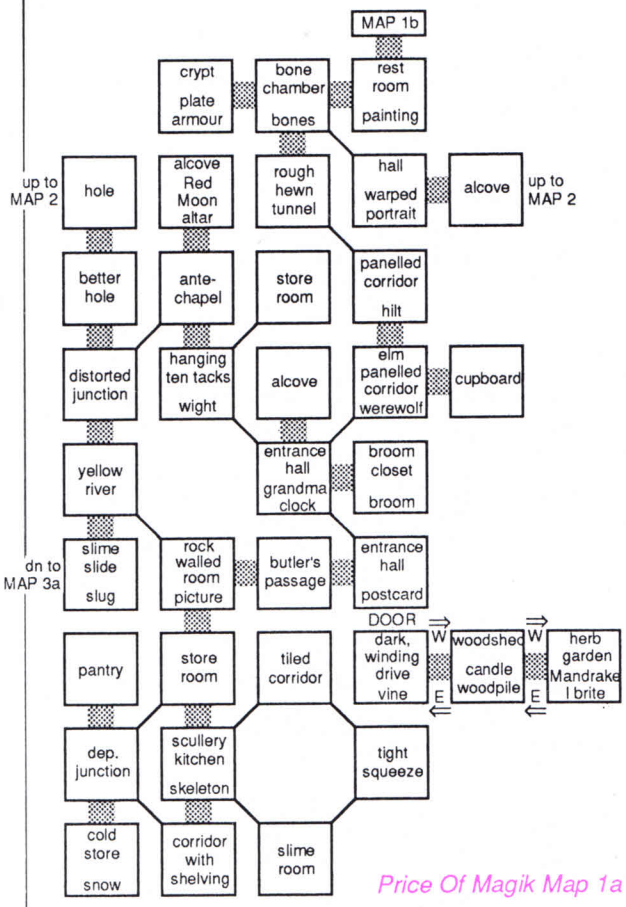
Red Moon Maps 6a & 6b - Underwater



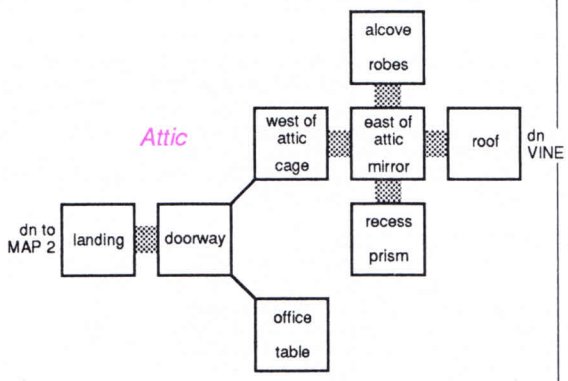
Red Moon Map 5 Basement Of Cakabol

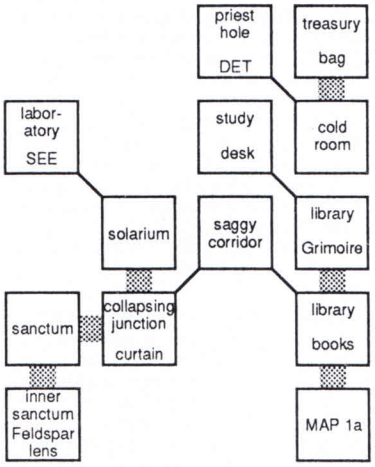


Red Moon Map 4 Caves

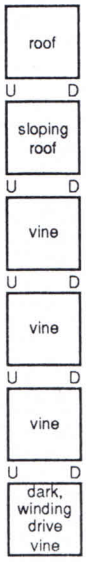


Price Of Magik Map 1a

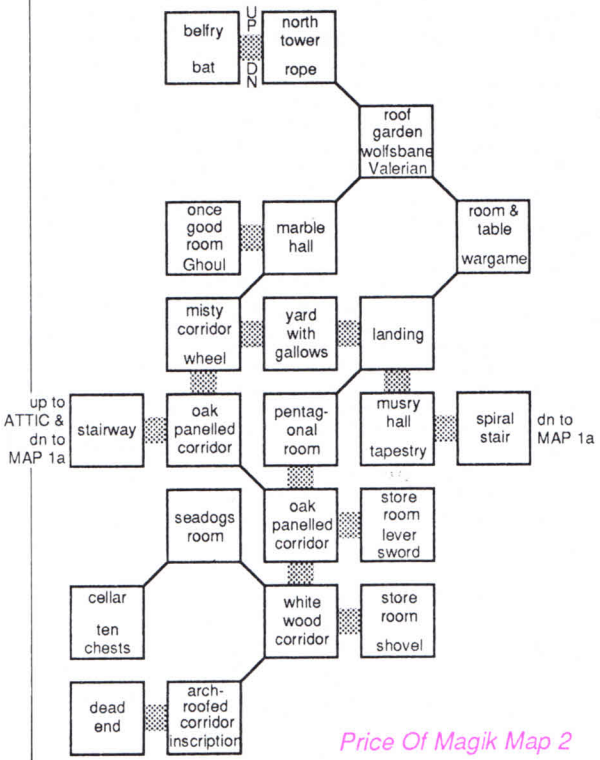




Price Of Magik Map 1b



Vine



Price Of Magik Map 2

LEGEND

⇐ ⇑ ⇒ ⇓ ..... *Move in indicated direction only.*

✖ ☆ ..... *Hiding places of NEZZON and XIIZ.*

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/M v2.2 emulator* • *Make* - allows you to copy files across user areas • *Cleanup* - useful for speedy file deletion • *Lookat* - speedily lists any file in Hex and ASCII • *Screen Dump* (CPC only) • *Password* • *Easy Lister* • *Password Protection* • *File Scrambler* • *File Splitter* • *Directory check*

CPC Ref: #606 PCW Ref: #806

TEXT PROCESSING UTILITIES

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

CPC Ref: #607 PCW Ref: #807

DISC ORGANISATION

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

CPC Ref: #608 PCW Ref: #808

Z80 PROGRAMMER

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

CPC Ref: #609 PCW Ref: #809

'C' PROGRAMMER

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

CPC Ref: #610 PCW Ref: #810

'C' TOOLBOX

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

CPC Ref: #611 PCW Ref: #811

FORTH, STOIC AND 'C' INTERPRETER

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

CPC Ref: #612 PCW Ref: #812

GAMES COMPENDIUM

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

CPC Ref: #613 PCW Ref: #813

ADVENTURES

• *Colossal Cave Adventure* which originated on main frame computers. With game save and 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*** •

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

Send Your Order to:

The Amstrad User,
641 High Street Road
Mount Waverley, Victoria 3149.
Phone: (03) 233 9661

Our list of software, peripherals, books and consumables for the Amstrad range of computers continues to grow with another swag of 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!

THE AMSTRAD USER

Comprehensive catalogue of Entertainment and Business Software, Books, Add-ons and Consumables for Amstrad computers.

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By Mail:
Send a cheque, money order or quote your credit card number and expiry date (Mastercard, Bankcard or Visa) with your order to the address shown below.

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Have your credit card and expiry date ready and ring (03) 233 9661.

The Amstrad User
641 High Street Road
Mount Waverley
Victoria 3149

MAIL ORDER: (03) 233 9661
SHOP: (03) 233 9211 (no Mail Order)

Please Note:
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
3-D Pool	**39.95**	**29.95**
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
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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
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Batman - The Caped Crusader	44.95	29.95
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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	due this month	
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
H.A.T.E.	**39.95**	**26.95**
Head over Heels	-	29.95
Hopping Mad	34.95	34.95
Hot Shot	37.95	29.95
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Hunt for Red October	-	39.99
Impact	49.95	-

CPC - continued

Impossible Mission II	39.95	29.95
Incredible Shrinking Sphere	44.95	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
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Last Ninja 2	44.95	29.95
LED Storm	44.95	29.95
Live and Let Die	39.95	29.95
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Mad Mix - Pepsi Challenge	44.95	29.95
Mach 3	32.95	24.95
Major Motion	44.95	29.95
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Mercenary Compend. (2 games)	29.95	19.95
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North Star	44.95	29.95
Not a penny more...	49.95	-
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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
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
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Star Wars	49.95	35.95
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Terramex	34.99	29.99

CPC - continued

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Thunder Blade	44.95	29.95
Thunderbirds	39.95	26.95
Time Scanner	39.95	26.95
Tiger Road	44.95	29.95
Titan	**39.95**	**-**
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
Wanderer 3-D	**39.95**	**29.95**
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

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Cerberus/Guzzler	22.00	-
Dizzy Dice/Joe Blade	22.00	-
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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
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Super Stuntman	-	9.95
Tanium	-	12.95
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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

CPC - continued

Fists 'n' Throttles		
with Thundercats, Ikari Warriors, Dragon's Lair, Enduro Racer and Buggy Boy	39.95	34.95
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with Zynaps, Exolon, Ranarama and Uridium Plus	**39.95**	**29.95**
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with Air Traffic Control, ACE, Spitfire 40, Strike-force Harrier, Tomahawk, ATF	49.95	39.95
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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	**out of stock**	
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.	44.95	39.95

CPC - continued

Time and Magik trilogy (disc for 128k only)
Lords of Time, Red Moon and Price of Magik 49.95 39.95

We are the Champions
with Renegade, Barbarian, SuperSprint, Rampage and International Karate 49.95 39.95

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

From LCL SOFTWARE

Micro Maths (Grades 9-11)	59.95	49.95
Mega Maths (Grades 9-11)	59.95	49.95
Micro English (Grades 9-11)	59.95	49.95
Primary Maths (Ages 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 (Rev'd Jul 89).

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 Blue-print, 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	-
Model Universe - 3D rotating drawing program	54.95	-
Rampak - nearly fifty machine code subroutines	44.95	37.95
Supersprites - sprite designing and control program	29.95	19.95
System X - adds over 40 new Basic extension commands	29.95	19.95

JOYSTICKS

STAR CURSOR - very tough, all Australian design and manufactured joystick with three year guarantee. Fully microswitched, fire buttons on base and handle. Adjustable 4- or 8-way action. 54.95

CPC - continued

***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

***NEW KONIX NAVIGATOR* - hand-held joystick with microswitch precision control, steel shaft and autofire feature. 12 month guarantee. 34.95**

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 Invaders	
Classic Quest Adventures:	
Goblin Towers (moderate)	49.95
Forestland (hard)	49.95
Witch Hunt (very hard)	49.95
Corruption	59.95
CP Compilation - *with 3-D Clock Chess, Backgammon, 3-D Draughts and Bridge 2000 all on one disc*	59.95
Distractions: *3 graphics games compilation: On the Run, 2112 AD and Nexor* §	59.95
Double T Patience - *compilation of six frustrating games including Kuala Lumpur, Poker Patience and Fourways*	64.95

PCW - continued

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
Strike Force Harrier	**49.95**
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
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)

Datastore II - *menu-driven customised report generator, mailing list and label printer. Can be used with type styler Supertype II.*

FLIPPER 2 - *splits your PCW (8256, 8512 or 9512) memory into two environments and lets you flip between them, eg. between CP/M and Loco2. Not suitable for LocoScript 1.* 89.95

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

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PERIPHERALS

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PCW - continued

Stops damaging spills etc. 29.95

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Stops damaging spills etc. 29.95

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DUST COVERS

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

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LocoScript 2 (v. 2.26) complete with manual 87.00

LocoScript2 (v. 2.66) Disk only 49.95

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):

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PCW - continued

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The following are for PCW 9512s
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Locomail2 Examples disc 17.50

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

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(English imported mag.)

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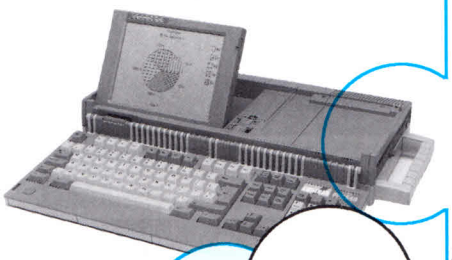

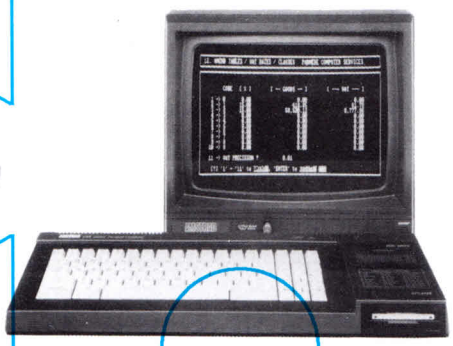

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MASTERFILE 8000

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!

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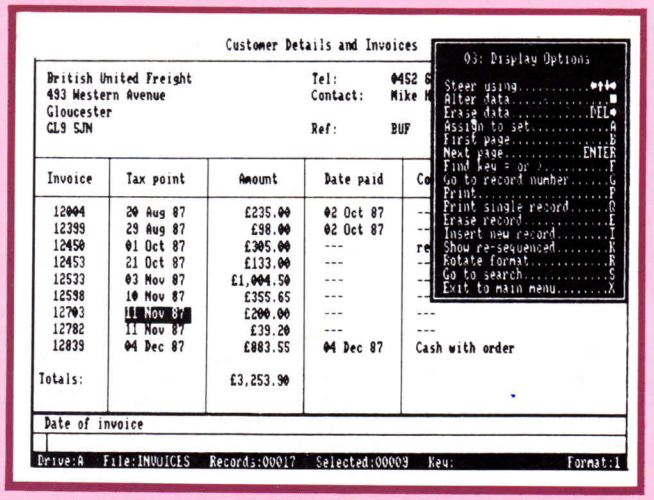

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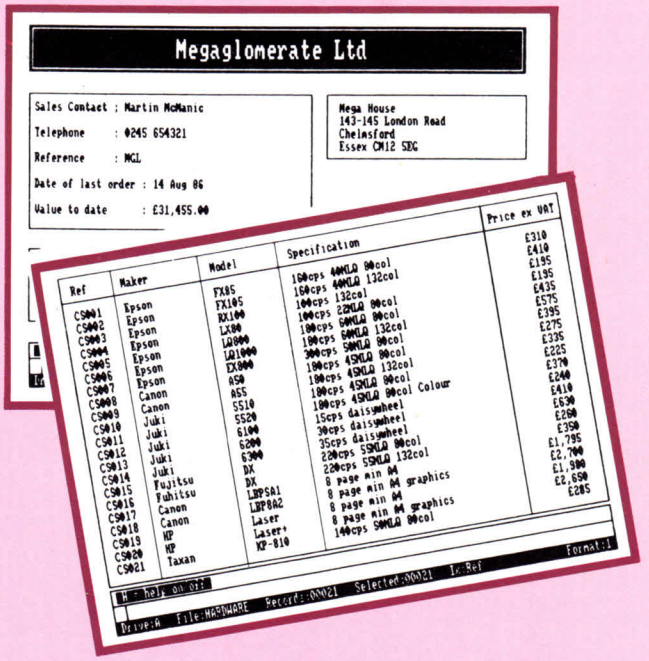
File searches combine flexibility with speed. (**MASTERFILE 8000** usually waits for you, not the other way around.) You can even assign subsets of a file into one or more of seven pigeon-holes for subsequent reference or further manipulation.



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