

The Aussie Mag
for Amstrad owners

THE AMSTRAD USER

FREE
16 page pull-out
Software & Book Guide
SUPPLEMENT

Issue No. 58 \$4.25

November 1989

SPACE HARRIER



- *New series on Expert Systems + Floppy disk drive project + King's Quest hint sheet + Part 3 of Fantastic Adventure*
- *Creating Boxes and grids with LocoChar + more on CP/M+ + RPED Tutorial for PCW and PC menu users*
- *PC data compression + Hi-res Graphic packages reviewed*

FOR THE NOVICE & EXPERIENCED USER

"Skweek"

and ye shall find!!!

- "The hottest game for '89!"

Hallelujah!!

In the beginning there was Chess, and it was good, but not that good. And Chess flourished, became popular and *begat* Checkers, which *begat* logical thought, which *begat* electronics, which *begat* computers. Then there was the computer game, and it was better; but not by much. The computer game attracted many to evil ways of "Fun", but it soon lost its appeal, and the many strayed.

Then LORICIELS *begat* "SKWEEK", and it was fantastic! The many returned and increased manyfold. There was great enjoyment in the land, and many even forgot about *begatting* anything else.

The beginning, the end and the middle was "SKWEEK", the constant **FUN** and the eternal frustration. **AMEN!**

MAX: 1:12:4

And lo! "SKWEEK" could *begot* at Maxwells Office Equipment (VIC), Grace Bros, Myer, Harvey Norman, Computer Spot, Steve's (ACT), Westend, and ye multitude of other retailers.



Every now and then, there appears a game that has the lot; Graphics, Music, Sound FX, Action, Strategy, Puzzles and above all else, that indefinable "something" that makes you come back time after time.

"SKWEEK" is that game for 1989.

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THE AMSTRAD USER

Issue No. 58 - November 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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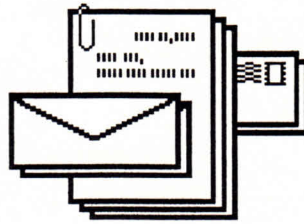
From time to time, some articles appearing in The Amstrad User will be reproductions from UK publications Amstrad Action, 8000 Plus and CPC Computing (formerly Computing with the Amstrad). The first two are printed under an agreement between Strategy Publications and Future Publishing Ltd, Bath, and the latter under an agreement with Database Publications.

The subscription rate (for Australia) is \$42.50 for 12 issues of the magazine only, or \$80.00 for 12 issues of the magazine plus tape (for CPC range only) containing programs appearing in that issue. Postage is included in the above prices. For subscriptions to New Zealand, PNG, Solomon Islands or Vanuatu please add \$21 airmail. Other overseas prices available upon application.

Please note that whilst every effort is made to ensure the accuracy of all features and listings herein, we cannot accept any liability whatsoever for any mistakes or misprints. Contributions are welcome from readers or other interested parties. In most circumstances the following payments will apply to published material: Cartoons \$10.00 and a rate of \$15.00 per page for programs, articles etc. unless otherwise previously agreed. Contributions will not be returned unless specifically requested coupled with a suitable stamped and return addressed padded bag (for tapes or discs).

The Amstrad User is an independent Australian magazine, in no way affiliated with Amstrad or their Australian distributors or any dealer in either software or hardware (TAU Shop excepted).

LETTERS TO THE EDITOR



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



As a relative newcomer to computing and one who is quite content word processing with PC-Write because of its flexibility, I offer this tip that may be well known but which I have not seen linked to PC-Write since I started the learning-curve with an Amstrad PC1512.

PC-Write supports a number of foreign and maths characters by the use of a keying sequence that includes the ACCENT key. For example, the symbol + is produced by sequential keying of 1 ACCENT 2, but for those of us who configure the keyboard to the UK pattern we lose the ACCENT key completely. Accessing the ACCENT symbols is simple enough using the ALT: number facility or, for regularly used symbols, a macro can be defined. A third method which works for the PC1512, and is the point of this note, is to invoke the US keyboard configuration by pressing [CTRL-ALT-F1].

This has the following effects on the 1512 (or any other PC -Ed.)

1. The hash sign becomes the ACCENT key;
2. The pound sign (Shift 3) becomes the hash sign;
3. "and @ swap places. The advantage of the keyboard-swap method is that there is no need to haul out the PC-Write manual to find the character number to use with the ALT key - merely invoke the help screens and use the

appropriate keying sequence. No, I had not forgotten - to restore the UK keyboard configuration press [CTRL-ALT-F2] and all is back to normal.

A. T. Miller



I recently purchased an Amstrad CPC6128, and a copy of STOP PRESS. Now I would like a ROMBO-CPC DIGITISER but nobody in Sydney has one, can you HELP? I'm sure I'm not the only one after this rare creature.

Michael Norton, Earwood, NSW

To our knowledge there is no distributor of this product in Australia. The only options left to you are to go directly to Rombo Productions in the U.K. or to a dealer there who will send it mail order. It will cost you at least £70.



I have just updated to an Amstrad CPC6128 got second hand from someone who just played games, and with the computer came a :-ELECTRIC STUDIO LIGHT PEN GRAPHICS PROGRAM, MODE 0 MODULE with disc, but they lost the instruction book so I can not get it to do anything apart from loading the disc. Can you help, or is there anyone in Townsville that can help me not only with the light pen but with the CPC6128, as I am updating from a steam driven Tandy job which can only write

letters. I am retired and cannot drive at the moment so cannot attend the User Club; I have phoned them but the list of committee in the Amstrad User is out-dated by 12 months and all I phone have moved on at that time so I get nowhere. I would be pleased with any help you can give me. I like the 6128, also the Amstrad User Mag. is great.

Reg. T. Wilson, Townsville, Qld

This letter raises two points of concern. Firstly that a number of user groups are not keeping us informed of changes and/or discontinuations which is an abuse of this free service. Please look at the October mag user group listing, and if it is incorrect, please let us know.

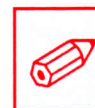
Secondly, we have been receiving a number of calls, letters and queries from people buying second hand Amstrads and peripherals only to later discover that there are vital bits missing. If you choose to buy a computer without a manual, printer lead or whatever, fine. But don't expect things to fall in your lap if you ring Amstrad, user groups or The Amstrad User. You may be lucky, you may not be.

Reg. Wilson can be contacted on (077) 798 463 if you are able to help with his problem.



I would like to have some information about the game called "The Living Daylights." I have an Amstrad PCW8256. I have had it since last year and I have not yet passed the first level. I have had to put up with this for a long time. I would like to know how to get past this level. Could you send me some information, please.

Antony Wyatt, Woodend, Vic.



I have been a subscriber to your magazine since Issue 14, and will probably be subscribing for a long time to come. I am 13 years old and I have a 464. I like your magazine and I wish people would stop criticising the way you distribute the magazine between the models. Why don't they try reading the sections for other computers and

maybe adapt a few programs and ideas to their computers, that's what I do. I don't have to say keep up the good work, because I know you will. (*Oh yes, don't stop, more! -Ed.*)

On closing I have a short program that allows you to LIST protected BASIC programs. I don't think it will work on BASIC 1.1 machines as I believe some of the firmware routines are in a different place (and probably the file type flag also). I do not suggest you use this as a means for copying software as very large fines can be imposed. It has two main uses -

1. Programs that you've protected and want to edit/change/look at can be recovered.
2. Look at commercial software to get ideas (but don't copy any) for your own programs. Maybe you could even adapt it to suit your own tastes.

To use the following program, type it in, edit it and SAVE it. Then RUN it. Now every second it

changes the file type flag (&AE45) to 0 (unprotected BASIC). Now load the protected program by using RUN". When it has finished press ESC twice. Please take note that this doesn't work with programs that use the ON BREAK GOSUB function early in the program. Just try it and see. Try to BREAK out of the program very early, but not too early or the machine code routine won't have had time to do it's work.

Here's the program:

```

10 FOR a=&BDF4 to &BE10
20 READ b
30 POKE a,b
40 NEXT
50 CALL &BDF4
60 CALL &BDFF
70 DATA &21,&17,&BE,&11,&0B,&BE,
&06,&81
80 DATA &C3,&EF,&BC,&21,&11,&BE,
&11,&32
90 DATA &00,&01,&32,&00,&C3,&E9,
&BC,&21
100 DATA &45,&AE,&36,&00,&C9
    
```

Note: The machine code usually isn't destroyed by a reset so to use again CALL &BDF4 and CALL &BDFF. If the computer resets after either of these commands then the machine code has been destroyed.

Kade Hansson, Port Sorell, Tas.



I got your magazine for the first time in quite a long while in August '89, and it seems pretty good so I asked my newsagent to keep me a copy each month from then on. I did get the magazine some time ago but I wasn't too keen on it then, so stopped buying it as it only seemed to cater to CPC users. However, it has improved a lot since then as there are good things on CP/M+ and the PCW in it now. I am also hooked on PD discs suitable for the PCW.

I used to get PD discs and other software from "Strategy Software" in Tasmania, but they are now closed down. So I was glad to strike

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your magazine and see that you also sell PD discs and other software for the PCW.

To put it kindly this place in Tasmania was pretty airy-fairy when it came to trying to find out if they sold PCW software. Their staff seemed to be pretty thick at times. I would even phone Tasmania before buying to get some sense out of it.

However, the result is that I have stuff that appears to be useless to me, that I have put to one side on a 5.25 inch disc. When they had their closing down sale I got three PD discs from them, that, after phoning they assured me would run on the PCW. So, it isn't the money I paid that annoys me, it is these handy programs that I can't get to work that annoys me.

So I was thinking that someone may know these PD programs and may be able to tell me how to get them to work on the PCW. The first of my problem programs is a Database Program (a Database generator and Report program generator). Someone there may know this program, the files are: C451.LIB, C451MIN.LIB, R451.LIB, REKEY.BAS, CREATOR.BAS, CREATOR.OVL, CREATOR.OVR, MENU.BAS, REPORTOR.BAS, REPORTOR.OVL.

The documentation, what there is of it, says to enter Basic and run Menu.Bas, or Creator.Bas directory. However, neither will run on the PCW's Mallard Basic.

The second program is Deskmate (Desk Master) and the files are : DESK-DM.BAS, DESK.COM, DDISK-DM.BAS, CALC-DM.BAS, INIT.BAS.

The documentation says this runs under MBASIC, and INIT.BAS will load it, but it won't load under Mallard Basic on my PCW. It gives the same error message (File type error). It seems a damn lie to sell a person this software when they know that one only has Mallard Basic on the PCW, especially after assuring a bloke it will work on the PCW. But as I said I could be doing something wrong.

Bruce Marten, Wentworthville, NSW



I have found that the Amstrad PCW hardware can be modified to address four disc drives (at least physically).

By tapping into the unit select lines of the PCW's disc drive controller chip, I can circumvent the PCW drive select logic, and implement my own. The lines are tapped at a convenient point after they exit the disc drive controller chip, but before they are processed by any other logic chips. By using the lines as input into a 74LS139 chip (a two bit input decoder, 4 line output) four drive select lines are produced, which replace the drive select lines provided by the PCW. I mounted this onto a buffered interface board. Four drives can now be addressed, using the Extended BIOS Jumpblock disc routines. These routines allow the programmer to place the 2 bit binary drive code (0-3) in the command and thus address drives 0-3. A disc sector editor I have written address these drives perfectly.

However, I have not successfully accessed the other drives from under CP/M (BDOS level), but this may be possible with a little patching of BIOS. There is a table of pointers in BIOS (at address FE63h), the entries of which point to the disc headers for the drives. The BIOS routine, SELDISC appears to search this table. If a drive exists, then SELDISC will find a legitimate address for the disc header, otherwise it will find zero.

So, if one tries to log onto a drive, either one is successful, or one gets an INVALID DRIVE error. Now, the third entry in the table (drive C:) can be loaded with the address given to drive B: (say, using SID). If one then types "C:" at the system prompt, drive B: will start to whirl, but drive C: will be recognized as the default drive. There appears to be some mapping in BIOS which links a disc header address to a physical disc drive. Note that drive B: still works as drive B:, so two drives are mapped onto one.

I have written an RSX which

provides a separate disc header and disc parameter block for drives C: and D: and loads the header addresses into the table. The crunch comes when attempting to log onto these drives. The PCW locks up, but one can still summon the printer controls by pressing [PTR], as though the PCW is waiting for something to happen. The problem seems to lie between finding a "live" entry in the table and getting the PCW to correctly map the entry to the correct disc drive and then access the hardware.

I am available for correspondence via The Amstrad User should any of the above be unclear, and would like to hear if anyone has ideas along these lines. Be warned: I am not an electronics engineer!

Paul R. Hunt, Toowong, Qld

PEN PALS

Growing at a phenomenal rate, this section is for guys and girls who want a pen friend. You can join this list by writing to "Pen Pals" care of The Amstrad User.

Deon Cameron
30 Ann Street
Coffs Harbour N.S.W. 2450

Richard Jacquemin (CPC464)
177 Railway Avenue
Kelmescott W.A. 6111

Matthew Jones (CPC464)
30 Perry Street
Mudgee N.S.W. 2850

Chris Maloney (CPC464 & PC)
20 Helena Court
Rye Vic. 3941

Stephen Phillipson (CPC)
16 Julia Drive
Bunbury W.A. 6230

Corey Powell (CPC464)
24 Campbell Street
Shepparton Vic. 3630

Damian Roy (CPC464)
PO Box 350
Mansfield Vic. 3722

Paul Tacey (CPC)
RMB 5134
Shepparton Vic. 3631

Kenny Thomas (CPC)
35 Doreen Street
Christchurch 7 N.Z.

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Paper Type	Find page
A4	????
✓ A4 Cont	End page here
11" Fanfold	Last line of page
2" labels	
► Use Paper Type	Keep current line with:
Show Paper Type	?? lines above
	?? lines below

LOCOSPELL OFFERS:

Spelling checker within LocoScript

Longman's 78,000 word English dictionary

An automatic correction facility

A word count for LocoScript

B: group 0/LETTER .WIG Checking spelling. Printer idle, Using B:M: Page 1 line 31/54
Layout 1 PiPS LSI CR+0 LP6
#1=Actions #2=Layout #3=Style #4=Size #5=Page #7=Spell #8=Options EXIT

Dear Peter

...e time now **SINSE** we last spoke conc...
...in the meantime, our needs for an u...
...significantly, and perhaps now is

Stopped at: sinse

Replacement: since

► Use suggested replacement
Replace and then edit
Edit this word
Consult dictionary
Ignore this word
Mark this word correct
Add to user dictionary

LocoSpell finishing
Words checked: 230
Words to add to dictionary: 4
► Update the user dictionary
Do not alter the user dictionary

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

NEWS BREAK

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

PACTRONICS POWERS ON

By the time you read this, Pactronics should have moved to Silverwater, NSW. The move to larger premises illustrates the rapid and consistent increase in stock lines of computer software and peripherals they supply to the Australian and New Zealand market. The new address will be 98, Carnarvon Street, Silverwater, NSW 2141. Whilst callers to the old telephone number will be re-directed, the new number will be (02) 748 4700.

Among the latest titles to be released from Pactronics are two games for the CPC on disk and tape. The first, from Hewson, is called **Nebulus**. It apparently contains some of the finest animation ever seen with a stunning use of graphics and addictive gameplay. The second is entitled **Eliminator**, also from Hewson, is a fast and furious, scrolling action game with brilliant soundtrack and game play. We wait with bated breath to see them!

Splash!

For the PCs comes the amazing fully featured drawing package **Splash**, written specifically for the VGA screen and providing a palette of 256,000 colours with 60 pattern and brush sizes. (It is reviewed this month). From the team that produced *Emmanuelle*, *Freedom* and *20,000 Leagues under the Sea* comes *African Raiders*. It features stunning graphics in an arcade-style, flat-out racing game based upon the world famous Paris to Dakar rally. Last but not least, **Speed Read**. This is a computerised training course that will not only dramatically increase your reading speed, but will greatly raise your level of comprehension.

CPC RELEASES IN THE UK PIPELINE

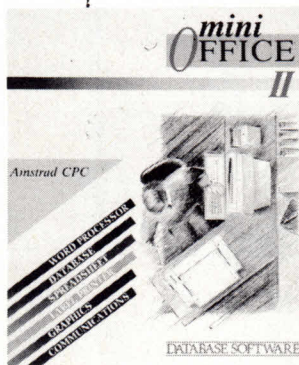
Infogrames, French producers of the classics such as *Captain Blood* and *Purple Saturn Day* (reviewed this month) have just announced their latest project title **Action Service**. It will apparently have over 20 joystick-driven commands to help the player in a fictional commando school, train to join the elite Cobra Force. Action will be viewed through a split screen system with slow motion facilities.

The latest in the Indy series, **Indiana Jones and the Last Crusade** is nearing completion. It's an arcade adventure in which you play Indy through four different stages. There is the search for the Cross of Coronado, a scramble across the roof of a fast moving train, a fight with the rats in the sewers of

Venice, and climbing the walls of a castle. The game is being subjected to a massive publicity campaign by US Gold who believe it will sell as many as *Out Run* and *Leaderboard*, the two biggest selling games of all time. It is rumoured that two versions may be released for the PCs, one an arcade and the other a straight adventure.

The next release from Target Games (their last one was *Rebelstar*) is about to be launched. It's called **Laser Squad** where you control a group of rebels destined to do battle against evil intergalactic corporations and law enforcement bodies. It is reported to be a cross between *Airborne Ranger* and *Aliens* and gives you the chance to play against your CPC or a friend.

MINI OFFICE II LANDMARK



The integrated word processor, database, spreadsheet and communications package from Database/Pactronics is hailed as one of the most popular and

successful CPC packages ever to be released. Database (in the UK) will soon be celebrating the sale of the 500,000th copy. It was originally launched in October 1984 as *Mini Office* for the first of the CPCs - the 464. Since then it has been updated to the current version, *Mini Office II*, and has also been made available for the PCW (as *Mini Office Professional*) and the PCs (as *Mini Office Personal*).

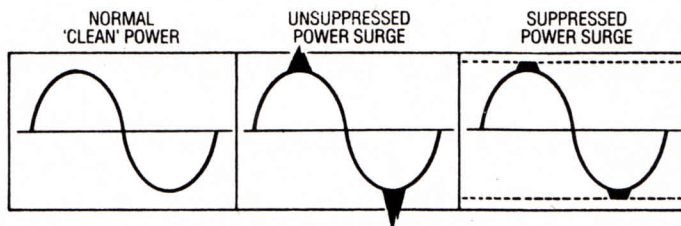
POWER SURGE PROTECTION

Unless you can afford to install a 'clean' supply of electricity to power your computer, you may well be subjected to supply fluctuations, commonly called surges or spikes. The high-voltage unsuppressed surges can be caused by indirect lightning strikes, the switching on or off of nearby machinery and appliances and certain other power line disturbances. The surges are usually of very short duration but they can be severe - up to 6,000 volts - and can occur on all three power lines, active, neutral and earth. They can damage valuable hi-fi, video, TV and other home appliances, especially home computers housing micro chips.

To the rescue comes the Click Surgebuster which detects and suppresses the surges within 25 nanoseconds. It effectively absorbs a power surge and protects your

equipment. So convinced are the Australian manufacturers of the effectiveness of their unit that a \$5000 free insurance offer, underwritten by Commercial Union Assurance Company of Australia Ltd., is supplied with each unit. The cover provides the registered user for repair of damage caused by power surges to domestic and office electronic equipment. for two years from the date of purchase. (The full details are printed on the packaging of each unit).

There are two units, both available through The Amstrad User (in our Mount Waverley shop or by Mail Order). The Surgebuster Junior provides a single socket protection while the Surgebuster 6 provides six protected power outlets. The price of each is \$39.95 and \$59.95 respectively.



LOCAL PC COURSES

If you are new to the world of PC compatible computers (and that includes the entire range of Amstrad PCs from the PC1512 through to the new PC2000 series), you may be one of the many who really don't know where to start. Some new users turn to local TAFE college courses but find they try to cram everything into a short space of time. For lucky Melburnians, the solution is at hand. A series of courses run over four nights (lasting about three hours each night) during a month are now being held in Blackburn and are designed to lead you through all the important initial learning stages.

Any jargon is kept to a minimum and no previous computer experi-

ence is required or assumed. Three tutors are available to give individual attention to all participants and each group is limited to 15. You are advised to take your own computer to the course, a sensible idea really when that's the one you will be using at home! At the end of the course you will go away with a comprehensive course note-book summarising everything you have learnt, and a feeling of confidence.

You can be book through The Amstrad User by sending the full course cost of \$135.00 or a deposit of \$85.00 to The Amstrad User, 1/641 High Street Road, Mount Waverley, Vic 3149, or by phone on 233 9661 and make payment by BankCard, MasterCard or Visa.

Tasman

SOFTWARE

Advanced text processing software for the AMSTRAD family of computers

TASWORD

The word processor. A TASWORD is available for every Amstrad computer, each making the best use of the computer's processing power and memory. Fast, efficient and thoroughly professional.

TAS-SPELL

The spelling checker option for Tasword. Use the dictionary provided to check your spelling, add new words at your choice.

TASCOPIY

For the 464/664/6128 family, prints out high resolution screen copies (up to poster size). For the PC, provides a graphics editor, graphics/text merge, font designer and screen snapshot to disc.

TASPRINT

Provides additional impressive print styles for dot matrix printers. Adds emphasis and distinction to your documents.

TAS-SIGN

Produces signs, posters or banners, either across or along the sheet. Definable character height, borders, shading.

Title	RRP(\$)
Amstrad CPC 464/664/6128	
Tasword 464 (cass)	59.95
Tasword 464-D/664 (disc)	69.95
Tasword 6128 (disc)	69.95
Tas-spell (disc)	49.00
Tascopy 464 (cass)	39.00
Tascopy (disc)	39.00
Tasprint 464 (cass)	39.00
Tasprint (disc)	39.00
Tasdiary (disc)	39.00
Tas-sign 6128 (disc)	69.95
Amstrad PCW 8256/8512	
Tasword 8000	69.95
Tas-spell 8000	49.00
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GAMES ARCADE

In the deepest recesses of the minds of a select group of games authors these titles were born...

THE GAMES REVIEWED THIS MONTH:

The Story So Far Vol 2
Chuck Yeager's AFT
Purple Saturn Day
Red Heat

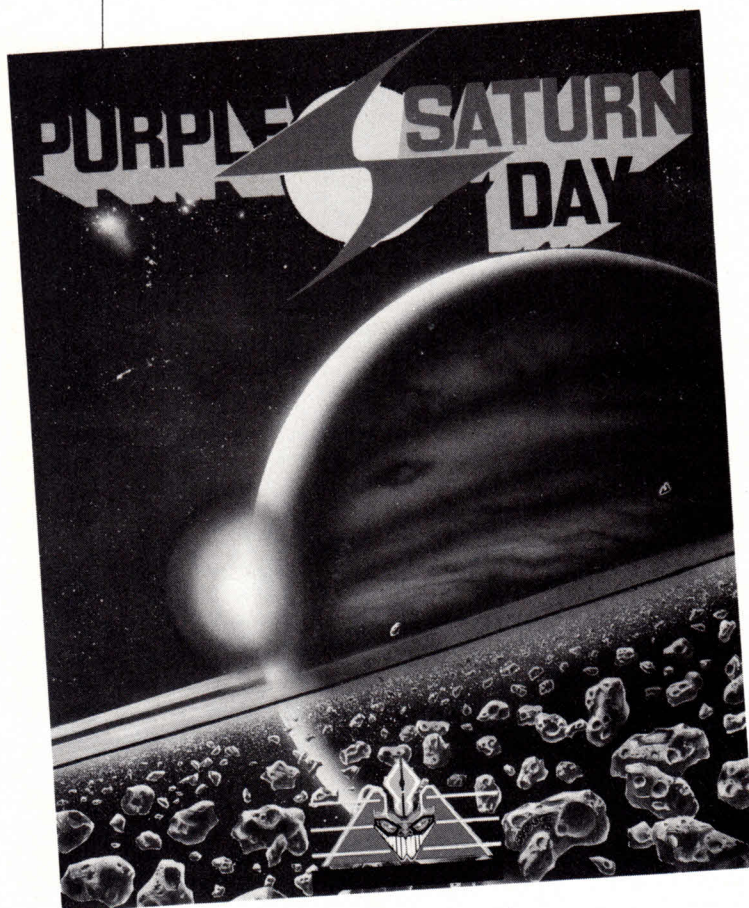
PURPLE SATURN DAY

An amazing and truly great game from Infogrammes

CPC Disc - \$39.95 CPC Tape - \$29.95

PC 5.25" or 3.5" - \$59.95

There is a danger that I may run out of superlatives when describing the game Purple Saturn Day (which I will call PSD for short). Infogramme followers will



remember the classic Captain Blood game from last year, the superb graphics, scenario and innovative gameplay that made it one of the best games for 1988. I have no doubt that PSD will also make a strong challenge for the top game of 1989.

The Purple Saturn Day Games are held every Saturn year between representatives of eight species of the universe grouped into pairs. Naturally, one of the species is a human (that's you) from the Blue Planet. Other species include Bulul from the Aserox Constell, Croolis from ancient Mastrochok and Shaaxa the refugee. The Games consist of four contests: the Ring Pursuit, the Tronic Slider, the Brain Bowler and the Time Jump - effectively four different arcade games. Each pair competes against each other in the four competitions, the winners going into the quarter finals, the semis and then to the final. Fortunately, you are not thrown into the action straight away - you get the chance to practice any of the four competitions against a robot. This is a must if you are to stand any chance of succeeding. It will also give you the opportunity to gauge how many sweat bands, hand towels and liquid refreshments you are likely to need during the actual competition, and I joke not! The four competitions can be taken in any order with the human and his opponent having the privilege of going first.

TRONIC SLIDER - is where you pilot a space scooter on an orbital game area, a little bit like a boxing ring with elastic ropes around the edge, and chase an energy ball. You must destroy the ball and collect the pure energy fragments. Some clever work with your joystick is called for here with standard movements (pushing to accelerate and pulling to slow down, and left and right) plus instant 90° turns or half turns available by pressing

the fire button at the same time. Once all the fragments have been collected a new ball forms and the race starts over again. Bumping into your opponent will make him release some of his fragments. The action in this frantic bumper car race in space is further enhanced by various obstacles appearing in the ring which increase in number as the game progresses. If it wasn't for the time limit, you could end up a whimpering mess.

BRAIN BOWLER - initially complex, but once you get the hang of it and understand what you are trying to achieve (and how) it becomes exceedingly addictive. The action takes place in front of a brain wall, each opponent responsible for activating one half of the brain's series of circuits to finally light six pins on a central control. The circuits contain switches, bridges and resistors which if hit will allow an electric charge to be guided nearer to the central pins (rather like a river with a series of dams). Each player controls an electro-ball which can be fired at the wall. The ball will bounce off the wall and return to its original position. There are 18 chips to hit, with four condensers available to top up with energy. There is also a short circuit chip which if hit will cause the moving charge to restart from the beginning. If that's not hard enough, your opponent can come over to your side and hit a short circuit, a vulnerable chip or resistor #1 (slows down the charge), steal energy from your condensers and really set the sparks flying. You can do the same to him but you seem to need about five eyes to keep track of everything that's happening.

There is no time limit in this competition (fortunately) with the winner being the competitor who successfully lights all six pins in the central Exxos. If you don't practice Brain Bowler extensively in the training mode you'll lose!

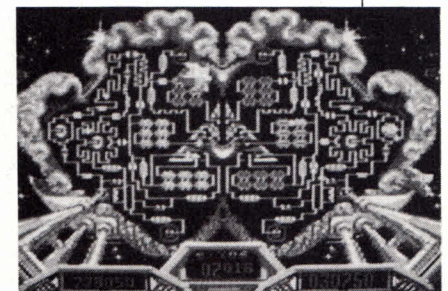
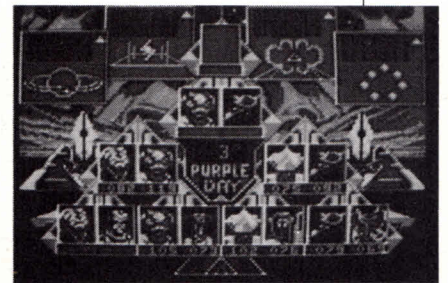
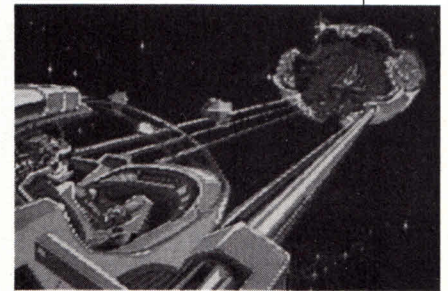
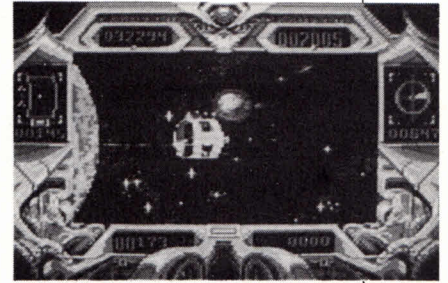
TIME JUMP - this involves being hurled into space (and the future) as far as possible by the means of a space catapult. Initially the catapult is wound up, at the same time releasing energy sparks. These sparks need to be collected as they race past your cabin window. An energy collector with cross hair sights is the tool you use to capture the sparks - the more you collect the further you will be fired through space. Once all the sparks have disappeared, you wind up the catapult to the limit and jump! If you have gathered sufficient sparks for a good jump (and plenty of points) you are hurled past the 'crown of the seven suns', exceeding the speed of light, to an initial white light explosion then pretty pictures of hyper-space.

RING PURSUIT - a sort of slalom race around the rings of Saturn. The idea is to complete a circuit of Saturn flying to the right of red space debris and to the left of the yellow ones, at the same time trying to avoid the asteroids which appear at lightning speed. Fortunately, your craft is not damaged by hitting anything, but you do get slowed down. It is a duel between you and your opponent without a time limit.

The rules are simple: if you are in the lead you must pass the markers correctly and you score lots of points if

you take the correct route. You give points to your opponent if you go the wrong side. You can shove your opponent to the side if you get the chance (and so can he) and you can also move outside the rings in order to catch up. The screen display provides a short-range radar showing both you and your opponents position, those of the markers, and the relative distance of your opponents craft. A smaller window shows your position in relation to the planet and the distance travelled. At the bottom of the screen is a clock, speed and a centre light which flashes when you are in front. The speed is awesome - it is very easy to push hard forward on the joystick (accelerate) to keep up but requires near super-human reflexes to keep control of your hurtling ship.

After all four competitions have been completed you either go on to the next level, or more than likely find you have lost and have to drop out - you'll welcome the rest anyway, the time to reflect on your performance and the game itself. Graphically, PSD is quite stunning and adds tremendously to the atmosphere of the Games (green screen CPC users will lose a bit in this department but not in the action). Each part of the overall competition is almost a game in itself and in that regard PSD must be considered a bargain. The gameplay is full of fast action, yet with a sprinkling of strategy. The concept of each competition is innovative, pushing both the player and the capabilities of the computer to its limits. I make no apology for saying that PSD is an arcade masterpiece and should be part of every self-respecting gamer's library.



RED HEAT

Schwarzenegger being gratuitously violent again

CPC Disc - \$39.95

CPC Tape - \$29.95



So another Schwarzenegger film hits the CPC screens. It's the story of East joining West to track down and destroy Victor Rostavili, a murdering Soviet drug

dealer. OK, I guess the theme is 'good triumphs over evil in the end', but the means to the end is somewhat harrowing. It seems that the only way to progress through the game is by destroying everyone in sight.

Level one takes place in a Siberian sauna against a number of 'boxers' who can be despatched with a good punch on the chin. Alternatively they can be 'head-butted' (*I thought they were boxers not basketball players - Ed*). Other adversaries are busy hurling large snow balls at Ivan (that's Arnie or you) to knock you over.

Level two takes place in a hospital in the USA with the 'head-butt' replaced with a howitzer. Here the carnage really takes on a new proportion with nurses, patients and anyone else getting in the way being senselessly removed.

The graphics are not up to much with only three colours being used, but the action, if you enjoy this style of game, is fast. The sound effects enhance the brutality. I didn't enjoy the game. It is just too violent for my liking, but I suppose there are people out there who do like this type of nasty, vindictive game.

CHUCK YEAGER'S A.F.T. CPC Disc - \$54.95 CPC Tape - \$45.95

Electronic Arts put your computer into a tail spin

PC 5.25" - \$54.95

Quite frankly, I'd never heard of General Yeager, or Chuck to his mates. Apparently he learned his flying skills from an instructor who "just slapped your butt in the front seat and demonstrated the plane, then moved you back, and then you had to learn all this stuff as it happened... that was the way you learned to fly because that was the way they taught you." Fortunately, the learning process is a little less traumatic these days, especially if you are sitting in front of a computer.

Nevertheless, Chuck Yeager's Advanced Flight Trainer still allows you the luxury of performing some hair-raising stunts without any danger.

What first sets Chuck's AFT apart from any other flight simulator is that you get to choose from fourteen

different aircraft. They range from a Sopwith Camel with a maximum speed of 113 mph to a Lockheed SR-71 capable of reaching Mach 3+ (over 2000 mph). The list includes three AFT experimental aircraft. The package is not a shoot 'em up, nor will you get much fun out of it taking a plane for a leisurely joyride. The whole point

about the program is to get you up into the air to test an aircraft to its limits, to perform manoeuvres to test the aircraft's capabilities, and in the end your own as a pilot.

The package provides a choice of a demonstration flight, flight instruction and aerobatics, test piloting, formation flying and plane racing. Naturally, if you have not handled a plane before your first choice would be the flight instruction mode which gives you a pretty heavy course in basic flying methods at the Ground School. Basic instruction starts with four fundamental flight manoeuvres - straight and level, climbs, descents and turns. As all manoeuvres are based on these, you need to make sure you understand them well and perhaps choose the observer option to watch the first flight before you take control. Of course, you also get instructions on take-off and landing! The tutorial takes place in a Cessna 172.

Once the basics have been mastered you can proceed to more advanced manoeuvres which essentially cover the transition from one fundamental manoeuvre to another. To advance even further into the aerobatics mode you need to switch to a P-51. Here you can perform loops, rolls, splits etc. If you feel a little lonely, the formation flying mode will bring a team of flyers together for you to practice or a racing game over a predetermined series of courses.



That's a sorry way to land an airplane.

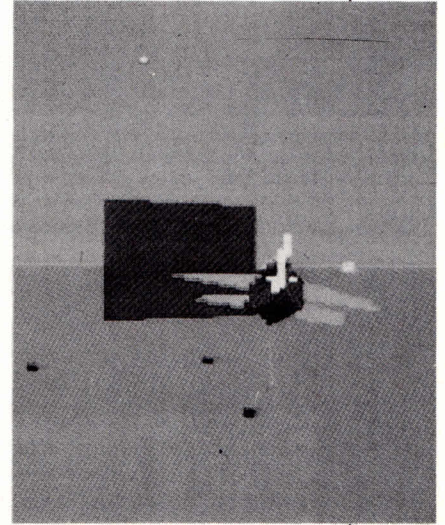
The graphics are limited but clever. Buildings are simply defined as blocks or pyramids which must be negotiated, but the fact that you can view your aircraft from ten, yes, ten different perspectives makes up for the limitations. You can view externally from a tower, a satellite or a chase plane, and internally (from the plane itself) - left, right, belly, up, full forward, rear and the cockpit - and all have zoom features. You'll also notice how smooth the graphics are as you buzz around.

A flight recorder forms the heart of the package. It contains 23 pre-recorded basic, advanced and aerobatics lessons as well as recording and playing back the routines you make when Formation Flying. It can also give you about 30 seconds of instant replay in the Test Flight mode (but there are exceptions).

The secret is to master the basics first then try the more advanced stuff. You are wasting your time jumping straight into a Lockheed SR-71 and will no doubt receive a stern and caustic comment from the General, let alone a blank screen while the program simulates a 'blackout' until you return to consciousness. The limits of each aircraft are described in the well laid

out manual, and as a qualified test pilot your job is to prove them, and perhaps go further.

Chuck Yeager's Advanced Flight Trainer has been a long time coming (certainly for the CPCs) and I believe it has been worth the wait. It is a very challenging package which all simulator freaks will enjoy. It was tested on a PC1512 and a PC2000 and worked well. It also works well on a CPC6128, but CPC464/664 owners will regret that they only have 64k restricting the software to test flight missions only. It's a pity, but really the software is too complex to run in such a small area.



THE STORY SO FAR Vol 2

A value compilation from Elite

CPC Disc - \$39.95

CPC Tape - \$34.95

Elite have released a few good compilations, Elite 6-Pak and Elite Collection to name just two. Their latest offering is in a series of four volumes, Volume 1 and 3 for 16-bit machines, Volumes 2 and 4 for 8-bit. The first to hit these shores, Volume 2, contains five games on three cassettes or a single disk.

Space Harrier - a space shoot-em-up in which you have to save the Dragon Land from the clutches of barbaric and evil creatures.

Live 'n Let Die - from the 007 movie of the same name featuring a practise mission, two exercises and a final New Orleans mission. One of the better James Bond games. (Reviewed March '89)

Overlander - set in the future when the ozone layer has been destroyed

and the remaining population lives underground. The only way of moving from city to city is by way of the old freeway network - but you need to move fast in your customised car. Several gangs heed your progress to deliver vital supplies. The more you succeed the more awesome your car.

Beyond the Ice Palace - an arcade adventure through tunnels and shafts, similar to Ghost and Goblins but much faster and more nasties (Reviewed October '88).

Hopping Mad - a deceptively difficult, original and exciting game in which you guide bouncing balls across varying terrain. Addictive. (Reviewed January '89).

All in all a pretty good spread of games to suit all tastes.



SATCHEL SOFTWARE

Further to last month's introduction to Angle Park Computing Centre, here's a closer look at their Satchel range of CPC titles

It was originally intended that this article would look at a number of Satchel Software products, but on a closer look at Jara-Tava and a perusal of the accompanying literature, it became apparent that there was enough to fill two pages on Jara-Tava alone. This article will therefore give you a good look at this adventure game for 9-10 year olds, thus completing our series of articles looking at the Angle Park Computing Centre's Satchel range of educational software. Not all titles have been reviewed, but you've managed to see a good cross-section which we hope will give you the confidence in Angle Park and Satchel which we believe is deserved.

JARA-TAVA: THE ISLE OF FIRE

Jara-Tava is an adventure game that takes place on a mythical tropical island. Actually tropical islands is more accurate, for while the adventure begins on an island named Jara-Mau, the adventurer must travel to Jara-Tava, the infamous Isle of Fire, to be successful.

According to the teacher's guide accompanying the program, Jara-Tava has been as much of an odyssey for the authors as it will be for players. Though it now bears little resemblance, Jara-Tava began as "Treasure Island" or "Treasure Isle", a public domain and Pathweaver adventure available for

some time in South Australia. During this time it established itself as something of a standard for middle primary children or with those new to adventure games. When the authors began considering options for an illustrated adventure for the middle primary school it was decided to capitalise on the success of Treasure Island and to extract the full potential of a "proven winner". But fear not! While the basic premise and some locations remain unchanged, there is a great deal that is new.

Three specific aims were decided upon. Firstly, the adventure game had to be reasonably challenging for children aged 9-10 years old, as well as being enjoyable and of good quality. Secondly, it was accepted that the program would be developed for incorporation into the greater theme of pirates. Thirdly, the game should incorporate a number of smaller elements which should stimulate the children's thinking on the various themes presented in the program.

The general aims expressed in the teacher's guide speak of something greater than simply an adventure game. These aims are too many to list, but point to something more akin to a major class project incorporating Jara-Tava. This adventure game is therefore only a small part of the greater project as proposed by Angle Park. In fact, included with the program is a resource disc

which includes many hours worth of additional material for use by children in the classroom.

This leads to one important point. Although the educational software reviewed in The Amstrad User is generally for use in the home, and under parental supervision, an exception to some extent must be made in the case of Jara-Tava. Clearly, it would be too much to ask of most parents to create something which truly exploits the full potential of Jara-Tava. As the teacher's guide explains "[Jara-Tava] requires the skilled hand of an enlightened and caring teacher to capitalise on the possibilities provided." This said, with no greater effort than would be normally expected of parents, the adventure game itself can be played with great enjoyment by the child.

THE ADVENTURE BEGINS...

Quite a leap forward for the authors and the students who haven't played many adventure programs before, Jara-Tava incorporates full colour graphics and an intelligent parser that allows the children to enter full sentences (no more stilted two-word phrases!). The adventure is loosely based around the system developed in "Twist-a-Plot" books where the child makes a number of decisions in the adventure which determine the direction of the game - for better or for worse, presumably.

The synopsis is simple enough. Jara-Tava, The Isle of Fire is an adventure in which the player is in search of pirate treasure on deserted tropical islands. You have been bequeathed a map of an island called Jara-Mau and the means (traveller's cheques and airline tickets) to travel to it. The adventure proper begins as a launch drops you off on a beach of Jara-Mau. Your goal is to recover the treasure of Captain Kidd hidden somewhere, you are led to believe, on the island of Jara-Mau.

To find and recover the treasure the adventurer must do three main things. Firstly, recognise that the

treasure is on Jara-Tava and not on Jara-Mau; secondly, find a way of getting over from Jara-Mau to Jara-Tava; and thirdly, recover the treasure from Jara-Tava before the Volcano erupts and destroys the island.

On Jara-Mau, the adventurer wanders around under no threat. There is no clock to beat and the intention of the authors here is to challenge the child more on logic, reasoning and the other principles behind playing adventure games, rather than making it simply a race against time. A map has been given which can be referred to at any time; this gives a picture of the island and an indication of where the child must be. Since the island is rather large (over 20 different locations), this isn't really giving the game away. Strewn over Jara-Mau are a number of items which may or may not be of use in solving the adventure. It's really up to the child to decide.

Don't be deceived into thinking that since this adventure is for 9-10 year olds it's going to be a walk over. In fact, I recommend parents and teachers, particularly if you haven't played a computer adventure game before, to have a go. And I mean WITHOUT reading the answer pages of the teacher's guide. Cleverly, the adventure has been designed around a number of critical decision times - four in all. These determine the fate of the adventurer and the path of the game. A number of hints are placed around the game to encourage the right answer.

Worthy of note is that there is not just one correct way to win this game. In fact, there are four ways of crossing the shark-infested channel between Jara-Mau and Jara-Tava, and once on Jara-Tava, three more ways to find the hidden treasure. So two children sitting next to each other can both find the treasure, but having played two totally different games! Thus the challenge to the adventurer is to make each decision on the basis of the information known to him/her. This calls for



concentration, logic and thinking far enough ahead to consider consequences of actions not yet performed.

Jara-Tava is by no means a very difficult or involved adventure and it was never intended to be that. It is a good introduction to the logic and style of larger adventure games such as Level-9 and Sierra games. Where Jara-Tava wins over the rest however, is that it is tailored specifically to 9-10 year olds, in the context of their greater curriculum. This adventure is intended as a stimulant to encourage thought on pirates, sharks, submarines (yes, there is one in the game somewhere!) and other themes encountered in the game.

Now, parents may not be able to

exploit the full potential of the package, particularly the recourse disc with the additional database and other programs, but you will find that with only a little push, children will go a long way all on their own. Jara-Tava has been well pitched to the middle-to-upper primary age group. It's simple enough that it is immediately accessible, even to the child who's never seen a computer keyboard before, yet challenges the child's powers of reasoning and deduction. Best of all, this game is fun, and making education fun while not compromising standards is a challenge Angle Park Computing Centre are well on the way to licking.

5.25 INCH DRIVE A!

Ever wished you could get your CPC to recognise the 5.25" drive B as drive A? Well now you can, thanks to Robert Wilson of Redbank Plains in Queensland.

Do you have a 5.25" second disc drive for your 6128 or 664 and ever wished you could run the 5.25" drive as drive "A"?

Well, if you're not afraid to do a little open heart surgery on the hardware, I will describe how to install a switch that will allow you to toggle between the 3" and 5.25" as drive "A" while the other drive becomes drive "B".

YOU WILL NEED

- 1 X 2 position 2 pole switch,
- A length of ribbon cable, and
- some insulation tape, spaghetti or heat shrink.

TOOLS NEEDED:

- soldering iron, and
- wire strippers or stanley knife.

PROCEDURE:

1. First make the loom for the

switch. Cut 2 small lengths of wire and soldering them diagonally across the switch, as per the diagram marked shorting wires.

2. Next separate 4 strands of ribbon cable and solder them to the switch as per diagram.

3. To dis-assemble the computer (after removing the cables to the monitor) remove 2 screws from the side of the disc drive and 7 screws from the underside. Gently lift the cover with Key Pad (NOTE do not try to remove the clear ribbon cable that connects the key pad to the circuit card, just lay the two end to end.

4. For ease of access disconnect any of the snap on style of connectors on the circuit card.

5. To get to pin 23 of the DD2 port it is necessary to remove the circuit card (4 screws), and the Disc Drive (2 screws), lift both up together and lay them in the top cover.

6. Once you can see the underside of the DD2 port locate pin 23 and note that there is a small circular pad joined to pin 23. CUT THE TRACK THAT JOINS THE TWO as per diagram. This can be done with a stanley knife by gently scraping away the lacquer and then the copper track.

7. Solder the orange wire to back of pin 23, and the brown wire to the small circular pad.

8. Reassemble the circuit card and the disc drive back into the bottom cover.

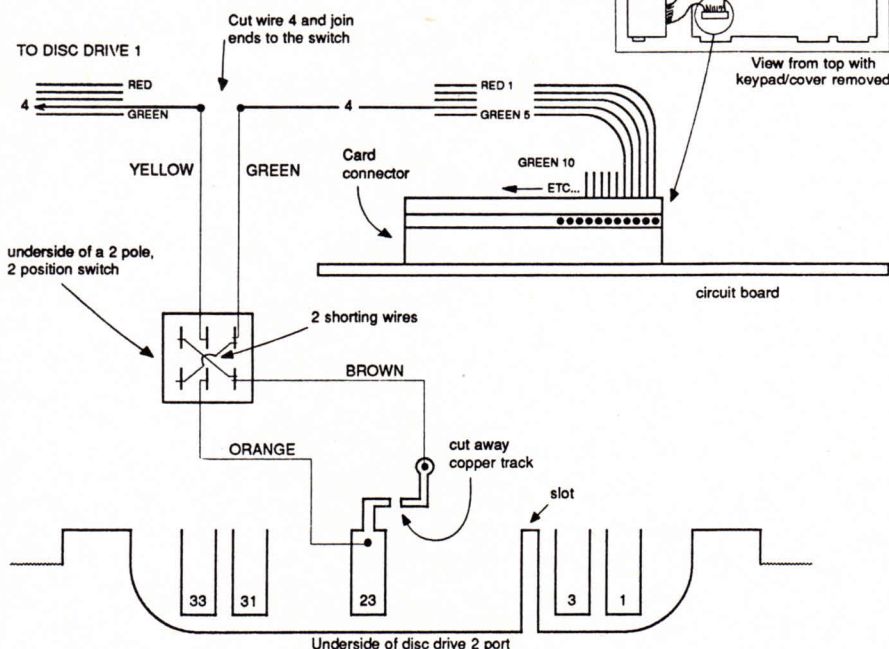
9. Next find the cord connector that joins the disc drive (with ribbon cable) to the circuit card. The red wire is number 1 and the green wires are 5,10,15 etc. Locate wire 4 and snip in two about 30cm above the circuit card.

10. Join the yellow wire to the disc drive side of wire 4, and the green wire to the circuit card side (don't forget to insulate these joins).

11. All you need to do now is find a place to locate the switch, I drilled a hole above the DD2 port just under the air vents.

12. Assemble in reverse order and you are ready to rock and roll.

The changes needed:



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.

All spread-sheet systems allow manipulation of any array of numeric data.

What sets MASTERCALC 128 apart from the rest are these features:

Full-screen or split screen windows; variable column display width; variable column formats, 0-7 decimal places; columns can be formatted individually; ultra high-precision floating point arithmetic; direct totals and sub-totals; up to 99 relocatable formulae (usually 10 is ample!); formulae up to 75 characters, and arithmetic expressions, plus conditions, relative cell references; instant highlight of computed data; store text anywhere;

pop-up help menu; 40/80 column mode; auto cursor-advance; text output to printer or to disc for word processing; fast hi-res histogram of any 3 rows; Epson screen dump; detailed manual with illustrated tutorial.

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

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

Send your order now to:
THE AMSTRAD USER
641 High Street Road
Mount Waverley
Victoria 3149

Tel: (03) 233 9661

FURTHER FORTH PLUS

Roger Williams continues his tutorial on the Forth+ interpreter found on our Public Domain disc #612/812. It deserves a look!

I hope you have made progress with FORTH since last month's article. If you obtained the book I recommended, you should by now have quite a good grasp of the basics. Only two words covered in Chapters 1 and 2 of this book are not included in the vocabulary of FORTH+. Providing these two words is an excellent way to learn how to use FORTH screens and the inbuilt editor in FORTH+.

Remember that in my examples, `<sp>` means that you MUST include a space in this position, and `<cr>` means press the RETURN key. Remember also to set CAPS LOCK, because FORTH+ expects all keywords to be in upper case. Find your printed copy of screen 6 which you made last month, and start up FORTH+, remembering the "bug" which requires you to re-specify that FORTH.SCR is the screen file. It is a convention that line 0 (zero) on every screen is a comment line. Type `2<sp>LIST<cr>` and look at line 0. This is a typical example; there can be no doubt about what this screen contains. Now type `1<sp>7<sp>INDEX<cr>`. Lines zero from screens one to seven will be printed; if you don't use these lines for comments you will lose the benefit of the INDEX command.

Request the editor by typing `EDITOR<cr>`, and make screen 8 the current screen by typing `8<sp>LIST<cr>`. This screen should be empty, but to make sure, type

```
8<sp>CLEAR<cr> and then L<cr>
to check that everything is okay.
(The CLEAR command is on line 13
of the editor screen listing, and the
L command is on line 7.) Under-
neath the screen listing you will
notice a line which starts with an
underline character and has a zero
character way over on the right. (If
this is not the case, type a zero
followed by <sp>T<cr> and then
L<cr>.) The underline shows the
position of the editing cursor, and
the number on the right is the line
number which contains this cursor.
```

At the moment the cursor is at the beginning of line zero. FORTH+ only permits one screen at a time to be in memory, and this is always the last screen accessed. If you make a mistake at any stage, FORTH+ replaces the current screen with one of the error message screens, and DOES NOT return the screen you were editing to memory. YOU HAVE BEEN WARNED! If you get any sort of error message you must relist the screen you were editing before continuing. Invoking the editor also changes the meaning of some of the FORTH+ commands, and adds some new commands.

Screen 8 will be the first of several screens which we will use to add the "missing" words from Leo Brodie's book to the FORTH+ system. The right hand column of line 3 of the editor commands listing shows the format to "put" a new line in a screen. Enter the comment

line (line zero) by typing

```
0<sp>P<sp>(<sp>STARTING FORTH
EXTENSIONS.)<cr>
```

Check that everything is okay by typing `L<cr>`. Notice that the editing cursor position is not changed by the P command (it is still at the beginning of line zero). Frequent use of the L command will reduce the possibility of trying to edit the wrong screen. This comment line will not be displayed when the screen is loaded, so we will use line one to print a message; type

```
1<sp>P<sp>.<sp>LOADING VOCABU-
LARY EXTENSIONS."<cr>
```

Again check that everything is okay by typing `L<cr>`. You should be looking at a display of screen 8 with the first two lines containing the comment and message lines. If you notice any typing errors, just re-enter the entire line; P overwrites the line which you specify each time you use it (don't forget to specify the line number each time you use the P command).

The "missing" words which we need to supply are 2SWAP and 2OVER. For both definitions we will make use of the Return Stack for temporary storage (see Chapter 5 of Starting FORTH). By now you should be used to the need for spaces, so the `<sp>` notation will be omitted. A definition for 2SWAP is

```
: 2SWAP >R ROT ROT R> ROT
ROT ;
```

Use the P command to make this line 2 of screen 8. Now we can define 2OVER as

```
: 2OVER >R >R 2DUP R> R>
2SWAP ;
```

Use the P command to make this line 3 of screen 8, but make two deliberate mistakes by typing 2DYP instead of 2DUP, and leaving off the final semi-colon. FORTH+ has to be told when to stop loading from a screen, so we need to enter

```
4<sp>P<sp>CR<sp>;<cr>
```


Use the L command to display screen 8. The line following the screen display should still show the editing cursor at the beginning of line zero. Type 2<sp>T<cr>. Now you should see that the editing cursor is at the beginning of line 2; the T command is one of several commands which move the editing cursor around the screen.

Now it is time to correct our deliberate typing errors. Find the first error by typing F<sp>2DYP<cr>. (The F command is on line 7 of your screen 6 listing.) You will see that the editing cursor is positioned after the P. On your listing of screen 6, you will find a delete backwards command on line 13, but the description given is wrong; it deletes backwards by n, not n-1. Type 2<sp>DELETE<cr>. All you get is an OK message. To check just what has been deleted you need to use the L command. Do this, and you will see that the cursor is positioned after 2D, showing that 2 characters (YD) have been deleted. The C command can now be used; type C<sp>UP<cr>. You will see that we now have 2DUP as required. The semi-colon needed at the end of the definition can be added as follows - first move the cursor to the end of the line with F<sp>AP<cr>, then add the semi-colon with C<sp><sp>;<cr>. Notice that two spaces have to be specified; the first is required by FORTH while the second is needed to separate 2SWAP from the ; character.

Use the L command to see what screen 8 now contains. Check for any other typing errors. Now we must ensure that this information is permanently recorded on the disc. The book recommends using FLUSH, but this is not safe in FORTH+. Because this system only uses a single buffer for screens, the "cunning" way to ensure that an updated screen is written to disc is to list another screen while still in the editor. Type 6<sp>LIST<cr>, then FORTH<cr> to exit from the editor. Provided you eventually exit from FORTH with the BYE com-

mand, all should be safe.

Let's test our new words. We will need the stack dump as well so type 2<sp>LOAD<cr> and then 8<sp>LOAD<cr>. Make sure the stack is empty by typing XXX<cr> and then S.<cr>. Put four integers on the stack by typing 23<sp>5<sp>9<sp>73<cr> and use S. to check what the stack looks like. Now type 2SWAP<sp>S.<cr>. Compare the new stack with the old. Now type 2OVER<sp>S.<cr> and check that this word has done its job. When all is working, exit from FORTH+ by typing BYE<cr>. Re-enter FORTH+ and type 8<sp>LIST<cr>. Check that screen 8 has been saved to disc, and then exit back to CP/M. Now it is safe, and advisable to make a back-up copy of your screen file using PIP; backing-up without checking that the most recent changes have really been sent to the disc file is not advisable.

Coping with Chapter 3 of Starting FORTH requires considerable care. The inbuilt editor has to be requested by using the EDITOR command, and you must use the FORTH command to exit from the editor. The P command must have a line number specified, and there is no U command. FORTH+ uses CLEAR instead of WIPE, does not have an EMPTY command, and as already noted, has a faulty FLUSH command. For Second edition readers, THRU, SHOW and .(are not included (but ." works outside of definitions), and ;S is used instead of \S. As an alternative to THRU, FORTH+ has the —>

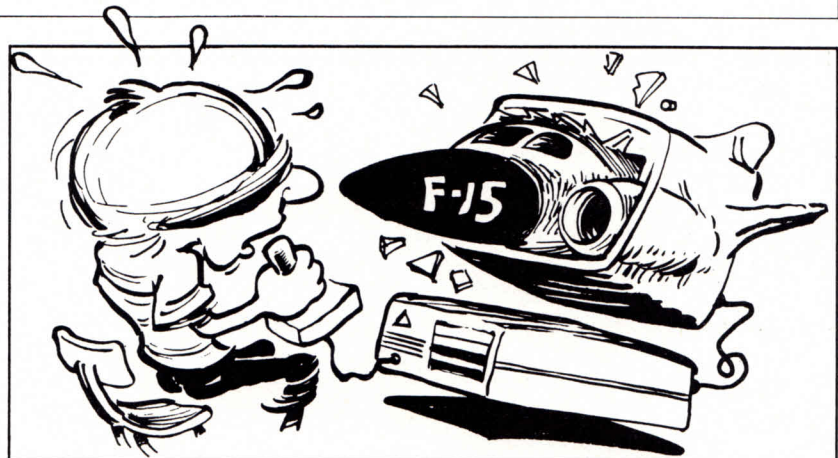
command to load the next sequential screen. Your listing of screen 6 details the available editor commands; limit yourselves to these (or perhaps just a subset which you can easily follow).

Several words discussed in Chapter 4 of Starting FORTH appear to be missing from FORTH+. NOT and <> have simple alternatives (0= and - respectively), while ?DUP is present as -DUP, and 0> can be replaced with MINUS<sp>0<. Only ABORT" and ?STACK are unavailable and not easily replaced. (The more basic ABORT command is included.) Use the inbuilt editor to add the following definitions to screen 8, making sure that what is currently line 4 becomes the last line after these new additions.

```
: NOT 0= ;
: <> - ;
: ?DUP -DUP ;
: 0> MINUS 0< ;
```

Make up your own tests for these new words, double check that the extensions to screen 8 have been successfully recorded on the disc, and make a further back-up copy of your screen file.

Next month I will explain how to make an auto-startup disc so that you can avoid the "bug" concerning the screen file, and have the screen dump and your new words in screen 8 loaded into FORTH+ at the start of every session. I will also provide definitions for more missing words from the next few chapters of the book.



FAKING BRAINS

Returning with the first article of an exciting new series on Artificial Intelligence, here's Paul Gerard

I was going to make this next series a discussion of "tricks" we can use to make computers "converse" with a human user in an intelligent way. This "sort of grew," but I hope you will find this much more general treatment of artificial intelligence even more rewarding. Like my series on structured programming it will have a theoretical as well as a practical thread - the practical side will definitely require a disc drive - although I will assume a CPC464 with a DDI, so that our programming should run on ANY disc based CPC. One thing you will require to get the most out of the practical side of this series is a copy of "Structured Data," the simple database program that we built up in the structured programming series that finished last month. If you followed the last series you probably already have a working copy of this program - otherwise get a copy of the August tape. I would love to have programming reprinted from month to month (more money with less effort for me) but the editor understandably balks a bit at this so I have to keep it to a minimum.

WHAT IS ARTIFICIAL INTELLIGENCE?

Computers are often described as "high-speed morons." Many people think of them as being completely "mindless" - machines that "can't really think," that only "know" what their programmers have told them, that can really only manipulate numbers. All these ideas are quite true, so far as they go. The computer *as a machine in itself* definitely has no "mind," and is logical only in the crudest, most simplistic sense. Yet a computer actually doing something (no matter how simple) is *not* a pure machine, it is a machine "running a program," and the program is the product of a human mind, that is designed to duplicate a particular human thought process (or algorithm). Another contributor to this magazine has written some articles on algorithms, so all I will say is to point out that an algorithm can be thought of as a description of a particular method for arriving at a conclusion from a given set of data. Since it encapsulates the thought of its creator it is "thinking,"

and a machine that can follow the process described in the algorithm is capable of thought. The so-called limitations of computers are really the limitations of their programmers (or, more properly, of the art of programming). Some of our own thought processes are so obscure and intricate that we have (at this stage in the development of our art) difficulty in rendering them into valid algorithms. Hence computers cannot (as yet) duplicate certain human thought processes.

BUT ISN'T ALL THIS A BIT SCARY?

Many people would like to think that the words "artificial" and "intelligence" are mutually exclusive. Many others (including some computer professionals) are frightened by the idea of computers doing some of our thinking for us. The answer is that they already do, and have for some time. Currently most of the thinking they do is highly menial - the sort of "brain work" I did as a junior clerk when I first left school (many years ago, I fear). They already do this kind of thing much more effectively than they did when they first started out however, and the boldness of some users and the ingenuity of their programmers is pushing them into higher functions. Given that management may one day be a science that will be reducible to a set of algorithms, and that the art of programming will be able to render these algorithms into machine instructions, there is no reason why a powerful computer running a sufficiently sophisticated program, with access to the right data, could not run the whole world economy. To take another example, the current inability of computers to turn clear idiomatic prose in one language into a correct, clear translation in another language is due to the imperfect states of the science of linguistics and the art of programming rather than any inherent limitation of computers as such.

WHAT ABOUT THE SOUL?

An objection frequently raised at this point is that human beings do not make decisions on purely "logical" grounds; that ethical, imaginative, artistic and spiritual values affect the way we "think." Ethical values present no obvious problems. In fact most unethical practices would never occur to a computer not specifically programmed to follow them, and consistent positive ethical values would be easy enough to program, even if different people might disagree about some questions. The other aspects, the functions of the soul as opposed to the mind, if you like, are another thing altogether. What do you think? Will exercising artistic and spiritual sensibilities and the power of the imagination become the principle function of mankind? Or can even these be reduced to an algorithm?

BUT HOW DOES IT WORK?

The above has probably been taken far enough to make the point that I am taking the whole idea of "artificial intelligence" quite seriously. In fact everything that

computers do is "intelligent," even if on a rather low level; what the term means really is getting computers to do things we wouldn't have thought them capable of, of getting them to respond to data as we might have ourselves, in fact. Now in this sense computers can already be programmed to do some things that no one would have suspected them capable only a few years ago - playing good, quite "creative" chess for instance - so that perhaps today's "artificial intelligence" will be tomorrow's ordinary computing.

Does all this seem frightfully difficult? Let's get back to the ground for a minute and look at just how a computer program works.

OPERATION FUNDAMENTALS

At the very lowest level all computers can only work in binary numbers, and in the very simplest of yes/no type logic. On the surface, it would seem quite remarkable that we can program a computer to simply find the sum of two small numbers, in fact, as those of you who do machine code programming will know, this is quite an intricate little operation at the very lowest level. Having a machine that CAN add two numbers means that we can easily teach it to subtract, multiply, and even (much harder) divide. Given a machine that can calculate in this way we soon "teach" it to perform other mathematical functions. Now of course a simple number calculator is not "really" calculating at all! All it is doing is manipulating symbols (in this case binary numerals) that represent the real thing (the numbers themselves). These symbols are usually translated into other symbols (denary or hexadecimal numerals)

for the benefit of us mere humans. This distinction between the symbol (which the computer can manipulate) and the real thing (which we are interested in) may seem a bit silly and philosophical in the case of numbers. Once we can grasp the idea of the difference between a numeral, which is purely symbolic and the idea of a number (say of cows in a paddock), the fact that computers can manipulate words and even ideas is easier to accept - anything that can be reduced to symbolic form can be used as an element in an algorithm - it can be "thought about" if you like. BASIC stands for Beginners All-purpose Symbolic Instruction Code. Forgetting about the "beginners" bit for a moment, ALL computer languages are codes, or standard sets, of instructions (to the computer) in symbolic form. The data which the computer

manipulates is just as symbolic as the instruction code and is treated in the same way (which is why you can't use a BASIC instruction like PRINT as a variable name).

Now some philosophers hold that this is how the human mind works - that we cannot think about something for which we cannot find a symbol. This may or may not be true: to me it boils down to a chicken-and-egg thing; which came first, the idea or its symbolic representation? Whether computers can be made to think in the same way as humans is probably a non-issue, however, given that we CAN teach them to think.

Now computers can "process" numbers, words (the program I am using to store this article for me is doing that of course) and musical notes without too much trouble. They can do this because we have reduced these things to codes of symbols. The letters on the

pages I submitted for publication, for instance, were reduced by my little CPC to the ASCII code and then stored in binary form on a floppy disc ready to be printed. They were then sent to my printer (in itself a simple special purpose computer), which translated the ASCII code into dot patterns that it then mechanically rendered onto paper. Yet the words themselves are of course in their turn only symbols, by which I have endeavoured to express my meaning. In other words the computer accepts my input absolutely uncritically; just like a rather dumb secretary, the word processing program has no conception of what the words themselves symbolise. Now really exciting artificial intelligence goes a little further than this; instead of just manipulating words we will manipulate the ideas behind them, since these can, like the words be reduced to symbolic form. Imagine

"Will exercising artistic and spiritual sensibilities and the power of the imagination become the principle function of mankind? Or can even these be reduced to an algorithm?"

a program that could not merely record the words I have used in this article but use them to produce a construct of "idea symbols" that it could then translate into other human languages, compare with other articles on similar subjects, test for logical consistency, store as data for use in assessing other articles, perhaps even give me a critique by return mail! This is not in the least far-fetched, even if it is beyond our powers to program just as yet.

COMMAND ROUTINE LISTING

Let's take a very simple example that essentially reproduces some of the processes that our hypothetical "intelligent computer" would have to perform. This is a little extension of the menu routine that we used for "Structured Data" - simply add the following lines to

that program. What the routine does is add a "command" structure on the front of our menu system - you will only be shown the menu if you specifically ask for it, otherwise you will type in a command instead, which the computer will understand and act on.

Actually, if you are using "Structured Data" seriously you will probably find that you don't particularly like the result in this context, and you'd rather keep the pure "menu-driven" version, so keep a copy of the original program! This routine is not in fact intended to enhance "Structured Data" but to control the expert system program we will be completing by the end of this series. It happens to be applicable to "Structured Data" simply because the new program will be using many of the routines from the old one - as you will recall, this is one of the big advantages of structured programming - we need never re-invent the wheel!

```

25  GOSUB 1100
30  IF menu THEN GOSUB 2000 ' Menu
1100 ' command input
1110 mde=1:GOSUB 600 'set mode
1120 head=menu.number:GOSUB 100 'print heading
1125 mistake=0
1130 choice=1:menu=FALSE
1140 LOCATE 5,12:PRINT"What can I do for you ? ";:lengt
h=10:caps=TRUE:control=11:GOSUB 200:caps=FALSE
1145 IF long=0 THEN 1180
1150 FOR i=1 TO menu.length(menu.number)
1160  IF INSTR(command$(i+start(menu.number)),LEFT$(us
er.input$,long)) THEN choice=i+(start(menu.number))
1170 NEXT
1180 CLS#3:LOCATE (30-LEN(menu$(choice)))/2,12:PRINT"Co
nfirm ";menu$(choice);" ?"
1190 GOSUB 500 ' yes/no
1200 IF yes THEN IF choice=1 THEN menu=TRUE:RETURN ELSE
choice=choice-1:RETURN
1210 mistake=mistake+1
1220 IF mistake<3 THEN CLS#1:CLS#3:GOTO 1130
1230 menu=TRUE:RETURN
13250 ' Commands
13255 DIM command$(32)
13260 RESTORE 40300
13270 FOR i=1 TO 32:READ command$(i):NEXT ' Commands
40300 ' DATA for command$(n)
40310 DATA MENU,OPEN NEW,ACCESS OLD,CHANGE DRIVE,CATALO
GUE DISC DISK,LEAVE ABANDON,NAME,DEFINE,FIELDS,CONFIRM,
ADD,EDIT,DISPLAY,FIND,SEARCH,SORT,SAVE,ABANDON,A,B,C,RE
TURN,LESS,MORE,EQUAL,CONTAINING,RETURN,LIST,EDIT,SAVE,N
EW,RETURN

```

Like this routine or not, there are some important lessons to be learned from a study of the way it functions. Firstly, note that it recognizes several

different commands as being synonymous. For instance "OPEN" and "NEW" both mean "Set up a new data file" (make sure you put the commas in the right places in line 40310 incidentally). BASIC's INSTR function is extremely powerful in a context like this - although routines using it tend to be inefficient and slow they can break down the computer's legendary "literal mindedness" very nicely. In making the computer ready to accept quite a wide range of possible input (including an abbreviated form of the command) and making what amounts to an educated guess about the user's intent we have crossed the borders of what is called "fuzzy logic." The computer can make a mistake about what you mean if you are perversely unclear - but it does at least attempt to find some sort of sense in your input. On the other hand it requires an unambiguous yes/no confirmation of your command before continuing to actually execute a command. This combination of "intuition" and sensible verification of its results lies at the core of many algorithms used in artificial intelligence. Chess programs in particular use it a lot.

TRANSLATION AND INTERPRETATION OF INPUT

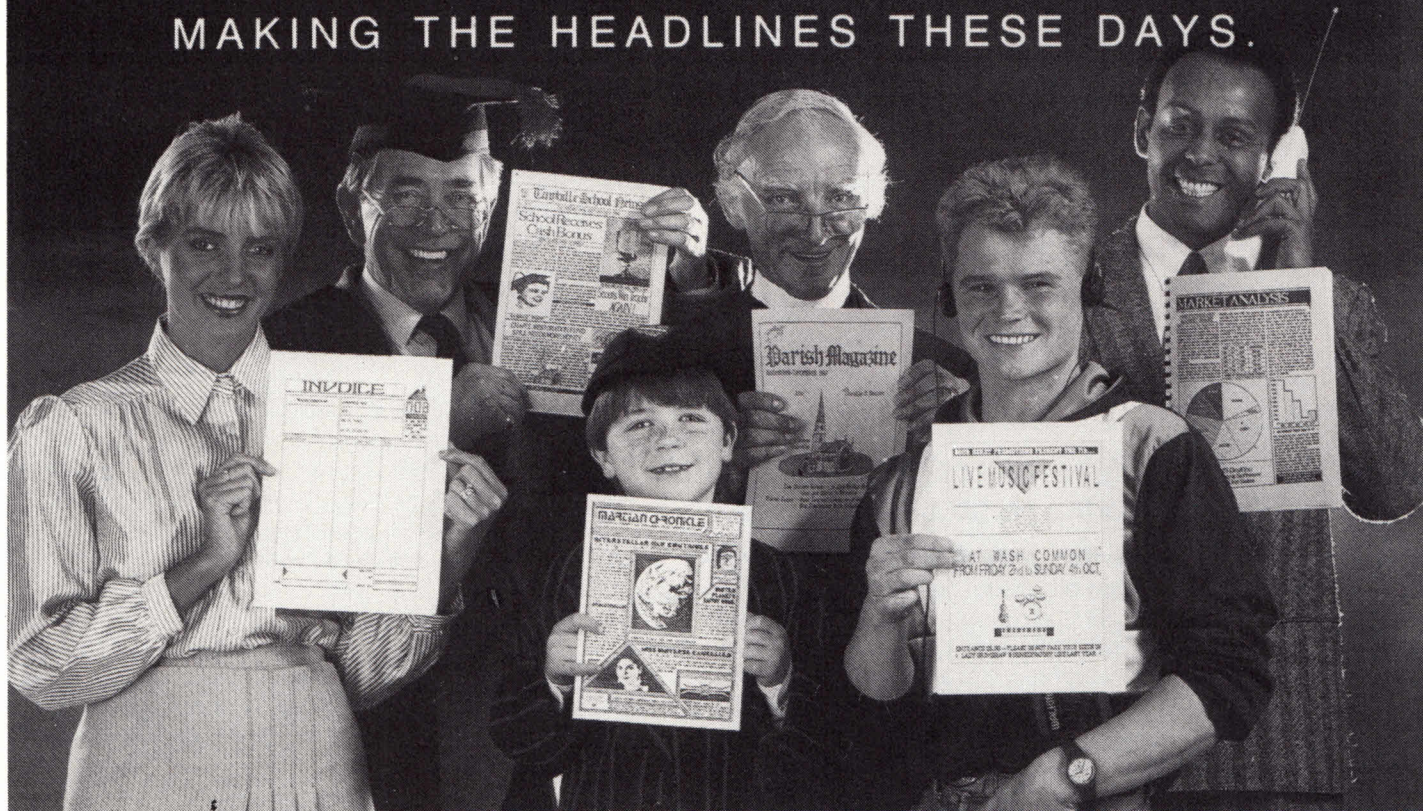
The other feature of all artificial intelligence that this little routine uses is translations - in this case from your input into a number which is really a coded representation of the command.

The menu routine, in the old "pre-intelligent" tradition, insists on your input being in the form of the number itself. At this level the computer's only accepting exactly what it expects, like a very thick bureaucratic clerk, has its advantages, which is why we used it in "Structured Data." Given nice clear menus it can be very friendly - it is certainly very efficient, that is it uses no superfluous processing.

On the other hand, carrying the computer's ability to translate input into coded form by looking up a table of data stretches our flexibility tremendously. It can be a slow, inefficient process - which is why you often see artificial intelligence associated with super-fast mainframe computers - but there are a number of ways round this, and anyway, who minds waiting a few seconds for really brilliant output?

This article is a little "meatier" than usual, so this is probably a good place to stop for now. Next month we will be getting down to practicalities, assembling the routines that we will be pinching from "Structured Data," and looking at the use of "overlays" - subroutines that are only called into core memory from disc when they are actually needed. It would be nice in a way if we could avoid these altogether, as they do slow down the works, but we are getting to the stage that we can't do without them, at least on a CPC.

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FULL TO THE BRIM

Gary Koh continues his series on fill algorithms, this month fine tuning the performance...

There are always (normally) two or more ways to solve a problem. Last month I gave you an easy to dissect fill algorithm which was a bit slow. To start off with this month I am giving you another solution to the problem, which proves that there is more than one way to solve something. This method in itself is around 20%-25% faster than last month's algorithm and involves the use of a lot of Whiles. Here is the pseudocode listing for it.

FAST FLOOD FILL ALGORITHM

```
col=colour of the pixel we are on
pencol=colour to fill
if col=pencol Then Do not continue
storex (100), storey(100) for stack storage
storex (1)=x location of pixel we are on
storey (1)=y location of pixel we are on
spoint=1
Move to pixel at (storex(1),storey(1))
While spoint<>0 Do
  Begin
    While pixel we are on=col And we are not off screen Do
      Move up by one pixel
      topx=x position of the pixel we are on
      topy=y position of the pixel we are on
      While pixel we are on=col And we are not off screen Do
        Move down by one pixel
        endy=y position of the pixel we are on
        side=pixwid
        For sndcnt=1 to 2 Do
          Begin
            Move to pixel at (topx+side,pixel above topy)
            While y position of pixel we are on>endy Do
              Begin
                While pixel we are on<>col And y position
of pixel we are on>endy Do
                  Move down by one pixel
                  Do store position
                  While pixel we are on=col And y position of
pixel we are on>endy Do
```

```
          Move down by one pixel
        End
        side=pixwid
      End
    Draw line from pixel at (topx,topy) to (topx,endy+2)
  Repeat
    spoint=spoint-1
    Move to pixel at (storex(spoint),storey(spoint))
  Until pixel we are on<>col
End
```

The main body of it looks very different from last week's, doesn't it? But how does it fill differently? Well, instead of searching simultaneously on both sides of a line it searches down one side, then moves to the next side. Paradoxically this makes it faster, but this is mainly because of the nature of the way control constructs work.

Once again, the whole thing is encased in a While spoint<>0 Do. It is all the rest that is in between which is different. The first While searches upwards on the vertical line that is going to be filled. Topx holds the position at which this line is at, topy holds the top y co-ordinate of the vertical line.

Then the next While searches down that line until it encounters an obstacle. The bottom y co-ordinate is now placed in the variable endy.

We now have the positioning of the line due to be filled. Topx holds the position where the vertical line is and topy and endy hold the top and bottom points of it. We know where the line is to be put, but how about searching the sides of it to find out if we need to store anything on the stack?

This is where the algorithm takes a different turn from the previous one. To start with it searches down one side of that vertical line, then the other side of the line, using the variable side to switch sides, utilising a trick from earlier on. The For-to counts to two, ensuring it searches both sides.

Now for an explanation of the side search section. At the start of the loop it moves to the pixel on the left-hand side (for the first search of the side of the pixel) of the pixel at (topx, topy). Now, here is the interesting part. We will ignore the first While after the For-to and go to the next While. This While searches downwards and only stops when it has either gone beyond the search boundary (ypos<=endy) or if it encounters a pixel in the color col.

Remember, col is the colour of all the pixels that we need to fill in. This is picked up at the beginning when it tests the pixel where the filling starts. Now, it is on a pixel which needs to be filled in. The While has exited and this position is stored on the stack. Then we go on to another While, this one is the opposite of the previous one in that it only stops when it encounters a pixel not in the color col.

Then it heads back to the While that we avoided at the beginning. This exits if the pixel is below endy, in

which case we do not need to keep on searching anymore. Then it goes back to the For-to, does it again on the other side and so on.

This way the bulk of the processing is undertaken in a few Whiles, and this increases speed. In case you are wondering why we have the two Whiles surrounding the If-Then which stores the positions on the stack in that particular order, it has to do with the need to store the topmost position on either side of the line being filled. That first While only exits if it comes on a patch of pixels in colour col, which suits this system fine.

Listing 1 gives you the Basic listing:

```

100 ' Demo part
110 '
120 MEMORY 39899:GOSUB 500
130 DEFINT a-z
140 DIM storex(100),storey(100)
150 MODE 1:INK 2,8
160 MOVE 50,120:DRAWR 380,0,3:DRAWR 0,-45:DRAWR -380,0:
DRAWR 0,45
170 LOCATE 5,19:PRINT"This is a test"
180 LOCATE 5,20:PRINT"Of the fill algorithm"
190 LOCATE 1,1
200 pixwid=2:pencol=2:MOVE 54,115:GOSUB 230
210 END
220 ' Flood fill routine
230 col=TESTR(0,0):POKE &9BDC,col
240 IF col=pencol THEN RETURN
250 storex(1)=XPOS:storey(1)=YPOS
260 PLOT 800,800,pencol
270 spoint=1
280 MOVE storex(spoint),storey(spoint)
290 WHILE spoint<>0
300 CALL &9BDD
310 topx=XPOS:topy=YPOS-2
320 CALL &9BFA:endy=YPOS
330 side=-pixwid
340 FOR sndcnt=1 TO 2
350 MOVE topx+side,topy+2
360 WHILE YPOS>endy
370 CALL &9C16,endy
380 IF spoint<101 AND YPOS>endy THEN storex(spoint)=XPOS:
storey(spoint)=YPOS:spoint=spoint+1
390 CALL &9C3A,endy
400 WEND
410 side=pixwid
420 NEXT
430 MOVE topx,topy:DRAW topx,endy+2
440 spoint=spoint-1
450 MOVE storex(spoint),storey(spoint)
460 IF storex(spoint)>639 OR storex(spoint)<0 OR TESTR(
0,0)<>col THEN 440
470 WEND

```

```

480 RETURN
490 ' Fill machine code loader
500 FOR count1=1 TO 11:lcheck=0:FOR count2=1 TO 12
510 READ byte$:byte=VAL("&"+byte$)
520 POKE -25636+add,byte:lcheck=lcheck+byte:wcheck=wche
ck+byte:add=add+1
530 NEXT:READ check
540 IF check<>lcheck THEN PRINT"Data error in line...";
count1*10+ 770:END
550 NEXT
560 READ ctot:IF ctot<>wcheck THEN PRINT"Error somewher
e in data...":STOP
570 RETURN
580 DATA 00,11,00,00,21,02,00,CD,F3,BB,21,DC, 940
590 DATA 9B,46,BB,C0,CD,C6,BB,11,90,01,37,3F, 1471
600 DATA ED,52,C8,F0,18,E3,11,00,00,21,FE,FF, 1569
610 DATA CD,F3,BB,21,DC,9B,46,BB,C0,CD,C6,BB, 2079
620 DATA 11,00,00,37,3F,ED,52,F8,18,E4,DD,4E, 1253
630 DATA 00,DD,46,01,C5,11,00,00,21,FE,FF,CD, 1253
640 DATA F3,BB,21,DC,9B,46,BB,28,31,CD,C6,BB, 1771
650 DATA D1,13,13,37,3F,ED,52,F8,18,DC,DD,4E, 1475
660 DATA 00,DD,46,01,C5,11,00,00,21,FE,FF,CD, 1253
670 DATA F3,BB,21,DC,9B,46,BB,20,0D,CD,C6,BB, 1727
680 DATA D1,13,13,37,3F,ED,52,F8,18,DC,D1,C9, 1586
690 DATA 16377

```

This listing is a bit different from the algorithm in that four parts of it have been replaced by machine code. This algorithm not only happens to be faster than last month's, but it lends itself well to being partially machine coded, which is what I have done. Last month's algorithm had the bulk of the processing done within quite a few lines and several If-Thens. This would have made it very messy if we wanted to machine code a part of it and tried to interface the Basic and machine code parts.

By contrast, the bulk of the processing in this algorithm is done in just four small bits, and because of the way they are written it is easy to replace them with machine code. This one is set up in exactly the same way as last month's, except for the machine code though.

Instead of having the whole thing in machine code and all enclosed together, I decided to have it separate, in case you want to set up some symbols or something. The routine that loads in the machine code resides at line 500. In your initialisation routine remember to call this routine. The machine code loads in at 39900. The first few lines in that listing are just a demo driver, so remember to remove them if you want to use the routine.

Now we can get on to pattern fills. To start with we will look at the very basics of them.

PATTERN FILL ALGORITHMS

The idea of a pattern fill is to fill in an area of the screen

with a pattern of a certain colour. You could also have a pattern with a multitude of different colours, like the OCP Art Studio has, but that would unnecessarily complicate things for us. The patterns we will be using are on an eight by eight matrix, which also happens to be the size of a character. (In case you are wondering, this has nothing to do with coincidence).

The following pseudocode listing is for an algorithm to extract a pattern matrix that has been compressed into eight bytes, like a symbol character, and to put it into the array matrix.

PATTERN MATRIX EXTRACTOR ALGORITHM

```

pmatrix (7,7)=array to store the pattern
location(7)=array to hold the compressed matrix
For y=0 to 7 Do
  Begin
    For x=0 to 7 Do
      Begin
        If bit x of location (y)=1 then
          pmatrix (7-x,7-y)=colour to fill in
        Else pmatrix(7-x,7-y)=colour to be filled in
      End
    End
  End
End

```

This algorithm is fairly language independent, but it cannot be used in this state yet. The next one does exactly the same job, but it is more easier to convert into Basic.

PATTERN MATRIX EXTRACTOR ALGORITHM - VERSION 2

```

pmatrix(7,7)=array to store the pattern
loc=himem+(pattern-32)*8
For y=0 to 7 Do
  Begin
    For x=0 to 7 Do
      Begin
        If (peek (loc+y) And 2^(8-x))=1 then pmatrix (x,7-
y)=pencol
        Else pmatrix(x,7-y)=col
      End
    End
  End
End

```

This algorithm (the second version, not the first) assumes that a Symbol after 32 has been executed so that the symbol table is in RAM memory. It also needs to be supplied with the filling colour and the colour to be filled in. The only real complicated part of the second listing is the IF... What this does is to extract each individual bit from each of the eight bytes of the pattern (which is also a symbol).

The ones and zeroes are not stored directly in pmatrix but are instead converted into the filling colour and the colour to be filled in respectively. The reason it does this is given later on. Since the pattern is stored as a group of pen numbers, you could have multi-coloured

patterns if you wanted to. I leave it as an exercise to you if you want to do that.

Notice which one is easier to understand? That is another reason for language independence. Note too that this algorithm will not do anything by itself, it is meant to be used as a subroutine by a pattern fill algorithm.

The main problem with a pattern fill is that of detecting which parts should be filled and which should not. We will be circumventing that problem this month by creating a simple pattern fill. We will be using the simple shape fill algorithm from Part one of this series as the basis of this. The only changes we need to make to that algorithm are to add in the pattern matrix extractor algorithm from above and to put in a new draw line routine. The following pseudocode listing gives another algorithm, which also acts as a subroutine, to draw a vertical line from the pattern in pmatrix.

DRAW PATTERNED LINE ALGORITHM

```

psx=x location of the pixel we are on
For count=topy to the current y location of the pixel we are on
  Begin
    Change colour of pixel at location (psx,count) to
    pmatrix (psx mod 8,count mod 8)
  End
End

```

The mod function in there allows any position of the screen to be referenced back to one of the elements in pmatrix. The For-to construct is used to move down a vertical line of pixels. Remember how pmatrix contains pen colours? As the For-to construct goes down the line of pixels they are referenced back to an element in pmatrix. The pixel is then changed to the pen colour stored in the element.

Listing 2 gives you a Basic listing of the final algorithm which consists of the simple shape fill, pattern matrix extractor and the draw patterned line algorithms combined together. A pseudocode listing of this is not supplied as all the listings have already been given and it would have been a waste of space. The end result looks pretty simple, eh? Wait till you get to next month...

```

100 ' Fill demo
110 '
120 SYMBOL AFTER 32: DIM pmatrix(7,7):MODE 1
130 pencol=1:pixwid=2
140 FOR x=1 TO 600 STEP 68:FOR y=1 TO 400 STEP 100
150 MOVE 36+x,y+50:DRAWR -30,43,3:DRAWR 0,-96:DRAWR 30,
43:DRAWR 30,-43:DRAWR 0,96:DRAWR -30,-43
160 NEXT:NEXT
170 pat=130
180 FOR x2=1 TO 600 STEP 68:FOR y2=1 TO 400 STEP 100
190 pat=pat+3:MOVE 36+x2,y2+46:GOSUB 230
200 NEXT:NEXT

```



```

210 END
220 ' Simple shape fill routine
230 col=TESTR(0,0):IF col=pencil THEN RETURN
240 ' Extract pattern
250 loc=(HIMEM+(pat-32)*8)+1
260 FOR y=0 TO 7
270 FOR x=0 TO 7
280 IF (PEEK(loc+y) AND 2^(7-x))>0 THEN pmatrix(x,(7-y)
)=pencil ELSE pmatrix(x,(7-y))=col
290 NEXT
300 NEXT
310 ' Do actual fill
320 side=pixwid
330 sidex=XPOS-side:sidey=YPOS
340 x=XPOS:y=YPOS
350 FOR sndcnt=1 TO 2
360 storex=-2:storey=2
370 WHILE storey<>-2 AND x>-pixwid AND x<640
380 IF TEST(x,y+2)=col THEN MOVER 0,-2:WHILE TESTR(0,2)

```

```

=col:WEND:MOVER 0,-2:x=XPOS:y=YPOS
390 topx=x:topy=y
400 WHILE TEST(x,y)=col:IF storex=-2 THEN IF TEST(x+sid
e,y)=col THEN storex=x+side:storey=y
410 y=y-2:WEND
420 GOSUB 510
430 IF storex<>-2 THEN x=storex:y=storey ELSE storey=-2
440 storex=-2
450 WEND
460 side=pixwid
470 MOVE sidex,sidey-2:x=XPOS:y=YPOS
480 NEXT
490 RETURN
500 ' Draw patterned line
510 FOR count=topy TO y+2 STEP -2
520 PLOT x,count,pmatrix((x/2) MOD 8,(count/2) MOD 8)
530 NEXT
540 RETURN

```

PCW MACHINE CODE

This newly released book provides a clear description of controlling the PCW8256, PCW8512 and PCW9512 by machine code programming.

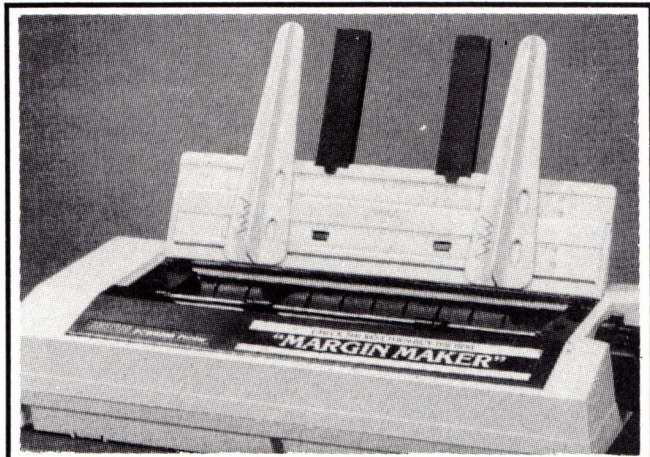
Written by Mike Keys, this highly informative book provides a thorough description of what machine code is and how to use it, devoting separate chapters to each main feature of the PCW. Including:

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PASSWORD PLEASE...

Will it never end? Mike Turner continues his in-depth look at CP/M+. This month, password protection and more... Read on.

Greetings again folks and welcome to this month's tutorial on CP/M+. As promised in the last issue, this month will cover the use of password protection and other methods of ensuring data security. I will also cover the SHOW.COM utility in some depth.

This will be the second last article in this series. I intend to wrap things up next month with a quick look at some other utilities and provide you with some useful tips and some traps to be avoided. Then you and I both can enjoy a well deserved break over Christmas.

OK, let's get into it. First up this month: data security and the use of passwords and timestamps on files. Data protection is probably a better term than data security. No micro-computer system is totally secure. All one can hope to do is limit access by unauthorised persons and to take measures to prevent accidental damage to your precious data.

I mentioned earlier in this series the need to be organised when working with any computer. It is so easy to become confused or to let pressure of work cloud your judgement. It is probably worth an hour or two every so often spent going through your discs and doing a bit of housekeeping. The use of electronic labels on your discs is one way of helping keep track of what is going on. This combined with timestamping of files will help you to determine which files have been

updated recently and so on.

Putting a label on a disc is simple. Once the disc directory has been set up for this with the INITDIR command you use an option of the SET command to label your disc.

The command is SET d:[NAME=discname.ext] where d stands for the drive containing the disc to be labelled and discname stands for the name you wish to give your label. Like file names this may be up to eight characters with a three character long extension after the full stop if you wish. So what's the big deal about labelling discs? Well, apart from the obvious organisational value, the label data on a disc also contains some useful information used by the monitor when reading from or writing to the disc. It tells the monitor whether passwords are required and whether files should be stamped with the current date and time.

WHAT'S THE TIME PLEASE, MR. WOLF?

Let's look at timestamps first. Amstrad CP/M+ machines are equipped with an inbuilt clock and calendar. A disadvantage is that there is no battery backup, and so the date and time must be set each time you start up or reset the machine. This is a minor inconvenience which can be automated during the start up process as part of your PROFILE .SUB file if you wish.

As the monitor then knows what the current date and time is, you can get it to stamp that onto the directory entry for a file whenever that file is used. There are three types of timestamps. They are CREATE, ACCESS and UPDATE. Each stores information relating to a particular phase in a file's life. The most useful of these is the file creation stamp. Fairly obviously it marks the date and time of creation of the file. Imagine that you have two files of the same name on different discs. This creation stamp will tell you which is the most recent version.

The next most useful of these stamps is the access one. It tells you when a file was last looked at or used for any purpose. It may be used to determine whether unauthorised persons have been looking at files which you alone are supposed to see.

The least useful of the timestamps is the update one. It tells you when the file was last changed in some way. This could be useful for database applications or in the modification of reference material. If for example your school keeps student texts on computer as word processing files. Often the same master file of a text is retained and merely modified as the need arises due to say, a change in curriculum. This form of timestamp would allow the system manager to keep a track of which files have been updated recently for back-up purposes. There is however, a problem with this. Some programs modify their files by copying. In other words when you edit the document, it is loaded into the computer's memory. Upon saving it to disc again the amended version is simply copied over the original version by overwriting it. This will cause the update timestamp to be useless.

When your disc label is first created, all timestamping and password protection is set to off. You may set only two of the three available types of timestamps on at any time. You must choose between

creation and access stamping as they cannot be in force simultaneously. You may then also have update stamping if you wish.

Try a few simple experiments for yourself to enable different combinations of timestamping and choose the one best for you. Enabling the stamps is simple. Again it is a function of the SET command. The syntax is SET d: [option] where d is the drive on which you wish to set up the timestamps and the option is one of the three below:

[create=on] to enable creation timestamps;

[access=on] to enable access timestamps; or

[update=on] to enable update timestamps.

The options may be combined in a single command and separated by commas such as:

```
SET B:[create=on,update=on]
```

You may reverse any of these processes by substituting the word off for on in the options. Note that if you happen to be using the drive in question at the time as your default drive, then you do not have to specify it as part of the command.

Once you have set up a disc for timestamps, create a few files and have a look at the resulting stamps by the use of the DIR [full] command. Another thing to note concerns activating timestamping on a disc already containing files. You will note that only those files created or accessed after the reorganisation of the directory will have timestamps and the others will not.

PROTECTION WITH PASSWORDS

Now let's look at the use of passwords. Once you have labelled your disc, password protection is enabled by a simple command:

```
SET d: [protect=on]
```

Once in place with that command you can then put password protection on any file on the disc with an option of the SET command which

we will cover in a minute. To disable this function the command SET d: [protect=off] must be used. In these commands as before, the d stands for the drive containing the disc onto which the protection is to be placed.

Before issuing a command to set a password on a particular file you will obviously need to know the name of the file and you will also need to determine what level of protection you want to place on it. So it's worth looking at levels of protection now. There are three levels called; DELETE, WRITE and READ.

DELETE is the mildest form of protection. At this level the password is required to erase or rename the file. It is also required if you wish to change the password later or change the level of protection. However, the file may still be copied, read or updated in place without need of the password.

WRITE is the next level up, if you like. It provides tighter protection. It provides all the same functions as DELETE level but now requires the password to be given before the file can be updated in place.

READ level provides the tightest protection. A read level password prevents the file from being accessed for any purpose. Unless the correct password is supplied, the file can't even be displayed, let alone copied or altered in any way. If the file concerned is a program, it can't be loaded or executed without the password. This is another way of protecting your data. If others can't even get into the program to run it they are unlikely to be able to get at one of the data files of that program.

To set a password on a file the syntax is as follows:

```
SET filename.ext [password=whatever, protect=whatever]
```

Substitute the name of the password and the level of protection required for the two 'whatevers' in the above example. Different passwords may be used on different files if you

wish. Just don't forget what they are or you will have a devil of a job getting into those files again. If you enable password protection on a file and then try to display it with the TYPE command you will note that the process pauses and you are prompted to input the password. When you do so the password that you type in is not echoed to the screen. This is so somebody looking over your shoulder will not see the password on the screen.

HOW SECURE ARE PASSWORDS?

Notice that I have been using the term protection rather than security. As a means of security, passwords have a few faults. A password at any level of protection can be circumvented by a good programmer. Secondly the password depends on secrecy to work effectively. If half of your office knows the system manager's password you can expect problems as people delve into areas on the computer about which they know nothing. I have password protection enforced on systems in my workplace, not so much for security but more to prevent damage from those with fat fingers on keyboards.

You might wonder what good passwords are at all if the protection can be disabled with one command, SET d: [protect=off]. Well there is a way around this. You can set a password for the whole disc. This ensures that somebody else can't use the SET d: [protect=off] command to bypass the passwords. It also gives you a back door to disable the protection should you forget the password on an individual file. This disc label password is very effective and I use it myself on some of my discs at home.

The syntax is: SET d: [password=whatever]. From now on the password, (in this case "whatever"), will be required to disable the protection on the disc.

SHOWING DISC DETAILS

Finally this month we will look at the SHOW.COM utility. This utility is used specifically to display

information about a disc. The syntax is `SHOW d: [option]` where `d:` stands for the drive in question and option is one of the following:
SPACE DRIVE DIR USERS LABEL

Let's look at those one at a time. The **SPACE** option simply shows the amount of Read/Write space left available on the disc. In fact if you just use the command `SHOW` with no option the same thing will result.

The **DRIVE** option shows the physical details of the disc in the drive. It shows the capacity of the disc and the size of its directory as a number of entries.

The **DIR** option displays the number of free directory entries left on the disc. Remember that you may need to know this information when deciding whether or not to use `INITDIR.COM` to re-arrange your directory for timestamps and so on.

The **USERS** option displays any user areas on the disc that contain files and the number of those files stored in each area.

The **LABEL** option fairly obvi-

ously gives information about the disc label if there is one. The various flags denoting whether timestamps and passwords are required are also displayed.

All of the options above can be chained together into a single command if you wish by enclosing them all within the square brackets and separating them with commas as follows:

`SHOW d: [space,drive,dir,users,label]`

Most of the options may be shortened if you wish. The example below would give an identical result to that above:

`SHOW d: [sp,dr,di,user,label]`

Well folks, that about wraps it up for another month. We're almost finished on our journey through the basics of CP/M+. Next month will be a real mixed bag article to round things off. Whilst I don't profess to be an absolute authority on CP/M+, I have gained a very good working

knowledge of the system through reading and lots of trial and error. A machine code programmer I'm not.

However, having said that, I hope that these articles have shown you that anybody is capable of getting the best from this operating system with just a bit of effort. It's a sad fact of life that technical assistance and general education about computers is often left to magazines such as this one. Interested writers like myself try to pass on knowledge gained to our fellow computer users. Hard working editors (I had to say that), wade through heaps of letters trying to assist readers by answering their questions. We do what we can.

If you have tips you can share, don't be afraid to write in to *The Amstrad User* and help others. *Pot Pourri* articles are compiled on an opportunity basis dependent on contributions.

Having preached from the soap box for long enough I shall leave you in peace. So until next month... Happy Computing.

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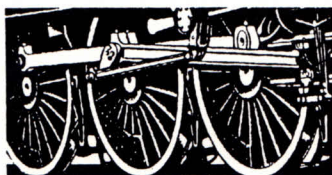
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LocoFont - Set 1

Definite

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ABCDE abcde aBy5c AB7AE aBerr ABBT

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 ...
BCDE abcde aBy5c AB7AE aBerr ABBT

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 aBy5c AB7AE aBerr ABBT

Capitals

FOR SALE :
MINI 1000 - GOOD LITTLE RUNNER, NEEDS A LITTLE WORK. TAX AND M.O.T. UNTIL JANUARY 89. NEW SUBFRAME, BRAKES ...
BCDE ABCDE AB7AE AB7AE ABBT ABBT

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 AB7DE aBy5c aBerr ABBT

Deco

Avocado Pear	£1.95
Prawn Cocktail	£2.50
Pa6e	£1.95
Kantelope Melon	£1.95

BCDE abcde aBy5c AB7AE ABBT aBerr

Copper Plate

You are invited to join in with another of Ted's houswarming parties. This time if you want anything other than hotdogs, crisps and beer then...
ABCDE abcde aBy5c AB7AE aBerr ABBT

Finesse

St David's School - Summer f6te 88
This year's f6te will be even bigger than last year's. We hope to exceed last year's fund raising efforts
BCDE abcde aBy5c AB7AE aBerr ABBT

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 aBy5c AB7AE aBerr ABBT

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 aBy5c AB7AE aBerr ABBT

Old English

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Somerton, Somerset
SA23 4BQ
ABCDE abcde

Mini 15/17

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ON-LINE ARCADE

There's room on most BBSs for games and some are pretty good, as Joseph Elkhorne discovers

Not long after I started BBSing, I discovered the insidious delights of on-line games. A number of the bulletin boards offer various versions of a space game called Tradewars. This is similar to a text version of "Elite" in style.

You start off with a spaceship in a largely unknown universe. Fighters can be carried on your vessel, as well as mines and cargo. The earliest version of Tradewars had only a hundred sectors to explore, and the universe was fixed. As this became too easy for skilled players, the game progressed to 500 sectors - which I found on Further Regions - and expanded to 1000, which is most common. I've heard rumours of even more complex arrays, but believe me, getting control of a thousand-sector chart takes some doing.

Tradewars is like chess on a vast board - with multiple opponents - and random factors introduced by a devious and sadistic program. Learning to play it well takes practice. Some wimps resort to getting hold of the Sysop documentation, which makes it about as challenging as "insider trading" on the stock market.

Initially, I buffered the game play and used Tasword to extract the data needed. Very quickly I discovered that, with line noise and vagaries of BBS systems, it is possible to get characters within the file - whether you can see them on screen or not - that play havoc with Tasword.

My first step was to write the following program to "space out" the unwanted characters, to allow Tasword block moves to be made easily. Nothing fancy here, just a quick program (being in BASIC, it runs slowly) to do the job. Now, you may care nothing for Tradewars, but editing a message base will be easier using this little program. It may take five minutes to clean up a file, so you should plan on doing something else whilst this is happening. But, believe me, in the long run it's better to take this approach rather than delete single lines because the block function won't go!

```
1 '      ** tasclean **
```

```
2 '      ** by Joseph Elkhorne **
3 '      ** The Amstrad User, Nov. '89 **
5 big=0:j=1
9 :
10 MODE 2:CAT
20 INPUT "get file ";f$
30 OPENIN f$
40 OPENOUT f$
99 :
100 WHILE NOT EOF
110 LINE INPUT #9,LINE$
120 GOSUB 200
130 PRINT #9,LINE$
140 WEND
180 '
190 CLOSEIN:CLOSEOUT:STOP
199 :
200 big = LEN(line$)
210 FOR j= 1 TO big
230 IF ASC(MID$(line$,j,1)) > 127 THEN MID$(line$,j,1) =
CHR$(20)
232 IF ASC(MID$(line$,j,1)) < 32 THEN MID$(line$,j,1) = C
HR$(20)
240 NEXT
250 PRINT line$
260 RETURN
299 :
300 END
```

In some cases, the unwanted characters in the file are due to specific BBS functions, which interfere with Tasword. In other cases, the problem is "telescum", otherwise know as line noise. A corrupted text line can leave a bad character far outside the normal right hand margin you normally use. Just because you can't see it on screen doesn't mean it's not there. I fell into this trap once.

Even with TASCLEAN to solve this problem, I found too much time taken up in donkey work. Extracting the sector information to use in chart-building was easier - but why not let the computer do what it's best at? Thus, I then wrote a utility to extract the needed data from the raw buffer files. It would take far too long to describe all the options in a session of Tradewars. You can move, discover new ports, or planets - even build your own.

You might trade, run into mines and get completely blown away, fight other players or the program-generated enemy known as The Cabal. Nasty fellows, those! The point of all this is to show how to use the computer to solve the problem. The first step was to study a buffer file thoroughly, to work out the most efficient way of extracting the data. A little forethought revealed one good way of handling the information was to create an array of one thousand null lines.

A sequence is then to RUN the extraction program after the day's activity on-line. Its first step then read

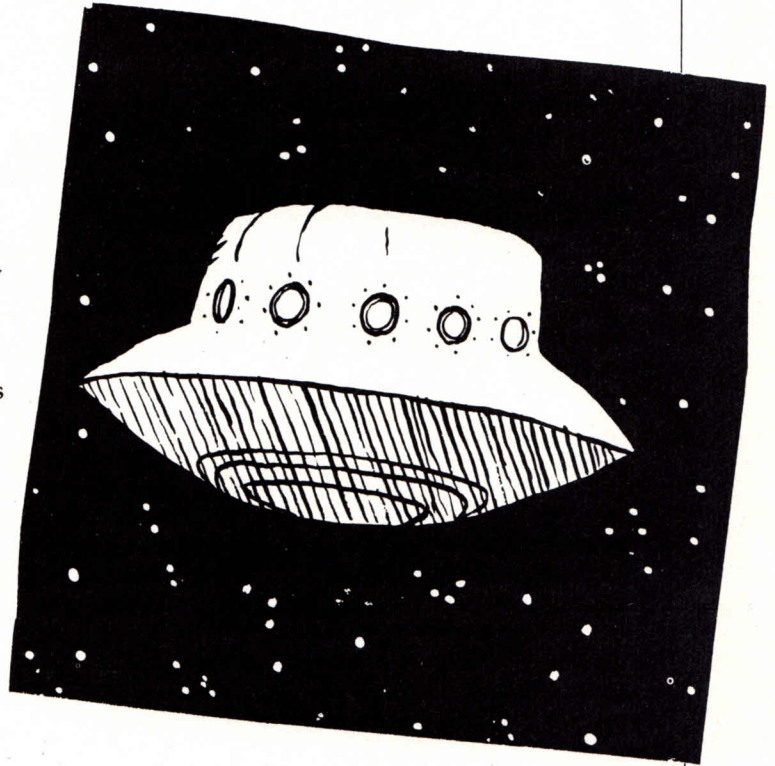
the array into memory, starts "crunching" text lines until it finds one starting with "Sector" and checks the array to see if the data has already been found. If not, it extracts the data, stores it in memory, and repeats until the EOF marker.

You can continue to process another file at that point, or finish the run. At the completion, the revised array is written to disc, followed by the compacted new data in a separate file. An option to print out the remaining sectors needed is offered; this will come in handy for future play.

Whether or not you're interested in on-line games, study of the program will show techniques of data handling based on a decision-making process. As an example, a typical .SEC file will be around 3K, down from the 24K buffer file created. Just imagine how many Tasword manipulations it takes to get rid of 21K of unwanted data!

If you don't 'telecommunicate', you're missing a lot of fun. To appreciate the complexities involved with this program, find a friend who does, or try a local user group. Someone can show you what is involved in the game play. Now, if I could just develop an automatic mapping program...

Referring back to our TASCLEAN program - as it's so slow, I'm working on a machine code improvement, which will run under AMSDOS. That should make it speedy and convenient.



```

1 '      ** Furfind **
2 '      ** by Joseph Elkhorne **
3 '      ** The Amstrad User, Nov. '89 **
10 ' program to update sectors found
20 DIM sk$(1000):DIM keep$(999)
30 tot=0:j=0:x=1:col=0:CLS
40 PRINT"Tradewars data update"
50 PRINT:PRINT"Reading existing file":PRINT" of sector
s found ..."
99 :
100 OPENIN "gotfr"
110 '
120 FOR j=1 TO 1000
130 INPUT #9,sk$(j)
140 NEXT
150 '
160 CLOSEIN
199 :
200 ' go separate wheat from chaff
210 GOSUB 1000
219 '
220 INPUT "Process another file";p$
230 IF UPPER$(p$)="Y" THEN 200
239 '
240 ' now save the data ...
250 OPENOUT file$+".sec"
260 FOR k=1 TO x
270 PRINT #9, keep$(k)
280 NEXT
290 CLOSEOUT
299 :
300 OPENOUT "gotfr":tot=0
310 '
320 FOR j=1 TO 1000
330 PRINT #9,sk$(j)
340 IF sk$(j)="Y" THEN tot=tot+1
350 NEXT
360 PRINT:PRINT"Writing ";tot;" sectors found >"
380 '
390 CLOSEOUT
399 :
400 ' hard copy?
410 CLS
420 INPUT "Do you want hard copy";p$

```

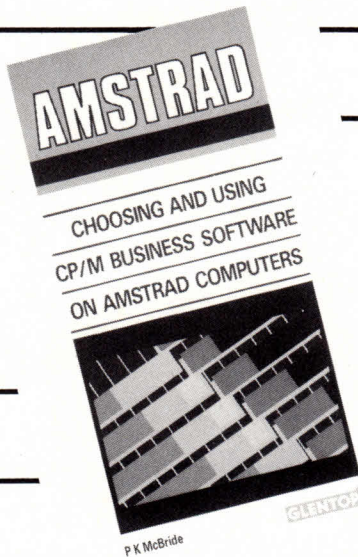


```

430 IF UPPER$(p$)<>"Y" THEN 570
499 :
500 ' output to printer
510 PRINT#8,,"F R -- SECTORS NEEDED . . . ";(1000-tot):
PRINT#8
520 FOR j=1 TO 1000
530 IF j MOD 100=0 THEN PRINT #8:PRINT#8:col=0
540 IF sk$(j)=" " THEN PRINT #8,(j);" - ";:col=col+1
550 IF col=9 THEN col=0:PRINT#8:PRINT#8
560 NEXT
570 STOP
999 :
1000 ' the twget business goes here
1040 CLS:CAT:INPUT "Get file ",file$
1050 OPENIN file$
1060 :
1070 WHILE NOT EOF
1080 LINE INPUT #9,tw$
1090 IF LEFT$(tw$,7)="Sector:" THEN GOSUB 1200
1100 WEND
1110 CLOSEIN
1120 RETURN
1199 :
1200 ' subroutine to get pertinent info

1210 '
1220 argu$=RIGHT$(tw$, (LEN(tw$)-8))
1230 numero=VAL(argu$)
1240 IF sk$(numero)="Y" THEN 1400
1270 keep$(x)=tw$:x=x+1
1299 :
1300 LINE INPUT #9,tw$
1310 IF EOF THEN RETURN
1320 IF MID$(tw$,8,4)="None" THEN 1300
1330 IF tw$="Other Ships: None" THEN 1300
1340 IF LEFT$(tw$,5)="Fight" THEN 1300
1350 IF LEFT$(tw$,5)="Warps" THEN sk$(numero)="Y":GOTO
1270
1360 IF LEN(tw$)=0 THEN 1500 ELSE 1270
1399 :
1400 ' scrub through to null line
1410 LINE INPUT #9,tw$
1420 IF EOF THEN 1500
1430 IF tw$<>" " THEN 1410
1499 '
1500 keep$(x)=" ":x=x+1:RETURN
1999 :
59999 :
65535 END
    
```

FOR BUSINESS MINDED CP/M USERS



The enormous success of the Amstrad PCW range of computers has led to the re-emergence of CP/M as a major operating system. This has allowed the huge base of CP/M software, which has been estimated to be in excess of 8,000 packages, to be made available to Amstrad computer users. However, choosing the right package can be difficult and choosing the wrong ones may be disastrous. This book aims to assist the CP/M business user in evaluating the various products available and thus come to the correct decision with the least amount of fuss and bother.

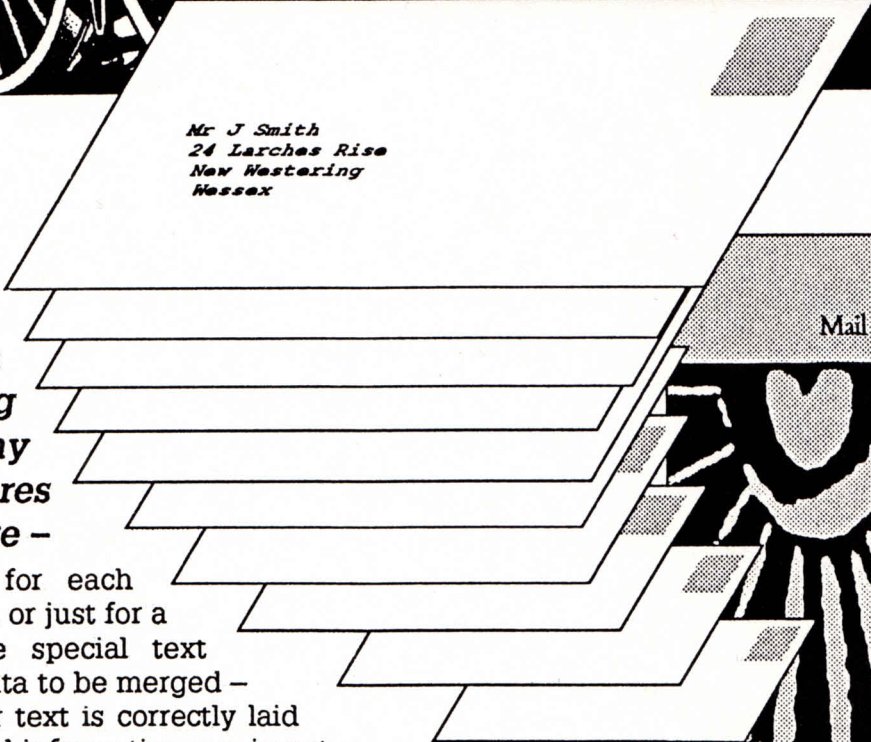
The topics covered include:

- Amstrad computer systems hardware
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- Installing a computer system
- Choosing databases and cardfiles
- The spreadsheet market
- Payroll programs
- Software for the smaller business
- Accounting, including stock control
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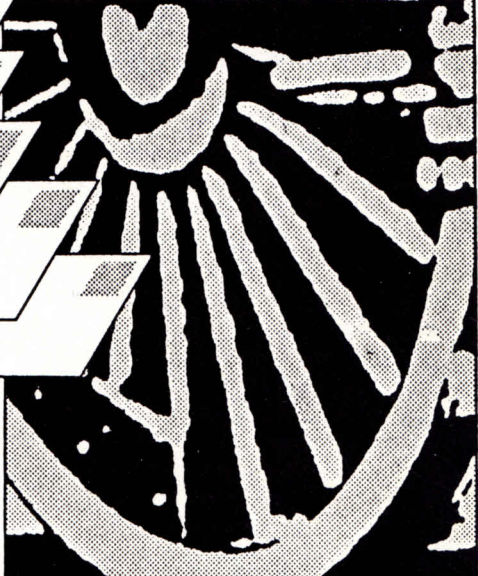
LocoMail for LocoScript 2



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- Add paragraph numbers automatically
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LocoMail
Mail Merge for LocoScript 2

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BOXES AND LOCOCHAR

If you have LocoScript version 2.12 (or later), you can use LocoChar to define some special line graphic characters which can be combined to produce boxes, grids and even flowcharts.

Anyone who has tried to draw boxes or table grids in LocoScript documents, using hyphens, underlines and vertical bars, will know how difficult it is to make the lines join up and the corners look tidy. There are two reasons for this: firstly the hyphen, underline and bar characters are not designed to join up, and secondly

graphic characters which will be displayed on the screen and printed perfectly in Draft or High Quality modes.

Before going into the actual graphics elements you will need, a word about how they will be used. The restriction of $1/9$ " maximum height for printed characters applies, so we make the printer graphic elements only $1/12$ " high and use 6 lines per inch with half-line spacing to make them join up.

This means that for all areas in the document which contain boxes etc. you need to select half-line spacing either with the code (+LSpace $1/2$) or by changing to an alternative layout. Your text, whether inside or beside the boxes, should only appear on alternative (half-)lines, whereas the vertical elements of the box appear on every line.

The screen graphic patterns use the full height of the character cell to produce joined up lines on the screen display; but because of the line spacing, the vertical scale of your diagrams will appear more exaggerated on screen than when printed.

It is also advisable to set up tabs

for the positions of vertical lines and use tabs rather than spaces to mark out the width of the box or table columns; this makes it much easier to change or add text without distorting the shape. If you use PS pitch then you must use tabs to line up the verticals, otherwise a box which looks good on the screen will break up when printed.

LocoChar allows you to redefine up to 16 of the standard characters, and depending on the complexity of the diagrams you want to produce, you can use all or just a few of these for line graphic elements.

DRAWING SIMPLE BOXES

To draw individual boxes or lines you need 6 graphic elements: a horizontal line, a vertical line and 4 corner pieces. Individually, these look like this:

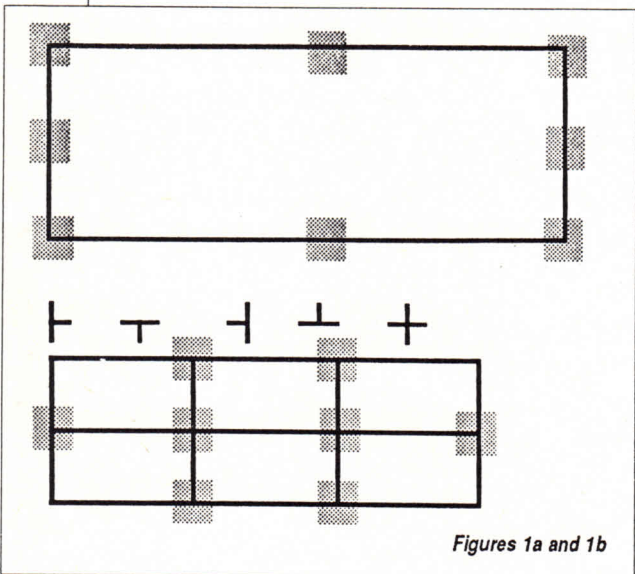


These shapes can be combined into rectangular boxes from $1/12$ " square (assuming 12 pitch or PS) up to the whole size of the page (as shown in Figure 1a).

MORE COMPLICATED BOXES

For boxes which are joined up or subdivided, table grids or block diagrams, 5 extra junction elements need to be added; these are 4 "T" pieces and a "+" piece (see Figure 1b).

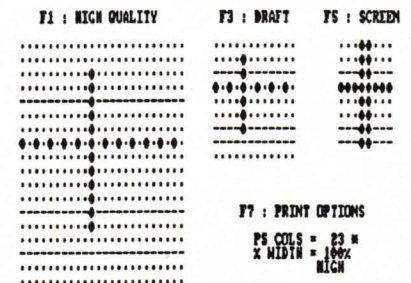
These should be designed so that the "+" piece is the key piece, each of the other 10 pieces being a subset of this one (i.e. a copy with some blobs removed but nothing added). This is what ensures that all the junctions will line up correctly.



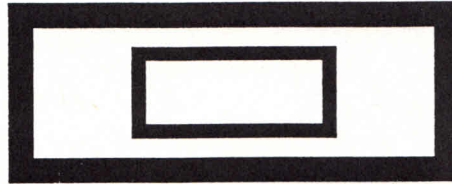
Figures 1a and 1b

the maximum height of any single character is $1/9$ ", whereas your lines of text will usually be spaced $1/6$ " apart.

However, if you have LocoScript version 2.12 (or later) and a few hours to spare, you can use LocoChar to define some special line



Below is an alternative design for the "+" piece with double thickness printed lines, and if you prefer that style you can work out the patterns for the other 10 pieces to match it. If you draw the "+" piece into, say [A] first and then CUT into the Scratchpad and COPY into [0] to [9], you can then edit each of [0] to [9], removing the sections which are not required.



FURTHER HINTS AND TIPS

1. When defining any of these characters in LocoChar you should use the "F7: PRINT OPTIONS" to change the "% WIDTH" value to 100% (PS COLS = 23). Otherwise, if you ever use proportional spacing, the uneven widths will spoil things. Only do this when you have finished editing each pattern though, otherwise LocoChar will kindly change it back again! (Ignore the warning "*" if it appears; in this case you know better.)

2. Whether you use LocoChar for these line graphics or for special characters of your own, it is worthwhile putting the ones you will use most often in the range [0] to [9] because the keystroking for these (using EXTRA) is easier to remember. If you make frequent use of [A] to [F] as well consider saving the individual characters in phrases A-F. And if you still can't remember which is which, make a diagram like this:



and either print it out for reference or stick it in another phrase so that you can paste it in temporarily to refer to.

3. When printing line diagrams in draft mode you may find that the vertical lines are slightly jagged. This effect is due to the fact that the accuracy with which the characters are aligned in bi-directional printing (where alternate lines are printed in opposite directions) varies, depending on the printer. It will be more noticeable on some printers

F1 : HIGH QUALITY

F3 : DRAFT

F5 : SCREEN

F7 : PRINT OPTIONS

PS COLS = 23 *
X WIDTH = 100%
HIGH

F1 : HIGH QUALITY

F3 : DRAFT

F5 : SCREEN

F7 : PRINT OPTIONS

PS COLS = 23 *
X WIDTH = 100%
HIGH

Examples of flowchart arrowheads

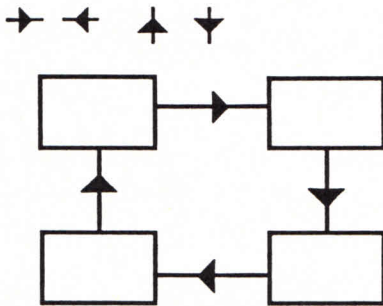
than others, but does not indicate a fault in the printer or the software. When printing in High Quality, the text is always printed from left to right especially to ensure that the characters are as straight as possible.

It is not possible to disable bi-directional printing explicitly, but there is a trick to "frighten" LocoScript so that it only prints left to right. To do this, define a dummy space in one of your LocoChar characters: set no blobs at all in the printer patterns and put just a single blob near the middle of the screen pattern (as it is helpful to see these dummy spaces while editing). Whenever you draw boxes etc. which will be draft printed, include somewhere in each half spaced line the sequence (+Italic)dummy space(-Italic) instead of a normal space.

LocoScript always prints lines containing Italics from left to right, so this empty character in Italics persuades it to do all the printing in the same direction, and your verticals will look that much better when printed. Remember, though, that the dummy space looks to LocoScript like a normal character and will act rather like a hard-space if you put it near where a line break should occur.

FLOWCHARTS AND SOLID BOXES

For flowcharts you might need 4 extra line segments with arrowheads:



If you don't need the arrowheads try putting these 5 blocks in:



Use the first four for simple boxes with 1/24" thick outline: the first is for the bottom line, the second for the top, the third for the left side and the fourth for the right side. In this way the corners will butt together properly. The last is a 1/12" square solid block, which can be used for solid black rectangles or 1/12" thick outlines with a full range of junctions.

If you use *Mini Office* or *LocoFile*, here's what you've been missing:

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FLIPPER could do some pretty surprising things. It could split you PCW in two, letting you run LocoScript 2 in one half and a CP/M program in the other. Or it could let you load two CP/M programs at once if you preferred, one in each half. It could flip you from one half to the

other in under three seconds, any time you wanted. And it wouldn't lose your place.

Unfortunately, there were a few things it couldn't do. In particular, it couldn't load either *Mini Office Professional* or *LocoFile*. Serious shortcomings indeed.

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SPLASH

Spinnaker/Pactronics - \$199.00

Described by PC Week as "a superb justification for taking the VGA plunge," Splash will run on any true IBM compatible (including the Amstrads) which have 640k memory. It is supplied with 2 x 3.5" disks (and 4 x 5.25") which contain the program and some drawings and paintings already created. The program operates under mouse control.

Loading is simple, and after clicking past the title screen the working screen is presented. This consists of three areas: at the top of the screen are two rows of icons representing the operations and tools of the program; a large central canvas area of 320 by 200 pixels; and at the bottom of the screen various colour and pattern boxes, a colour menu and an Icon colour menu.

When the program is first loaded, the cursor is represented by a paintbrush, indicating that the current tool selected is just that - the paint brush. As the mouse is moved off the canvas to either the top or bottom sections, the cursor changes to an arrow. Selecting another tool for example, will cause that tool 'box' to be highlighted and the cursor to change its shape to represent the selection. Drop-down or Pop-up menus are employed extensively. For example, selecting the air brush icon and holding down the mouse button will reveal a drop-down menu showing a choice of numbers relating to the spread of the spray.

The list of drawing and painting tools is what you would expect from this type of package:

Paint brush - for free-hand drawing with choice of widths, patterns and colour.

Straight line - with choice of width, colour and pattern.

Air brush - with choice of radius,

...continued page 38

RELEASING THE ARTIST

The arrival of the VGA screen has opened up a new world to the home user, otherwise only experienced by the professional CAD artist. We examine two recent releases for VGA users.

It is an inevitable part of the computer industry that whatever computer you buy, there will always be one better being developed. This is true for the multi-million dollar machines as well as home micros.

Sometimes the advanced technology has less impact on, or relevance to, the home or small business user. Now and again though, an improvement seems to leap the small user into a different environment. The advent of the VGA display system could be compared with the move from mono to stereo or black and white television to colour.

VGA, which stands for Video Graphics Array, is a high resolution mode which allows for 16 colours to be displayed at any one time and can be expressed in 'dot pitch'.

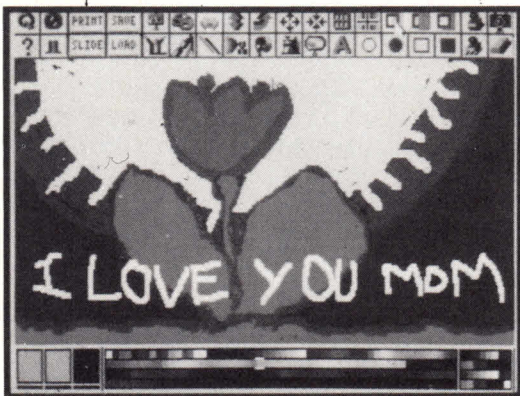
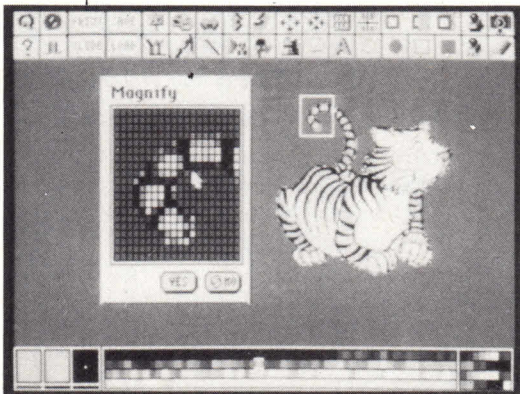
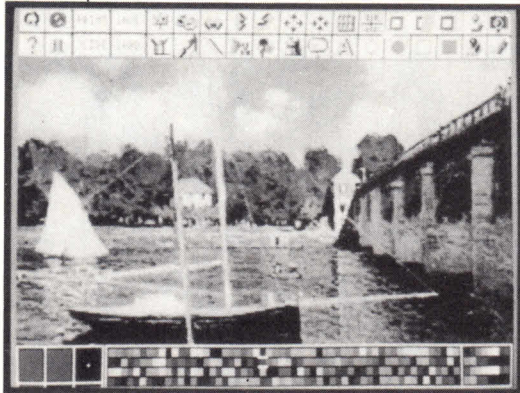
This piece of jargon really means the space between the red, green and blue dots which go to make up the screen. The closer the dots, the clearer the image on the screen. The new VGA Amstrad analogue monitors which can be supplied with the new PC2000 series go a step further, in that they can support an extended version of VGA with a range of 256 colours from a palette of 262,144

colours. (Non-Amstrad systems may need an additional adaptor card.)

The dot pitch (expressed in millimetres) on the Amstrad monitors range from either .42 on the 14" CD model (CGA quality) to .29 on the 14" or .28 on the 12" HRCD models (VGA quality).

Those lucky enough to own an Amstrad system with VGA screen will already have discovered the marked difference from the CGA and even EGA versions. Those who haven't will no doubt go 256 shades of green when they get to see a demonstration. Many games are now being produced which have been

updated to take advantage of the higher resolution. In addition, some new graphics packages are entering the market which rely almost entirely on the VGA capabilities. Two of these are SPLASH and FANTAVISION. ■



Examples of screen output using Splash.

colour and pattern. Density can be controlled by the speed at which the mouse is moved across the screen.

Paint bucket - for filling shapes with colour. Has a facility to stop filling if flooding occurs. Flooding happens when a fill leaks through a gap in a boundary.

Circle or Rectangle - both these options have a filled facility.

Brush Mirrors - for producing a mirror image in the other half of the screen to the half currently being used. The mirroring effect can be set in horizontal, vertical or both modes.

ALL COLOURS OF THE RAINBOW

One of the powerful features of Splash is the ability to change the colours already shown on the screen. The Palette icon allows you to change the colour, hue, saturation and luminosity. The palette icon produces a pop-up menu with two scales: RGB and HSL. Under the RGB (Red, Green, Blue) scale are three primary colour bars. Placing the cursor on any of the bars and dragging up or down will alter the colour shown in the current colour box. Anything drawn in the current colour will also change.

Under the HSL (Hue, Saturation, Luminosity) scale are three more bars, one for each definition. Moving the Hue bar adjusts the proportions of red, green and blue in the current colour. For a heavy saturation of colour, the saturation bar is moved up. Alternatively it can be moved down to give a 'water colour' look.

The luminosity bar adjusts the amount of light shining through the current colour. It is akin to showing slides - without a light everything will look black; with too much light everything will look white.

Colours can be swapped on the screen using 'swap colours'. Up to 7 colours can be swapped at one time.

And that's not all! Splash will also allow you to select a colour range with which to work. By choosing a range of colours from the colour menu at the bottom of the screen, a pop-up menu appears. This gives you the option of selecting the range for advanced applications; blending the first and last colours in even steps; or translating the colours into corresponding shades of grey.

OTHER MODES

Cut, Copy and Paste come under the heading of 'Scissors and Stamp',

providing the usual facilities of copying or cutting all or part of a graphic and placing it somewhere else.

Transparency mode allows one of two overlapping objects to show either above or below the other, or allows the top object to be transparent.

An optional Gridlock function is supplied which defines an invisible grid (like graph paper) on the canvas. Lines, boxes and so on will automatically "snap" to the grids keeping everything in line.

Facilities are provided to reverse, flip, rotate or shrink an image, and for the really fine detail a powerful zoom function lets you edit an image pixel by pixel. It even lets you change the colours of each pixel if required.

Thirteen fonts are provided in Text mode. A cursor, in the shape of a broken 'L' is a useful feature in indicating the size of the text about to be entered. It's not a word processor though, and the completed text will be treated as a graphic so cannot be edited. Splash also has the ability to import small ASCII files of text if required.

The Accessories icon produces a drop-down menu with a number of facilities. It contains:

Control Panel - to adjust sound and mouse-clicking speed.

Font Path - records where your font files are held.

Import Text - ASCII files only (with no special word processing codes).

Sort Colours - sorts the colour menu at the bottom of the screen according to hue, saturation and luminosity. Particularly useful if you have been changing colours around.

Save Pbrush - allows you to save a canvas in PC Paintbrush format.

Save TIFF - allows you to write TIFF files for use with desktop publishing programs.

ADVANCED FEATURES

To save confusion at the start of this

article, we refrained from mentioning that there are in fact two canvases - the main canvas which is normally on show, and an alternative canvas which sits underneath. You can flip between the two at will. An advanced facility of the Draw Features menu is 'copy through'. This has the effect of 'burning' through the top canvas and revealing the alternative canvas over the area drawn with a drawing tool. Some very interesting effects can be seen when using the air brush!

Swapping colours can be extended so that the swap only occurs when a paintbrush passes over it. Similarly, using the 'count-up' or 'count-down' facility, a colour can be increased or decreased by one as the drawing tool passes over it.

A vignette effect (a grading from light to dark) can be achieved

through the Colour Spectrum facility. A particular colour or range of colours can be graded in an area, and can start at the left, right, top or bottom of an area.

A slide icon temporarily removes all menus and icons to allow you to take a 35mm slide of the screen. A help file with camera setting information is provided.

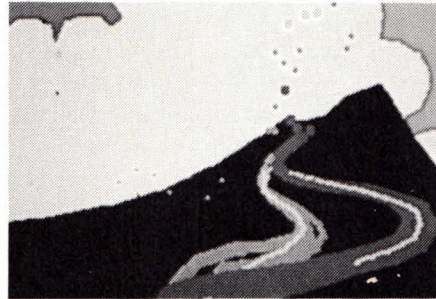
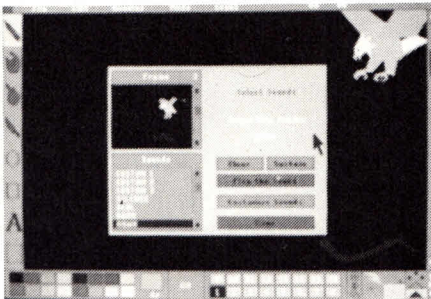
While on the subject of taking pictures, the Splash disk comes with a file called WHITECAP.EXE. It's a RAM resident file which is loaded before Splash. It enables you to take a snapshot of your graphics screen for another program like Pagemaker or Ventura.

If you are rich enough to own a Computereyes digitising add-in board from Digital Vision, you would use the video icon. The board is used in conjunction with a video camera to capture a live picture and

translate it into an image that can be shown on a Splash canvas. It seems that this will only work with the Computereyes board - perhaps someone else knows better.

VERDICT

There is no question about it - Splash is an extremely versatile and powerful colour drawing program for VGA screens. It knocks spots off other comparably priced products and is relatively simple to use. It supports a wide range of printers (if you really must see your work converted to black and white hard copy) and can produce very high quality graphics. It seems ideal for preparing business presentations or just letting the kids run a riot with colour. Splash is a must for all VGA screen owners if they really want to use their screen for its best advantage.



FANTAVISION

Brøderbund/Dataflow - \$89.95

Fantavision does not have the sophisticated graphics facilities/tools as does Splash, but on the other hand, Splash is not capable of producing animation. Nor has Fantavision been developed specially for the VGA screen, it will run successfully on both CGA and EGA, but looks much better in VGA. The software is supplied on 1 x 3.5" and 2 x 5.25" disks. Brøderbund claim that with very little practice, you can begin creating your own animated computer movies, complete with ready-made sound effects or custom sounds you

compose yourself. The only way to test this claim is to put it through its paces.

If you understand the concept of how cartoons are made, you are part of the way to understanding the concept behind Fantavision. Frames are created then strung together to give the illusion of movement. All you need to do is to specify the position of an object on the first frame, then its position on the second frame (and so on). Where Fantavision scores is that it creates "tweens" - in-between shapes that make the pictures flow. For example, if you draw a triangle on the first frame and a square on the second, Fantavision automatically creates 64 "tweens" to make the change between the shapes look

Examples of screen output using Fantavision.

really smooth. It takes out the work of having to make the small changes over 64 frames yourself.

THE SIMPLE TEST

The simplest 'movie' you can make is over two frames (like the triangle to square example above). Another would be to move a shape from one side of the screen to another and is one of the examples in the "Short Takes" tutorial at the beginning of the manual supplied with Fantavision.

It involves drawing a circle on the first screen (each screen in numbered), cloning the screen onto Screen 2, and dragging the circle to the right side of the screen. The

circle is also allocated a number, as are all objects, and the number of the currently selected object is displayed at the bottom of the screen. Also at the bottom of the screen is a "GO" box. Click with the mouse on this and watch the circle move backwards and forwards across the screen. Once again, Fantavision has inserted all the "tweens" necessary to make the circle move smoothly across the screen. You can have up to 16 objects in any one frame, and each object can have a maximum of 64 plotted points (see Draw Tool below).

THE TOOLS

There are a number of drawing tools/icons to create objects on the screen. They are:

Draw - you cannot draw an object free-hand, which is obvious really, as the program would have no way of knowing which part had to be moved for the animation sequence. Objects are developed using a dot-to-dot system up to a maximum of 64 dots or points with the last dot joining up with the first. An Object Status Box indicates how many points an object has.

Grab Point - allows you to change the position of a point previously drawn with the Draw tool.

Insert Point - allow you to insert a new point in a previously drawn object.

Delete Point - you've guessed it, to delete a point!

Make Circle - a circle is drawn with the centre placed where you first clicked the mouse and the radius where you released it. The completed circle can be altered by using the 'Goodies' pull-down menu (see below). Sometime a circle may be larger than the screen area. Fortunately, the program allows for this and will generate the hidden parts on a later frame if required.

Make Rectangle - draws rectangles or squares.

Text - to add text to a frame and

animate if required. This tool is not a word processor and in order to be able to animate the text, once entered it becomes a graphic and cannot be edited. It can, of course, be deleted entirely.

Capture Box - used for selecting an object or a number of objects.

THE GOODIES MENU

This pull-down menu allows you to change the shape of a created object. Each object has a centre point around which the Goodies will act. There are a number of effects that can be achieved.

Changing Centres - allows the centre of an object or group of objects to be changed. Whether you want the object to zoom, turn, lean, flip, squash or change perspective this will all happen from the new centre point.

Changing Perspective - effectively rotates an object either horizontally or vertically on its centre.

Setting Perspective rate - a default setting of 50% can be increased or decreased to put the object further or nearer respectively.

SOUND EFFECTS

There are a number of ready-made sound effects supplied with Fantavision ranging from futuristic noises, choppers to dogs and bugs. They can be added to a frame and will continue to play until another sound is added or 'silence' is invoked. There are also three spaces in the list for custom made sounds. They can be created by drawing a particular line pattern in the frequency box. A custom line drawn in the duration box determines the length of the sound.

OTHER TRICKS

You can create your own backdrop with Fantavision or another compatible art program such as PC Paintbrush and save them in a backdrop catalogue. A loaded backdrop is not affected by subsequent movie creation work. A point of interest here - if the

dimensions of the backdrop do not fit into the current screen, the program will prompt to convert it so that it does fit. A similar effect can be achieved by changing the screen mode from 640 x 350 16 colour EGA to 320 x 200 16 colour EGA.

You can make an independent movie show, save it to a floppy and send it to a friend. This is called creating a "Show Disk", and the recipient does not have to have Fantavision to run it.

The movie screen area can be reduced by creating a "French Window". This has the effect of allowing objects to disappear once they pass the boundaries of the window. You can also overlay frames for reference purposes without the overlay becoming part of the movie. A neat feature is the "Global Change" facility which allows changes to an object selected on a frame to be made to all other frames with an identical object.

Some flashy effects can be achieved with Lightning Mode, and the Trace Mode will leave an image behind of the object you are moving.

VERDICT

It could be argued that Fantavision has a few shortcomings, especially in the font area (there is only one) and the rather clumsy arrow pointer which makes the selection of points a touch difficult. It would also have been helpful if some kind of grid or aligning aid could have been included. However, you would expect to find all these refinements in software much more expensive than Fantavision so it is a little unfair to make the comparison. There is no question that the package is great fun, producing animation of a high standard.

Although VGA owners are restricted to the 16 EGA colours, this does not detract from the overall result. It has an impressive demonstration under the heading "Matinée" which runs for quite a time, and if you can get to see it, I'll wager you will walk out of the shop with a copy of Fantavision under your arm.

MASTERFILE PC VERSION 3

Integrated Data filing, Document filing, Word-Processing, Mail-Merge

Every business has two kinds of filing requirement: data field-oriented which we call Data filing and free text which we call Document filing. The traditional approach was to have one program for each - a database (DB) and a word-processor (WP). MASTERFILE PC has already established its reputation as a high-power relational DB at a popular price, but now with the version 3 we have added a powerful WP function. And since both DB and WP functions are managed by the one program, only one system of menus and dialogue need be learned, and there is a natural data-merge function to combine data with text into a mail-merge operation.

MASTERFILE-DB

Address lists • Sales Ledger • Bought Ledger • Inventories • Stock Control • Patient files • Job progress • Price lists • Bank analysis • Shares Portfolio • Photographic index • Property Details • Invoices

There are two main kinds of DB system on the market; those that require time and programming skills to set up and those that have virtually instant usability. MASTERFILE with its totally menu-driven approach is of the latter variety; and yet it offers huge flexibility in data presentation and manipulation.

MASTERFILE Data Filing is unusual in that it offers variable-length records within a direct-access file with a capacity of up to 16Mb or 32,768 records. There can be up to 80 data fields per record, each variable-length up to 254 characters, and data can be character, numeric, or date. Up to 32 user-designed screen/print formats can be used, so that from one data file you can present data as a summary index, and index card, mailing label, whatever, and add such effects as heading, boxes, panels. The relational aspect means that any record being displayed can pick up data from up to four other data files on a key-match basis.

An essential ingredient of a DB system is to be able to search the file and pick out records which match a given set of criteria. MASTERFILE's search functions are impressive and it can search on multiple criteria on any data (not just key fields), with speed and ease.

Arithmetic operations can be defined to operate on and derive numeric data e.g. taxes, percentages, price mark-ups. You can

even perform date-arithmetic such as is required for ageing of accounts and subscription renewals. The logic can include IF/THEN/GOTO constructs for the sophisticated user.

Printing is buffered, so that up to 5 pages of printing can be stacked while you use the program to get on with other tasks. Printer controls can be set to control style and pagination.

We could also mention sorting, import, export, encryption, passwords, date-stamping, serialising, and host of other features - but we don't wish to bore you; if you wish to know more, just ask us!

MASTERFILE-WP

• Letters • Reports • Memos • Journal Extracts • Bibliographic references • Your Next Novel.

Just about every PC user already has some kind of WP system, but the chances are that yours is the kind where each document is a separate DOS file. With MASTERFILE, you can keep all your documents in one large DOS file (up to 16Mb), and manage all your letters, memos, journal extracts as individual documents on a private directory basis; except that our directory (we call in an Index) lets you have useful 30-character names and you can search on the basis of document name, date of last change, or on the text contents themselves. In effect MASTERFILE combines the searching power of DB with the free-format text handling of WP.

MASTERFILE WP Document file has its own selective back-up/restore system, and you can also import and export text files from and to other text systems.

MASTERFILE WP allows up to 6 documents to be open at a time, using the same window or different windows, any of which can be adjusted for size, position, style and colour. The basic WP functions are all there, and some novel ones too - such as 'spot' colour to highlight your text. You can tailor your own printer driver and expansion keys simply by editing two specially-named documents. Maximum document size is 64K, about 20 pages.

Printing options include multi-copy, partial print, pagination, headers and footers, left margin, system date/day/time stamps, serial

numbering. And you can arrange selective text insertion from a MASTERFILE DB file for a mail-merge and several-across label operations. Printing uses the same buffer system as DB, leaving you free to do other tasks while a document is being printed.

HELP AND LEARN

The detailed manual is augmented with tutorial and several demonstration files. And, for the new (or the forgetful) user, HELP can be summoned at the press of a key to augment whatever menu you are looking at. There is even a facility for customising your own HELP frames using the WP function. MASTERFILE can learn too! To program a function key, you just press the 'LEARN' key then use the system normally, then press the function key. Or, you can store the function key in the file for long-term use.

How can MASTERFILE combined DB and WP program run in only a 256K MS-DOS environment? The answer is because it is compact, being totally coded in Assembler - unlike most other commercial software. If you have 512K or more, then MASTERFILE will make even better use of the available RAM. And the minimum disc configuration? Just one floppy. But users with hard discs can take fullest advantage of the large capacity. And what about the monitor? Any type from monochrome to VGA, and yes of course you can customise your preferred colour scheme.

MASTERFILE PC will run any PC-compatible, including any Amstrad PC/PPC, and is available on 3.5" or 5.25" formats in two editions:

Standard: DB only, but with read-only/demonstration WP functions.

Full: DB + WP

You can start with Standard and upgrade to Full later. Campbell Systems in the U.K. also offer upgrades to registered users of MASTERFILE PC version 2 or earlier.

Prices, incl P&P are **\$199.00** (Standard) or **\$269.00** (Full). All mail order enquiries to:

The Amstrad User
1/641 High Street Road
Mount Waverley 3149
Phone (03) 233 9661

or in Melbourne call at The Amstrad User computer shop, also at the above address.

ORGANISED WITH RPED

Helen Bradley creates a menu system for PC and PCW owners using the text editor RPED which she introduced last month.

Following on from last month's discussion of the text editor RPED, this month I will show you how to use the editor to create a menu system for a floppy disc for both the PC and the PCW computers.

Because of the differences between the MS-DOS and CP/M operating systems I have treated the PC and the PCW requirements for creating this menu system separately except for the creation of the menu screen text file itself, the instructions for which are the same for both machines.

In the case of both the PC and the PCW you will probably want to start with a freshly formatted disc and if you own a PC single/dual drive you will probably want it formatted as an autobooting disc i.e. format it with the command `FORMAT A:/S` etc. Check the instructions for formatting discs in your computer's manual if you are unsure of the procedure. For PCW owners you will require a freshly formatted disc containing the files `J14CPM3.EMS` (or your CP/M equivalent), `SUBMIT.COM`, `TYPE.COM` and `SETDEF.COM`.

The next step is to decide what programs you want to run off your disc and to then `COPY` (PC) or `PIP` (PCW) the required program files onto the disc. Ensure that all the ones that you need are there and if you will be using BASIC programs be sure that BASIC is on the disc too

(PC owners: note this procedure is suitable for running GWBASIC compatible programs only, and is not suitable for running BASIC2 programs which require the presence of the GEM operating system to run).

CREATING THE SCREEN DESIGN

The first step in designing the screen menu is to decide what programs you have on your disc and what options you want to give to your users.

I have designed a simple screen in figure 1 that will give the user the alternatives of running any one of 5 programs by simply pressing one key and then pressing `<ENTER>`. As to how it works we will see this in a minute, in the meantime our first task is to use RPED (or another text editor that saves text in pure ASCII format) to design a screen something like the one in figure 1 using the alternatives 1,2,3,4 & 5 for the user to select from. Call the file `MENU.TXT` as we will refer to it by this name later on.

For the best results the file should be 24 lines long for the PC or 29 lines for the PCW and you will need to ensure that it does not contain any trailing carriage returns at the end (you may not see these in the editing of the file) that will mess up the screen display. To get rid of trailing blank lines go to the line immediately below the last line of your file and press the `F10` key (PC)

or the `CUT` key (PCW) to remove them. Test the length of your file from the DOS or CP/M prompt by typing:

PC owners:

```
TYPE MENU.TXT <ENTER>
```

PCW owners:

```
TYPE MENU.TXT [no page] <ENTER>
```

The text should fill the screen leaving only the prompt e.g. `A>` at the foot and the text should not run off the top of the page, the idea is to have a `MENU.TXT` file that fills the screen exactly leaving only one line at the foot of the screen of the system prompt. When you have your `MENU.TXT` file created and looking as you want it, you are ready to continue.

PREPARING THE BATCH FILES (FOR PC OWNERS ONLY):

The next step for PC owners is to determine the commands that you normally use to run your programs e.g. to run `PACMAN` I generally type `PACMAN <ENTER>` and to run `DIGGER` I type `DIGGER <ENTER>`. You will need to make a list of your menu options i.e. their numbers and the commands that you would usually enter in at the keyboard to run the programs. When you have done this you are ready to create the `BATCH` files to run the programs automatically.

Below is my list and the commands I use:

option	commands
1 (DIGGER)	DIGGER <ENTER>
2 (PACMAN)	PACMAN <ENTER>
3 (3-D MAZE)	3-DEMON <ENTER>
4 (THE DRAW)	THEDRAW <ENTER>
5 (CRIBBAGE)	BASIC CRIBBAGE <ENTER> (this is a BASIC program)

The next step is to use RPED to create the Batch files for these options. Create Batch files called `1.BAT`, `2.BAT` .. `5.BAT` etc. using the following examples to assist you:

FILENAME	CONTENTS
1.BAT	echo off


```

2.BAT      cls
           DIGGER
           echo off
           cls
           PACMAN
5.BAT      echo off
           cls
           BASIC CRIBBAGE
    
```

In each case the ECHO OFF command simply stops any of the other commands from showing on the screen and the command CLS results in the screen being cleared.

Type in the BATCH files that you require one at a time and save them all onto your disc. Check that each of them runs properly by typing 1 and pressing <ENTER> then 2 <ENTER> etc. and ensure that they all do what they are supposed to do.

Now we are ready to create the last BATCH file - the AUTOEXEC.BAT file which will run the menu every time you put the disc in the drive and turn on or reboot the computer.

The AUTOEXEC.BAT file should look like this:

```

echo off
cls
type MENU.TXT
    
```

Create it and save it onto your disc. All this AUTOEXEC.BAT file does is turn off the screen echo, clear the screen and then print out the MENU.TXT file on the screen.

You are now ready to run the menu. Reboot the computer with the disc in drive A and the menu will come up automatically so you can select and run your programs by typing a number and then pressing <ENTER>.

CREATING YOUR SUBMIT FILES (FOR PCW OWNERS ONLY):

PCW owners are now ready to create the submit files required to run their selected menu options. Look at the programs that you have listed in your menu and determine the commands that you type at the system prompt to run each of them.

On my menu I have the following options and here are the

commands I use to run the programs:-

option	commands
1 (RUN BASIC)	BASIC <ENTER>
2 (PATIENCE)	PATIENCE <ENTER>
3 (TIC TAC TOE)	BASIC TICTAC <ENTER>
4 (SANTA'S GROTTO)	BASIC SANTA <ENTER>
5 (STARS)	BASIC STARS <ENTER> (note that most of these games are basic games)

Make a list of your options and the commands and you are now ready to use RPED to create the SUBMIT files for these options. Create SUBMIT files called 1.SUB, 2.SUB .. 5.SUB etc. using the

and turn on or reboot the computer.

This file should look like this:

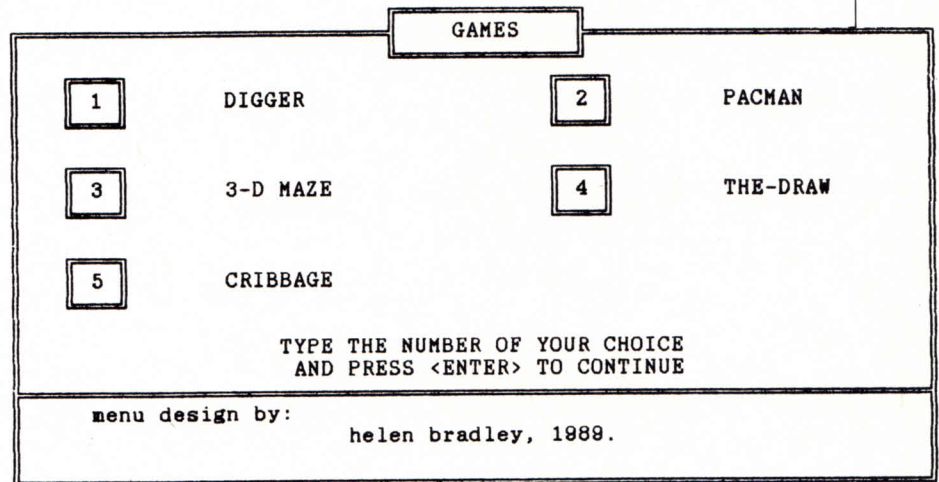
```

SETDEF M,.* [order = (sub,com)
temporary = m:]
TYPE MENU.TXT [no page]
    
```

Create it and save it onto your disc. All this SUBMIT file does is set the order in which the files are accessed and then it prints out the menu.txt file on the screen.

You are now ready to run the menu. Reboot the computer with the disc in drive A and the menu will come up automatically so you can select and run your programs by typing a number and then pressing <ENTER>.

Once you have got the idea you



following example to assist you:

FILENAME	CONTENTS
1.SUB	BASIC
2.SUB	PATIENCE
5.SUB	BASIC STARS

Type in the SUBMIT files that you require one at a time and save them all onto your disc. Check that each of them runs properly by typing 1 and pressing <ENTER> then 2 <ENTER> etc. and ensure that they all do what they are supposed to do.

Now we are ready to create the last SUBMIT file - the PROFILE.SUB file which will run the menu every time you put the disc in the drive

should be able to find all sorts of uses for your menu designing system and you will be able to add to or reduce the number of menu options. The menu is not limited to games alone and you can run any type of program successfully from it. PCW users may like to use it to run a SETKEYS or PRINTSET command before running another program or even to run a SUBMIT file that contains the one line command PALETTE 1,0 to change the screen color to black on green (make sure the file PALETTE.COM is on your disc for this command to work). The possibilities are limited only by your imagination.

SQUASHING YOUR DATA

Only the best will do, so Chris Collins hands the mike over to archiving and compression expert Miklos Bolvary.

This month, I am very pressed for time, but I would like to welcome you one and all to Compatible's Corner for November 1989. This month I will not have time to do any diskettes or commands for you, but I have persuaded a very knowledgeable friend to write an article on data compression. Next month, being Christmas, I hope to have some special diskettes available, and be able to resume full service (as the SEC is prone to say).

My friend's name is Miklos Bolvary, and I'll put him on in a sec. I hope that this will make you all more knowledgeable in the area of DATA COMPRESSION. If you want to know more, please write in and I will attempt to cajole Miki into writing a bit more for you. Until next month, have fun!! C. C.

PS. By the way, *Archive Tools 5* is now under construction!

SOZ, LBR, ARC, ZOO, PAK, ZIP, LHARC (Whew!!!)

What an absolute plethora of Data Compression software we have handy for us these days, and absolutely no end in sight to more ingenious ways of winning back that last byte from our 'stuffed to the skins' discs of hard-won software.

That's all well and good, but how on earth do we use these programs? Which one should we be using?? And do we understand what Data Compression is and whether or not we should be using it???

HOW IT ALL STARTED

Okay, I'll tell. Firstly, years ago in the old old days of CP/M, the capacities of disc to hold/store information generally did not exceed 20 pages of printed matter and then the storage was generally large and extremely unwieldy. Add to that the problem of having to have literally thousands of these storage media to run even a small sized business and you rapidly reached an untenable situation in terms of economical storage against cheaply available paper and pencil to keep track of the same amount of work.

Somewhere along the line, some clever programmer (a frustrated one with LOTS of software) decided that there must be a way of storing more on what he already had without having to buy more storage media

and he hit upon something he called "Repeat Byte Encoding" and upon applying this Arcane programming lore to his jam-packed disc, he found that he promptly was able to pack twice as much (in some cases) data onto one disc as was formerly possible.

Well folks, he had discovered the Grand-daddy of DATA COMPRESSION algorithms, the process whereby ordinary mortals that like collecting too much software for their own good could finally stuff more data onto the same amount of space and not have to spend more.

Today, storage media are becoming cheaper and hold a greater capacity for the same price, but it seems that the old axiom remains: "Applications always seem to expand to fill all available space" (or put a 360K program onto a 20 Meg drive and the next day it will have multiplied to fill the available space).

One way to control this; apart from killing off compulsive collectors; is to COMPRESS the data you already have and are not using on a regular basis thus freeing up your work space.

THE KEY CONTENDERS

It has got to the stage where you need a new Data Compression program just to store all your Data Compression software and it is no task for the faint hearted to start CRUNCHING, SQUASHING or SQUEEZING your precious data out of existence.

I'd like to skip the jargon for now and mention a few programs that will help keep your space at a premium, notably...

PKARC, by Phillip J Katz (No longer distributed);

PKPAK, by Phillip J Katz (No longer available, ARC compatible);

PKZIP, by Phillip J Katz (Faster than previous releases of his software, not ARC compatible);

ARC, by SEAware corporation (ARC format compatible);

ZOO, by Rahul Dhezi
(Incompatible with ARC and slow);

PAK, by NoGate Consulting
(ARC compatible, also produces it's own format, is a little dangerous);

LHARC, by Haruyasu Yoshizaki
(Not compatible with anything, a little slow, but at the time of writing, produced the tightest Archives around).

You will find these and many others that COMPRESS your data in a variety of ways available from BULLETIN BOARD services, Shareware and Public Domain software suppliers, sold in computer shops for the cost of copying a disc and increasingly in commercial distribution software.

This last statement is interesting as most good DATA COMPRESSION software has come from the SHAREWARE and the PUBLIC DOMAIN market and only now are businesses realising that they have been outclassed in this department and are turning to the authors for help in keeping down distribution costs.

WHAT ARE THEY USED FOR ANYWAY?

(1) Let us say; for instance; that I, Miklos G. Bolvary, write an accounting package that spans three discs. I am a beginner and cannot afford much in the way of labelling and packaging until I get paid for what I have written. One, I'll distribute my software as Shareware (and hope someone likes it enough to pay me) and two, I'll compress the data to allow me to fit my three discs worth of data onto one (I hope).

Okay, my three discs are now on one and that is two labels less and two discs less. For that reduction I can still afford to pack another two copies of my program to two other (paying?) customers for the same price.

(2) You are an accountant at a firm that uses Lotus 1-2-3 for spreadsheet data management and you still have three years worth of data backed up in disc boxes all over the office.

*****NOTE***** (Government law requires that all financial dealings of anyone be kept for a minimum of 7 years (I think) at least and that is a lot of discs!!!)

With a data compression program, you could 'Crunch' up all that space-wasting data and make it occupy less space in the office. With

taken as an accurate yardstick. However, as you can see, the difference between 152 pages and 8 is immense.

HOW FAR CAN WE GO?

To quote a few figures now, a modern diskette can hold over 360 kilobytes of data. Without going

ASCII file	tape.1st	155853	19-07-89 11:28	152 pages
Lharc	TAPE.LZH	37606	24.1%	8 pages
Pkzip	Tape.Zip	37275	77%	8 pages
Pkpak	Tape.Arc	38732	76%	8 pages
Zoo	Tape.Zoo	40598	74%	8 1/2 pages
Pak	Tape.Pak	35499	78%	7 pages

Figure 1

Lotus, the space saving might be typically 35 to 75%.

Don't worry!! Nothing is lost or deleted. It's just been persuaded to occupy less room. That 150 boxes of useless data that you have to keep, now occupies perhaps only 100 boxes.

(3) Word processor operators – particularly in Legal firms – have to store away thousands of documents in archives as the legal profession needs to reference things as far back as twenty or even forty years ago and that can very quickly become a nightmare in terms of storage.

Why not compress your data leaving only a master reference behind to tell you where to find everything? You could save thousands of dollars in storage media.

An example of a file (Document), that is 152 pages long by office standards and its relative sizes after compression with the most popular programs today is shown in Figure 1. These figures are based on the office stationary standard of 80 characters per line at 58 lines printed per page.

As you can see in Figure 1, the program I quoted as having the best compression – LHARC – did rather poorly it seems. In actual fact, it performs the best compression overall on a wide selection and the above figures are not meant to be

into too much maths, that is about 368,640 characters or 79 pages if we go on the above figures of 80 characters times 58 lines.

Not a whole lot going by today's needs and yes, I do know we have discs that can store more but I am going to use something that should be familiar to all of us: the humble 360K floppy.

If you put two of those text documents onto a 360K disc in their original state, then that's all you will have room for and out will come another floppy and then another etc. However, if I COMPRESS the document I can fit more.

In the example above, only two documents can fit on the disc in their original state. Taking the first example on the list, the document compresses down to 1/4 of its original size. Now we can fit 9 of these compressed files onto the same disc.

Do you get the picture? Originally only two documents of 152 pages each fit on to that disc. Now we have 9 sets of the same documents (compressed) on the same disc and that comes to a whopping 2,736 pages.

It saves me space, disc hunting and having to fork out more money. I can put more on less, and with clever book-keeping I can still keep track of my (still!) growing data.

M. G. B.

I LEARNED IT M'SELF!

For under \$60 you can learn all about computers in the comfort of your own study. Steve Rickwood explains what Reckon Self-teach computer courses are all about...

It's a whole new language. The initial forays into the complexities of computing left me quite baffled. The first time I heard the expression "A colon prompt" I thought it was a reference to a laxative. I was convinced a "root directory" was some playboy's little black book.

Training, I thought, has to be the answer.

Two problems with that solution: I really do not have the time to attend classes; and the thought of spending more of my money I find more abhorrent than having a molar extracted.

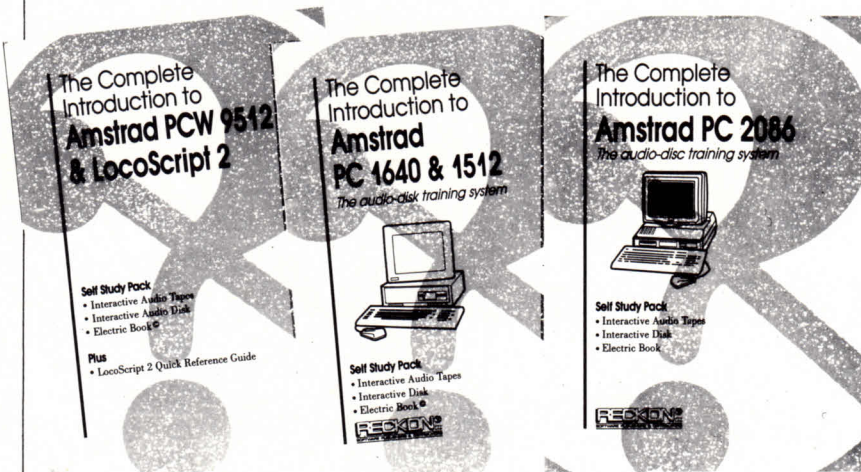
"What about those self-teach computer courses from Reckon Software"? As this suggestion came from a friend of mine who is nearly as computer-illiterate as I, it was a case of the blind leading the myopic. My suspicion was further compounded when I learned that the price for the course designed for my machine, - The Complete Introduction to the Amstrad PC1640 - indeed the price for all the courses is just \$59.95.

Desperation overcame caution and very soon I found myself sitting at my PC cynically inspecting the Reckon course. The package contains audio tapes, a diskette and a slim manual. The diskette has an interactive tutorial and an "Electric Book". This explains why the manual is so thin. The Electric Book is a manual on disc: you can go through it page by page, or simply enter the word you wish to look up and it takes you to the relevant "pages" instantly.

Enlightenment! A couple of hours later I emerged an expert. DOS, BASIC, command files... Pah! No problem. From the moment I popped the first page into the player, I was guided painlessly through the mysteries of computing. As my friendly invisible tutor explained each concept, telling me which keys to press, the on-screen tutorial responded as he predicted. He would frequently instruct me to hit the pause button on the cassette player so that I could practice the new command until I was happy that I understood how it worked.

Having learned about the computer and the principles of DOS and BASIC, I was then taught about typical application software. The package contains three TinySoft software programs: TinyWord, TinyCalc and TinyBase. These fully-functional programs are used to teach the fundamentals of word processing, spreadsheets and databases, and you can use them after you have completed the course, though they are somewhat limited in capacity.

No longer a cynic; but a confident and knowledgeable user.



The Self-teach packs currently on offer from Reckon:

MACHINE SPECIFIC

- Amstrad PC1512 and 1640 - \$59.95
- Amstrad PPC512 and 640 - \$59.95
- Amstrad PC2086 - \$59.95
- Amstrad PCW8256/8512 and LocoScript 1 - \$59.95
- Amstrad PCW9512 and LocoScript 2 - \$59.95

OTHER COURSES

- CP/M Computing on the PCW - \$59.95
- Complete introduction to the IBM PC/XT/AT and compatibles - \$59.95

The 1ST VGA Paint Program!

256,000 COLOURS TO

Splash!

ONTO YOUR COMPUTER SCREEN

Splash is the first VGA paintbrush program! It's the most exciting computer paint brush program to hit the scene in years. Your mouse becomes a paint brush, your computer screen becomes a canvas and you can become the artist you've always wanted to be.

Splash gives you a palette of over 256,000 colours, 60 pattern and brush sizes, colour fills, stamps and spray cans. What's more, you'll master Splash in no time flat.

IDEAL FOR PRESENTATIONS

Prepare slides for your presentations, drawings for newsletters, cartoons or just have fun. Splash gives you all the tools you need for truly professional quality presentations and design work.

EASY TO USE!

Splash has been designed so that you become the master quickly and easily. Dialogue windows and drop down menus make selection a breeze and there's useful design hints in the documentation so if you can see it in your mind ...you can put it on the screen.

SPECIAL FEATURES

- 256,000 colours available
- 60 different pattern and brush sizes
- 13 text fonts plus import facility
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BATCH BAG #1

Bob Waixel knows a thing or two about DOS batch files and thinks we ought to too!

This is the first in what I hope to become a regular spot about DOS Batch files, and how to make the most of them. It is aimed at the novice-intermediate level, but since the whole area always seems so poorly documented I hope there may even be a few tit bits for the more advanced.

I am going to number the sections in order to make it easier to refer back to particular points in future issues.

1. INTRODUCTION

See above!

2. SCOPE OF THE ARTICLES

Any *.BAT file, including AUTOEXEC.BAT and CONFIG.SYS.

3. DOS VERSION

I use, and have tested the batch files on MS-DOS version 3.2. They may even work on other versions of DOS, but I can't guarantee it. You can find out the version of DOS you have by typing VER at the DOS prompt.

4. WHAT IS A BATCH FILE?

A file which contains one, or a sequence of DOS (and some other) commands. Enables DOS commands to be renamed, extended, or other more complex operations to be built up. A VERY simple programming language!

A batch file:

- (a) Must have '.BAT' as last part of filename;
- (b) Contains any valid DOS commands (e.g. COPY, REN,DEL etc.);
- (c) May contain some others also (e.g. ECHO,GOTO,IF, PAUSE etc.);
- (d) Will execute if:
 - filename (not extension) called from command line AND filename.BAT present in that directory (or in PATH);
 - filename called from another BATCH file directory and/or path + filename called from command line

AND filename.BAT present in that directory.

5. WHAT IS PATH?

PATH commands the system to look in the listed sub-directories for any commands it doesn't find in the current directory. Type PATH to show if any is set. It's mainly of use to those with hard discs, who need the organisation that sub-directories bring.

6. HOW TO CREATE A BATCH FILE

(a) COPY CON: method(Comes with DOS)

Advantages:

- No special software needed;
- Quick.

Disadvantages:

- Overwrites any previous version of the file if present;
- Only suitable for very small files;
- Always creates a whole file - that is you cannot edit/amend an existing file, and you therefore have to type it all in at one go.

Example of method:

Example to create HOME.BAT which returns you to the root or top level directory on your disc. (The batch file is really only useful if you have a hard disc and many layers of sub-directories).

Don't type the items in round brackets (), or the brackets themselves! (I assume that you start in A: but anywhere will do).

```
A: COPY CON HOME.BAT[return]      (the cursor will return to
                                   the left of the next line)
ECHO OFF [return]                  (stifles display)
CD[return]                          (moves to root)
^Z[CTRL and Z together]            (end-of-file)
1 file(s) copied                    (message showing file created)
A:
```

```
A: type HOME.BAT                    (to check your file's contents:)
ECHO OFF                            (the text you have just input should appear)
CD\
A:
```

(b) Using a Word Processor

Advantages:

- Easy to create and modify files, if you have one;
- Screen based- easy to see what you're doing.

Disadvantages:

- Need to lash out money on extra software.

Possible Pitfalls:

- Use in ASCII or Non-document mode (WordStar) otherwise the fancy format will probably lock DOS up!
- Put each command on new line (follow by return);
- Do NOT rely on word-wrap.

(c) Using a Text Processor

Most will do, if they produce ASCII files e.g. RPED,

SIDEKICK notes, Zorland Editor, any of Borland Language editors (but NO line numbers, please).

Advantages:

- Easy to use to create and modify files;
- Screen based-easy to see what you're doing.

Disadvantage:

- Need to lash out money on extra software.

(d) Using EDLIN

Advantages:

- Comes with DOS - no extra software purchase needed;
- Will allow editing i.e. amendment of a file.

Disadvantages:

- User-unfriendly to a high degree;
- Line-oriented - difficult to see what you're doing.

Need help?

- See your manual;
- Get a good book on DOS.

Example of method:

```
A>EDLIN HOME.BAT[return]  (command from DOS prompt)
Newfile  (You will get 'End of input file' if HOME.BAT exists)
*1i [return]  (** is EDLIN's prompt, 1i means insert at line 1)
1:*echo off [return]      (suppress display of file)
2:*cd\ [return]           (move to root directory)
3:*                    (at this point hold down CTRL and press 'C')
*e [return]              (exit from EDLIN)
A>                        (back to the DOS prompt)
```

7. BATCH FILES SIMILAR TO HOME.BAT

Other batch files with commands which may be useful instead of cd\:

UP.BAT [cd .] Moves up one directory level. Yes, a full stop is separated from the 'cd' command by a single space.

WHERE.BAT [cd] Shows current directory 'cd' without anything following it except a RETURN.

8. AUTOEXEC.BAT

This is a rather special Batch file. It usually will exist on the System disc (of a floppy-based system) or in the top-level (or 'root' directory) of a hard-disc system.

It's special because it will ALWAYS automatically run (execute) whenever you start (boot) or re-start (re-boot) the computer. Its use comes from the ability for you to use it to perform regular chores, and configure your system to YOUR needs, every time it starts, without you having to go through a tedious set of commands each time.

a) Have you got one? Check by going:

```
DIR AUTOEXEC.BAT
```

and if you're rich enough to have a printer, print it out:

```
PRINT AUTOEXEC.BAT
```

(press RETURN in answer to the 'Name of List device [PRN]:' message).

I suggest that you keep an up-to-date copy for reference, write the DATE on it, and either write any changes you make onto it, or print yourself another copy from time to time.

b) What can it do?

A lot of things - but for now we should just note that it is often used for:

- resetting the system prompt from C: (i.e. the drive letter) to a rich variety of other settings, (e.g. a Message 'What now?');
- The full path 'C:\UTILITIES';
- Date & Time 'C: 03-01-1989 12:13';
- setting the PATH (where DOS looks for its own files and any command you give it, other than in the current directory);
- running particular bits of software or other batch files at startup time.

More about AUTOEXEC.BAT in future issues.

9. CONCLUSION

That's all for now. Next time we shall look at 'replaceable parameters' (e.g. %0 or %1) and see what a help they can be, and also look at the echo command.

Until then, the only Batch joke I know (W.S. Gilbert's reply to a musical question at a party in America):

'How's that lovely composer Johann Sebastian Batch? Is he still composing?'

'No Madam, rather he is decomposing.'

*Ich bin seid zweihundert Jahre schon
gestorben, die blöde Kuh!*



Who needs to be a pirate with software as cheap as this?

PC-SOFT is a new series of disks containing games and utilities for the Amstrad range of PC computers.

The first disk to be released is PC-SOFT #1, devoted entirely to PC1512/1640 users with Basic2.

It's a 5.25" disk containing the following:

3DGRID.BAS

Add an extra dimension to your maths formulae. You can enter your own functions or watch the 9 demonstrations plotted on the screen.

3D-VIEW.BAS

This Basic2 program takes a series of x, y and z co-ordinates and constructs a picture from them. The three dimensional image can then be manipulated for a view at any angle, size and rotation. UTTLE.

ANAGRAM.BAS

Presents a jumbled word from a store of around 600 for you to unscramble as quickly as possible

ANGLES.BAS

This program provides both instruction and testing of the basics of angles. Acute, right, obtuse and reflex angles are drawn and described, then followed by a tests where angles have to be named or where you try to match a given angle by positioning a point with the mouse.

BASIC2.APP

Along with BASIC2.RSC and the document file BASIC2.DOC, the three files provide an upgrade to version 1.23 with three extra commands - Alert, Inkey and Selector. You can use this version only if you have a licence to do so. If you have bought an Amstrad PC1512 or 1640 then you already have the licence, and this copy is supplied on the same terms as the original. BASIC2.DOC is the accompanying document file.

BAS-INIT.BAT

This batch file prepares a single floppy with enough of MS-DOS, GEM and BASIC2 to run the language from one disk.

BRAHMA.BAS

A version of the old favourite 'Towers of Hanoi'

in which discs must be transferred from one pole to another without ever placing a disc on top of a smaller one.

BRAHMA2.BAS

The same as BRAHMA.BAS but with a recursive solution and demonstration.

BUSES.BAS

An educational program teaching number recognition and counting to pre-school children.

ENIGMA.BAS

A game which involves moving and interchanging two blocks of shaped tiles, with the object of transposing two blocks from opposite corners of the playing area. It would be simple if there were not two other blocks in the way!

EUROQUIZ.BAS

A graphic, multiple-choice quiz based around the countries of Europe and your knowledge of its major cities.

MANDEL.BAS

Draws extremely attractive multi-coloured Mandelbrot sets of your choice. Be warned - it takes a long time!

MATHS.BAS

This program offers you five types of test, covering addition, multiplication, subtraction and division and a random mixture of all four.

OXO.BAS

The thinking machine's noughts and crosses, and an example of one of the programs which can be found in Peter MacBride's book "Advanced Basic2 programs on the Amstrad PC".

ROBOPOST.BAS

A compulsive, simple yet frustrating sliding tile game with a difference - you have to create a pathway for a robot postman.



STYLISER.BAS

Downloads any of three fonts into an Epson-compatible printer, and they may be used with other programs (including non-GEM ones) to add sparkle to your correspondence.

SUNDIAL.BAS

A program for generating sundials on your PC. It takes into consideration your latitude and then calculates the appropriate hour angles and the 'style height'.

TENPIN.BAS

A ten-pin bowling game in which your PC keeps score and resets the pins after each go.

TURTLE.BAS

Based loosely on 'turtle' drawing found in Logo programs, this program allows you to draw and colour squares, circles, pies and ellipses.

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Hint Sheet

KING'S QUEST

by Sam Jones

INTRODUCTION

Like most Sierra adventure games, there are often a number of different solutions, and rarely does one ever achieve a maximum score, even after many attempts. "Quest for the Crown", the sub-title for the first King's Quest game, is no exception. It involves searching for three lost treasures, a Mirror, a Shield and a Chest, returning them to Daventry and claiming the Crown. Here are some clues to provide one possible solution. Remember that most objects you find are probably useful (and add to your score) so pick them up, and above all make a map of your trek and note where various objects can be found.

TO FIND THE CHEST

You'll find this in the 'Land of Clouds', but there are a few things you'll need before getting there. Going north from the castle you will find an oak tree with something useful hidden in it. Further north is a walnut tree and east of that you will find a bowl. Study it carefully. North again from the bowl you'll come to a dangerous river. Study this area carefully too. You will need to get across the river

and one of your valuable finds will probably appease the troll. Eventually you will discover a gnome who will ask you a question - no, I'm not going to give you the answer - but you need the key (or beans) he has. This will let you into the door in the mountain side and up to the 'Land of Clouds'. There is one more useful item up here to be used in conjunction with a previous 'find' to defeat the giant and recover the Chest.

TO FIND THE SHIELD

You'll find this in the 'Land of the Leprechauns'. Once again, your travels would have uncovered a few items of use, including a typically Irish plant and some fungus. Hopefully too, you would have solved how to get the fiddle from the woodcutter and his wife. You may have noticed a bird flying about near the raging river. In fact it's a condor, and he will transport you to the 'Land of the Leprechauns' if you can catch him! (It's a bit tricky, but should keep you on your toes.) Further into the cave where you get dropped by the bird you will meet a giant rat who will require a treasure (although there is a way round without parting with anything). Further on you will need more than blarney to pass the guards and may eventually fiddle your way through somehow. There is only one way out as you will discover, and that is not the way you came. You will need to

perform an 'Alice-like' transformation to arrive at the rock with a small hole and safety.

TO FIND THE MIRROR

You will need to get wet to retrieve this treasure, not in the river but down the well. It took me a while to work this one out, so all I will tell you is that you need to hold your breath. If you don't drown you will enter the Dragon's Lair. He is guarding the Mirror and you will need some sharp action to destroy him. It only remains for you to return to the castle to claim the Crown.

Of course you don't have to solve the quest in the same order as above, and you may well find that you can score extra points by holding onto some of the treasure you have found by not giving it away. For example, you may find that the goat (near the well) can help in this regard. In fact, I have now played King's Quest 1 five times, increasing my score each time. I hope the above clues will help you get further into the game without giving too much away.

This is our thirteenth Hint Sheet and earns Sam Jones a cheque for \$25. Why not put pen to paper and earn yourself some extra pocket money by sending in your own hint sheet (don't give the whole game away) to:

*The Editor (Hint Sheets),
The Amstrad User,
641 High Street Road,
Mount Waverley, Victoria. 3149.*

PART 3, TOUT FINI

That's french for 'all finished' which is just what this "Fantastic Adventure" type-in is, now that you've got part three, thanks to Barrie Eaton!

```

2630 PRINT"You Can't!":PRINT:RETURN
2640 RETURN
2650 IF posi%=33 AND ai=1 THEN PRINT"It has no apparent
effect.":PRINT:ak=ak+1:IF ak=3 THEN ak=0:GOTO 3580
2660 RETURN
2670 IF posi%=1 OR posi%=6 OR posi%=67 OR posi%=80 OR p
osi%=134 OR posi%=56 OR posi%=72 OR posi%=73 OR posi%=1
03 THEN PRINT"There is silence.":PRINT:RETURN
2680 IF posi%=13 AND za<>1 THEN PRINT"He tells you to g
et him something from the dragons lair then he will he
lp you.":PRINT:RETURN
2690 IF posi%=24 AND zf<>1 THEN PRINT"He says he will h
elp you in your quest and gives you an amulet.....He
then disappears in a puff of smoke.":obj%(21)=24:PRI
NT:sc=sc+10:IF zf=0 THEN zf=1:loca$(24)="in the land of
the pixies":RETURN
2700 IF posi%=117 AND zk<>1 THEN PRINT"She says you mus
t go to the place of judgement if you wish to get aw
ay from here":PRINT:IF zk=0 THEN zk=1:loca$(117)="in a
flat open area very green and lightly treed":RETU
RN
2710 IF posi%=74 AND ze<>1 THEN PRINT"He says he will s
pare you if you can show him the protective charm.":
PRINT:RETURN
2720 RETURN
2730 IF posi%=75 OR posi%=78 OR posi%=96 OR posi%=112 T
HEN PRINT"You plunge headlong to your death.":PRINT:GOT
O 3580
2740 IF posi%=34 THEN PRINT"It was deeper than you thou
ght.You end up breaking your neck.":PRINT:GOTO 3580
2750 RETURN
2760 GOSUB 1450
2770 IF r<>27 THEN RETURN
2780 NEXT:obj$(19)=""
2790 RETURN
2800 GOSUB 1450
2810 IF r<>5 AND posi%=13 THEN PRINT"He doesn't want it
and hands it back":PRINT:RETURN
2820 IF r=5 AND posi%=13 AND ad=1 AND zp<>1 THEN PRINT"
He takes them and gives you a key.He also tells you
to remember him once you have the sacred talisman.":PRI
NT:IF zp=1 THEN zm=0:RETURN ELSE IF zp<>1 THEN zm=1:sc=
sc+20:GOSUB 4050
2830 IF r<>6 AND posi%=56 THEN PRINT"He doesn't want it
and hands it back":PRINT:RETURN
2840 IF r=6 AND posi%=56 AND ae=1 THEN PRINT"He accepts
it and allows you to enter.":loca$(56)="outside the D
oring Fort.A guard Stands to one side":sc=sc+10:GOSUB
4090
2850 IF r<>22 AND posi%=72 AND zo<>1 THEN PRINT"She doe
sn't want it and hands it back":PRINT ELSE IF posi%=72
AND zo=1 THEN PRINT"She is DEAD!":PRINT:RETURN
2860 IF r=22 AND posi%=72 AND ao=1 THEN PRINT"She grabs
it from you and gives you an object in return.":sc=sc
+10:GOSUB 4130
2870 IF r<>23 AND posi%=103 THEN PRINT"He doesn't want
it and hands it back":PRINT:RETURN
2880 IF r=23 AND posi%=103 AND ap=1 THEN PRINT"He eager
ly takes it and gives you a key.":sc=sc+10:GOSUB 4170
2890 IF r<>31 AND posi%=80 THEN PRINT"He doesn't want i
t and hands it back":PRINT:RETURN
2900 IF r=31 AND posi%=80 AND av=1 THEN PRINT"He accept
s the prized possession and hands over a key.":sc=sc
+10:GOSUB 4210
2910 RETURN
2920 GOSUB 1450:IF r=38 AND posi%=74 AND az=1 THEN PRIN
T"He fears the charm and spares you.He then points t
o a stone table.":obj%(23)=74:ze=0:zn=1:PRINT
2930 RETURN
2940 IF af=1 THEN PRINT"You find yourself in paradise."
:bz=0:posi%=113:PRINT:RETURN
2950 RETURN
2960 IF posi%=52 AND am=1 THEN PRINT"You have made it t
o the other side.":PRINT:posi%=53:RETURN
2970 IF posi%=53 AND am=1 THEN PRINT"You have made it t
o the other side.":PRINT:posi%=52:RETURN
2980 IF posi%=76 AND am=1 THEN PRINT"You Can't!":PRINT:
RETURN
2990 RETURN
3000 GOSUB 1450
3010 IF posi%=62 AND r=15 THEN PRINT"You hear an audibl
e click":zl=1:PRINT:RETURN
3020 RETURN
3030 GOSUB 1450
3040 IF posi%=62 AND r=15 AND zl=1 THEN PRINT"Well Don
e! the door slowly opens":loca%(posi%,3)=63:sc=sc+30:PR
INT:RETURN
3050 RETURN
3060 IF zm=1 THEN ai=1:PRINT"With a final gesture he ra

```



```

ises his arms and disappears as you find yourself      b
eing transported to another place.":zm=0:PRINT:posi%=29
:RETURN
3070 PRINT"as you pick up the key he transports you to a
nother place.":zn=0:sc=sc+10:PRINT:posi%=104:IF ze=0 TH
EN ze=1
3080 IF az=1 THEN az=0:RETURN
3090 RETURN
3100 IF posi%=131 AND as=1 THEN PRINT"As it descends in
to the deep vortex an exit opens up to the west.":obj$(
18)="" : loca%(posi%,4)=132:sc=sc+10:PRINT:GOTO 4280
3110 RETURN
3120 GOSUB 1450
3130 IF r=0 THEN PRINT"Don't Bother!":PRINT:RETURN ELSE
IF obj$(get%(r))<>posi% THEN FOR x=1 TO 6:IF inv$(x)<>
obj$(get%(r)) THEN NEXT:PRINT"You don't have a ";get$(r
):PRINT:RETURN
3140 IF r=6 THEN PRINT"It has a two edged blade that is
sharp":PRINT:RETURN
3150 IF r=38 THEN PRINT"It has the power to protect you
under certain circumstances":PRINT:RETURN
3160 IF (r=8 OR r=9) THEN PRINT"It has great power and
can save you from an otherwise hopeless situation":PRINT
:RETURN
3170 IF (r=10 OR r=11) THEN PRINT"It is the crown of th
e gods.":PRINT:RETURN
3180 IF posi%=62 AND r=15 THEN PRINT"Don't bother!":PRI
NT:RETURN
3190 IF (r=14 OR r=15) THEN PRINT"It is the golden orb
of the gods.":PRINT:RETURN
3200 IF r=20 THEN PRINT"It is quite sound and complete
with oars":PRINT:RETURN
3210 IF r=22 THEN PRINT"It is an ingredient that when m
ixed with something else can make a spell":PRINT:RETURN
3220 IF r=23 THEN PRINT"It has great healing powers":PR
INT:RETURN
3230 IF (r=24 OR r=25) THEN PRINT"It is the sceptre of
the gods.":PRINT:RETURN
3240 IF r=26 THEN PRINT"It contains a green liquid":PRI
NT:RETURN
3250 IF r=31 THEN PRINT"It has the power to protect one
from predators":PRINT:RETURN
3260 IF r=7 THEN PRINT"It is silver with the word EDEN
written on it.":PRINT:RETURN
3270 IF posi%=46 THEN PRINT"It is stuck fast":PRINT:RET
URN
3280 IF posi%=63 THEN PRINT"It is locked":PRINT:RETURN
3290 IF posi%=61 AND r=30 THEN PRINT"You have found som
ething!":obj$(26)=61:PRINT:RETURN
3300 IF posi%=127 THEN PRINT"It is sealed tight and can
not be opened.The way to Hell lies on the other side":P
RINT:RETURN
3310 IF (r=18 OR r=19) AND posi%=62 THEN PRINT"It is an
image of an orb surrounded by an olive branch":PRINT:
RETURN
3320 RETURN
3330 IF posi%=41 THEN posi%=40:RETURN
3340 IF posi%=71 THEN posi%=70:RETURN
3350 IF posi%=73 THEN posi%=71:RETURN
3360 PRINT"It has no effect here!":PRINT:RETURN
3370 RETURN
3380 PRINT:PRINT:INPUT"Do you want to save the game. (y
/n)";e$
3390 e$=LOWER$(e$)
3400 IF e$="y" OR e$="yes" THEN GOSUB 3700
3410 PRINT:INPUT"Do you want another game. (y/n)";ww$
3420 IF ww$="y" OR ww$="yes" THEN RUN
3430 GOSUB 2300
3440 END
3450 IF posi%=46 OR posi%=62 THEN PRINT"You Can't!":PRI
NT:RETURN
3460 IF posi%=11 OR posi%=30 OR posi%=48 OR posi%=63 OR
posi%=94 OR posi%=107 THEN PRINT"It's locked.":PRINT:R
ETURN
3470 IF posi%=108 THEN PRINT"You have found something!":
obj$(16)=108:obj$(17)=108:PRINT:RETURN
3480 RETURN
3490 IF posi%=76 THEN PRINT"You feel much refreshed.":P
RINT:RETURN
3500 IF posi%=52 OR posi%=53 THEN PRINT"It doesn't look
too potable to me.":PRINT:RETURN
3510 PRINT"You Can't!":PRINT:RETURN
3520 RETURN
3530 IF posi%=76 THEN PRINT"O.K! You swim down stream t
hen cimb out.":posi%=77:PRINT:RETURN
3540 IF posi%=77 THEN PRINT"O.K! You swim up stream the
n cimb out.":posi%=76:PRINT:RETURN
3550 IF posi%=52 OR posi%=53 THEN PRINT"You take a refr
eshing dip then get back out again.":PRINT:RETURN
3560 PRINT"You Can't!":PRINT:RETURN
3570 RETURN
3580 PRINT:PRINT:PEN 3:PRINT"You are dead..."
3590 PRINT:PRINT"Do you want another game. (y/n)"
3600 INPUT a$:a$=LOWER$(a$)
3610 IF LEFT$(a$,1)="y" THEN RUN
3620 PRINT:PRINT"Good bye.....Thankyou for playing."
3630 GOSUB 2300
3640 END
3650 PRINT"Well Done."
3660 PRINT"You have successfully completed your miss
ion and returned the stolen objects."
3670 PRINT"The supreme being recieves you and cong
ratulates you on completing your quest.Control of th
e earth now goes back to the gods."
3680 PRINT"You are made king over one of its prov
inces and bestowed with great honour,esteem and r

```


CPC ADVENTURE TYPE-IN

```

iches"
3690 GOTO 3590
3700 PRINT:PRINT"Please insert tape or disc now."
3710 PRINT:INPUT"Type in version number then [ENTER]",a
$
3720 PRINT
3730 SPEED WRITE 1
3740 PRINT:b$="data"+a$:OPENOUT b$
3750 PRINT #9,loca$(13):PRINT #9,loca$(72):PRINT #9,loc
a$(103):PRINT #9,loca$(80):PRINT #9,loca$(83):PRINT #9,
loca$(74):PRINT #9,loca$(24):PRINT #9,loca$(117):PRINT
#9,loca$(56):PRINT #9,loca$(96)
3760 PRINT#9,loca%(11,1):PRINT#9,loca%(30,1):PRINT#9,lo
ca%(46,4):PRINT#9,loca%(48,3):PRINT#9,loca%(56,3):PRINT
#9,loca%(62,3):PRINT#9,loca%(83,2):PRINT#9,loca%(94,2):
PRINT#9,loca%(107,3):PRINT#9,loca%(131,4)
3770 FOR x=1 TO 6:PRINT #9,inv$(x):NEXT
3780 FOR x=1 TO 26:PRINT #9,obj$(x):NEXT
3790 PRINT #9,posit%,loca%,obj%,get%,a%
3800 PRINT #9,aa,ab,ac,ad,ae,af,ag,ah,ai,aj,ak,am,an,ao
,ap,aq,ar,as,av,aw,ax,ay,az,ba,za,zb,zc,zd,ze,zf,zg,zk,
zl,zm,zn,zo,zp,sc
3810 CLOSEOUT
3820 PRINT:PRINT"Data file has been created."
3830 FOR k=1 TO 1000:NEXT
3840 CLS:RETURN
3850 bz=0:PRINT:PRINT"Please insert tape or disc now."
3860 PRINT:INPUT"Type in version number then [ENTER]",a
$
3870 PRINT:b$="data"+a$
3880 PRINT:OPENIN b$
3890 INPUT #9,loca$(13):INPUT #9,loca$(72):INPUT #9,loc
a$(103):INPUT #9,loca$(80):INPUT #9,loca$(83):INPUT #9,
loca$(74):INPUT #9,loca$(24):INPUT #9,loca$(117):INPUT
#9,loca$(56):INPUT #9,loca$(96)
3900 INPUT#9,loca%(11,1):INPUT#9,loca%(30,1):INPUT#9,lo
ca%(46,4):INPUT#9,loca%(48,3):INPUT#9,loca%(56,3):INPUT
#9,loca%(62,3):INPUT#9,loca%(83,2):INPUT#9,loca%(94,2):
INPUT#9,loca%(107,3):INPUT#9,loca%(131,4)
3910 FOR x=1 TO 6:INPUT #9,inv$(x):NEXT
3920 FOR x=1 TO 26:INPUT #9,obj$(x):NEXT
3930 INPUT #9,posit%,loca%,obj%,get%,a%
3940 INPUT #9,aa,ab,ac,ad,ae,af,ag,ah,ai,aj,ak,am,an,ao
,ap,aq,ar,as,av,aw,ax,ay,az,ba,za,zb,zc,zd,ze,zf,zg,zk,
zl,zm,zn,zo,zp,sc
3950 CLOSEIN
3960 PRINT:PRINT"Data has been loaded."
3970 FOR k=1 TO 1000:NEXT
3980 CLS:RETURN
3990 CLS:PEN 1:LOCATE 11,3:PRINT"FANTASTIC ADVENTURE"
4000 LOCATE 19,6:PRINT"by"
4010 LOCATE 13,9:PRINT"Barrie. M. Eaton"
4020 LOCATE 3,14:PRINT"Most commands are two word form

ie-"
4030 PRINT:PRINT" Get Pearl Unlock Door etc."
4040 GOTO 4340
4050 za=0:IF r=5 AND posi%=13 AND ad=1 THEN obj$(3)=0:o
bj$(8)=13:PRINT
4060 FOR x=1 TO 6:IF inv$(x)=obj$(3) THEN inv$(x)=""
4070 IF ad=1 THEN NEXT:ad=0:IF za=0 THEN za=1:loca$(13)
="inside a mystical room":RETURN
4080 RETURN
4090 zg=0:IF r=6 AND posi%=56 AND ae=1 THEN loca%(posit%
,3)=57:PRINT
4100 FOR x=1 TO 6:IF inv$(x)=obj$(4) THEN inv$(x)=""
4110 IF ae=1 THEN NEXT:ae=0:IF zg=0 THEN zg=1:RETURN
4120 RETURN
4130 zb=0:IF r=22 AND posi%=72 AND ao=1 THEN obj$(14)=0
:obj$(25)=72:PRINT
4140 FOR x=1 TO 6:IF inv$(x)=obj$(14) THEN inv$(x)=""
4150 IF ao=1 THEN NEXT:ao=0:IF zb=0 THEN zb=1:loca$(72)
="at the witches haunt":RETURN
4160 RETURN
4170 zc=0:IF r=23 AND posi%=103 AND ap=1 THEN obj$(15)=
0:obj$(24)=103:PRINT
4180 FOR x=1 TO 6:IF inv$(x)=obj$(15) THEN inv$(x)=""
4190 IF ap=1 THEN NEXT:ap=0:IF zc=0 THEN zc=1:loca$(103
)="inside the Thaarl camp":RETURN
4200 RETURN
4210 zd=0:IF r=31 AND posi%=80 AND av=1 THEN obj$(21)=0
:obj$(22)=80:PRINT
4220 FOR x=1 TO 6:IF inv$(x)=obj$(21) THEN inv$(x)=""
4230 IF av=1 THEN NEXT:av=0:IF zd=0 THEN zd=1:loca$(80)
="at the home of the Gaal":RETURN
4240 RETURN
4250 FOR x=1 TO 6:IF inv$(x)=obj$(13) THEN inv$(x)=""
4260 IF an=2 THEN NEXT:an=3:RETURN
4270 RETURN
4280 FOR x=1 TO 6:IF inv$(x)=obj$(18) THEN inv$(x)="" :N
EXT -
4290 as=2:RETURN
4300 RETURN
4310 FOR x=1 TO 6:IF inv$(x)=obj$(17) THEN inv$(x)=""
4320 IF ar=1 THEN NEXT:ar=0:RETURN
4330 RETURN
4340 PRINT:PRINT" Good Luck!"
4350 LOCATE 7,22:PRINT"PRESS SPACEBAR TO CONTINUE"
4360 b$=INKEY$
4370 IF b$=" " THEN LOCATE 6,24:PRINT"Initialising.....
Please Wait":RETURN
4380 GOTO 4360

```

CONGRATULATIONS!

You have just completed Barrie Eaton's whopper "Fantastic Adventure" type-in and lived to say it. Now, any bugs?!

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AS NEW CPC6128 items. Avtek MINI-MODEM II - \$100.00; RS232C Interface - \$100.00; Dk'tronics 256k silicon disc - \$150.00; Dk'tronics 256k memory expansion - \$150.00. Hughie Seaborn (Phone 070 51 4213), 2/290 Buchan St. WESTCOURT, Qld. 4870

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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

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

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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

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CPC Ref: #603 PCW Ref: #803

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CPC Ref: #604 PCW Ref: #804

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CPC Ref: #605 PCW Ref: #805

COMPLETE UTILITIES

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CPC Ref: #606 PCW Ref: #806

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CPC Ref: #609 PCW Ref: #809

'C' PROGRAMMER

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'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

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<i>with Rastan, Arkanoid 1, Arkanoid 2, Slap Fight, Bubble Bobble, Legend of Kage, Renegade and Flying Shark.</i>		
	-	39.95
TAU GAMES + (6128s only)		
<i>Dominoes, Snakes and Ladders, Mah-Jong, 3-D Noughts & Crosses, Trucking, Tycoon plus Graphic Designer and Sprite Designer</i>		
	32.95	-
TEN MEGA GAMES VOL 1		
<i>with North Start, Cybernoid, Deflektor, Triaxos, Blood Brothers, Mask 2, Tour de Force, Hercules, Blood Valley, Masters of the Universe</i>		
	44.95	39.95
TIME AND MAGIK TRILOGY (disc for 128k only)		
<i>Lords of Time, Red Moon and Price of Magik</i>		
	49.95	39.95

CPC - continued

WE ARE THE CHAMPIONS
with Renegade, Barbarian, SuperSprint, Rampage and International Karate

49.95 39.95

CPC YEAR DISCS

Containing all the monthly type-ins published

Year Disc 1 - Issues 1 to 12	50.00	-
Year Disc 2 - Issues 13 to 16	22.50	-
Year Disc 3 - Issues 17 to 20	25.00	-
Year Disc 4 - Issues 21 to 24	25.00	-
Year Disc 5 - Issues 25 to 28	25.00	-
Year Disc 6 - Issues 29 to 32	25.00	-
Year Disc 7 - Issues 33 to 36	25.00	-
Year Disc 8 - Issues 37 to 40	25.00	-
Year Disc 9 - Issues 41 to 44	25.00	-
Year Disc 10 - Issues 45 to 48	25.00	-
Year Disc 11 - Issues 49 to 52	25.00	-
Year Disc 12 - Issues 53 to 56	25.00	-

Separate tapes for each issue's type-ins are also available: each

- 5.00

CPC SERIOUS SOFTWARE

ADVANCED ART STUDIO (Rainbird)		
Graphics package (128k only)	69.95	-
BRAINSTORM - ideas and reporting system (6128s only)	79.00	-
CARDBOX PLUS - enhanced version of Cardbox (6128s only)	99.00	-
EXTRA EXTRA - a disc of ready made graphics, fonts and clip art compatible with 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 expansion)	99.00	-
MATRIX - spreadsheet with text editing facilities, database, mail merging etc.	79.95	-
MINI OFFICE II - a comprehensive value package which includes six different modules enabling you to write letters, prepare reports, create computerised files, compile mailing lists, set up financial records, carry out complicated calculations, draw graphs, print out labels and communicate directly with other computers over the telephone	59.00	49.00
MONEY MANAGER - powerful cash book program	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. <i>(Runs under CP/M Plus only)</i>	59.95	-
PRINT MASTER ART GALLERY 1 - 140 pictures including holidays, animals, sports office etc.	50.95	-
PRINT MASTER ART GALLERY 2 - 140 pictures including ornamental letters, flags, people	50.95	-
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

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
Mouse only	150.00

Tasword 464	-	59.95
Tasword 464/D	69.95	-
Tasword 6128	69.95	-
Tas-spell	49.00	-
Tasprint	39.00	39.00
Tascopy	36.00	39.00
Tasdiary	39.00	-
Tas-sign	69.95	-
Touch 'n' Go - Typing tutor (6128s only)	69.00	-
Ultrabase - easy database	69.95	-

CPC 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

THREE BEARS - graphic adventure to improve logic, deduction and reasoning	34.95	-
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CPC - continued

CPC PERIPHERALS

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

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

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

MOUSE MATS - keeps Mouse clean 19.95

RS232 SERIAL INTERFACE - for CPC464, 664 or 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 as supplied on the 6128. 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 disc commands such as LOAD, SAVE, CAT etc. 329.00

256k MEMORY EXPANSION (6128) 289.00

256k SILICON DISC SYSTEM (6128) 329.00

CPC UTILITIES

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 designed and manufactured joystick with three year guarantee. Fully micro-switched, fire buttons on base and handle. Adjustable 4- or 8-way action. 54.95

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

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

ZIPSTICK ELITE - a smaller, specially designed hand-held model with similar specifications to the Superpro, but with just one forward centrally located fire button. Also has rubber

CPC - continued

pads on base for flat surface use 29.95

NEW KONIX NAVIGATOR - hand-held joystick with micro-switch precision control, steel shaft. 39.95

CPC 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
DMP2000/2160/3160 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 7.25

6128 'SEAL 'N' TYPE' KEYBOARD PROTECTOR 29.95
Stops damaging spills etc.

Amstrad PCW Range 8256, 8512 and 9512

(unless otherwise stated)

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

PCW GAMES

Academy (Tau Ceti II) \$	65.95
Armageddon Man	57.95
Catch 23	57.95
Classic Invaders (Space Invaders style)	29.95
Classic Quest Adventures:	
Goblin Towers (moderate)	49.95
Forestland (hard)	49.95
Witch Hunt (very hard)	49.95
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
Graham Gooch Cricket (Ltd.Overs & Test Match featuring full animation of bowler, batsman and fielders)	49.95
Guild of Thieves	69.95
Gnome Ranger	59.95
Heathrow ATC (Air Traffic Control Simulator)/Southern Belle (Steam Train Simulator) - both on same disc	57.95
Ingrid's back	59.95
Knight Orc	59.95
Lancelot	59.95
Living Daylights	49.95
Mindfighter	65.95
Pawn, The	69.95
Return to Doom (Topologika adventure)	54.95
Steve Davis' Snooker	54.95
Time and Magik Level 9 trilogy:	
Lords of Time	
Red Moon	
Price of Magik - all three for just	54.95
Tomahawk: helicopter simulation	49.95
World of Soccer - international Soccermanagement simulation	59.95

PCW - continued

PUBLIC DOMAIN DISCS 17.50

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

PCW 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

PCW PUBLISHING

Desk Top Publisher 99.00
Newsdesk International 89.00

STOP PRESS

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

PCW DATABASES

Cardbox Plus 99.00
Condor One 149.00
Masterfile 8000 119.00
TAIT Database and Labeller 49.95

PCW MISCELLANEOUS

BRAINSTORM - tool for structuring raw ideas in a logical manner 79.00
DAATAFAX PERSONAL ORGANISER a Gift Pack by Kempston - with software, stylish binder, subject tabs, and starter stationery 149.00
DATASTORE II - menu-driven customised report generator, mailing list and label printer. Can be used with type styler Supertype II. 89.95
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
LIGHTNING BASIC PLUS - turbo charge your Mallard Basic (All PCWs) 75.00
MASTER PAINT - deluxe graphics program, for use with either mouse or keys 59.95
MINI OFFICE PROFESSIONAL - the PCW version of the highly successful Mini Office II with Spreadsheet, Wordprocessor, database, graphics and communications 149.00
MONEY MANAGER PLUS - cashbook/personal accounting 99.00

PCW - continued

NEWWORD2 - PCW WordStar equivalent 100.00

PERSONAL EXCELLENCE PACKAGE - High quality mental performance analyser 109.00

PLAN-IT - desktop organiser, plan budgets, sort files etc. 39.95

PRINT MASTER PLUS - create your own Banners, Letter-heads, Signs, Calendars or Greeting Cards with graphics or borders supplied. (Runs under CP/M Plus only) 59.95

PROTEXT FILER - pop-up database module for Protex 69.95

PROTEXT OFFICE - as Protex Filer but with mail-merge and invoice generator module 99.95

PROTEXT PCW 179.99

PROSPELL PCW - spellchecker for most word processors incl. WordStar and LocoScript 89.95

SCRATCHPAD PLUS spreadsheet 99.00

STARTRACK - tracks you through 88 constellations and more than 600 stars 54.95

STOCKMARKET - watch your investments 79.95

SUPERTYPE II - 8 new different types for use with all CP/M, LocoScript 1/2, LocoMail and Mini Office Professional files 39.95

TAIT ACCOUNTING SYSTEM - small business Debtors, Creditors and Invoicing 129.00

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

Tempdisc 1 (needs Loco1) 59.95
Tempdisc 2 (needs Loco2) 59.95
Tempdisc 8.2 (needs Loco2, Locomail and 8512) 67.95
Tempdisc 9 (for 9512) 67.95

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

TOUCH 'n' GO - typing tutor 69.00

PCW PERIPHERALS

8256/512 'Seal 'n' Type' KEYBOARD PROTECTOR
Stops damaging spills etc. 29.95

9512 'Seal 'n' Type' KEYBOARD PROTECTOR
Stops damaging spills etc. 29.95

CPS8256 SERIAL INTERFACE for PCWs for communications or adding extra printers 145.00

AMX MOUSE plus interface - the most popular and sought after peripherals for your PCW, especially with Stop Press 165.00

MM3 MARGIN MAKER - Single sheet locator and aligner for PCW 8000 printers 34.95

PCW JOYSTICK INTERFACE from Kempston T.O/S

SCANNER - Master Pack - a scanning device which attaches to a PCW printer head to copy photos or other art work, Master Scan software and MasterPaint, a powerful graphics package. Compatible with Desktop Publisher, FSE and Newsdesk International (8256 and 8512s only) 279.00

SCREEN FILTER 29.95

PCW DUST COVERS

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

8256/8512 monitor, keyboard and printer 55.00
9512 monitor, keyboard and printer 60.00

PCW - continued

PCW TASMAN RANGE

Tasword 8000 69.95
Tas-spell 8000 49.00
Tasprint 8000 39.00
Tas-sign 8000 69.95

PCW CONSUMABLES

PCW 8000s PRINTER RIBBONS
Black Carbon/Multistrike or Nylon 19.95
Coloured Nylon - Blue, Red or Green 24.95

PCW 9000s PRINTER RIBBONS
Black Carbon/Multistrike 15.95
Black Nylon 19.95

DAISY WHEELS FOR 9000s
Prestige Pica 10; Prestige Elite 12; Courier 10;
Cubic Pica 10; Mini Gothic 15/Micro; Orator 90%/10;
Letter Gothic 10/12; Script 12 each 19.95

3" DISC DRIVE CLEANING KIT 19.95

CF2 3" DISCS each 7.25

PCW LOCOMOTIVE PRODUCTS

LOCOSCRIPT 2 (latest) with manual 87.00

LOCOSCRIPT2 (latest) Disk only 49.95

LOCOSCRIPT 2 + LOCOSPELL2 pack 130.00

LOCOMAIL2 105.00

LOCOSPELL2 75.00

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

24 PIN PRINTER DRIVER - suitable for most 24 pin print-head printers attached to 8000s 64.95

PRINTER CHARACTER SET DISC for defining new character sets 59.95

EXTRA PRINTER DRIVERS DISC containing a Printer File for every LocoScript2 compatible printer 59.95

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

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

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

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

LOCOKEY to customise your keyboard 59.95

LOCOMAIL SORTING PROGRAM 39.95

LOCOMAIL2 EXAMPLES DISC 17.50

LOCOMAIL2 NEW USER GUIDE 54.95

The following are for PCW 9512s
(Please state 9512 when ordering):

24 PIN PRINTER DRIVER - suitable for most 24 pin print-head printers attached to the 9512 64.95

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

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

KEYBOARDS DISC to configure LocoScript2 to use American, Canadian, Danish, English, French, German,

PCW - continued

Italian, Norwegian, Spanish or Swedish keyboard layouts with any nationality of LocoScript2. 59.95

PRINTER DRIVER AND CHARACTER SETS supports a wide range of printers and printwheels used as an alternative to the built-in printer 59.95

LOCOMAIL SORTING PROGRAM 39.95

LOCOMAIL2 EXAMPLES DISC 17.50

Amstrad PC Range PC1512/1640, PPC512/640, PC20 and PC2000 series

(unless otherwise stated)

Items marked with a "†" symbol are also available in 3.5" disc format. Items marked with a "*" symbol are supplied with both 5.25" and 3.5" discs.

PC & COMPATIBLES GAMES

221b Baker Street 49.95

2000 leagues under the sea 39.95

3-D Helicopter Simulator # 52.95

4 x 4 - Off-Road Racing † 49.95

4th and Inches (Grid Iron) 44.95

4th and Inches Construction Set 35.95

Abrams Battle Tank 54.95

ACE 2 33.50

Action Service 54.95

Airball (now supports EGA and VGA) 59.95

Airborne Ranger † 59.95

Alf 39.95

Amazon 32.95

Annals of Rome # 64.95

Apollo 18 59.95

Auto Duel 59.95

Backgammon 24.95

Bard's Tale Vol 1 # 49.95

Battle Chess (needs 640k) # 69.95

Battle Hawks 1942 # 64.95

Battle Tech # 61.95

Batman 69.95

Beyond Zork 59.95

Billiards 52.95

Bionic Commandos 54.95

Black Cauldron # 49.95

Black Jack Academy † 49.95

Blockbuster 48.50

California Challenge (Test Drive 2 add-on) 39.95

California Games † 49.95

California Raisins

Captain Blood † 69.95

Captain Power 29.95

Carrier Command 59.95

Caveman UGH-lympics † 64.95

Charlie Chaplin 69.95

Chessmaster 2100 69.95

Chuck Yeager's Adv. Ft. Trainer † 54.95

Circus Games † 59.95

Classic Quest Adventure Series:

 Forestland 39.95

 Witch Hunt 39.95

 Catacombs 39.95

 Cornucopia 39.95

Classic Arcades 2: with Penngo, Arnold and Grand prix 59.95

Classic Invaders 29.95

PC - continued

Club Casino - 4 gambling programs 19.95

Computer Yahtzee # 29.95

Concentration 49.95

Convoy - road and transport games 19.95

Corruption 59.95

Crazy Cars 2 † 59.95

Crossbow # 59.95

Crossword Magic 69.95

Crusade in Europe 59.95

Curse of the Azure Bonds # (D.&Dragons) 64.95

Daley Thompson's Olympic Challenge 61.95

Dark Castle 49.95

Dark Side 54.95

Decision in Desert 59.95

Def Con 5 (American 'Star Wars' defence) 59.95

Demon Stalkers 54.95

Destroyer † 49.95

Doctor Ruth's Game of Good Sex (AO) 47.95

Double Dragon 61.95

Dragonworld 32.95

Dream Warrior 29.95

Driller 59.95

Earl Weaver's Baseball 47.95

Earl Weaver's Baseball Stats 34.95

Echelon 54.95

Elite 69.00

Emmanuelle (AO) 39.95

Empire 47.95

F-15 † 59.95

F-16 Falcon † 62.95

F-16 Combat Pilot † 59.95

F-19 Stealth Fighter † 109.95

Fahrenheit 451 32.95

Family Feud 49.95

Fantasy Pak - arcade, war and mazes 19.95

Fast Break (Basketball) 59.95

Fiendish Freddie † 59.95

Fire and Forget † 59.95

Fire Brigade † 49.95

Fire Power # 47.95

First Expedition † 49.95

Fish 69.95

Flippit 39.95

Galactic Conqueror † 69.95

Games, The - Summer Edition † 49.95

Gnome Ranger 59.95

Gold Rush † 52.95

Gone Reel Fishin' # 61.95

Grand Prix Circuit # 59.95

Gunship † 69.95

Hardball 49.95

Heavy Metal 52.95

Hitch Hiker's Guide to the Galaxy 64.95

HKM (Human Killing Machine) - CGA & VGA 59.95

Horse Racing - strategy game 69.96

Hunt for Red October 49.95

Indiana Jones and the Temple of Doom 69.95

Impossible Mission II † 49.95

Ingrid's back 59.95

Inside Trader 59.95

International Team Sports - five Olympic events - coach and select the team then play the Games 59.95

Into the Eagle's Nest 48.50

Jack Nicklaus Golf 59.95

Jack Nicklaus Courses Vol 1 39.95

Jaws (from the movie) 59.95

Jeopardy 49.95

Joan of Arc 52.95

Kampfgruppe 69.95

Kings Quest 1 # 49.95

Kings Quest 2 # 49.95

PC - continued

Kings Quest 3 # 49.95

Kings Quest 4 (9x5.25" and 4x3.5") # 79.95

Knight Force † 69.95

Knight Orc 59.95

Kong Quest - four arcade classics 19.95

Kult 59.95

LA Crackdown † 39.95

Lancelot 59.95

Laptop Computer Chess 3.5" only 52.95

Leisure Suit Larry (AO) # 59.95

Leisure Suit Larry II (AO) # 59.95

Lombard R.A.C Rally 59.95

Man Hunter - New York # 64.95

Maze Adventures - four on one disc 19.95

Mean 18 Famous Courses 3/4 29.95

Millenium 2.2 (superb in CGA) 59.95

Mind Games 18.95

Mini Putt 49.95

Moto Cross # 59.95

Murder in Venice 59.95

Nebulus 49.95

Night Raider 59.95

Nine Princes in Amber 32.95

Operation Neptune 59.95

Outrun 69.95

Pawn, The 69.95

Personal Nightmare † 79.95

Peter Rose Pennant Fever 47.95

Perry Mason - Mandarin Murders 32.95

PHM Pegasus † 59.95

Pinball Wizard 69.95

Pirates 59.95

Police Quest 1 # 59.95

Police Quest 2 # 59.95

Portal 47.95

Pools of Radiance (D. & Dragons) # 54.95

President Elect 69.95

President is Missing 59.95

Professional 4 Soccer Simulations 44.95

Project Space Station 49.95

Prophecy 61.95

Psycho - the trail to the Bates Motel 49.95

PT-109 64.95

Purple Saturn Day † 59.95

Quadralien 59.95

Quest for Timebird 69.95

Rack'em (Pool, Billiards, Snooker) 54.95

Rambo III 69.95

Red Lightning 64.95

Rendezvous with Rama 32.95

Robocop 59.95

Rodeo Games 59.95

Santa Paravia - 15th century strategy 29.95

Sapiens 69.95

Scavengers 54.95

Schultz Treasure 18.95

Scrabble de luxe 52.95

Scraples 43.95

Search for the Titanic

Serve and Volley 54.95

Sherlock 61.95

Shiloh 69.95

Shinobi 69.95

Shogun 52.95

Silent Service 59.95

Silicon Dreams 59.95

Silpheed # 52.95

Skweek † 59.95

Sleeping Gods Lie 59.95

Slots and Cards - casino simulator 59.95

Solomon's Key 69.95

PC - continued

Sorcerer Lord	59.95
Space Harrier	59.95
Space Max	69.95
Space Quest 1 #	59.95
Space Quest 2 #	59.95
Space Quest 3 #	52.95
Space Rogue †	59.95
Speed Ball	64.95
Sports Spectacular: golf, gridiron, archery	19.95
Spitfire Ace	59.95
Star Command	79.95
Star Quake (Amstrad j/stick port only)	59.95
Star Ray	59.95
Star Trek: Promethian	49.95
Star Trek 5: The final frontier †	69.95
Steel Thunder	61.95
Stellar Crusade	69.95
Star Glider	59.95
Station Fall	47.95
Stiegar	59.95
Street Sports Baseball †	49.95
Street Sports Soccer †	49.95
Strike Force - airborne arcade action	19.95
Sub Battle Simulator †	49.95
Super Cars (Test Drive 2 add-on)	39.95
Superman	69.95
Takedown (Wrestling)	59.95
Teenage Queen (Strip Poker) AO	49.95
Technocop	49.95
Test Drive 1	59.95
Test Drive 2 †	61.95
Tenth Frame	59.00
Tetris	62.95
Thexder #	59.95
Thud Ridge	54.95
Thunderchopper †	89.95
Time and Magic	59.95
Times of Lore	59.95
Titan	59.95
Ultima Trilogy (Ultima 1, 2 & 3 + Hint Books)	69.95
Ultima V	59.95
Ultimate Casino Gambling (six games in 3-D)	52.95
UMS (War game simulator)	59.95
USS Stinger - submarine simulator	29.95
Usurper, The	59.95
'Vette (Corvette simulator) #	69.95
War in Middle Earth	52.95
Wargame Construction Kit	69.95
WEC Le Mans	69.95
Wheel of Fortune	44.95
Where in Europe is Carmen Sandiego †	74.95
Where in Time is Carmen Sandiego †	79.95
Where in the World is Carmen Sandiego †	74.95
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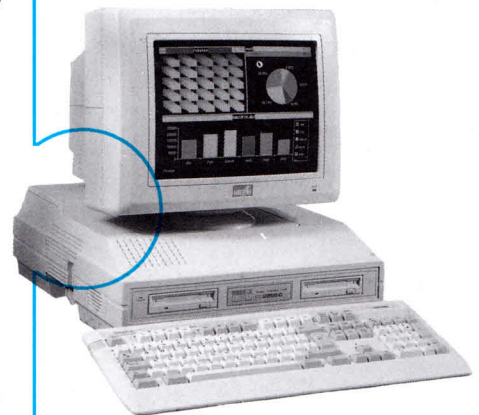
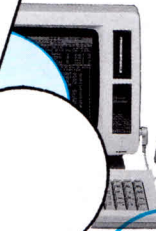
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C5004	Epson	LX100	100cps 50x14 80col	E435
C5005	Epson	LX1000	100cps 50x14 132col	E575
C5006	Epson	EX1000	300cps 50x14 80col	E395
C5007	Epson	AS5	100cps 40x14 80col	E275
C5008	Canon	5510	100cps 40x14 132col	E325
C5009	Canon	5520	100cps 40x14 80col	E370
C5010	Juki	6100	100cps 40x14 80col Colour	E340
C5011	Juki	6200	15cps daisywheel	E410
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The following pages contain a short description of almost every piece of software listed in the Mail Order section of *The Amstrad User* magazine (November 1989 issue). We propose to release updates from time to time to take account of new products.

Please bear in mind that most of the items are imported and may be subject to price changes, temporary shortage, or even deletion by the relevant publishers without notice. You should also remember that our lists are prepared at least one month before they are released and reflect the stock holding at that time.

'The Catalogue' should prove a good reference for future purchases but you are advised always to refer to a current copy of *The Amstrad User* for a guide on availability, price, media type (eg. disk, tape, 5.25", 3.5" etc.). We also suggest that, if possible, alternative selections are given when ordering by mail to avoid any disappointment. Our mail order telephone number is (03) 233 9661.

Personal callers are welcome at *The Amstrad User Computer Shop*, cnr. Blackburn & High Street Roads, Mount Waverley, Victoria 3149. Telephone (03) 233 9211 (No mail order queries on this number please).

THE AMSTRAD USER CATALOGUE

CPC464/664/6128

GAMES

3-D Pool

The first 3-D computer Pool game that lets you view the table from almost any angle you choose. Play against computer or practice trick shots. Has the full arsenal of shots including top, bottom and side spins.

4x4 Off-Road Racing

The latest test of speed and survival. Pick your challenge, choose a truck to race and then customise it. Better take some food and tools along.

500cc Grand Prix

Split screen motorcycle racing for two players simultaneously.

1942

A solo mission air combat game to restrict the enemy's growing forces. Takes place over scattered islands and rough terrain with surprises at the end of each level.

1943

This is your opportunity at the controls of your P38, armed with six secret weapons, to defeat the mighty Yamato battleship and its defences in air to air combat.

Academy (Tau Ceti 2)

Become the cream of the 'skimmer' pilots and graduate by completing successfully 20 missions over five levels of perilous combat and flying skills.

Acrojet

Simulates in 3-D the BD5-J, a one-man 200 mph plus jet aircraft that is fully acrobatic. Compete with up to three other players in the Decathlon of Sport Aviation.

Activator

A fully-animated arcade adventure where you are placed in a world which you must explore and map. Dangers await around every corner.

Advanced Pinball Simulator

A very fast pinball game featuring trapdoors, rollover lanes, mega-bumpers, 4 flippers, bonus lanes, extra balls, ball trap, mystery tube and more!

Adventure 4-Pack

Four text-only adventures: Colossal Cave Adventure, Mountain Palace Adventure, Time Search, and Castle Dracula.

After Burner

A breathless, fast and furious coin-op conversion for shoot-em-up air fighter freaks. Exceptional graphics.

Airborne Ranger

A surprisingly addictive modern war game, with plenty of challenges and increasing levels of difficulty.

Andy Capp

Someone's stolen Andy's dole cheque! A fully icon-driven arcade adventure featuring the favourite cartoon character and mates in a chase to find the cheque.

Arkanoid

Frantic action and split second timing combine to make this a most addictive space game. Good graphics and sound with 32 levels to complete.

ATF

Engage the advanced on-board systems, plan your strategy and swing into battle in a Lockheed Advanced Tactical Fighter, hugging the 3-D relief terrain to avoid or attack enemy forces.

Bactron

Guide Bactron, the virus killer, through a maze of organs and arteries, and release the healing enzymes scattered throughout your body.

Bad Cat

While the world prepares for the Olympics, the city cats organise their own. A humorous series of events testing Bad Cat to the limits. Suitable for younger players.

Bard's Tale, The

A new breed of adventure game which requires a great deal of thinking to build-up skill levels and defeat the baddies. Each character has its own strengths and weaknesses. The game is high on content and high on complexity - exceptionally good.

Basil the Great Mouse Detective

From the Walt Disney film, as Basil, you must venture through the backwaters of London collecting clues and using your powers of deduction to solve the kidnapping of Dr. Dawson.

Batman - The Caped Crusader

Two games supplied starring The Penguin in "A bird in the hand" and The Joker in "A Fete worse than death". Full of riddles and plenty of 'bamming' and 'powing', yet nobody gets killed!

Bedlam

You thought you were hot stuff at the Stellar Imperiums pilot academy until you were put through one final test - the X12 fighter simulator known as Bedlam. Lots of action with good graphics.

Beyond The Ice Palace

A gripping arcade adventure through tunnels and shafts filled with nasties of different shapes and sizes. Like Ghosts 'n' Goblins but much faster!

Bionic Commando

Five levels of connecting platforms, guarded by bees, suicide troops etc., through which you must travel to deactivate a doomsday missile.

Blasteroids

A good conversion from the arcade "clear the screen of aliens"

game, which is meaner and harder than you may think. The two player option can be great help in destroying the big guardian at the end.

BMX Simulator

The burms, bumps and ramps really work. Seven courses getting progressively harder. Two player action optional with 'action replay' and 'slo-mo' features. (For more advanced riding see Professional BMX Simulator.)

By fair means or foul

A refreshingly different boxing game in which you (or your opponent) can cheat if the referee is not looking! More than just a punch and grunt game and exciting too.

California Games

Get ready to surf, skateboard on the half pipe, bike BMX-style, kick-back with a foot bag, roller skate and fling the flying disc on California's beaches and parks. Up to four players can take part to decide the Champion.

Captain Blood

A superb game of reasoning and thinking with excellent graphics and music. Search for helpful aliens to save Captain Blood. One of the best non shoot 'em up games for a while.

Chicago 30's

Clear the streets of Chicago of hoods through four levels and finally destroy an illegal alcohol store. Reasonably hard as all you have is a Thompson machine gun.

Chuck Yeager's Adv. Flight Trainer

One of the most impressive (and serious) flight simulators available on the CPC. Unique windscreens cursors teach you: flawless takeoffs and landings; aileron rolls, Cubans 8s; and even hammer-head rolls. Test pilot 14 different aircraft from an old Camel to an F-18 Hornet. 10 distinctive viewpoints, black box recorders and 3-D terrain.

Classic Quest Adventures:

Goblin Towers - A moderately difficult text-only adventure game which takes you on a search for a legendary castle guarded by some hideous beast, and in which untold treasures lie.

Forestland - A fairly difficult text-only adventure in which you awaken from a dream to find yourself back in it again! Help facility for beginners.

Witch Hunt - Rated a difficult text-only adventure in which you need to find the ingredients to return Filbur Apse to his former obnoxious self. Plenty of puzzles.

Clever and Smart

Accompany two detectives, Clever and Smart, around a town (and under it) in a chase through a series of puzzles to rescue Dr. Bacterius. Warning: this game contains bad language.

Cluedo

The great detective board game comes to the CPC screen. Can you and your friends solve the murder mystery at "Tudor Close"?

CPC464/664/6128

Who used the dagger in the library, or was it candlestick in the kitchen? Establish your powers of investigation and deduction against the computer or other fellow characters.

Core

A multi-level game in which you are required to battle against an increasing number of hostile aliens in order to reach the Core of an asteroid to re-assemble the biological memory cells and save further destruction. Lots of interesting nasties and puzzles.

Crazy Cars 2

Break a stolen car racket by racing through four American states in your Ferrari F40. Super graphics and sound effects and heaps better than the original Crazy Cars.

Cybernoid 2

If you enjoyed the original Cybernoid, this sequel will blow your mind. A true classic in space shoot 'em ups in which you are provided with a heavily armed ship in chase of space pirates with some plundered cargo. It's all action with superb graphics.

Darkside

Features 'Freescape', the solid 3-D system, in a space 'save the planet' exercise. Remarkable graphics (like Driller and Total Eclipse) take you across the planet's surface to destroy Energy Collection Devices.

Deep, The

Split second timing is required when using your only means of defence - depth charges - as you fight back the enemy submarines armed with heat seeking torpedoes, floating mines and cruise missiles.

Desolator

An arcade conversion in which you rescue children imprisoned behind mirrors. The more you rescue, the stronger you become but the difficulty increases.

Dizzy Dice/Joe Blade

Two games in one pack - a fruit machine simulator and a 'rescue the hostages' shoot 'em up.

Dominator

A game for hardened shoot 'em up veterans. An immense and incomprehensible being with a voracious appetite is closing on the planet earth having already consumed the outer planets. Your task is to stop it!

Driller

This is the first in a trilogy of 'Freescape' solid 3-D games from Incentive. The object is to cap each of 18 mines on the moon Mitril to avoid a catastrophe. This is done by using geological clues, intuition and just old fashioned trial and error.

Echelon

A 3-D exploration game with combat flight simulation thrown in for good measure. Large areas to explore and training zones in which to practise.

Eddie Edward's Super Ski

Fly like Eddie 'The Eagle' Edwards on a ski jump, compete in the Slalom or the Giant Slalom or speed your way on the Downhill Race in this 3-D ski simulation. Features a training or competition mode for up to 6 players.

Empire Strikes Back

The second in the Star Wars trilogy in which you take on the role of Luke Skywalker piloting a snow-speeder against the huge Imperial Walkers in an attempt to trip them. It then switches to Han Solo in the Millennium Falcon looking for safety from asteroid storms and Tie-Fighters.

F-15 Strike Eagle

Produced by an ex-fighter pilot, this highly successful, award-winning simulation puts you in the middle of the action. All the tools of modern electronic warfare are accurately simulated, including computer assisted targeting, Head Up Display and airborne radar. Altogether a sophisticated piece of software.

Fernandez must Die

You have been summoned by the exiled leaders of your homeland to free your people from the oppressive yoke of Dictator Fernandez by destroying the military bases that have protected him. Has a huge play area using jeeps, tanks, motorbikes, trains and more.

Flippit

An amazingly addictive but simple game which requires tiles to be flipped over to form a new pattern. Has 105 pre-set levels, but more if you want. Also has a 'boss key' to show a spreadsheet on screen in 'emergencies'.

Fruit Machine Simulator

Heaps of features in this game including Cash Box, Nudge Box

(with Compu-Nudge and Nudge Bank), Skill Climb, Winning Streak, Cash Gamble, Holds and Mega-holds, Skill chances and Party time meter.

Forgotten Worlds

Two cool dudes + One hot situation + Eight megalithic adversaries = A whole lotta trouble. This is an ace shoot 'em up polished to sparkling perfection by its superb graphics and represents a very good conversion from the arcade hit. A must for all serious acaders.

Fury, The

A high-tech demolition derby in space with three styles of race - Killer Race, Time Runs and Tag Races.

Galactic Conqueror

Similar to Afterburner but the action takes place in space with a megawatt laser to destroy anything in your path. All very fast and furious.

Game Over 2

Combat kamikaze hordes, dodging missiles and avoiding balls of magma before landing on the planet Phantis. Then fight your way through the inhabitants and enemy troops, steal a sword, cross the swamps, mountains, forests all crawling with the enemy to the prison and even more hazards. Recommended.

Games, The - Winter Edition

Feature seven events - Downhill Skiing, Slalom, Luge, Figure Skating, Ski Jump, Cross Country Skiing and Oval Track Skating. They are all modelled on the official Canadian Rockies games and include the colourful opening and closing ceremonies.

Garfield

Subtitled 'Big, Fat, Hairy Deal', you play the part of the lasagna loving Garfield, off in search of his beloved Arlene who has been captured and imprisoned in the City Pound. Also features Jon, Nermal and Odie.

Gauntlet II

100 levels of pulsating action-packed adventure as you take on the powers of your favourite player, even if they are already in play. Stun Tiles, Acid Puddles, Force Fields etc. make your progress difficult whilst other objects found may help. A great sequel to Gauntlet 1.

Giant Killer

A mathematical adventure of exploration and treasure hunting for children, loosely based on Jack and the Beanstalk. A large number of mathematical concepts can be learnt while attempting to reach 250 points.

Gnome Ranger

You follow the adventures of Ingrid Bottomlow, the intrepid gnome, through a fairy tale landscape full of compelling puzzles. Humorous and with graphics.

Graeme Gooch's Cricket

The basic game screen shows a view down the wicket from above the bowler's head and features full animation of bowler, batsmen and fielders. Players can be chosen from English and Australian teams playing limited overs or full two innings matches. Simulation and arcade mode - the latter requires you to time the batsman's shot and the bowlers run up.

Guerilla War

A multi-level, vertically scrolling arcade thriller which plunges you deep into the jungle and ruined cities of a nation held in the grip of a cruel oppressor. Each level has different enemy patterns and positions of tanks and hostages requiring different tactics. Certainly a superb coin-op arcade conversion.

GunShip

An excellent Apache AH-64 helicopter simulator which takes the player along a career path from training to a complete mission. Success brings medals and promotion. (Joystick only).

H.A.T.E.

A sophisticated futuristic shoot 'em up where prospective fighter pilots and/or tank commanders get 'live' experience of action in a state-of-the-art military action simulator. Cleverly designed, with heaps of action and good music.

Head Over Heels

A clever and compulsive 3-D arcade adventure where you control either Heads or Heels. Escape from Blacktooth Castle and free the Empire's enslaved planets. Lots of puzzles to solve.

Hercules

Subtitled 'Slayer of the Damned', Hercules is set 12 awesome tasks to exonerate the sin of murdering his children. Armed by his divine fathers, he faces hideous skeleton hordes and ultimately the evil minotaur. A sort of martial arts game set in mythological

times.

Hopping Mad

A deceptively difficult, original and exciting game consisting of guiding four balls over different terrain. Anything with spikes must be avoided!

Hot Shot

A futuristic arcade pinball game with five levels for either one or two players. You must succeed to survive (and continue to the next level). A deadly plasma ball is moved by using a Graviton Gun which attracts and fires the ball at a variety of bumpers and blocks. Good fun!

Human Killing Machine

A globe-trotting punch 'em up involving street fighting and gangland thuggery. Could be considered 'a little over the top' in terms of the violent theme.

Hunt For Red October

A submarine combat simulation in which you are in command of 'Red October', a Russian ballistic missile submarine, with the objective of reaching the USA to defect. Various challenges are ahead to outwit the Russian Navy who are hot on your tail. You have full control of on screen sonar, attack and search periscopes, torpedoes and more.

Impossible Mission II

The sequel to Impossible Mission, and adjudged by most to be much better. It's a platforms and ladders style game with plenty of action in the fight to prevent Elvin Atombender's second attempt to grab global domination.

Incredible Shrinking Sphere

Search for a stranded sphere and passenger it to home base through four levels each with a complex maze. Passing over special tiles on the 3-D 'corner-down' screen shrinks the sphere so that you can pass through narrow areas. Good fun with this different concept.

Ingrid's Back

Another Level 9 adventure with graphics, and the sequel to Gnome Ranger. Full of fun, puzzles and humour as Ingrid tries to save her village from the developer Jasper Quickback.

Inside Outing

A cleverly designed 3-D game in which you play the part of a burglar. The exceedingly clear graphics lets you look behind pictures, open cupboards and lids in your search for gems. A good puzzle.

Jet Bike Simulator

24 exciting races in this newest form of aqua-sport. Includes a 2-player option, realistic power drifting and aqua speed jumps.

Knight Orc

A humorous adventure game of revenge from Level 9. Features three parts, character interaction, high level commands, and colourful graphics. For generations humans have been persecuting orcs, and now it's time to get your own back.

Lancelot

An adventure with graphics from Level 9, cleverly written, well thought out with plenty of puzzles and problems to solve. The first two parts of this Round Table game should be played in sequence, but the third can be played separately.

Last Duel

A vertically scrolling race against time to free Princess Sheeta. Your neutron powered car and galactic hover plane provide the speed and power through six enemy occupied territories. You provide the skill to defeat the defences. Lotsa bullets!

Last Ninja II

A more fearsome version than the original in which the evil Shogun Kunitoko has mystically transported himself through time to Manhattan. You, the Last Ninja, must use your intelligence, skill and cunning to vanquish Kunitoko once and for all.

LED Storm

Puts you in control of a high powered futuristic vehicle through 9 fast and furious stages. Each contains various hazards ranging from ramps, boxing cars through to sheer drops. Action all the way through!

Live and Let Die

In which James Bond tackles a narcotic problem with vengeance. This is one of the better Bond games with lots of action across the wetlands, ice or sand.

Living Daylights

A James Bond game in which Whittaker, Necros and Koskov are matched against 007. The game closely follows the film as you

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control Bond through eight levels of action in different countries.

Mad Mix - Pepsi Challenge

Out manoeuvre the outrageous behaviour of the inhabitants of Pepsi Village. 15 levels ensure you'll be at your wits end as things keep changing. A colourful extravaganza of ghouls and demons with a little 21st century trickery thrown in. Good fun!

Mach 3

A futuristic Jet-fighter arcade game. This game is not a flight simulator, rather it's a fast action air combat shoot 'em up which rates among the best games of this type coming from France.

Mercenary Compendium

An arcade adventure in vector graphics (like Starglider and Cholo). Stands alone in speed and adventure aspect, with two cities to explore and numerous problems to solve. Very challenging.

Mega Apocalypse

A fast space shoot 'em up in which you blast anything that moves! Useful objects can be picked up as you hurtle through space but you discover that someone else is after them too!

Monopoly

The favourite family game faithfully transferred to your CPC screen with all the features of the board game and just as much fun.

Motor Massacre

Progress through 3 cities in your All Terrain Vehicle, removing henchmen and avoiding gun emplacements. If you enjoy smashing about in cars you'll like this game.

Navy Moves

Your mission is to destroy the U-5544 nuclear submarine with a combination of combat skills on the sea surface, beneath the waves in the Bathyscape, and finally, inside the submarine.

Nigel Mansell's Grand Prix

One of the better racing car simulators with a choice of 16 Grand Prix circuits. Cockpit view with comprehensive control panel. Even pit stops!

Night Raider

A pretty good strategy/simulation game based on the sinking of the Bismark. Has four control screens, many missions and different levels.

Not a penny more, not a penny less

Based closely on Jeffrey Archer's bestselling novel, this adventure deals with swindling back £1,000,000 from a notorious crook. Invent your own plots to succeed.

Operation Wolf

A brilliant arcade conversion with six progressively difficult stages to deal with, where you have to release some prisoners from an enemy camp. Heaps of action through the jungle, a village, munitions dump and enemy camp.

Out Run

Experience the exhilaration and excitement of driving a high performance sports car in this teasing time trial. An excellent conversion from the Sega coin-op.

Overlander

An unstoppable apocalypse caused by a breakdown in the ozone layer has scorched the planet. Only the Overlanders, with their passion for customised cars and survival, dare to make journeys for cash through hostile 'surface dwellers' country. You are an Overlander carrying cargo for cash - which means a better and faster car.

Pacmania

A 3-D version of Pacman who now has the ability to bounce. Different coloured pills provide different powers to Pacman. Has levels of difficulty to suit the whole family.

Pegasus Bridge

A carefully researched war game concerning the 6th Airborne Division's objective to capture the eastern flank of the D-Day beach heads. A competent offering.

PHM Pegasus

A Hydrofoil simulation game with plenty of action and strategy. Eight missions, from easy to hard, with lots of weapons from which to choose.

Professional 4 Soccer Simulation

Four soccer games in one pack. 11-a-side Soccer with fouls, corners, goalkicks etc., against the computer or a friend; Indoor Soccer (five-a-side) fast action with ball bouncing off walls; Soccer Skills contains all the training (taking penalties, dribbling around

cones etc.) to become a proficient player; and Street Soccer the no-rules game!

Professional BMX Simulator

Five circuits at each of three race meets - Quarry Racing, Dirt Biking and Desert Riding. Features choice of tyre and chainwheel sizes as well as realistic burms, bumps and ramps. (For a less advanced version see BMX Simulator.)

Professional Ski Simulator

Experience the spills and thrills of downhill racing. Features a two player option and seven large smooth-scrolling slopes which get progressively more difficult as you get progressively more efficient!

3-D Pro Tennis

Has all the action and excitement of the international tennis circuit. You are given a realistic 'behind the player' 3-D perspective, and you can play either a human opponent or against the computer on grass, clay or hard court.

Purple Saturn Day

Another great package from France, essentially four 3-D arcade games in one. The Ring Pursuit - a race through the rings of Saturn avoiding meteors and abandoned space ships; Brain Bowler - an energy ball that bounces off the living mindwall; Time Jump - a giant catapult which hurls you through time; and Tronic Slider - hunting energy on a dizzying fast-maneuvre scooter.

Raffles

Amazing graphics add to the realism of searching for gems hidden within the walls of a house. There are plenty of traps, monster mice and puzzles in every room to keep you occupied for a long time.

Rambo III

Follows the theme of the film in which Rambo rescues Colonel Trautman and other prisoners and escapes to freedom. Naturally, there are lots of bullets and other subtle or otherwise tools to be used in this fast action game. The game has good playability and addictiveness.

Real Ghostbusters

Based on the TV cartoon series, you are required to remove all the ghouls, ghosts, phantasms, mummies, umbra and the like from the city with streamer guns fitted to back packs. Two player option allows help from a friend.

Red Heat

Based on the film of the same name, where East and West join forces to hunt down a soviet drugs dealer. The action takes place in Chicago - the place of street fights, the 'Cleanheads' gang and gun fire. Lots of Schwarzenegger-type action!

Renegade 3

The final chapter in the Renegade series where you chase your girlfriend's captors. You are transported in time to fight neolithic man, medieval knights, the tormented dead in the tombs of ancient Egypt and finally to the unknown future. A good combat game.

Return of the Jedi

The best of the Star Wars games with a race though the forest on speeder bikes, guiding Chewbacca in an Imperial Scout Walker, and destroying the Death Star.

Robocop

As part man - part machine you take on the role of an avenging angel as you mete out rough justice to the perpetrators of evil and lawlessness. Will keep trigger fingers happy for quite a while.

Rolling Thunder

Ten levels of Geldra's evil and secret organisation need to be infiltrated. Lots of bullets in this game.

R-Type

Plenty of alien hordes to remove, levels to go through and 'treasures' to collect to be able to meet and destroy the biggest alien your likely to see on your screen.

Running Man, The

Based on the movie of the same name, it features the Kill Zones with big baddies in each (Sub Zero, Buzz Saw, Dynamo and Fire Ball), requiring different skills to despatch. A little different from the norm, somewhat difficult yet addictive.

Run the Gauntlet

A multi-element game split into three events, each further split into events taking place on water and land (using various vehicles) or an assault course. Up to four players can be pitted against each other.

Sapiens

A new generation arcade adventure game from France. It covers the pre-historic evolution and survival as you guide Torgan in his

search for allies amongst neighbouring tribes, choose courageous hunting companions and tame wild animals.

Savage

A three stage game, the first of which plunges you into an orgy of violence destroying all who stand in your way. The second takes you into the Valley of Death where a 3-D viewpoint allows you to scan the horizon and plot a path through. The third is the labyrinth where the final fight takes place to rescue your fair maiden. Pretty fast!

Scalextric

A two-part game that allows you to design, modify and race on different circuits. Features 3-D view for 1 or two players, icon-driven track design, lap timer and plan view for each driver. Also has simulated centrifugal force for realistic race simulation and skid.

Scrabble (standard)

The well-known word game for 1 to 4 players with different levels to cater for all ages. Has a reasonably good dictionary to check words.

SDI

The button has been pressed and East and West are locked in the deadliest game of all. But with your awesome cache of nuclear weapons and your Strategic Defence Initiative, you can avoid global disaster. Zap the enemy weapons using skill, judgement and razor-sharp reactions. Now the odds are even!

Shinobi

As the most famous graduate of a secret oriental Ninja school, you are handed the problem of rescuing the entire junior class from the clutches of Bwah Foo and his henchmen.

Slk Worm

A challenging, fast, colourful 'shoot 'em up from a helicopter' game (and land vehicle if you go for the two-player option) requiring quick reactions both in mind and trigger finger, especially against the massive command vehicle at the end of each level.

Side Arms

Classic shoot 'em up action combined with brilliant graphics and an outstanding test of reflexes. Battle your way through waves of alien attackers, forcing a path into their gigantic underground empire and subterranean sea before facing Bozon's ultimate weapon in a fight to the death.

Skweek

An infuriatingly addictive game, suitable for all family members. The country of Skweek has been turned blue, and you are required to turn it back to pink by travelling over tiles and avoiding 'nasties'. Very good graphics (less so on green screens) and great fun.

Slaine

An unusual adventure featuring realistic combat and character interaction. The main, object, action or look thoughts of Slaine are shown on the screen for selection by a free roaming cursor. Good graphics and tremendous depth of gameplay.

Skate Crazy

Freddy's the name and skating's the game. Skate Crazy is made up of two separate, but interfacing games - 'Car Park Challenge' and 'Championship Course' and you can pass from one to the other without losing your score.

Space Racer

A very fast action-packed arcade shoot 'em up involving futuristic jet-bikes. Kill or be killed scenario featuring good, clear graphics.

Star Wars

The original Star Wars game in which you face the Space Attack with waves of attacking hostile space craft, then fly to the Death Star in an attempt to blast the space towers and flying stars. Finally, you reach the trench, avoiding the missile emplacements, to drop the bomb into the heart of the Death Star.

Storm Lord

Superb graphics complement the fast action in which the fairy folk must be freed before they are obliterated by the evil Queen.

Street Fighter

Martial arts at street level. A compelling and addictive punch 'em up which takes place across five locations and against ten of the meanest adversaries.

Super Stuntman

Brilliant stuntman simulation featuring desert car chases, power speed-boat racing, forest rallying, turbo-boost Grand Canyon jumping and more!

Technocop

You have volunteered to clean up the streets and eliminate the

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deviants that pollute your city. Armed only with a stun gun, a keep net and your sleek racer, how will you handle the many dangerous characters who lie in wait?

Tenth Frame

A ten pin bowling simulation that gives the look of "Real" bowling through outstanding graphics and a true perspective view. Features multiple levels of play, realistic pin action and automatic scoring.

Terramex

An unusually addictive game spiced with humour, good graphics and animation. Become one of the world's five reputable explorers and experience the dangers of a hazardous journey.

Tetris

A totally addictive mind game which always has you wanting 'just another go'. Simple in concept (to arrange falling shapes in a tube) but you won't be able to stop.

Thunder Blade

The action never ceases in Thunder Blade. Get ready to pilot the meanest fighting machine ever to storm the skies. Fly through the war torn skyline of Skyscraper City, plunge out to sea for an epic battle, then race on for a shoot out on the rocky canyons and lush dense forests.

Thunderbirds

Four 'search and rescue' missions using all the ingenious equipment at the disposal of International Rescue. All the Thunderbirds characters are involved in this great package which also comes with a free audio tape with various Thunderbird tunes on it.

Time Scanner

A thoroughly addictive and different pinball game with lots of action and twists. Contains smooth graphics and realistic sound effects and is ahead of any other computerised pinball game.

Tiger Road

Essentially four martial arts games rolled into one. Exceptional graphics and superb gameplay in a quest which confronts you with Samurai Warriors, Giants, Dragons and the like.

Total Eclipse

A very clever 3-D graphics adventure game with a host of puzzles (often with more than one solution), set in a pyramid.

Trailblazer

Guide a bouncing ball along a moving road. Sounds easy - but you try it. Coloured tiles affect the ball, holes appear, the road bends. It all adds up to great fun for all ages.

Train, The

Your task is to thwart an attempt to transport France's art treasures to Berlin by capturing the train on which they will travel. Plenty of action with some steam train simulation.

Trivial Pursuit - Baby Boomer edition

Questions and answers are based around the time of Flower Power, Rock and Roll, and Sandals and Beads.

Trivial Pursuit - a new beginning

A new set of over 3,000 questions in a new format game. Warp around space visiting planets and answering questions and finally facing the panel of Elders for your last test.

Turbo Cup

A superb racing game with good graphics and animation in which you can put yourself behind the wheel of a turbo-charged Porsche 944 and take part in the European Porsche Turbo Cup.

Typhoon

A two-stage game of air to air combat and bombing an aircraft carrier. Not too difficult so may be suited to younger players.

Vindicator, The

An all-action game in which you will battle through mazes, tear across terrain in a high-powered jeep, find the catacombs and do battle with a giant and his minions. A mixture of mazes, flying and 'platforms and ladders' and plenty of bullets.

Vixen, The

Vixen is a bikini-clad woman armed with a large whip. You play the part of the woman through different phases fighting off reptiles etc. before taking on the form of a fox (or vixen) for the last stage.

Wanderer 3-D

A space trading game with the option of playing in mono or 3-D with the special glasses provided. Features black holes through which you must guide your craft.

WEC Le Mans

Simulates the 24-hours Le Mans race around a carefully re-

created circuit. Requires very quick reactions and skill to handle the 'drift into corners' and the 'thump of a slip stream'.

Western Games

A fun pack of 6 different games in animated cartoon style for 1 or 2 players. Covers Arm Wrestling, Beer Shooting, Dancing, Quid-Spitting, Milking and an eating competition. Good graphics enhance the atmosphere.

Xybots

A coin-op conversion which is more than just a 3-D maze, requires more than just a trigger happy finger and has a two player option. Destroy the Xybots of different sizes and strength. Has a clever 'turn around while moving' feature.

Yes Prime Minister

You take the role of the Rt. Hon. James Hacker, MP, Prime Minister with Sir Humphrey and Bernard to advise you. The aim is to survive for a week as the nation's leader. Each day begins in the PM's office and messages from the telephone, intercom, memos or teletype need to be analysed and a strategy worked out. Has a 'save' feature.

COMPILATIONS

Arcade Muscle

Five action packed arcade hits - the ultimate collection in death and devastation. Contains Street Fighter, 1943, Side Arms, Road Blasters and Bionic Commando.

Daley Thompsons Olympic Challenge

The decathlon king gives you a chance to tackle his gruelling role in the ten Olympic events. Start with a work out in the gym and build your power and strength to the maximum to go on to break the records in the arena.

Elite Collection

Contains boxing simulation Frank Bruno's Boxing, coin-op conversions Bomb Jack 1, 2 and Commando, combat helicopter Airwolf, bike riding in Paperboy, a computer version of Battleships, and Ghost 'n' Goblins classic.

Elite Six-Pack Volume 3

With Ghost 'n' Goblins classic coin-op conversion, 007's The Living Daylights, spell-binding action from Dragon's Lair, bike riding skills with Paperboy, and motorbike racing in Enduro Racer.

Fists 'n' Throttles

Features fighting action from Thundercats, Ikari Warriors, more coin-op fighting action from Dragon's Lair, and race track action on both two wheels and four with Enduro Racer and Buggy Boy.

Flight Ace

Contains some good flight simulations. Tomahawk (helicopter) with an arcade element; ACE, Strike Force Harrier and a skillful Spitfire 40. There's also ATC (Air Traffic Control), a cleverly thought out air traffic controller simulation.

Four Smash Hewson Hits

Four of Hewson's best sellers. With Zynaps (space battles), Rana Rama (dungeons and warlocks), Exolon (space battles) and Uridium Plus (combat game). Plenty of action in this pack!

Game Set and Match 2

Ten sporting events with Championship Sprint (motorbike racing), Track and Field (athletics), Steve Davis' Snooker, Super Hang-on, Match Day 2 (soccer), Ian Botham's Test Match (cricket), Nick Faldo Plays the Open (golf), and Basket Master (basketball).

In Crowd

Eight action-packed games featuring Gryzor; Barbarian, Crazy Cars, Predator, Karnov, Combat School, Target Renegade and Platoon.

Karate Ace

All the popular martial arts games in one pack. Contains The Way of the Exploding Fist, Bruce Lee, Kung Fu Master, Way of the Tiger, Avenger, Samurai Trilogy and Uchi Mata.

Konami Arcade Collection

Ten Konami arcade conversions in one hit. Features Yie Ar Kung Fu 1 and 2, Green Beret, Nemesis, Jackal, Ping Pong, Shao-lin's Road, Jail Break, Hypersports and Mikie.

Leaderboard Par 3

The most popular Golf package available for the CPC. Twelve different games of golf from Leaderboard, Tournament Leaderboard and World Class Leaderboard. Bundled with score cards and maps.

Live Ammo

Five all-action combat mission hits from Ocean. Contains Army

Moves, Rambo 2, Green Beret, Top Gun and The Great Escape.

Space Ace

A seven game action compilation. Contains Trantor (Flame throwing and puzzles); Exolon (a bomb-missile-blast 'em up with heaps of sound effects); Zynaps (a fast multi-weapon blast 'em up); Cyberoid (similar to Exolon with 60 screens to explore); Venom Strikes Back (from the Mask series); Xevious; and North Star.

Special Action

Five Ocean hits in one pack. Contains Driller, The Vindicator, SDI, Captain Blood and Daley Thompsons Olympic challenge.

Story So Far Volume 2

Features Space Harrier (air combat), Live 'n' let Die (007 action), Overlander (car chase) Beyond the Ice Palace (arcade adventure), and Hopping Mad (bouncing ball action).

Straight Six

A compilation of six games from France. Flash (a jeep-to-tank-to-helicopter) shoot 'em up; Billy (an exploration game); ZOXT099 (a 3-D space shoot 'em up); 3-D Fight (a skimmer shoot 'em up); Soccer (where you control one of four European soccer teams); and MGT (a 3-D exploration game in a tank solving puzzles on the way).

Supreme Challenge

Five classic CPC games featuring Elite, Starglider, Tetris, Ace 2 and The Sentinel.

Taito's Coin-Op Hits

Eight arcade hits in one pack. Contains Rastan, Arkanoid 1 and 2, Slapfight, Renegade, Flying Shark, Bubble Bobble and Legend of Kage.

TAU Games Plus

Home-grown, home fun with Dominoes, Snakes and Ladders, Mah-Jong, 3-D Noughts and crosses, Trucking (trading game), Tycoon, plus a Graphic and Sprite designer. All written in Basic for the CPC6128.

Time and Magik Trilogy

Three separate Level 9 interactive adventure games come together in one package. 60,000 mind-expanding words creating magik and mystery round every corner. Features Red Moon, Lords of Time and The Price of Magik. Excellent value!

We are the Champions

Five originals in one pack. Contains Barbarian, Renegade, International Karate Plus, Super Sprint and Rampage.

EDUCATIONAL

Better Maths (12 - 16 yrs)

Introduces more advanced aspects of mathematics. Covers volumes, surface areas, statistics, simple interest rates and so on. Has tests at the end to see if you have grasped it all.

Better Spelling (12 - adult)

A spelling course consisting of a series of well organised, short lessons each dealing with one topic, like plurals or which version of there/their/they're to use in a sentence. Lessons can be picked in any order.

Biology (12 - 16 yrs)

A traditional questions-and-answers test. Ten topics with ten or so questions on each where you have to fill in the blank in a statement. If you get it wrong you are given a clue.

Chemistry (12 - 16 yrs)

A traditional questions-and-answers test. Ten topics with ten or so questions on each where you have to fill in the blank in a statement. If you get it wrong you are given a clue.

Fernleaf Series

This series develops a child's reasoning, logic, estimating and forward planning skills. Each disc contains two games.

Treasure/Perfume Hunter (7 - 10 yrs) - a treasure hunt involving multiplication/game requiring skill in logical thinking to find perfume bottles.

Fletcher's Castle/Raiders (8 - 12 yrs) - build a castle in 10 days/lead a Viking group and choose the route, landing point, set up camp and plan raids.

Thorn Sea/Ferry Captain (9 - 13 yrs) -

Fun School series

Each disc contains 10 colourful and entertaining educational programs.

Volume 1 (2 - 5 yrs) - Numbers, counting, colour matching, alphabet etc.

Volume 2 (5 - 8 yrs) - Mathematics, completing sentences,

CPC464/664/6128

directions, spelling etc.

Volume 3 (8 - 12 yrs) - Anagrams, Hangman, mental arithmetic, deduction etc.

Fun School 2 Series

Each separately available unit consists of eight colourful and exciting programs carefully designed by a team of educationalists for which the skill levels can be set by the parent or guardian.

Under 6 - with Shape Snap (shape recognition); Find the Mole (experiment with sizes); Teddy Count (introduction to numbers); Write a letter (fun at the keyboard); Colour Train (spotting colours); Pick a letter (steps to word building); Spell a Word (naming the pictures); and Teddy Bear's Picnic (move around a maze).

6 to 8 - Number Train (calculations); Shopping (which shops for which products); Maths Maze (arithmetic); Treasure Hunt (coordinates); Bounce (angles); Packing (interlocking shapes); Caterpillar (word building); and Number Jump (tables).

Over 8 - Build a Bridge (shape-fitting); Passage of Guardians (anagrams); Unicorn (logical thought); Logic Doors (mapping); Souvenirs (travel); Code Boxes (binary arithmetic); Mystery Machine (code breaking); and Escape (check on progress).

Magic Maths (4 - 8 yrs)

Covers addition and subtraction only. A questions and answers system which keeps a log of the last 100 answers so that the parent/guardian can isolate persistent problems.

Magic Sword, The

A graphic adventure for younger children, comprising both a full colour story book and a disk. The child first reads the book then completes the storyline in the program. A new approach to enforcing logic, predicting and puzzle solving.

Maths Mania (8 - 12 yrs)

The next step up from Magic Maths but this time the questions deal with multiplication and division.

Mega Maths (Grades 9 - 11)

More advanced geometry (including three dimensional), complex numbers, logarithms, quadratic equation, series, polynomial, remainder and binomial theorems - just on the first side of the disk. On the other you'll find derivatives, trigonometry, partial fractions and integrals to name a few. A 'calculator mode' supplied.

Micro English (Grades 9 - 11)

A very full package dealing with, in the main, comprehension and composition through multiple choice questions and answers.

Micro Maths (Grades 9 - 11)

Covers percentages, fractions, ratio, proportion, base numbers, geometry, calculus and algebra. If the wrong answer is given, the program supplies a clue and the formula required. If the second attempt is also wrong, the program shows the correct answer and how to arrive at it.

Maxi Maths (12 - 16 yrs)

Although the cover says 9 - 15 yrs, 12-16 is nearer the mark. The set essentially covers Geometry - angles, triangles, rectangles, circles, sine/cosine/tangent etc. There is a revision section to check that everything has sunk in!

Play School (3 - 7 yrs)

Covers colours and number recognition, pattern matching, simple drawing and simple mathematics. It is presented in a lively, animated format designed to encourage the child to participate.

Physics (12 - 16 yrs)

Covers matter (density), law of the lever, pressure, states of matter, heat and temperature, electricity, magnetism and electrostatics, and light and sound.

Three Bears, The

A full colour graphics adventure program for children. It introduces the child not only to adventure-type games but relies upon the child entering logical answers to solve a problem.

Weather/Climate (12 - 16 yrs)

Essentially a revision course dealing with measurement and recording, rainfall, climate types, pressure, wind and temperature.

UTILITIES/BUSINESS

Advanced Art Studio

An exceptionally good drawing/painting package (requiring 128k and disc drive). Operates with pull-down menus. Provides pen, brush and spray-can in different shapes and sizes, zoom facility, fill, undo etc. Works best with a mouse.

Brainstorm

An 'ideas processor' or computerised doodling pad. You can jot down phrases randomly, then organise them into an hierarchical plan, then expand each phrase into a finished idea, finally print

them out as a coherent document.

Cardbox

Provides very flexible ways of searching records in a card index style. It has good control over screen and printed form layout, but lacks totalling facilities

Cardbox Plus

An enhanced version of Cardbox which boasts sorting, index listing, disc management and autosave feature as extras.

Extra Extra

Extra fonts (type styles) and clip art (pictures) which expand the versatility of the Stop Press package. The graphics can be easily incorporated into a Stop Press document.

Masterfile 3

A powerful and flexible data filing and retrieval system (database system) with variable length records. It is exceedingly fast with import/export facilities, and provides multiple user-defined ways of viewing or printing your data. Masterfile 3 is without doubt the most popular database system for the CPC6128 (or expanded 464/664).

Mastercalc 128

An exceptionally powerful and fast spreadsheet program (requires 128k and disc drive) with toggling between 40 or 80 column mode. Plans can be 'folded' to keep distant columns in view. Has a large capacity with room for 7,000 cells. Fully machine coded with fast memory bank-switching. Heaps of other good features make it one of the best spreadsheets for the CPC6128 (or expanded 464/664).

Matrix

Combines in one program a full featured spreadsheet, with database capabilities and simple text editing. Allows a 1023 x 255 cell matrix, a good array of math and scientific functions, absolute and relative cell reference and adjustable column width.

Mini Office 2

Included in this package are six different modules, enabling you to write letters, prepare reports, create computerised files, compile mailing lists, set up financial records, carry out complicated calculations, draw graphs, print out labels, communicate with other computers over the telephone - and much more.

Model Universe

The three dimensional drawing system for all CPCs. Allows you to draw in x, y and z co-ordinates with the simplicity of standard two dimensional drawing systems. Twist, turn, rotate your images through a full 360 then zoom in and view the object from the inside. All images can be saved and/or printed. You can use keys, joystick or a mouse.

Money Manager

A simple to use yet amazingly powerful Cash Book program.

Personal Excellence Package

A high quality mental performance analyser which assesses your IQ, identifies your thinking skills, pinpoints the strengths and weaknesses of your personality, measures how stimulants and alcohol affect your nervous system, plot out your circadian rhythm, improve your mental performance and test the intelligence and computer aptitude of prospective employees.

Plan-It

A personal organiser with three modules. Personal Accounts - keeps separate accounts of your banking, cash transactions and credit card payments with up to 400 transactions per month. Financial Diary - a desktop diary which can take up to 15 items per day and automatically sort them into time order. Expenses can be added and totalled in categories. Card Index - a mini database for addresses, phone numbers etc. with sort, search and editing facilities. Also ability to print labels.

Print Master Plus

A package with over 100 graphics, border designs, type fonts and styles which runs under CP/M Plus only. Used to design, preview and print your own weekly or monthly calendars, cards, stationery and banners.

Print Master Art Gallery 1

A complementary package to Print Master Plus containing 140 ready-made graphics. Included are holidays, animals, office items, sports, signs of the zodiac and background patterns

Print Master Art Gallery 2

Another 140 ready-made graphics for use with Print Master Plus. Contains international flags and symbols, ornamental letters, people, animals and sports.

Promerge CPC

The Protex mail merging program for the CPCs.

Prospell CPC

A stand-alone spell checker for use with almost any word processor that runs on a PCW. Reads LocoScript, Wordstar and ASCII files and allows you to make corrections directly, view the context, change the dictionary etc. Contains anagram and crossword solvers too.

Protex CPC

Probably the best CP/M word processor. Very fast at moving around large files. Works with key combinations rather than menus.

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Adds database features to Protex so that you can use a database system from within the word processor. It's very convenient for maintaining records without having to keep switching to a database package. Except for the sort program, you can work within Protex all the time. Easy to use, but lacks calculation facilities.

Protex Office CPC

Includes all the features of Protex Filer plus an invoice generator module and a mail merger. One-off invoices can be catered for as well as credits and statements. Menu operated from within Protex. Prints labels too.

Stockmarket

A program designed to help you plan your investments, and keep a close and careful watch on their progress. Keeps full details of your purchases, sales and dividends. Cash balances in savings accounts can also be monitored. Prices of shares, unit trusts etc. can also be recorded and plotted. Comes with demonstration file.

Stop Press

An excellent DTP package, very strong on graphics, very well designed and once you get used to it, easy to use. It has sophisticated text handling features such as autoflow, but can't edit text - that has to be done in your word processor. A lot of good fonts supplied too. Can be purchased with a mouse (additional cost), but will work with keys.

Tasword

A word processor with a fine pedigree. Has detailed on-screen help which makes it easy to use yet is quite sophisticated. Comprehensive print facilities include page numbering, multiple copies, headers and footers. Global find and replace and mail merge facilities. Tasword is available in different formats: Tasword 464 (on tape), Tasword 464-D (on disc) and Tasword 6128 (on disc handling 64k text files).

Tas-copy 464

Will produce high resolution screen copies for all screen modes with full grey scale representation of colour. Will also work with the 664 and 6128. Can also print very large screen copies covering up to four sheets of printer paper.

Tas-diary

A disc-based electronic diary, with calendar (valid to 2100), diary page and clock. Can be used to summarise business appointments, record day to day personal events or keep a record of your finances. Contents of diary can be printed.

Tas-print 464

Gives you the option of printing in one of a set of five additional print styles. Produces characters that are twice the normal height. Each font is first configured to your printer and saved. It is then loaded as a Basic file before text is entered.

Tas-sign

Takes time to print out but you can print signs of up to five lines of text up to seven inches high with up to 32 characters in each. Four fonts, eight hatching patterns and you can print lengthways on continuous paper for long signs. Runs under CP/M Plus only and so not suitable for 464/664s.

Tas-spell

The spell checker to go with Tasword 464-D or Tasword 6128. It has a dictionary of over 20,000 words which can be added to if required.

Touch 'n' Go

A typing tutor with a series of time and accuracy requirement lessons. Takes you through finger by finger and the relevant keys, moving on to words, sentences then paragraphs. All typing errors are pointed out by the program and the typing speed is displayed. The program aims to get you up to 45 words per minute with 95% accuracy.

Don't forget to refer to a copy of the latest issue of The Amstrad User to confirm whether your choice is available on tape or disc, or ring (03) 233 9661

GAMES

Academy (Tau Ceti II)

To qualify as an advanced skimmer pilot, you must successfully complete 20 missions. Blast enemy craft with your personally designed skimmer. Excellent graphics and lots of action.

Armageddon Man

As Supreme Commander and world leader you have to prevent nuclear war from breaking out by preserving good diplomatic relations between the 16 member countries of the UNN. Nip conflict in the bud by providing sufficient food and resources.

Catch 23

A game of exploration on an inhospitable island which has been taken over by the military. Your task is to locate the 'most secret military complex on earth' and escape with the design of their most deadly weapon.

Classic Invaders

Bring a tear of nostalgia to your eyes (and your PCW) with this addictive classic space invaders game in which you clear the universe of invading hordes of aliens.

Corruption

Takes you into the heady world of stocks and shares where making money is what it is all about. There's something rotten in the state of Scott Electronics and it's up to you to find out what.

CP Compilation

A compilation of classic 'thinking' games on one disc: Clock Chess, Bridge Player, Backgammon and Draughts. Excellent value for money.

Distractions

Three futuristic arcade-type games on one disc: jetting around a maze and beating aliens to hidden secrets combine to form a basic but good value disc.

Double T Patience

Six well-known and frustrating card games (from Poker Patience to Pairs) to be played either alone or against the computer.

Forest Land

Awaking from a nasty dream you find yourself walking down an endless path - the very path in your dream! What are you doing there and how can you get back? A fairly difficult adventure but with a Help facility to aid beginners. Text only.

Graham Gooch's Cricket

The basic game screen shows a view down the wicket from above the bowlers head and features full animation of bowler, batsmen and fielders. Players can be chosen from English and Australian teams playing limited overs or full two innings matches. Simulation and arcade mode - the latter requires you to time the batsman's shot and the bowlers run up.

Gnome Ranger

You follow the adventures of Ingrid Bottomlow, the intrepid gnome, through a fairy tale landscape full of compelling puzzles. Humorous and rather quaint. With graphics.

Head over Heels

A superlative, compulsive 3-D arcade adventure where you control either Head or Heels. Escape from Castle Blacktooth and free the Empire's enslaved planets.

Heathrow ATC/Southern Belle

Realistic simulations for enthusiasts. Heathrow Air Traffic Control puts you in the hot seat of the UK's major airport. Southern Belle puts you on the footplate of a steam train.

Ingrid's Back

Sequel to Gnome Ranger in which Ingrid returns to Little Moaning to find it under threat from Jasper Quickbuck who wants to replace it with a yuppie estate. A graphic adventure in three parts.

Knight Orc

You are an Orc by the name of Gridleguts in this typical Level 9 adventure. An addictive game with lots of action, plenty to explore and mind-bending puzzles.

Lancelot

A game in three parts which recounts the adventures of Lancelot. Level 9 have vividly created an Arthurian world in which points are awarded for displays of chivalry, valour or benevolence. The game permits a full range of powerful commands.

Living Daylights

This 007 game is closely based on the all action film and arcade coin-op, but puts you into the action as you control James Bond through eight fast and furious levels.

Match Day II

Excellent soccer simulation game with superb graphics. Tackling and jumping, Volleying and heading etc. Play against the computer or against a friend.

Mindfighter

An adventure game set in post-holocaust Southampton. Hero is a psychic 11 year old boy who can change himself into different kinds of animals, and who has accidentally projected himself into the future. It's up to him to change the course of events and prevent nuclear war.

Pawn, The

An excellent adventure with dozens of superb screen illustrations, zany characters and a host of baffling puzzles. Will keep you entertained for hours.

Return to Doom

Sequel to Countdown to Doom, you're back on the planet Doornawangera again to track down the Ambassador Regina who has been kidnapped by some very unpleasant robots. Another good text only adventure.

Steve Davis' Snooker

Surprisingly realistic simulation of both pool and snooker games - not as easy as it looks either. Foul shots, breaks etc. Allows for spin, side, strength of shot. Good value despite all the balls being green!

Strike Force Harrier

A combat simulation of a Hawker Harrier, designed in conjunction with British Aerospace. Very detailed and realistic but you'll need to put in a few hours with the manual to get it off the ground.

Time and Magic Trilogy

An excellent trilogy of time travel adventures which can be played in any order. Your task is to protect the history of the world from the destructive timelords - another very atmospheric game.

Tomahawk

A sophisticated Apache helicopter flight simulator. Impressive cockpit view graphics as you engage in combat missions.

Witch Hunt

Filbur Apse was a particularly obnoxious person, and had upset a wizard who cast a spell so that he was no longer obnoxious. Can he find the magic ingredients that will make him thoroughly detestable once more? Rated a difficult adventure with many puzzles.

World of Soccer

A soccer management simulation game; you select squads of players for your international team and guide them through the European and World Cups. Gives a good insight into the kind of strategic thinking required.

EDUCATIONAL

Better Maths (12 - 16 yrs)

Introduces more advanced aspects of mathematics. Covers, volumes, surface areas, statistics, simple interest rates and so on. Has revision tests at the end.

Better Spelling (12 - adult)

A spelling course consisting of a series of well organised, short lessons each dealing with one topic, like plurals or which version of there/their/they're to use in a sentence.

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Covers addition and subtraction only. A questions and answers system which keeps a log of the last 100 answers so that the parent/guardian can isolate persistent problems.

Maths Mania (8 - 12 yrs)

The next step up from Magic Maths but this time the questions deal with multiplication and division.

PUBLISHING

DeskTop Publisher, The

Good value for money. Graphics and text boxes can be easily

moved around and page layout is clear. You can edit text from within the program using LocoScript-like commands to set bold italics. Good range of fonts and graphics too. Can be used with a mouse.

Stop Press

An excellent DTP package, very strong on graphics, very well designed and once you get used to it, easy to use. Sophisticated text handling features such as autoflow, but can't edit text - that has to be done in your word processor. A lot of good fonts supplied too. Mouse is an optional extra.

DATABASES

Cardbox

Provides very flexible ways of searching records in a card index style. It has good control over screen and printed form layout, but lacks totalling facilities

Cardbox Plus

An enhanced version of Cardbox which boast sorting, index listing, disc management and autosave feature as extras to Cardbox.

Condor One

Like dBase, Condor is not only a filing system but also a programming language that allows command procedures for complex data operations. Can handle up to 127 fields per record.

DataStore II

A standard database, written in Basic and using Jetsam commands, so a little slow in some parts. However, it's simple to use, has calculation facilities and good control over the printed output - your printouts can be made to look very impressive.

Masterfile 8000

A specially written PCW version of the successful database used on other Amstrad computers. It is fully menu controlled, written in machine code so exceedingly fast, and makes good use of the PCWs special screen and keys. It can deal with up to 8 separate data file as at once, so can cope with relational databases. Screen can be elaborately laid out with boxes, lines etc.

Mini Office Professional

A suite of five integrated programs - database, word processor, spreadsheet, graphics module and comms. The database is a pretty standard card index type with a good range of selection operations and arithmetic on fields. No import or export facilities.

Tail Database and Labeller

A simple database with integrated label printer. Classifies information under ten different custom headings and allows selection of these for printing.

MISCELLANEOUS

Brainstorm

An 'ideas processor or computerised doodling pad. You can jot down phrases randomly, then organise them into an hierarchical plan, then expand each phrase into a finished idea, finally print them out as a coherent document.

Datafax Personal Organiser

Used in conjunction with a personal ring binder (supplied), it helps you to keep track of appointment, names, addresses etc. Also prints out data in a form that will fit the average personal organiser.

Flipper 2

A useful utility which splits the 8512 or 9512 into two environments and lets you flip between them, so allowing say, both CP/M and LocoScript2 to be loaded and each accessed within 2 seconds. Will also 'flip' Mini Office Professional.

Graphics, the universe and everything...

Has the full title of "All you ever wanted to know about Graphics, the Universe and Everything on the PCW8256/8512 but were afraid to ask". It's for the experienced programmer who needs fast, smoothly-flowing and professional-looking graphics output. It has a library of machine code routines which you can use in any language from Mallard Basic to machine code.

Lightning Basic Plus

A clever add-on to normal Basic which works on three levels. The first contains all the everyday commands while the other two are used for designing icons, characters and sprites. A very useful all-round graphics tool for both beginner and experienced users.

Master Paint

A WIMP environment graphics package with usual facilities for drawing curved or straight lines, polygons, boxes, circles and ellipses with a host of fill patterns. 'Undo' function and eraser

facility plus ability to zoom for pixel by pixel changes. Can be used with a mouse. Master Paint is supplied as standard with the Master Pack Scanner.

Master Pack Scanner

A device which clips onto the 8256 or 8512 printer head and scans pictures, sending the digitised results to disc to be later used as graphics in desktop publications or other graphics packages. Useful for newsletter production. Australian version is packaged with Master Paint.

Mini Office Professional

See previous column - PCW Databases.

Money Manager Plus

A souped-up version of the personal accounts package Money Manager which would serve a small business quite nicely. It acts as a daily diary over 12 months, recording all incomings and outgoings between up to 9 accounts. Similar transactions can be grouped together, and simple reports can be printed. Results can be printed as bar charts.

NewWord 2

A word processor using much the same key commands as WordStar, and will even edit documents prepared under WordStar. Comes with a spelling checker and superior on-screen help. Altogether, does a better job than WordStar.

Personal Excellence Package

A high quality mental performance analyser which assesses your IQ, identifies your thinking skills, pinpoints the strengths and weaknesses of your personality, measures how stimulants and alcohol affect your nervous system, plot out your circadian rhythm, improve your mental performance and test the intelligence and computer aptitude of prospective employees.

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Protex Office

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Protex PCW

Probably the best CP/M word processor. Very fast at moving around large files. Works with key combinations rather than menus and comes with a good spell checker, word counter and powerful mail merger. Lets you work with two documents at once and has calculation facilities. Almost impossible to print labels though.

Prospell PCW

A stand-alone spell checker for use with almost any word processor that runs on a PCW. Reads LocoScript, Wordstar and ASCII files and allows you to make corrections directly, view the context, change the dictionary etc. Contains anagram and crossword solvers too.

Scratchpad Plus

Has most of the features you would want from a traditional spreadsheet and more. Using "virtual memory" means you can have a huge data area, and the screen can be divided into

windows to view different parts at the same time. Many of the commands bear a remarkable similarity to the big business spreadsheet Lotus 1-2-3.

Startrack

A fun and informative program with which you can display on your computer screen all of the 88 constellations and over 600 stars. You can also see how their positions in the sky change depending on your location (northern or southern hemisphere) and the time (between 1000 and 2999AD).

Stockmarket

A program designed to help you plan your investments, and keep a close and careful watch on their progress. Keeps full details of your purchases, sales and dividends. Cash balances in savings accounts can also be monitored. Prices of shares, unit trusts etc. can also be recorded and plotted. The package comes with a demonstration file.

Supertype II

Offers eight new different and distinctive types to work with LocoScript1 or 2 and any other CP/M based software. It supports NLQ (Near Letter Quality), enlarged, bold, emphasised, italic etc. Easy to use.

Tait Accounting System

A very simple double entry Invoicing, Sales, Purchases and Nominal (General) ledger system for small businesses or home users. It has been kept purposely simple for users with little or no accounting knowledge. Includes credit sales, issuing invoices and statements, credit purchases, payments, cash sales and purchases and summaries.

TempDiscs

A disc of ready-made templates to be used inside LocoScript. All you have to do is to find the particular template to suit your requirements and then fill in the details. Contains a vast selection of borders. Four versions are available:

- Tempdisc1 (runs with LocoScript1)
- Tempdisc2 (runs with LocoScript2)
- Tempdisc 8.2 (for 8512 only and runs with LocoScript2 and LocoMail)
- Tempdisc9 (runs on 9512).

T/Maker

An integrated software package running under CP/M containing a number of modules: a powerful relational database manager; a uniquely free-formatted spreadsheet; a 55,000 word spell checker with anagram feature; a word processor with mail merge facilities; bar chart graphics transferred from spreadsheet module; a list processor with sorting and selection modes; and a mini-programmer using logical and short English commands to create programs such as inventory or time management systems.

Touch 'n' Go

A typing tutor with a series of time and accuracy requirement lessons. Takes you through finger by finger and the relevant keys, moving on to words, sentences then paragraphs. All typing errors are pointed out by the program and the typing speed displayed. The program aims to get you up to 45 words per minute with 95% accuracy.

TASMAN RANGE

Tasword 8000

A word processor with a fine pedigree. Has detailed on-screen help which makes it easy to use yet is quite sophisticated. Allows for 100k (8256) or 300k (8512) text files retained in memory for quick access and editing. Comprehensive print facilities include page numbering, multiple copies, headers and footers. Includes two unique Tasprint 8000 fonts and data merging facilities. Will load other ASCII files including those from LocoScript.

Tas-spell 8000

The spell checker to go with Tasword 8000 or any other ASCII text file including those produced by LocoScript. It has a dictionary of over 20,000 words to which you can add your own words if required.

Tas-print 8000

Gives 8256 or 8512 users (or 9512 users with dot matrix printer) the option of printing in one of a set of eight additional print styles. Normally used with Tasword 8000 text files but can also be used with ASCII formatted LocoScript files. Produces characters that are twice the normal height.

Tas-sign 8000

Takes time to print out but you can print signs of up to five lines of text up to seven inches high with up to 32 characters in each. Four fonts, eight hatching patterns and you can print lengthways on continuous paper for long signs.

LOCOMOTIVE PRODUCTS

24-pin Printer Driver

Software to allow most 24-pin print-head printers attached to the PCWs to run with Locomotive products including LocoScript2.

Extra Printer Driver Disc

A disc containing all the printer drivers for printers currently supported by LocoScript2.

Keyboard Disc

Allows you to reconfigure any nationality of LocoScript2 to recognise foreign keyboard layouts. Namely - American, Canadian, Danish, English, French, German, Italian, Norwegian, Spanish or Swedish.

LocoFile

A pop-up card-file type database that works within LocoScript2. Data can be transferred between LocoFile and LocoScript. LocoFile data files can be indexed using up to eight keys, each offering a different view of the file's record, automatically sorted into alphabetic or numeric order as required. LocoFile is ideal for LocoMail2 users when moving LocoMail data into LocoFile to reorganise. Comes with a comprehensive User Guide.

LocoFont Set 1

A selection of nine new fonts to help you break out of the standard LocoScript typeface. A good selection of styles to choose from: 'handwritten' styles look very good and the Roman and Standard are more business-like. They reproduce well when printing.

LocoFont Set 2

A second selection of six fonts including Old English and script.

LocoKey

This successor to LocoChar is a keyboard customiser which means that any key can be made to produce any letter. The program will reproduce any one of sixteen LocoChar defined characters. It handles any combination of accent and character.

LocoScript2

The standard word processor supplied with the PCW9512. 8256/8512 users should take advantage of getting a copy as it puts right (almost) all the defects of the old LocoScript1. It includes a faster 'find page' command, a new 300-page manual, Greek and Cyrillic alphabets, and drivers for daisywheel printers. If you just want the disc without manual, that is normally available too.

LocoMail2

A mail-merger for LocoScript2 which runs directly from LocoScript2 and can process any LocoScript command. Has many advanced features and is highly recommended for LocoScript2 users. Nothing better!

LocoMail Sorting Program

A sorting program (in Basic) which will sort an ASCII-made LocoScript data file into any order specified ready for use with LocoMail. The disc contains an updated version of Mallard Basic, the SortMail program, FastMail (a faster version of SortMail without screen messages) and an example LocoMail file to play around with.

LocoSpell2

The spell checker that complements LocoScript2. (It can also be purchased as a package with LocoScript2). It contains a small, medium or large dictionary to cater for the different capacities of the 8125 and 8512. The program resides within LocoScript2 and has the facility to add new words.

Printer Driver and Character Set

Contains the necessary drivers and character sets to support a wide range of printers and printwheels that you might use as alternatives to the PCW9512s built-in printer. The printer files contain a list of LocoScript characters, or character set, which the intended printer is capable of producing. Where the supplied character set does not provide for all the LocoScript characters available on a given printer, the CharKit program also on this disc allows you to define a new set.

Printer Character Sets disc

Contains a program called CharKit which allows you to define new character sets to adjust, or as alternatives to, the 'lowest common denominator' sets (ie. those common characters which appear on every printer) which are provided with LocoScript2 printer files. Can only be used with LocoScript2 version 2.12 or above.

Print Wheel Disc

This disc holds ready-made Character Sets for the full range of national language printwheels available for the PCW9512 printer. It also comes with a special program which allows you to create a Character Set for a printwheel customised for use on the PCW9512 printer.

GAMES

20,000 leagues under the sea

Adapted from Jules Verne's legendary novel of the same name, 20,000 Leagues provides strategy, planning and arcade action for all game players.

3-D Helicopter Simulator

From Sierra, this realistic simulation includes four flight modes: fight, target practice, combat and optional two-player combat. Excellent graphics.

4 X 4 Off-road Racing

This is a test of speed and survival. Pick your challenge, choose a truck to race and then customise it. Good graphics

4th and Inches

This is real rough American Grid Iron and you're the quarterback. Select a team and formation and it's out on the field. Colourful graphics.

4th and Inches Construction Set

Adds a new dimension to 4th and Inches with total flexibility in creating teams and individual player characteristics. Possibilities are endless!

Abrams Battle Tank

This realistic M1A1 combat simulation is not for wimps. The Russians are in West Germany and it's WARI! Realistic tank movement and colour graphics.

ACE 2

Two aircraft and various missile types give you many high speed action combinations. One or two player option with air-to-air combat.

Airborne Ranger

A surprisingly addictive modern wargame, with plenty of challenges and increasing levels of difficulty. Will you survive?

Alf

Help Alf through the neighbourhood in search of missing part of his spaceship. Features one annoying alien, terrified cats and lots of fun.

Amazon

One of the Trilium series of computer novels. Based on the novel by Michael Crichton, you must find and retrieve a missing satellite.

Annals of Rome

Under your command will the ancient Roman Empire rise or fall? This wargame tests your skill of leadership and your cunning tool!

Apollo 18

From countdown to splashdown, this simulation is a faithful reproduction of every stage of a space mission. Exciting plot and colourful graphics.

Auto Duel

Strategic role-playing game which puts you behind the wheel of the car of the future in a dangerous future land. Survival means brains and speed!

Backgammon

Match your skills against the computer in this ancient game of skill.

Balance of Power

A game of strategy involving a nuclear age of geopolitical instability and confusion. Are your skills of diplomacy finely tuned or will all hell break loose?

Bard's Tale Vol 1, The

Role-playing game involving you as the leader of a band of four motley characters lost in a maze, or anywhere else in this multi-level adventure.

Battle Chess

Combining a powerful chess logic system with colourful and dramatic 3-D animation. Watch pieces engage in battle. Needs colour monitor and 640K.

BattleTech

20 lethal tons of massive fighting power are primed for battle and you're in control. Over 4 million locations, great graphics, exciting storyline.

Batman - The Caped Crusader

Two games supplied starring The Penguin in "A Bird in the Hand" and The Joker in "A Fete Worse than Death." Plenty of

Bams and Pows but no-one ever dies!

Billiards

Simulation incorporating full 3-D graphics, scoreboard, 6 ball types, 3 cue types and demonstration mode. Play a friend or the computer.

Black Cauldron

This Sierra adventure for younger players is a real challenge with over 1,020 different scenes featuring full colour graphics and an exciting plot in which a magic pig, Hen-Wen has to be rescued from the clutches of an evil king.

Blockbuster

Destroy the bricks to proceed to the next level. Takes up where the arcade game 'Breakout' left off. With 80 screens and a create-your-own option.

California Challenge

In sun-soaked California the sporting challenge continues with games like skateboarding, foot bag, BMX riding, rollerskating, frisbee and more.

California Games

In sun-soaked California the sporting challenge continues with games like skateboarding, foot bag, BMX riding, rollerskating, frisbee and more.

California Raisins

HELPI! The California raisins have been kidnapped. Can you help Tiny Goodbode through the processing plant and rescue all his friends?

Captain Blood

Colourful 3-D graphics and soundtrack by Jean Michel Jarre. This is a fun game involving lots of flying, investigating and discovering new lands.

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Captain Power

It's the year 2147. The Earth has been reduced to a pile of rubble ruled by Lord Dread. Do you have what it takes to survive the dogfights?

Caveman UGH-lympics

For totally off the wall fun try these pre-hysterical events: Mate Toss, Clubbing, Dino Vault, Dinosaur Race, Fire making and more. Good Graphics.

Chessmaster 2100

An even stronger and more varied play than the original '2000' with unlimited game levels (from "easier easy" to "tougher tough"), triple the number of features, more and different classic games and greater depth analysis.

Chuck Yeager's Advanced Flight Trainer

There are 14 different aircraft in your hangar, from the Sopwith Camel to the F-18 Hornet! Features accurate graphics and a flying tutorial.

Circus Games

Enter the big top and become part of the circus. Four action-packed games: Unicycle riding, Tightrope walking, Seal training and the High wire.

Classic Invaders

Remember the original space invaders with the rows of aliens bombing your defences as you try and destroy their ranks? Well, they're back!

Classic Mystery Library

From Infocom come packaged together three classic mystery titles:

THE WITNESS - It's blackmail turned murder in 1938 and your job to sort out.
SUSPECT - It was a nice masquerade ball until they framed you for murder!
MOONMIST - Hidden treasure, a lady phantom and who wants to kill Tamara?

Club Casino

A series of four gambling games at an attractively low price.

Computer Yahtzee

The ancient dice game of luck and strategy can now be played on your Amstrad PC.

Concentration

Match your wits against an opponent as you try to remember the position of objects in a puzzle. The better your memory, the higher the score.

Convoy

A series of road and transport games priced to tickle the hip pocket nerve.

Corruption

By Magnetic Scrolls, this addictive role-playing adventure in full colour graphics is all about just staying alive. Intelligent parser.

Crazy Cars II

In the footsteps of Crazy Cars but with enhanced graphics, new scenery and the Ferrari F40 to play with. Features car chases road blocks and more.

Crossbow

Medieval arcade-style adventure featuring eight levels of deadly terrain and fierce monsters in a quest to destroy the evil power of the castle before he gets you! You are armed with just a crossbow and your quick reactions.

Daley Thompson's Olympic Challenge

Who could know more about Olympic competition than British hero Daley Thompson? Workouts and competition in colourful graphics!

Dark Castle

Your assignment: to overthrow the Black Knight. But first you must survive 14 danger zones teeming with flying monkeys, dragons and other fiends.

Dark Side

Investigate strange lands and destroy enemy strongholds before trying to return home. Exciting 3-D presentation with colourful graphics.

Def Con 5

This strategic defence initiative simulation puts you in charge of America's "Star Wars" defence program. Good graphics and scenario.

Demon Stalkers

Fight ghosts and ghouls on your journey through 99 levels of mazes and traps to meet the mighty demon on level 100. One or two player options.

Destroyer

It's 1400 hours, somewhere in the Pacific in World War II. Can you survive the realistic combat as Captain of a fully armed U.S.S. Naval Destroyer?

Doctor Ruth's Game of Good Sex

Adults Only game featuring Dr. Ruth Westheimer's unique brand of frank, down-to-earth responses to questions on sexuality.

Dragonworld

Classic-style magical drama. Difficult graphics adventure set in mysterious times long ago. Over 150 locations to see and investigate.

Dream Warrior

The world of the future knows no physical wars, only the Dream wars, in which combatants lose their minds, not their lives!

Driller

By Freescape, this challenging adventure features realistic 3-D graphics as you interact with weird aliens and explore the Mitral Moon.

Echelon

A 3-D exploration game with combat flight simulation thrown in for good measure. Large areas to explore and training zones in which to practice.

Emmanuelle

Not overly 'Adults Only' adventure set in enchanting Brazil. Featuring beautiful women, smugglers, casinos, fights, strategy and more.

F-15 Strike Eagle

Accurate flight simulation with various difficulty levels, multiple combat missions with a lot of shoot-em-up for added excitement.

F-16 Combat Pilot

Exciting flight simulation with surround cockpit views and full instrumentation. Engage in furious dogfights and combat manoeuvres.

F-19 Stealth Fighter

Very realistic simulation puts you in the cockpit of the US Air Force's latest toy. Excellent graphics, hundreds of missions, realistic scenery and more.

Fahrenheit 451

Books and literature are banned. Firemen come not to save homes, but torch all books. Can you save the written word from extinction?

Family Feud

Race against the clock to answer all the survey questions. Includes Fast Money questions just like the original TV game show.

Fantasy Pak

Series of four budget priced games with arcade, wargames and maze games.

Fast Break

Three - on - three basketball with more shots, plays and control. One or two player option. Clear colourful graphics and lots of fun.

Fiendish Freddy

A humorous arcade-style game in which you perform various circus acts to earn money to repay the bank. But Fiendish Freddy is sent in to thwart you, and this is where the fun starts.

Fire and Forget

The future is not a pretty place and your only friend is your V16 triple turbo engine, four wheel drive Thunder Master. Good graphics and action.

Fish

From Magnetic Scrolls this is in fact three mini-adventures in one. You start off as a goldfish but could soon be in a recording studio or really anywhere!

Flight Simulator (Microsoft)

New version of this classic genuine simulation includes on-screen flight instruction, realistic graphics, formation flying and lots more.

Flippit

All Australian puzzle game. You'll need to use the same type of logic as that required by Rubik's cube. A real brain teaser with heaps of levels.

Freedom

In the picturesque setting of a tropical plantation, trouble is brewing. Gain the loyalty of your fellow slaves to overthrow the plantation owner.

Galactic Conqueror

Fast action space-age shoot-em-up. Mission is to protect the headquarters of the Stellar League by outmanoeuvring and blasting the enemy away.

Games, The - Summer Edition

The Summer Olympics have arrived and you're competing in eight gruelling events. 3-D scrolling and multiple player option.

Games, The - Winter Edition

Heavy on the joystick, this is Winter Olympics come alive. Events include downhill skiing, slalom, luge, ski jump and more. Good graphics.

Gnome Ranger

You follow the adventures of Ingrid Bottomlow, the intrepid Gnome, through a fairy tale landscape full of compelling puzzles. Humorous with graphics.

Gold Rush

Here's a chance to run off to the gold fields of California and make a fortune. Or is it really that easy? This Sierra 3-D animated adventure proves it's not.

Gone Reel Fishin'

This is a realistic simulation of the popular sport of Bass fishing. Full colour graphics and sound effect. Eight different lakes for greater challenge.

Grand Prix Circuit

Experience the world of Formula-One racing. Compete in Monaco, Germany, Brazil, Japan and Detroit with this Accolade graphics challenge.

Gunship

An excellent Apache AH-64 helicopter simulator which takes the player along a career path from training to a complete mission. Joystick only.

Heavy Metal

Mix of strategy and action as you defend your country from enemy attack in one of three viscous vehicles. 3-D graphics and much adrenalin.

Hitch Hiker's Guide to the Galaxy

As outrageous and funny as the book itself, this is interactive fiction at its zaniest. Become Arthur Dent for a day and don't forget your towel!

HKM - Human Killing Machine

A globe trotting punch-em-up involving street fighting and gang-land thuggery. Good graphics with a great deal of fighting. Could be considered 'a little over the top' in terms of the violence.

Horse Racing

Brings all the on-track excitement and strategy of real-life racing into your home. Take your chances on long shots, triples, exactas or bet on favourites to Win, Place or Show. Plenty of stats available.

Hunt for Red October

Submarine combat simulation in which you are in command of 'Red October', a Russian Ballistic missile sub heading for the US to defect. Various challenges are ahead to outwit the Soviet navy hot on your tail.

Indiana Jones and the Temple of Doom

Relive the adventure for yourself! Fast action where the joystick does most of the work of destroying the enemy and saving your skin.

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Impossible Mission II

The sequel to Impossible Mission, and judged by most to be much better. A platforms and ladders game with plenty of action and colour graphics.

Ingrid's Back

Interactive adventure. Ingrid Bottomlow is trying to save her gnome town from redevelopment. Will the gnomes win or be steamrolled? It's up to you.

Inside Trader

Could you get rich quick on the stock market? This original simulation of stock market trading will test your strategy skills and your nerve.

International Team Sports

Five Olympic-style sports combining joystick action and coaching strategy. Analyse the stats, pick the athletes then be the players and test your athletic prowess on the playing field.

Into the Eagle's Nest

March 8, 1945 and it's your job to free you allied comrades from the top secret Nazi fortress. Shoot-em-up featuring full scrolling graphics.

Jack Nicklaus Golf

Jack has selected his eighteen all-time favourite holes from some of the world's famous courses and you get to play them! Play solo or against Jack.

Jaws

He's out there and he's hungry! You must retrieve the lethal weapons from under the sea bed and destroy the unwelcome intruder. Unfortunately he has other ideas. Something to get your teeth into. Good graphics.

King's Quest

First of the King's Quest 3-D animated adventure series from Sierra. Guide Graham through numerous puzzles and tight situations to gain the crown.

King's Quest II

This 3-D animated adventure by Sierra sees you as the

brave Graham, in search of the imprisoned princess. Full graphics and involving plot.

King's Quest III

By Sierra, this popular 3-D graphic adventure from the King's Quest series includes advanced parser, complex storyline and involved subplots.

King's Quest IV

Latest release in the King's Quest series, this 3-D animated adventure series lands young Rosella in a distant land of danger and intrigue. Excellent graphics. Supplied on four 3.5" disks and nine 5.25" disks.

Knight Orc

A humorous game of revenge from Level 9. Features three parts, character interaction, high level commands and colourful graphics. Carn the Orcs!

Kong Quest

Value packed disc containing four arcade classics that will keep you playing for hours!

Kult

The guys who brought you Captain Blood land you in the middle of the Temple of Flying Saucers. Exciting adventure with great graphics.

LA Crackdown

Heavy on the strategy, this is your toughest assignment yet. You're undercover to crack a big LA drug ring. Colourful Graphics.

Lancelot

In fact, three text adventures as one, as you follow the epic quest of the Knights of the Round Table in search of the Holy Grail.

Laptop Computer Chess

In 3.5" format only, this game provides a diversion for busy execs. Features 16 levels of difficulty. Created by international chess master.

Leisure Suit Larry

Full title "Leisure Suit Larry In The Land of the Lounge Lizards." Adults Only 3-D animated adventure from Sierra. Great graphics and loads of fun.

Leisure Suit Larry II

Full title "Leisure Suit Larry Goes Looking for Love (In Several Wrong Places)". Adults Only adventure/fantasy role playing game.

Lombard R.A.C. Rally

Driving/racing game based on the world-famous car race of same name. Fast scrolling, 'through the windscreen' perspective, night and day action.

Mach III

Fast pace action game with smooth scrolling graphics. Completing every level is not easy and will require a lot of practice. Addictive action.

Manhunter - New York

Role-playing adventure that will test your skill and allegiances. Excellent graphics and over 250 scenes of Orwellian horror, humour and suspense.

Maze Adventures

Was I supposed to go right there or left - have I actually been here before? Four budget priced maze adventures for the masochist in you.

Mean 18 Famous Courses Vols 3 & 4

Three more courses to play with Mean 18. Includes Doral, Florida; Castle Pines, Colorado and Kapalua, Hawaii. Challenging course layouts.

Millennium 2.2

Moon Base 2200AD. All life on Earth has just been destroyed by an asteroid. As Lunar Commander YOU must ensure the survival of the human race. Exceptional graphics on the PC1512.

Mini-Putt

Challenge your friends to the wackiest game of golf yet. Colourful graphics provide for a very different game of golf; through castles, over bridges...

Motocross

All mud, sweat and gears as you launch over a treacherous dust bowl at 100kph. Fully adjustable motorcycle, 10 tracks, triple jumps and girls.

Murder in Venice

Can you diffuse the bomb before the terrorists' 5 hour deadline is up? This strategy/role playing game will take you to your limit and beyond.

Nebulus

Destroy the enemy towers being built in the ocean while avoiding many hazards. One or two player aquatic action with colourful graphics.

New York Times Crossword Puzzles

Has all the tricks and traps that you would expect from the New York Times. Contains fifteen different puzzles.

Night Raider

A pretty good strategy/simulation game based on the sinking of the Bismark. Has four control screens, many missions and different levels.

Nine Princes in Amber

Who are you? Mystery number one. Why are you in hospital? And just who is this girl whose name appears in your address book?

Off Shore Warrior

It's kill or be killed as you man your turbo charged X1 Speed boat armed with Zensor missiles. High speed action and full colour graphics from Titus.

Out Run

By Sega, the arcade specialists themselves comes a game of speed. Climb into a beastly Ferrari and beat the rest to the tape. Colourful graphics.

Pawn, The

Magnetic Scrolls adventure with intelligent parser and good graphics. Aim is to escape from the mythical Kernovia, but that's easier said than done.

Perry Mason - Mandarin Murders

Just another day as you investigate the murder of a restaurateur. Was it his wife, his mistress, his friend, the head chef or someone else again?

PHM Pegasus

PHM stands for Patrol Hydrofoil Missilecraft. You are in charge of this beast on 8 different and dangerous missions. Good graphics and effects.

Pirates

Action-Adventure simulation as you chase fame and fortune on the high seas. Full graphics with 70 different scenes and various difficulty levels.

Police Quest

In pursuit of the Death Angel, you are the NYPD cop at the centre of this graphic adventure by Sierra. Written by an ex-police officer.

Police Quest II

Based on accounts of actual homicide cases, this Sierra 3-D animated adventure features excellent graphics. The Death Angel WILL kill again.

Pool Of Radiance

Advanced Dungeons and Dragons adventure set in the Forgotten Realms. Adheres faithfully to AD&D standards as set in the DM Guide etc.

President is Missing

The US President is being held hostage in this interactive simulation of intrigue and mystery, and you're now in charge. Good graphics and plot.

Professional 4 Soccer Simulation

Four soccer games in one pack. 11-a-side soccer with fouls, corners, goalkicks etc.; fast action Indoor 5-a-side soccer; Soccer Skills with training to become a proficient player; and Street Soccer with no rules at all

Psycho - the Trail to the Bates Motel

Precious jewels and an unwitting curator have been stolen from the Metropolitan Showcase of Art, and all trails lead to the Bates Motel.

Purple Saturn Day

Although a single game, Purple Saturn Day is effectively four arcade-style games in one from the makers of Captain Blood. Excellent 3-D graphics and high speed gameplay in space!

Quadrailen

19 different chambers on four levels of Astra, the vast cybernetic nuclear fission complex provide hours of fun. Battle

the Quadrailen forces and win.

Quest for the Timebird, The

Nine days is very little time to accomplish all the tasks ahead of you in this role-playing adventure. But you've got NO longer. Exciting plot.

Rack 'Em

Play billiards, pool, eight-ball, nine-ball and snooker like never before. Choose the object ball, pocket, aim, English and shot power. Trick options.

Rambo III

Follows the theme of the film in which Rambo rescues Col. Trautman and other prisoners and escapes to freedom. Good playability and addictiveness.

Red Lightning

Three scenarios, five difficulty levels and multiple options challenge the avid wargamer to explore every possible outcome should World War III erupt!

Robocop

As part man - part machine you take on the role of an avenging angel as you mete out rough justice to the perpetrators of evil. Joysticks will suffer!

Rodeo Games

Compete with Buffalo Bill in 6 stunning rodeo games events in this exciting simulation featuring full colour graphics and challenging gameplay.

Santa Paravia

Enter the world of 1400AD and become the ruler of an Italian city-state in a fun and mentally stimulating strategy game. You are in charge of crops, mills, taxes and more. Just like a real Medicil

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Sapiens

A new generation arcade adventure from France. Theory of evolution becomes a game of survival as you guide Torgan through prehistoric lands.

Scrabble De Luxe

A faithful re-creation of the classic board game, with sizeable dictionary to check the words laid down.

Scruples

Adult game that challenges players with a series of moral dilemmas. Similar to the board game of same name. Play solo or with friends.

Search for the Titanic

Authentic simulation in which the player starts as an inexperienced oceanographer and must build up knowledge and reputation for the big search.

Serve and Volley

Accolade bring tournament tennis to the PC screen with full colour 3-D view action. Three different surfaces with two-player and save stats options.

Shinobi

As the most famous graduate of a secret oriental Ninja school, you are handed the problem of rescuing the entire junior class from the clutches of Bwah Foo and his henchmen.

Shogun

James Clavell's novel comes to the Amstrad screen. Over 128 screens depict 15th century Japan. Joystick controlled graphic adventure.

Silpheed

From Sierra and the designers of Thexder comes this furious action space shoot-em-up. Advance over 20 levels of full colour graphics.

Skweek

Skweek must decontaminate the 98 Continents of Skweekland while avoiding the nasty Pitark. Fast and furious fun, similar to Pacman.

Sleeping Gods Lie

A real-time fantasy that combines fast action and combat with the thrill of adventure. A epic 3-D game fought over 64 landscapes of high resolution graphics.

Slots and Cards

The excitement of Las Vegas brought to your computer. All the favourites including Blackjack, Five Card Stud, Keno and more.

Solomon's Key

Wander through a network of mysterious rooms looking for the keys to Solomon's treasure. Arcade strategy with colourful graphics.

Space Harrier

Frantic space battle arcade conversion with colourful graphics and exciting presentation. Sweat band optional!

Space M+A+X

Space station construction simulator that allows you on a tight budget to realistically build a station in space. Involved program with good graphics.

Space Quest

It's up to you to save the universe from the evil Sariens and you're only a sanitation engineer (or garbol). Great plot and graphics from Sierra.

Space Quest II

3-D Fantasy adventure featuring reluctant hero Roger Wilco on a quest to save the universe from terrible evil. Great graphics and scenario.

Space Quest III

Intergalactic Garbage man Roger Wilco returns again to save the two Guys from Andromedal Involved plot from Sierra.

Space Racer

A very fast action packed arcade shoot-em-up involving futuristic jet-bikes. Kill or be killed scenario featuring good, clear graphics.

Speedball

High speed futuristic mix of hockey and soccer where physical contact is encouraged! Good graphics and exciting game-play.

Sports Spectacular

Four exciting games on one disc at a budget price! Including golf, gridiron, archery and downhill skiing.

Star Command

Multi-character role-playing adventure set in the depths of space. Assemble a band of eight trusty companions to fight the evil Spacepirates.

StarRay

Horizontally scrolling action shoot-em-up features 21 combat waves on 7 worlds. Hundreds of aliens to destroy. Digitised sound and colour graphics.

Star Trek 5: The Final Frontier

How quickly can you, as Captain James Kirk, navigate to the centre of the galaxy, out-wit your Klingon pursuers, avoid the mind-numbing influence of your emotional Vulcan passenger, defeat the Klingon scoundrel Klaa, escape the deadly Barrier Zone and find a safe planet to drop off three important intergalactic ambassadors - all without starting a war?

Steel Thunder

The best of America's tank weaponry in a furious battle against enemy in Syria, Cuba and West Germany. Colourful graphics from Accolade.

Street Sports Baseball

It's baseball in the rough with a rubbish bin lid for home base! Play a friend or the computer. Choose a team and let the joystick do the rest. Good Graphics.

Strike Force

Jump into the pilot seat of this airborne arcade hit for a price that won't send you into an uncontrolled dive.

Sub Battle Simulator

For serious strategists, this is a chance to become a WW II submarine Commanding Officer. Realistic reproduction and colour graphics.

Summer Games II

More of your favourite games that up to EIGHT players can play simultaneously! Include cycling, fencing, rowing, javelin and more.

Supercars, The

Extra cars disc for players of Test Drive II. Adds five more high performance cars to the list including the new Countach 5000S and Lotus Esprit Turbo.

Takedown

Pain is the name of this wrestling game as you are sent into the ring against eight mad musclemen. Two player tag team option and colourful graphics.

Teenage Queen

Adults Only game of strip poker where the opposition is a sensuous young lady who also plays a mean hand. Great graphics and lots of fun.

Technocop

You have volunteered to clean up the streets and eliminate the deviants that pollute your city. Will you succeed with the little weaponry you carry?

Test Drive

Drive five of the world's most exotic cars: Ferrari Testarossa, Lotus Esprit, Porsche 911, Lamborghini Countach and a Corvette. Full graphics.

Test Drive II

Now you can **race** the world's most exotic cars with this colourful and graphically realistic game.

Tenth Frame

A ten-pin bowling simulation that gives the look of "Real" bowling through outstanding graphics and a true perspective view. Auto scoring.

Tetris

A totally addictive mind game from Russia which always has you wanting just one more go. Simple in concept but you won't be able to stop.

Thunderchopper

High quality VGA compatible 3-D graphics. Lets you test your skills in a number of realistic combat missions. Many scenarios.

Time and Magik

Complete trilogy of graphic adventures with enhanced parser, digitised graphics and developed plot. Features Lords of Time, Red Moon and The Price of Magik, all of which you will find involved and challenging.

Times of Lore

Arcade style adventure with 13,000 different screen locations and three different characters to choose from. Good graphics and plot.

Titan

Vegapolis in the year 2114 is a nice place unless you are a player in Titan. Ultra fast scrolling and full colour graphics make for lots of fun.

Trantor - The Last Stormtrooper

Imagine being beamed down to an enemy planet and looking up to see your return ticket to Earth being blown to pieces. Things just get worse...

Ultima Trilogy

The first three Ultima adventures are combined in the pack for unsurpassed excitement and entertainment. Must for fantasy and role-playing enthusiasts.

Ultimate Casino Gambling Simulation, The

Enjoy six popular casino games in one single program: Blackjack, Roulette, Craps, Keno, Video Poker and Slot machines. Fun and addictive.

UMS

Stands for 'Universal Military Simulator' and is your promise of exciting strategic wargaming. Fight 5 historical battles or you own!

Usurper, The

Interactive text adventure with very intelligent parser, based on ideas and suggestions from the player instead of from a set plot.

'Vette

Hurl through San Francisco in this street race simulation which puts you behind the wheel of one of 4 Corvettes. Colourful 3-D graphics.

War in Middle Earth

Enter the mind of J. R. R. Tolkien as you battle against the powerful forces of evil in Middle Earth. Multiple playing levels

and colourful graphics.

WEC Le Mans

Simulates the 24-hours Le Mans race around a carefully re-created circuit. Requires very quick reactions and skill. Good graphics.

Wheel of Fortune

Entertaining game for the whole family, based on the popular TV game show. Graphics, sound and animation for added enjoyment.

Where In Europe Is Carmen Sandiego?

Carmen and the gang are in Europe and you must track them down. Learn European geography while you play this exciting game from Brøderbund.

Where In The U.S.A. Is Carmen Sandiego?

Enthusiastic crimebusters wanted to track down Carmen and her gang, hiding somewhere in the States. Fun and educational game with great graphics.

Where In The World Is Carmen Sandiego?

Form Brøderbund, this popular educational game is an exciting means of teaching children geography while they hunt down the Sandiego gang across the world, and within a limited time.

Where In Time Is Carmen Sandiego?

Children learn their history in an exciting search for the whereabouts of Carmen and her gang of robbers. Brøderbund do it again!

Where Time Stood Still

Your plane has crashed somewhere in outer Tibet and you discover a land frozen in time. Dodge the dinosaurs in this graphic adventure.

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Who Framed Roger Rabbit

Three different games in one as you help Roger look for Marvin the Gag King's will. Exciting scenarios and full graphic presentation + sound effects.

Wibarn

The Earth is under invasion and you are the last hope against the hordes of monstrous mutants. Good graphics and 360 scrolling by Brøderbund.

Win, Lose or Draw

Play the game that originated in Burt Reynolds' lounge room! Guess a common phrase from a sketch while it's still being drawn. Great family fun.

Winter Games

Mix of strategy and joystick bashing as you compete in six Winter Olympic events. Up to EIGHT players can play this fun family game.

Wizardry 5

The only way to save the land of Lylgarnyn is to boldly enter the Heart of the Maelstrom! Complete revision of Wizardry system in full graphics.

World Class Leaderboard Golf, Value Pack

Play realistic golf at these world-famous locations: St. Andrews, Dorset Country Club and Cypress Creek. Plus 4 EXTRA courses added! CGA only.

World Class Leaderboard Golf, Real Sound

16 - colour EGA/VGA version of the popular pro golf simulator with digitised sound for added realism.

World Tour Golf

From Electronic Arts comes an international tour of 20 of the best golf courses. Courses can also be constructed to your liking. Good graphics.

Zac Mcracken and the Alien Mindbenders

Can one hack writer, two Yale co-eds and a stale loaf of french bread save the world from a galactic conspiracy? Great fun from Lucasfilm.

Zork Trilogy

A compilation of the first three Zork adventures 1, 2 and 3.

EDUCATION

Alphabet Zoo (3 - 7 yrs)

Helps children strengthen their letter recognition skills as they associate letters of the alphabet with sounds they represent.

Better Maths (12 - 16 yrs)

Introduces more advanced aspects of mathematics. Covers, volumes, surface areas, statistics, simple interest rates and so on. Has tests at the end to see if you have grasped it all.

Better Spelling (9 - Adult)

A spelling course consisting of a series of well organised, short lessons each dealing with one topic, like plurals or which version of there/their/they're to use in a sentence. Lessons can be picked in any order.

Biology (12 - 16 yrs)

A traditional questions-and-answers test. Ten topics with then or so questions on each where you have to fill in the blank in a statement. If you get it wrong you are given a clue.

Build a Book

This package contains all that is necessary to produce two complete 8.5" x 11" books with 32 full-colour illustrated pages in a washable hard cover. The story books can feature any chosen name, address, pets and friends

Chemistry (12 - 16 yrs)

A traditional questions-and-answers test. Ten topics with then or so questions on each where you have to fill in the blank in a statement. If you get it wrong you are given a clue.

Computerease

A tutorial on how to use a PC, printer, disks etc. Using animation and cartoon style graphics, this is the perfect introduction for the beginner.

Computereasy Education Series

Math Climbers - the program creates math problems that continue to scale a wall until you answer them correctly. Covers addition, subtraction, multiplication, division, mixed math, algebra 1 and 2. **Mr. DOS** - teaches the fundamental disk operating commands of the IBM PC or compatible. Contains a Disk Simulator where you can practice commands like FORMAT and DISKCOPY without danger of erasing anything.

Read Easy - an educational reading practice game with over 60,000 different sentences of text. Encourages quick and accurate reading through six levels.

Schultz Treasure

Spell Castle - a game that allows you to practice your weekly spelling list, or use any of the 6,000 commonly mis-spelled words it provides. Three levels of difficulty with word lengths from 3 to 9 letters. Also includes an anagram game and facilities to add your own words.

Type and Learn - a typing tutor which uses words, sentences and paragraphs all concerned with computer matters. So it not only teaches you how to type but also about computers!

Cryptocube (8 - adult)

Develops both mathematical ability and relational skills. Find the hidden words in 3D. 50 puzzles in four sides of a cube, vocabulary levels for all ages, lively sound effects, graphic and animation.

Decimal Dungeon (9 - 15 yrs)

Delve into the Decimal Dungeon and come out as a mathematical wizard. DD provides hours of fun whilst improving a child's ability with all aspects of addition, subtraction, multiplication and division of decimals.

Delta Drawing (4 - adult)

Delta Drawing provides an easy and friendly introduction to computer learning, helps build an understanding of programming concepts and procedural thinking and encourages children to exercise their creativity.

Fraction Action

A game for one or two players teaching addition, subtraction, multiplication and division of fractions. Correct answers give the players bonus moves in a multi screen arcade game. Wrong answers are fully explained. Good fun!

Fun School 2 Series

Each separately available unit consists of eight colourful and exciting programs carefully designed by a team of educationalists for which the skill levels can be set by the parent or guardian.

Under 6 - with Shape Snap (shape recognition); Find the Mole (experiment with number sizes); Teddy Count (introduction to

numbers); Write a letter (fun at the keyboard); Colour Train (spotting colours); Pick a letter (steps to word building); Spell a Word (naming the pictures); and Teddy Bear's Picnic (move around a maze).

6 to 8 - Number Train (calculations); Shopping (which shops for which products); Maths Maze (arithmetic); Treasure Hunt (coordinates); Bounce (angles); Packing (interlocking shapes); Caterpillar (word building); and Number Jump (tables).

Over 8 - Build a Bridge (shape-fitting challenge); Passage of Guardians (anagrams); Unicorn (logical thought); Logic Doors (mapping); Souvenirs (travel); Code Boxes (binary arithmetic); Mystery Machine (code breaking); and Escape (check on progress).

Grammar Examiner

A humorous and challenging family game in which the players 'edit' their way to the top job at 'The Grammar Examiner'. Teaches punctuation, capitalisation, subject-verb agreement, verb tenses, adverb and adjective usage and homonyms.

In search of the most amazing things (10 - adult)

This educational game will sharpen your ability to estimate distances and quantities, solve problems through trial and error and develop a knack for economic and monetary principles.

Kids on Keys (4 - 9)

Familiarises children with computer keyboard as they learn to identify numbers, letters and words, and associate them with images they see on the screen.

Kidwriter (6 - 10)

Kidwriter provides an original format for story writing and illustration. It encourages creativity while introducing children to the fundamentals of word processing.

Lex, Wizard of Words (10 - adult)

Woven into an intriguing adventure game is a series of word puzzles of increasing difficulty. The puzzles involve synonyms, antonyms, homophones, alphabetical ordering, spelling demons, borrowed foreign phrases, collective terms, anagrams and heteronyms. Has a 'save' facility so that the previously completed sections do not have to be repeated.

Magic Maths (4 - 12 yrs)

Covers addition and subtraction only. A questions and answers system which keeps a log of the last 100 answers so that the parent/guardian can isolate persistent problems.

Maths Mania (8 - 12 yrs)

The next step up from Magic Maths but this time the questions deal with multiplication and division.

Maxi Maths (12 - 16 yrs)

Essentially covers basic Geometry including angles, triangles, rectangles, circles; and sine/cos/tan also get a mention in the form of diagrams and information on how to perform calculations. It also has a revision test at the end to check that it's all sunk in!

Micro Maths (12 - 16 yrs)

Covers percentages and fractions, ratio and proportion, base numbers, geometry, algebra and calculus. It's feature is that if a given answer is wrong, the program will provide a clue. If you still give the wrong answer it will provide the correct one with an explanation. As some calculations could be complex, a built-in calculator is provided.

Mixed up Mother Goose

The young player is required to help Mother Goose find the missing pieces to some of her most popular rhymes. Find the missing sheep and take it back to Little Bo Peep, for example. Once the rhyme has been corrected, it comes to life in full colour accompanied by a musical score to sing along with.

Notable Phantom

Has a piano keyboard overlay which turns the computer into a music machine. The spider, bats, ghosts and phantom elements make learning the names and sounds of the notes on the musical staff and keyboard fun. Learn to read music and create songs.

Number Fun 1 (5 - 15 yrs)

A comprehensive set of number games that will help all learners to master basic number facts and skills while stimulating and sustaining their interest. Munch - explores different sets of number facts; Tiny Bomb - tests knowledge of number facts; Ozzie Koala - four level multiple choice game; and Bomb - similar to Tiny Bomb but with added features to suit the more advanced.

Once upon a time Series (6 - 12 yrs)

Volume 1 - an interactive program that enables children to design and publish their own illustrated books. They learn important concepts of story creation, building illustrations and how to deal with perspective and other spatial relationships. An illustrated manual offers stimulating ideas to get them started at any skill

level. Supplied with hundreds of graphics which can be used in three different sizes, flipped or rotated, covering Main Street, Farm and Safari topics.

Volume 2 - uses the same principle as Volume 1 but this time the graphics cover the age of the Dinosaurs, Underwater scenes and life, and Forests.

Physics (12 - 16 yrs)

A question and answer set covering Matter (density), law of the lever, pressure, states of matter, heat and temperature, electricity, magnetism and electrostatics, and light and sound.

Race Car 'rithmetic

An interactive math game for up to 4 players. Players select a basic math function, difficulty level and timer option in a race to the finish line. Wrong answers force a pit stop. Great music and graphics - and learning tool!

Reading and Me (4 - 7 yrs)

Provides a positive reinforcement children need as they develop sound reading skills. The pack contains 12 games that teach, encourage and challenge, sequential activities which grow with the child - all with exciting animation and colour. They cover classifying objects; recognising letters; understanding phonics; learning words and reading simple sentences. An excellent start for youngsters.

Sesame Street Series

Ernie's Big Splash (4 - 6 yrs) - explore cause and effect relationships with Ernie and build wacky pathways to help him bring Rubber Duckie from the soap dish to the bath tub.

Astro Grover (3 - 6 yrs) - help Grover work with numbers in five different ways as they play with the friendly Zips from the planet Zap.

Grover's Animal adventure (4 - 6 yrs) - help Grover identify animals and put them in their right environments and create a custom-made colourful picture at the same time.

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Big Bird's Special Delivery (3 - 6 yrs) - help Big Bird and Little Bird sort the mail and deliver packages to the right stores on Sesame Street.

Ernie's Magic Shapes (4 - 6 yrs) - help Ernie to match shapes, sizes and colours.

Pals around Town (4 - 6 yrs) - teaches identification of people and objects in a town and match their respective locations. Custom-made musical and colourful scenes can be created.

Ships Ahoy

Four different learning games based around developing math skills. Sail a ship across the sea before the mine explodes... locate a mine with a missing number in a math equation... gather sunken treasure before time runs out.

Spellakazam (7 - 13 yrs)

A revealing spelling game with word/picture puzzles. Over 400 words divided into grade levels 2 to 8 with multiple skill levels.

Spelling Fun 1 (5 - 15 yrs)

This package incorporates educationally recognised techniques for effective spelling learning in two very enjoyable and highly imaginative games. **Castle Spells** - an adventure-type game in which the players must spell their way through the various chambers of Spellbound Castle, searching for the Key of Gold, and fighting off the unpredictable Spelling Serpent. **Crystal Spells** - a race against the shrinking Crystal Clock in which the player must restore missing letters from various words with the aid of a magic wand.

Ten Little Robots

The most delightful way to introduce young learners to the computer. Five different games (Little Robot Story, Count the Robots, Robot Letter Match, Robot Addition and Robot Sketch) with multiple graphic rewards and tunes.

Typing Tutor 4

Learn to type the traditional 'QWERTY' way or select the Dvorak method. Uses artificial intelligence to monitor progress and then customise lessons accordingly. Focuses on key sequences and correct fingering. Also includes "Letter Invaders" - a space invaders style game in which you have to hit the correct key of sequence of keys to destroy the on-coming letter clusters.

Word Fun 1 (5 - 15 yrs)

This is the companion to Lex - Wizard of Words and includes three separate language skill building games based on a helicopter theme. The 'Oppocopter' game uses words taken from a large pool of opposite pairs; the 'Syncopter' rescue game requires matching a word with its exact synonym; and the 'Alphacopter' game presents alphabetical ordering and strategic problem solving skills.

Where in the World is Carmen Sandiego

A clever program used widely in schools to teach children reasoning, logic, deduction and geography, including cultures, at the same time. The aim is to travel the world in search of a villain from the Carmen Sandiego gang. Clues are provided on the way, and correct decisions will result in the apprehension on the criminal. Where in Europe... and Where in USA... are also in the Carmen Sandiego series.

BUSINESS

Ability

A package containing word processing, spreadsheet, business graphics, database and communications modules - all fully integrated. Sometimes supplied bundled with some Amstrad computers. Fine for beginners but lacks power for heavy users.

Ability Plus

The natural upgrade path from Ability. Requires two floppy disks or a hard disk. Features complete DOS navigation from Library Screen, import/export with two keystrokes from/to Dbase, Condor, Wordstar, Lotus etc., advanced macros, context help, full integration between word processing (with 140,000 word dictionary), spreadsheet, business graphics, database and communications modules. If you find Ability limiting, Ability Plus will provide the answers.

Bookkeeping

Teaches accounting principles, understanding trading, profit and loss account, balance sheet, posting to ledgers, performing a bank reconciliation and preparing a Trial Balance. A comprehensive tutorial case study cements the learning. Contains 7 disks for 15 - 20 hours of self-paced learning.

Brainstorm

An 'ideas processor' or computerised doodling pad. You can jot down phrases randomly, then organise them into an hierarchical plan, then expand each phrase into a finished idea, and finally print them out as a coherent document.

Business Dynamics

Exciting and challenging simulation game for beginners and professionals. You have total control over a company - Sole Trader, Partnership, Ltd. Company, or Public Company. Too many features to list here but comprehensive cover of all business activities.

Capital Budgeting

A self-teach course which will teach you how to value and make capital spending decisions. It shows how to generate and gather capital spending ideas, estimate costs and benefits of capital investments, implement spending decisions, prepare a capital appropriation request etc. Is supplied on 5 disks with manual for 10 - 12 hours of self-paced learning.

Cardbox PC

An electronic card index system giving fast, flexible and easy access to information. Record selection can be made in plain English from an index by words. Will print labels, export ASCII files to word processors. Allows a maximum of 65,500 cards in a file, 1404 characters per record with 26 fields.

Cardbox Plus PC Personal

All the features of Cardbox PC with extras such as increased record formatting facilities, batch editing and choice of input formats, indexes by numbers, dates and phrases, mail merge facilities, sorting output, direct printer control and more.

Cardbox Plus PC Standard

All the features of Cardbox Plus PC Personal but with even more extras such as extra text lines, fast bulk-loading, selection by record numbers, multi-key sorting, database analysis utility, use of command files, multi-user operation and networking.

Chartman

A business graphics program - even produces time management (or Gantt) charts.

Condor Jr.

An entirely menu driven database with powerful data management and reporting facilities. Gives you the power to select, compute, sort and report your data without having to learn any complicated programming language. English-like commands are

used such as 'sort invoices by value' or 'list orders'. Comes with a step-by-step tutorial guide.

Corporate Finance

A 'teach-yourself' introductory course in Corporate Finance supplied on 7 disks for 14 hours of self-paced learning. Provides the means to master the basic financial skills of business, and gain insights and skills in the 'creation of value' (return on money) for your business. Covers financial statements, projected profits and cash flows, cost of capital, appraise mergers and acquisitions, and financial investments.

Day by Day

A comprehensive life-organiser, with 'intelligent' built-in calendar. Stores up to 1000 messages or appointments. Sorts, reminds, searches, updates and prints.

Desktop Accountant

A business package ideal for those responsible for bookkeeping, invoicing and accounting functions of a small to medium sized company. The package integrates full Sales, Purchase and General Ledger facilities plus powerful invoice and statement generation and printing. It has been carefully modified to suit Australian accounting requirements and includes a comprehensive tutorial disk.

Financial Accounting for non-Accountants

An effective, low cost, enjoyable and flexible means for non-financial people to learn the management aspects of financial accounting. It teaches accounting principles - Profit and Loss, Balance Sheet and Cash Flow, relationships between them, and how to perform and interpret Financial Analysis. Is supplied on 4 disks and 100 pages of text.

GO! File

A fully functional data base in which you choose pictorial options to search, sort, retrieve or print. You just fill in the blanks in ready made file forms. Print name and address labels, mailing lists, recipes, research notes etc. Comes with Computer Tool Box.

GO! Plan

A simple, ready made spreadsheet suitable for planning auto expense, home mortgage, retirement, savings, loan and personal finance. Comes with Computer Tool Box.

GO! Start

Seven programs on one disc. Four function calculator, Address filer, Letter writer and typewriter, Notepad, Computer Tool box, Animated Maze Game and print functions for printing envelopes and address lists.

GO! Write

Easy to understand screen prompts allow you to produce professional business letters, memos and reports. Also party invitations, calendars, banners and address forms. With Computer Tool Box.

In-house Accountant

An innovative package for small-business people who hate 'doing the accounts'. It's very powerful and versatile yet written in such a way that you do not have to abandon your traditional notions about bookkeeping. It reconciles your bank accounts, writes cheques, analyses income, expenses and cash flow against monthly and yearly budgets you set. Has the ability to export data to most word processors, spreadsheets and databases.

Masterfile PC: version 3 standard

One of the most popular database systems for the Amstrad PCs and compatibles written entirely in machine code. It is totally menu-driven and offers a huge flexibility in data presentation and manipulation. It's very fast too. Offers variable length records within a direct access file of up to 16 mbs or 32768 records. Arithmetic operations can be defined, and logic introduced with IF/THEN/GOTO constructs. Printing is buffered to 5 pages. A mountain-made of features too numerous to mention here.

Masterfile PC: version 3 full

Has the same specifications as the 'standard' version but includes an interactive word processing module. The WP module will import or export files to or from other text systems and allows up to 6 documents to be opened at any one time using windows. The basic WP functions are all there and some novel ones too - such as 'spot' colour to highlight your text. You can arrange selective text insertions from a DB file for a mail merge and several-across label operations.

Mini Office Personal

An updated PC version of the award-winning Mini Office II range containing integrated word processing, database, spreadsheet, label printer and communications. Runs with pull-down menus and informative help screens.

Money Manager PC

Comprehensive Cash Book or personal accounts system with up

to 9 user-defined accounts and up to 50 user defined classes. Features pop-up calculator, macros, scrolling report screens, help windows and graphics.

Personal Excellence Package

A high quality mental performance analyser which assesses your IQ, identifies your thinking skills, pinpoints the strength and weaknesses of your personality, measures how stimulants and alcohol affect your nervous system, plot your circadian rhythm, improve your mental performance and test the intelligence and computer aptitude of prospective employees.

Protex PC

Fully functional word processor with tutorial and help files, find and place routines and instant access whilst editing. Auto text reformatting and merge file features. Comes with a spell checker, 30,000 word dictionary and mail merge.

Protex Filer PC

A pop-up data file, file sorting program which extends Protex and makes mail merging a breeze.

Protex Office PC

Also a pop-up data file, file sorting program plus an invoice generator, all working within Protex. It automatically calculates invoice and tax totals and automatically numbers the invoices.

Scratchpad Plus

A very useful spreadsheet. Has most of the features you would want from a traditional spreadsheet and more. Using "virtual memory" means you can have a huge data area, and the screen can be divided into windows to view different parts at the same time. Many of the commands bear a similarity to Lotus 1-2-3.

Sage Bookkeeper

A bookkeeping/accounting program for small businesses (up to 1000 customers), especially those dealing mostly in cash. One

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entry automatically enters into all relevant ledgers. Looks after debtors, Creditors, General Ledger and will produce a Profit and Loss statement. Other features include tax return analysis, automatic bank reconciliation, trial balance and full audit trail. Upgradeable to Sage Accountant or further.

Sage Accountant

Similar to Bookkeeper, but integrated system also has Balance Sheet and Budget control, credit control, statements, debtors letters, YTD turnover and print spooling. Suitable for up to 5000 customers. Upgradeable to Accountant Plus or further.

Sage Accountant Plus

Has all the features of Sage Accountant but with automatic invoice generation and stock control. This means you can produce price lists, re-ordering reports, stock valuations and a powerful report generator. Keeps a stock movement audit trail.

Sage Chit-Chat (requires a modem)

A communications program with three functions. Electronic Mail - (such as Minerva run by OTC) enables messages to be sent to a larger computer to redirect to recipient. Viewdata Services - allows access to computer-based information services (such as Viatel) and lets you look at data a frame at a time or capture the frame onto disk for later examination. File Transfer - enables you to transfer information and files held on your computer to another computer.

Sage Financial Controller

Has all the features of Accountant Plus, but number of accounts is limited only by the size of your disk. Will also allow for multi-company use with sales and purchase order processing, stock allocation and explosion.

Sage Payroll Plus (requires hard disc)

Designed for small to medium businesses with up to 999 employees. Weekly, fortnightly or monthly pays can be run simultaneously with full records being maintained for the production of group certificates at the year end. Includes a report generator to enable selection and printing of any part of the file or to incorporate within a spreadsheet.

Sage PC Planner

A 255 x 2047 cell matrix spreadsheet, similar in many respects to

Lotus 1-2-3, with full macro capability, 15 types of graphs, 11 text fonts and simple menu arrangement. It also gives you easy-to-create presentation graphics which can be printer or plotted.

PC Write

One of the classic word processors, provided with a 45,000 dictionary for spell checking and supports for over 300 different printer types, including an HP Laserjet. Two files can be edited (or viewed) at once through its split screen facility. Also has mail merge as standard.

Sage Retrieve

A powerful information retrieval system (requires 2 disk drives) with the ability to understand enquiries phrased in normal conversational English. Will sort up to 5 fields at a time with up to 20 conditional clauses attached. Features text formatter, mail merge and Maths facility.

Stockmarket

A program designed to help you with your investments, and keep a close and careful watch on their progress. Keeps full details of your purchases, sales and dividends. cash balances in savings accounts can also be monitored. Prices of shares, unit trusts etc. can also be recorded and plotted. Comes with a demonstration file.

Tail Accounting

A simple double entry Invoicing, Sales, Purchases and General Ledger system for personal or small business use. Cash and Credit separate if required.

TBM (formerly ABC)

An integrated accounting package with Debtors, creditors, General Ledger and Stock control. It also incorporates a Diary, Phonebook, Word processor, Database and Spreadsheet in a single business solution. Needs 2 floppy drives or a hard disk. Has a powerful report generator accessing stock, customer or supplier information. Fully Australianised with "Hot-Line" support.

Top Copy Plus

A deluxe windowing and multi-document word processing software which remains in memory and can import text from defined areas of any underlying screens. Foreign characters, up to three files on screen at one time, a spelling checker and mail merge - all at high speed.

Twin Advanced

An integrated Spreadsheet, Database and Graphics package. The Spreadsheet operates exactly as a Lotus 1-2-3 clone.

UTILITIES

Award Ware

Prints traditional certificates, awards, licenses and announcements. Choose from graphics, fonts and borders for humorous upbeat coupons, tickets etc. you can even design your own stationery.

Credit Card Accounting System

Ideal for those with several credit cards used for both personal and/or business use. It provides for classifying and analysing charges for reporting or budgeting purposes.

Disco Hard Disk Menu System

An invaluable piece of utility software which creates personalised menus, runs common DOS commands etc., with just one key-press.

Expert Software Series:

Disc Tools - a collection of 12 key utility programs which help make it easy to delete unwanted files, make back-up disks, copy or rename files, format disks for storing data as well as many other useful routines.

Filer - a simple database and reporting system (and labels). Supplied with ready-designed templates for storing data or design your own.

PC Protection - six programs that check your computer and peripherals are working properly, and provide a status report. They cover disk drives, printer, screen, sound, data disks and memory. Also supplied with a number of copying utilities.

Perfect Typing - a tutorial program that will help you learn to type. Suitable for beginners to learn their way around the keyboard, or typists to improve speed. Analysis is given with suggested drills.

Perfect Forms - gives you the tools to design and create your own business forms (invoices, delivery receipts, order forms, expense sheets, etc.) in minutes, or you can adapt the many forms provided on the disk.

Personal Finance - provides a method of keeping track of income, expenses, assets and liabilities. As you make entries the program determines whether to make a debit or credit entry. Many types of financial reports can be displayed or printed.

Personal Publisher - a budget page layout package to create

PC1512/1640, PPC512/640, PC20, PC2000 series

AND OTHER IBM[®]
COMPATIBLES

newsletters, flyers, ads, awards etc. Has a built-in word processor, clip art pictures and style sheets provided.

Personal Skills - self-improvement software teaching you how to read faster, improve your memory, learn to type and make decisions more easily.

Writer - an easy-to-use word processor with all the commands shown on the screen. Is supplied with a number of standard form letters for many business occasions plus many useful legal forms.

lankey Typing Tutor - beginner's crash course

A comprehensive typing tutorial for newcomers to the keyboard. Teaches the basics of touch typing within 3-4 hours. Typing speed is calculated stroke by stroke and progress reported.

lankey Typing Tutor - 2-finger typist's course

Similar in operation to "Crash Course" but caters for those who already know their way around a keyboard with two, three or four fingers and converts them to using all fingers.

Let's make Calendars and Stationery

Allows the production of your own letterheads or calendars for any month or year.

Mailshot Plus

A label printing program using graphical layout to represent your labels. It's fully menu driven with 'duplicate label' detection.

Mastering your PC

Provides a complete overview of external and internal DOS commands; a keyboard tutorial practicing DOS commands; the structure, organisation and management of hard disks; an introduction to IBM's Basic environment, math and text functions and fundamental computer graphics.

Personal Banking Reconciler

Balancing all your bank accounts has never been easier. This program will track ALL accounts, cheque, ATD etc.

Personal Possessions Inventory

A dedicated database designed to simplify the task of recording personal possessions. You can include the purchase price, purchase date, serial number and other information.

Print Shop

Turns your personal computer into a personal print shop with professional looking results. Design and print signs, announcements, flyers, personal letterheads, invitations, greetings and banners. Package includes 12 type fonts, 16 borders, 120 graphics, 20 patterns and 'print backwards' for iron-on T-Shirts.

Print Shop Companion

Add extra features to Print Shop including more fonts, borders and background designs. It also comes with a special editing facility to design your own graphics, fonts or borders in your own style. Also has a calendar designer.

Print Shop Graphics Library

Disk 1 - over 100 pictures covering special occasions, holidays, sport, signs of the zodiac, animals etc.

Disk 2 - 175 new graphics for Print Shop covering international symbols, hobbies, myth and fantasy, travel, music, seasons, health and holidays.

Holiday Edition - gives Print Shop another 100 festive fonts, borders, graphics and full panel designs, all with a holiday flavour.

Print Power

Enables the design and printing of signs, cards, stationery, banners and more. Contains 6 type faces, each with 7 variations such as bold, italic etc. and 3 sizes plus up to 8" high for banners or extra small for stationery; 40 unique border designs. Accepts graphics from Award Ware program.

RAM Jet Executive (1512 only)

Unparalleled speeds, unbeatable performance - print out and compute at the same time. Much faster than costly hardware print buffers. Boosts floppy and hard disc speeds up to 20 times faster. Automatically preserves essential data in RAM. Screen accelerator.

Splash

A sophisticated and extremely powerful graphics designer which takes into account the 256,000 colours capable of being used on a VGA screen. Includes 60 pattern and brush sizes, flip, stretch, fill, zoom, and merge facilities. Comes with some dazzling examples. Is compatible with most DTP programs and provides in-

formation on taking photo screen shots for slide presentations.

Tasword PC

A word processor that has stood the test of time. It features on screen help displays and an interactive tutorial. Data merge, including mail merge, comes built-in. Compatible with all other Tasman products such as Tas-spell.

Tas-spell PC

A vital complement to Tasword, this spell checker can be disc or memory resident (very fast!) and contains an over 70,000 word dictionary which can be added to. Words to be checked can be listed to a printer if required.

Tas-print PC

Can be used in conjunction with Tasword or almost any other word processor to give eye-catching effects to your type faces. Twenty-five fonts are provided along with a font editor to modify existing fonts or create your own.

Tas-sign PC

Produce and print your own signs, posters, banners and large notices. Four distinctive lettering styles from one inch high to full width of paper, in italic, underline, constant or proportional spacing, automatic kerning, and line centring. Eight shading patterns. Print normal or sideways with or without borders.

Tas-copy PC

A versatile tool for handling graphics and pictures. Includes a picture editor, font designer and a highly sophisticated range of printer options. Allows text and pictures to be combined, or screen pictures to be captured from other programs.

VIDEO WIZARD

The essential computer program for VCR owners. Saves on blank tapes by identifying spaces on your existing tapes, prints video labels (a small quantity supplied with pack), catalogues tapes and reports on your entire collection. The package also contains a program to produce titling screens on your computer which can then be transferred to your VCR. (Using this feature to its fullest requires an RCA compatible video output jack on your computer - only the PC20 in the Amstrad range has one as standard.)

BOOKS FOR ALL AMSTRAD COMPUTERS

CPC 464/664/6128

Advanced User Guide

21.95

Describes how the 464 works, communicates with external devices, and provides a comprehensive reference section of Basic commands and keywords. Covers Strings and Characters; Input/Output; Arithmetic; Memory Map; Clocks and Interrupts; Data Structures; Graphics and Sound. Contains 40 programs of various lengths to key in.

Amstrad Compendium

23.95

A book of 25 type-ins covering Computer Art (eg. animation, rotation); Games of Skill (eg. Wordslide, Twister); Weapon Games (eg. Strafe, Mortar); Modern Games (eg. Demon Driver, Docking); Traditional Games (eg. Horse Race, Anagrams) and Two-user games (eg. Moon Base, Shoot Out).

Child's Guide to the Amstrad Micro

16.95

Written for people who know nothing about computers, and through the help of five cartoon characters, teaches the reader what he or she can make the Amstrad micro do. Covers the keyboard, colours and graphics, music and other important programming concepts.

Disc System, The Amstrad CPC464

28.95

Sets out the advantages, principles and operating details of the Amstrad disc system including CP/M. Interfaces and the different types of printers (Epson MX80, FX80 and RX80) and their practical applications are described. Also contains a few disc utilities.

Filing Systems and Databases

30.95

Describes how to construct both general purpose and specialised filing systems using the CPC464. Contains plenty of Basic listings and subroutines for the reader to tailor to suit. Fast machine code routines are also included as alternative options.

Graphics Programming Techniques

25.95

Describes the excellent facilities of the Amstrad CPC covering the animation of simple figures, drawing and saving colourful pictures, pie charts and many more applications. Every chapter includes further program suggestions based on examples.

High Energy Programs for the Amstrad

9.95

Ten type-ins; Five games - Backgammon, Venusian Descent,

Tank Attack, Poker and Pontoon and five utilities - Disassembler, Hi-Res screen dump, Alternative type faces, Character Generator and Disk Label printer.

Ins and Outs of the Amstrad

23.95

Explains clearly how to best explore the hidden parts of the CPC. Includes screen plotting, cassette input/output reduced to simple calls, and adding external devices. The major feature is a comprehensive list of call commands which makes the book almost as useful as the now defunct Firmware Guide.

Machine Code for Beginners

21.95

Progresses from the concepts of programming in machine code, explaining the instructions the computer understands, how to use them, and routines in the operating system.

Machine Language for the Absolute Beginner

23.95

Offers complete instructions in Z80 machine language programming. Each chapter includes specific examples of machine language applications which can be demonstrated and used on an Amstrad CPC.

Practical 'C'

29.95

A collection of ideas and techniques written for both new and experienced C programmers. Starts with the basic principles of the language through to more advanced techniques. Many C routines are listed to enable the reader to build up a library of invaluable functions.

Ready made Machine Language routines

23.95

Provides the means to give Amstrad programs the power and speed of machine language without having to learn machine language programming. Contains routines for displaying large characters, manipulating and displaying strings, inverting characters and screen, displaying graphic shapes, drawing and much more.

Structured Programming on the 464/664/6128

30.95

This book takes the reader through every element of creating a program. Planning by the use of Top Down diagrams is one of its many features.

Watson's Notes: Unit 1 - First steps in Basic

17.95

Starting with the first things every programmer needs to know, you will learn to issue commands to the computer, as well as writing

and running programs. By the end of the unit you'll be able to make your computer perform useful and interesting tasks

Watson's Notes: Unit 2 - Exploring Basic

17.95

This unit teaches you the most important concepts of Basic: including numeric variables, string variables, FOR ... NEXT and IF ... THEN statements, and much more. You'll create a digital computer clock, and interesting graphics programs including animation.

Watson's Notes: Unit 3 - Computer Games

17.95

In this unit you will learn to develop various computer video games. As you progress through the unit, new programming concepts such as random numbers will be introduced. By the end you'll have considerable programming skills.

Whole Memory Guide

30.95

Every aspect of the CPC, its peripherals and the ROM (including all possible configurations) and RAM are explored. Covers Memory Maps, Jump block entries, Printer routines, inks, colour, windows, file types, sound calls etc. Also includes many routines with explanations and tables.

LOGO

Practical Logo on the Amstrad

27.95

Rather than using the more usual graphics-based approach, this book shows how Logo can be used to write programs on serious topics such as decision making, simple investment analysis, sales forecasting and stock control.

Using DR Logo on the Amstrad

37.95

By working through this book, the reader will explore DR Logo and soon be able to write programs using sound, colour, text and graphics. Applications are developed stage by stage and range from interactive games to random poetry generation.

PCWs

Advanced LocoScript on the Amstrad PCW

39.50

Offers a thorough examination of the more sophisticated features of LocoScript, enabling the software to be utilised to the full. For example, the cut-copy-paste facilities are fully described to enable

BOOKS FOR ALL AMSTRAD COMPUTERS

more elaborate formats to be created, and overcoming disc problems are discussed. The book also covers using LocoMail and LocoSpell.

All in one business computing with Mini Office Professional 37.95

The clear instructions in this book, together with the five modules of Mini Office Professional software package (\$149) enable the reader to master all the important office computing skills with just one package. Word processing, Spreadsheets, Business Graphics, Databases and Communications are all carefully explained.

Desktop Publishing on the PCW 35.95

Takes word processing a stage further and helps the user to arrange text and illustrations on the page for the most effective presentation. It discusses ways of including illustrations and of generating visual aids. Throughout the book there are suggestions for embellishing output to produce parish magazines or overhead projection transparencies.

LocoMail User Guide 54.95

A comprehensive guide written by the developers of LocoMail, Locomotive Software. It is an updated version of the original manual supplied with LocoMail in 1988.

LocoScript Pocketbook 17.95

A handy pocket book which acts both as a guide and comprehensive reference manual. Section 1 covers creation and editing LocoScript documents, layouts, headers, blocks, phrases and templates. Section 2 is the reference section with concise details of LocoScript's many features and how to get to them, what they do and how to use them.

LocoScript2 and the Amstrad PCW - a complete guide 43.00

Of equal value to both PCW8256/8512 and 9512 owners, this book presents an easy-to-use but comprehensive guide to Locomotive's powerful word processor, LocoScript2. It covers efficient disc management techniques, special effects, using blocks and phrases, designing LocoScript layouts, setting up documents, advanced techniques and using different printers and print wheels. Three chapters are devoted to LocoMail and there are major sections on CP/M and applications software for those intending to use their PCW as something more than just a word processor.

LocoScript2/LocoMail/LocoSpell - assignments and solutions 32.95

Allows readers to work at their own pace through assignments, gaining practical experience in creating documents and using data files, and an understanding of editing, merging, spelling and arithmetic facilities. Has an emphasis towards business, including invoices, mail shots, personnel records and customer orders.

Mallard Basic - an introduction and reference 39.50

Published by Locomotive Software, this manual describes how to use their Basic interpreter to write and use Basic programs on the PCW. Part 1 is a gentle introduction, suitable for those who have never written a program before. Part 2 is a comprehensive reference section containing a detailed description of all the facilities of Mallard Basic.

Mastering the Amstrad PCW 8256/9512 32.25

A large part of this book is concerned with word processing - both LocoScript (mainly) and NewWord. It contains a tutorial moving from the simplest to most advanced uses. It also contains an introduction to databases, spreadsheets and accounts packages plus CP/M for the more ambitious.

Pocket WordStar 30.95

A step-by-step introductory guide to the use of Pocket WordStar, the PCW version of WordStar. It provides a clear understanding of the concepts and facilities in a compact and easily digested format.

Program your PCW 32.95

Explains how to use Mallard Basic on all PCWs. It starts by assuming the reader knows nothing about Basic or programming. In easy stages it takes the reader through displaying messages on the screen, data statements, formulae and functions, loops and string handling. Later chapters deal with subroutines and with data files. Both serial files and random access files using Jetsam are explained in easy to understand terms.

Using Databases on the Amstrad PCW 35.95

Designed to help the PCW owner utilise the capabilities of their computer to organise, store and retrieve information. Discusses six database programs - Matchbox, Cardbox, At Last 1, Sagesoft Retrieve, Cambase and Condor 1.

Word Processing with the PCW 27.95

Concentrates on describing in detail how LocoScript works and what it can do. No prior knowledge is assumed. The book covers

simple and advanced editing; on-screen formatting; special printing and display commands; handling files; improving documents - illustrated with photographs and screen shots.

CP/M

CP/M Plus Handbook (Soft 971) 52.95

Subtitled 'Operator's and Programmer's guide for the Amstrad CPC6128 and PCW' from CP/M developers Digital Research Inc. Probably the most comprehensive guide to CP/M Plus with over 500 pages of detailed information. It also includes a supplement on using GSX.

Choosing and Using CP/M Business Software 35.95

Choosing the right packages can be difficult and choosing the wrong ones may be disastrous. This book introduces general principles concerned with business computing then covers business functions such as word processing, data management and graphics. It also covers applications such as accounting, payroll and financial modelling.

PCs

Abacus Book for Beginners: GW-Basic 36.95

An introduction to programming your PC using the universal Basic programming language. Learn to write programs to do the tasks you thought weren't possible.

Abacus Book for Beginners: MicroSoft Works 36.95

If you are a newcomer to MicroSoft Works, this book will get you going quickly. You'll learn how to work within each module and then learn how to transfer data between them.

Abacus Book for Beginners: MS-DOS 36.95

This book takes you step-by-step through the world of MS-DOS. You'll find clear explanations and plenty of "hands on" examples of using DOS.

Abacus Book for Beginners: Unix and Zenix 36.95

The mystery is taken out of Unix in this book. It combines easy-to-follow explanations, clear illustrations and well designed exercises in teaching the reader the important Unix commands and the basics of Shell programming.

Abacus Book for Beginners: Ventura 36.95

Ventura is one of the most powerful PC desktop publishing packages available, but being powerful means it's also quite complex. This book teaches the basics - from menus to formatting to printing the final page. Full of useful tips.

Abacus Quick Reference Guides: dBase III 24.95

Presents the commands and functions very concisely. It is a quick reference guide for the more experienced user and programmer in order to find dBase information easily without having to wade through pages and pages.

Abacus Quick Reference Guides: GW-Basic 24.95

A reference guide for the intermediate to advanced level programmer. It is not an introduction to GW-Basic, but contains instant information at your fingertips.

Abacus Quick Reference Guides: Lotus 1-2-3 24.95

Lists all the commands and menu options so you can keep it right next to your PC to quickly look up any 1-2-3 command.

Abacus Quick Reference Guides: MS-DOS 24.95

Lists all the MS-DOS commands in alphabetical order. Suitable for the intermediate and advanced user.

Abacus Quick Reference Guides: MS Word 24.95

A quick reference tool for the intermediate and advanced user who wants to take maximum advantage of Word's extensive features.

Abacus Quick Reference Guides: Word Perfect 24.95

The first part of this quick guide contains individual sections describing some of WordPerfect's special features. The second part describes, in alphabetical order, all the commands and functions.

Amstrad PC1512 - User's Guide (2nd Edition) 32.00

Has been written for all those who have just bought an Amstrad PC and wondering what to do next and for all those who are thinking of buying one but are not sure what it will do for them. Covers DOS, GEM, graphics, word processing, spreadsheets, writing your own software, accounting, networking, and communications. This revised edition also includes desktop publishing and Ability.

Amstrad PPC Companion 36.95

This book deals with the setting up and daily use of the Amstrad PPC and covers in particular the use of the bundled software. This

is the first book to deal with the machine, its Organiser and Mirror2 software.

Advanced Basic2 Programs on the Amstrad PC 35.95

Aimed at those who have some experience in using Basic2 and who would like to learn more about the language and its potential. Contains individual and documented programs of increasing complexity focussing on different aspects of Basic2 programming and each with a series of distinct subroutines. The programs fall into four groups - Text and Numbers; Sequential files; Graphics and screen displays; and Random files. All are carefully explained and can be adapted to suit.

Basic2 User Guide 38.95

Written by Locomotive Software, the developers of Basic2, it is the most comprehensive book on the PC Basic language. It is divided into five sections - an initial introduction to the facilities of Basic2 for all users; a tuition in programming with Basic2; a detailed description of the majority of the facilities of Basic2; advanced and esoteric facilities for the more serious user; and a reference section with appendices summarising Basic2 facilities.

Business Computing with the PC1640 44.00

Written by a computer consultant who specialises in helping first-time and business users. It covers standard business software - spreadsheets, word processing and databases - and more exciting and complex business application software such as desktop publishing, 4GLs and expert systems. It's crammed with invaluable tips.

Business Presentation Graphics on the PC 55.00

Is an introduction to computer users who will be working with GEM and GEM-based products. It describes how GEM application programs such as GEM Graph, GEM Draw, GEM Paint, GEM Write and GEM WordChart can be used to produce visual business presentations effectively and quickly.

Communications with the Amstrad PC 44.00

This book is for the new modem owner who wants to enter the world of computer communications but is baffled by the technical detail. The action of the modem and its essential software is explained along with the jargon that accompanies communications and which must be mastered if you are to be able to make effective use of the modem.

Exploiting MS-DOS on Amstrad PC & compatibles 46.65

Both experienced users and newcomers to the MS-DOS operating systems will find that this book will enable them to get the best from their Amstrad PC (or any other compatible equipped with MS-Dos 3.2). It deals with every aspect of MS-DOS with an emphasis on learning by doing. Most chapters are divided into two levels - a brief 'get-you-started' section followed by a longer 'in-detail' section on how to solve problems that often arise.

Introducing Lotus 1-2-3 16.95

A short, inexpensive introduction to the popular Lotus 1-2-3 spreadsheet software. The easy-to-follow instructions are backed by clear examples for the reader to work through.

Lotus Agenda 39.95

Agenda is the latest innovative software product from Lotus and promises to rival 1-2-3 and Symphony as pacemakers for the software industry. It can, however, be difficult for beginners to learn. This book provides the answers, showing in simple terms what can be done and how to achieve it. The book starts with illustrations of applications so that you can see for yourself what Agenda does and then proceed to establish your own uses.

PC1640 Technical Reference Manual 49.50

This manual provides a comprehensive description of the Amstrad PC1640 hardware and firmware and is intended to satisfy the needs of advanced developers who must have access to the various resources available within the PC1640. It is assumed that the reader has a working knowledge of the Industry Standard architecture comprising of an 8086 (or 8088) with DMA, PIT, RTC and Interrupt Controller support chips; plus Extended Graphics Adaptor (or Colour Graphics Adaptor) with floppy disk, Serial and Parallel Adaptors.

Program your PC 32.95

Introduces the reader to Basic2, and starts with loading the language and displaying simple messages on the screen. Messages stored in variables are then examined, along with numeric variables, loops and decisions. Arrays are introduced to allow more complex storage and manipulation of data as well as menus to facilitate its input. A range of printing options and methods of achieving special effects are also examined.

Simple Basic2 programs on the PC1512/1640 29.95

Provides many examples of the type of simple programs that can be written with Basic2. In addition to games and art programs, the reader is presented with programs to show how spreadsheet, database and word processing programs work.

BOOKS FOR ALL AMSTRAD COMPUTERS

Using the Amstrad PC1512/1640 29.95
Describes how to understand and use all the facilities of the Amstrad PC, from initial setting up of the system, copying disks, using GEM through to printers and printing, using RPED, and the operating system. Includes many example screen displays

Using Ability on the Amstrad PC 34.95
Shows how easy it is to get what you want from Ability. The book is task related and assumes the reader sets out with a particular objective in mind and wishes to know the keystrokes that will meet that need. It also teaches how the program works in principle by explaining what each keystroke achieves when it is depressed.

Using DOS Plus on the Amstrad PC 39.95
Concentrates on using DR's DOS Plus operating system which supports both MS-DOS and CP/M applications. Starts with the basics of the operating system covering all aspects of file handling. It then moves on to the organisation of files, reading and writing errors, tree-structured directories, batch commands, print queuing and advanced DOS commands. Includes many informative diagrams, photographs, summaries and checklists.

Using Desktop Publishing on the Amstrad PC 29.95
The major aim of the book is to provide the reader with a background knowledge of the basic principles of typography and graphic design. It gives instructions on how to plan and produce different types of page layouts using desktop publishing packages. It also includes descriptions of some of the ways of taking masters, methods of duplication, methods of binding and the importance of "packaging."

Using MS-DOS on the Amstrad PC 29.95
The book is divided into parts, each of which deals with a number of topics, one section to each topic. In each section there is text and examples which show in detail how the commands of MS-

DOS are used. Includes the disk system; simple internal commands; using the MODE command; inputs and outputs; formatting disks, batch commands; errors and error messages; and utilities.

Using Printers on the PC1512/1640 29.95
Explains the different types of printers on the market and the features of each. It also explains how to interface a printer to your PC and then show how to get all of its features to work. There are sections about using a printer with DOS and GEM; with word processors (specifically Wordstar1512/1640); spreadsheets, databases and utilities (specifically Reflex and Sidekick). The final section covers printer buffers and sharing printers using a low cost network.

Word Processing using GEM Write 45.95
This book covers GEM Write in great detail. It deals with all the topics of text entry, amendments, importing other text or graphics and page layout. It assumes little or no computer knowledge on the part of the reader. A very comprehensive book.

OTHERS

Computer Viruses - a high-tech disease 49.95
Simply put, this book describes what a computer virus is, how it works, and what can be done to protect your PC against destruction. It starts with a short history of computer viruses and describes how a virus can quietly take hold of a PC. For the curious, there are several rudimentary programs which demonstrate some of the ways in which a virus infects a PC. It also presents techniques on inoculating the PC from a virus.

Computers and the Law 65.00
This book sets out in easily accessible form the basic principles of law as they apply to computers and those whose business is concerned with them. It is aimed at non-specialist lawyers and

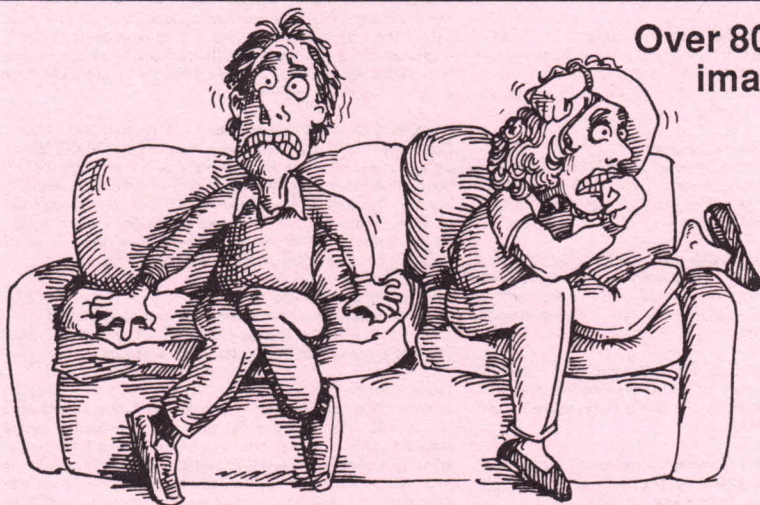
informed company executives who want to know how the law affects the computer problems that face them. In addition, whether they can deal with the problems themselves without having to seek out costly specialist advice.

Introducing dBase 14.95
This book is ideal for short, introductory college and school courses and for the individual who wants to know how to use a database for either business or personal use. The last part of the book provides an introduction to programming using dBase.

Managing your Computing: a practical handbook 50.00
Using many practical examples, the book covers all key aspects of planning, implementing and maintaining computer systems, including product selection, budgeting, hardware and software management and personnel administration. It is an indispensable aid to anyone with managerial responsibility for commercial and industrial computer systems, including those without a DP background.

Microcomputer - troubleshooting and repair 48.95
Describes the nuts and bolts reality of microcomputer equipment and provides a practical, down-to-earth approach to computer troubleshooting and repair. Teaches you to repair simple problems yourself and know when to take the equipment to a shop. For the beginner, it provides all the basic how-to information needed to get started. For electronics students, the book gives a solid introduction to troubleshooting, including the tricks and shortcuts the servicing pros use to find problems and repair them quickly. Includes information on hard disc drives and laser printers.

Please note that all book orders exceeding \$20 are subject to a postage charge of \$5.00.



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