

The Aussie Mag
for Amstrad owners

THE AMSTRAD USER

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Issue No. 59 \$4.50

December 1989

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- CP/M Plus Tutorial
- Sorting LocoMail files
- Garfield's PC debut
- New PC-SOFT #2 Release

FOR THE NOVICE & EXPERIENCED USER

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Reviewed by *The Amstrad User* (Feb '89)

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1 2 and 3



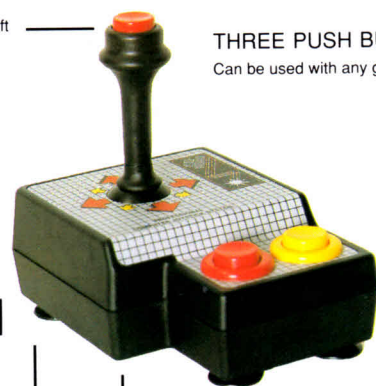
EASILY ADJUSTABLE

4 & 8 way action slide on bottom allows for exact game control

②

THREE PUSH BUTTONS

Can be used with any game



① & ③

VERSATILE USAGE

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

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THE AMSTRAD USER

Issue No. 59 - December 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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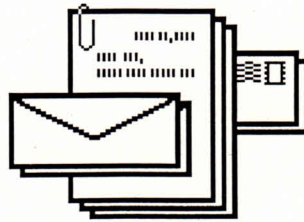
From time to time, some articles appearing in The Amstrad User will be reproductions from UK publications Amstrad Action, 8000 Plus and CPC Computing (formerly Computing with the Amstrad). The first two are printed under an agreement between Strategy Publications and Future Publishing Ltd, Bath, and 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.



I live in the country and only recently came across the Amstrad User in a neighbouring town. I now have a twelve month subscription, but want to know if there is any way of getting all the HINT SHEETS from previous issues without having to buy all the back issues of The Amstrad User. If there is no way of obtaining the hint sheets without buying the books then I would appreciate it if you could tell me the issue with the hint sheet to save me buying unneeded magazines.

Miss S.S. Collins, Wallaroo, SA

We assume you have a CPC, in which case the following magazines contained hint sheets for games on your computer:

Sorcerer, issue 33; Heroes of Karn, issue 34; Buggy, issue 35; The Hobbit, issue 37; Jewels of Babylon, issue 38; Zork 1, issue 39; The Pawn, issue 40; Lord of the Rings 1, issue 43; Infidel, issue 45; Time and Magik Trilogy maps, issues 52-55.



I own Word Perfect V5 and a Star NX-1000 color printer. On the printer disc supplied with the software, a file that supports the Star NX-1000 mono printer is supported, but the colour one isn't. Is it possible to print in colour in Word Perfect? If so, how?

I also have a printer definition program supplied with Word Perfect that can re-define the way in

which the software sends codes to the printer, would this help? If so, how?

I have tried to use the printer definition program, but it is too complex and the documentation that was provided doesn't help either. Do you know of any books that may help in using this program?

Anthony Haslam, Glen Waverley, Vic.

The only book we sell on Word Perfect is an Abacus Quick Reference Guide which would probably not help. We recommend you either go to an IBM dealer who sells the package or the dealer who sold you the NX-1000.



Having migrated to an Amstrad PC from an older and very unreliable clone, I have found that some of my software doesn't work although the Amstrad is also said to be IBM-compatible. Someone told me I needed to specially configure the PC to be "industry standard" or something, but I don't understand.

Could you please help translate this Computerese into English for me?

Bill Mackin, Paddington, N.S.W.

The term industry standard has been around computer circles for some time now. Often misused, this term simply means that the machine in question can run software that conforms to a standard laid down by the American

National Standards Institution (ANSI). As more and more programmers are using this standard, it is important that you learn how to configure your machine to use it.

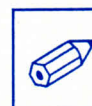
On your MS-DOS disc/directory you will find a file called ANSI.SYS. This file holds the standard routines that conforming software uses. Amstrad do not by default load this resident system interface and so you have to do it yourself. The most common way is to insert a line in the CONFIG.SYS file that reads...

```
DEVICE=ANSI.SYS
```

An important note here is that if the file ANSI.SYS is in a different path from the default, you must specify where it is. For example, if the file is in a directory called DOS on the C drive, the command would be:

```
DEVICE=C:\DOS\ANSI.SYS
```

Use a text editor to alter the CONFIG.SYS file; your manual will explain how to insert lines into a file (if the file CONFIG.SYS does not exist you must create it). This file is loaded by the system on power up, like AUTOEXEC.BAT. Another note is that the file CONFIG.SYS must reside in the root directory of your boot up disc.



I recently bought a Public Domain disc from you and was greatly impressed by the quality of the programs. One in particular is the menu supplied for the disc. I found that if you use the RPED editor for the file MENU.DAT you list it to do anything you want. For example; if you type in "To set palette" on the first line and "PALETTE 1,0" on the next line and on the last line you type &, when you run the menu it will look like this A = To set palette, when you press A it will change the palette accordingly (only if you have PALETTE.COM on the disc).

On the menu list I made it has 30 different functions, and it makes life a whole lot easier than every time you turn on your computer having to type in a lot of commands. And



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to make the menu load automatically you edit your PROFILE.SUB program and type the word menu.

I suggest that anyone who is starting out on either the CPC 6128 or the PCW 8256 should get the Text processing utilities disc as it was very helpful.

Tony Wheatley, Mount Gambier, SA



Could you please tell me if it is possible to have more than two floppy disc drives in the PC?

R. Montagu, Hampton, Vic.

The basic difficulty is that the floppy disc controller on an Amstrad PC is built-in to the motherboard. Unlike the standard IBM PC controller which supports 4 drives and has a socket at the rear to plug in external disc drives, the Amstrad version supports only two drives.

Since it is impossible to disable the internal floppy disc controller you cannot simply replace it by an IBM type. You could use a controller that was configured as a second disc controller (if you could find a suitable controller) but then you would need a device driver to make MS-DOS recognise the second disc controller.

The other alternative, since you have a hard disc as well is to fit a switch or set of cables and plugs so that you could change from your internal 5.25" drives to one or both 3.5" drives. If you wish to avoid confusion you could use DRIVER.SYS to set up new logical disc letters for the additional drives - but using the same drives numbers (0 or 1). To do this you would put these commands in CONFIG.SYS

DEVICE=DRIVER.SYS/D:0/F:2
DEVICE=DRIVER.SYS/D:1/F:2

When you accessed drive D then you would then get the prompt that single floppy owners get 'Change disc in drive D then press any key', and would then switch to the new drive. On accessing drive A again the prompt would remind you to switch back.

THUNDERBIRDS WINNERS !

The entries poured in and we were very pleased with the response. Be that as it may, only two lucky readers can win and they are:

Freddy Agius of Airport West, Victoria,
and **R. Coxon** of Whalan in N.S.W.

Both readers correctly identified the five Tracy brothers as:

Scott - eldest brother and pilot of TB1.

Virgil - musical wiz-kid and pilot of TB2.

Alan - astronaut and pilot of TB3. Loves Tintin.

Gordon - ex member of WASP and pilot of TB4.

John - space hero and pilot of TB5.

Congratulations! Two copies of the game are on their way for both of you to enjoy.

N PALS PEN PALS PEN PALS PEN PALS PEN PAL

WOW! Four more newcomers to the Pen Pals section this month. Welcome! You too can join this list by writing to "Pen Pals" care of The Amstrad User.

Chris Bevan (CPC)
9 Blume Terrace
Mount Gambier S.A. 5290

Craig Bridgman (CPC6128)
22 Atkin Street
Melton Vic. 3337

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

Thorsten K. Gehrke (CPC6128)
10 Dillon Street
Redwood Park S.A. 5097

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.

Daniel Treacy (CPC6128)
25 Kegworth Street
Leichhardt N.S.W. 2040

Your name could be here!

First with the Best!!

Pactronics

tronics

CS

1 GARFIELD

-AMSTRAD CPC DISC AND TAPE

This game subtitled "BIG, FAT, HAIRY DEAL". In BIG FAT HAIRY DEAL you play the part of our lasagna loving friend GARFIELD, off in search of his beloved ARLENE who has been captured and imprisoned in the City Pound. A must for computer game playing Garfield fans everywhere.

2 FAIRLIGHT

- PCW (CPC Version soon)

A revolutionary game using the 3D World Maker technique. Seek the Book of Light in the castle Asvars and fight your way past trolls and guardians to find the wizard.

3 CLASSIX 1

(Collectors edition)

-AMSTRAD CPC DISC AND TAPE

3 award winning games - BOBBY BEARING (3D); BRIAN BLOODAXE (zany arcade style game); PALITRON (unique programmable robots).

4 ALIEN SYNDROME

- AMSTRAD CPC DISC

One of the major arcade games now available in brilliant graphics for your Amstrad. Multi-level, galactic jailbreak with super monster to come!

5 SPACE SCHOOL

SIMULATOR

- PC

After an incident on 61 Cygnus in 2197 when a rookie pilot selected the wrong gear when docking with the main central reactor and reduced half the planet to molten lava, Gal-Corp decided that a special training facility was needed to provide an

elite corps of pilots for the advanced military skimmers used in colonisation and reconnaissance work. It was called the Academy.

6 3D GAME MAKER **- PC**

Impossible as it may seem, this package allows a novice to design professional 3D games and includes a graphics designer and a room/map generator. It is incredibly user friendly.

7 DISCOVER **- PC**

DISCOVER - the new education series from Pactronics!

"DISCOVER ALPHABET" and "DISCOVER NUMBERS" 6 years and up, "DISCOVER MATH" 10 years and up, and "DISCOVER CHEM" 12 years and up.

Pactronics

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

For the nearest retailer in your state contact:

NSW: Pactronics P/L, 98 Carnarvon Street, Silverwater (02) 748 4700

VIC: Pactronics P/L, 51-55 Johnston Street, Fitzroy (03) 417 1022

QLD: Pactronics P/L, 12 Stratton Street, Newstead (07) 854 1982

SA: Baringa P/L, (08) 378 9177

WA: Pactronics WA, Unit 13, Rear 113 High Road, Willetton (09) 354 1122

NEW ZEALAND: Micro Dealer, 68F Greenmount Drive, East Tamaki, Auckland (09) 274 9300

MAIL ORDER: The Amstrad User, 641 High Street Road, Mount Waverley, Vic 3149.

(03) 233 9661

NEWS BREAK

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

MAIL ORDER SPECIALS

You'll have to be very quick to snap up the bargain of the year. If you have been thinking about adding a **TV modulator** to your CPC 464 or 6128 to turn your colour monitor (a CTM644 model only) into a colour television, our special price of just \$49.95 (plus \$10 postage, packing and handling) should convince you to act straight away. This is a saving of nearly \$100 on the listed price. Our stocks are limited and will go to those who order first.

New **Joystick Splitters** for CPC owners have arrived and now allow two players to use two joysticks simultaneously where a game provides a two-player option (like Gauntlet). They are cheaper too at just \$17.50 each (plus postage and handling).

Finally, if you are having trouble getting hold of a new **Amstrad PC20**, we are happy to advise that they are now available by mail order from The Amstrad User. The basic PC20 model is just \$799 (+ \$35 p & p), the PC20 with colour monitor is \$1199 (+ \$45 p & p) and the 'Family Pack' with colour monitor and DMP3160 printer is just \$1499 (+ \$50 p & p).

(NOTE: Regretably for some, we cannot deliver to a Post Office Box number under any circumstances.)

Hot on the heels of PC-SOFT #1 (Basic2 programs for the PC1512/1640 advertised last month), comes **PC-SOFT #2** in the new series of software for the Amstrad PC range of computers. The disc, available in either 5.25" or 3.5" format, is full of games to be run under MS.DOS. This means it should be suitable for all Amstrad PC computers or compatibles. The cost of the discs are \$12.50 (5.25") or \$15.00 (3.5") plus postage and handling. (See advert on page 54).

If you require any further information on the above items, please ring The Amstrad User (mail order line) on (03) 233 9661.

AMSTRAD QUITTING CPC?

Rumours have been circulating for the last three years about the demise of the CPC range of Amstrad computers. Although they have all been unfounded, despite the fact that Amstrad Australia ceased importing the models many months ago, the latest news from the UK may add credence to the latest gossip that Amstrad UK have ceased production.

The largest CPC high street retailer Dixons have decided to discontinue the range and are currently 'clearing' all stock. Their buyer, Kim Burgess, cannot under-

stand the decision. "CPC sales, in the UK, could never really have been said to set the world alight, but in the Mediterranean countries they love the machine. I could always manage to ship a container load or two every now and again."

While on the subject of rumours, it has been suggested in a UK Atari magazine, Z-Mag, that Hewlett-Packard is preparing for a take-over of Commodore. We find it hard to believe, but the move would give HP access to the vast West German market that Commodore currently has with its C64, Amiga and PC.

CAD FOR PCs

Most PC users utilise a word processing and spreadsheet program but a computer software system will never be complete without the inclusion of a computer-aided drawing package. AutoSketch is a precision drawing tool which has been developed to not only compliment but complete a software system. If such a drawing package is not being used then a PC is not being used to its full potential.

AutoSketch opens up a whole new world of possibilities for PC users who have the need to express their ideas by using drawings. It is a powerful low-cost drawing tool

designed to help draw plans, diagrams, charts, sketches, layouts and does it all with the click of a mouse. And it's easy to learn and use. Drawings are done on the computer screen using a mouse and pull-down menus. There are no complex commands to learn or remember.

Whenever there is a decision to be made, AutoSketch leads you through the options using a simple question and answer system. Most new AutoSketch users are producing drawings in less than an hour.

AutoSketch is available from various retailers around Australia at \$249.00, through The Amstrad User Computer Shop (retail) or by mail order on (03) 233 9661.

AMSTRAD PRODUCT NEWS

To tie in with a massive £12 million advertising campaign over the next three months, Amstrad UK are moving into the fax market. The FX9600T will feature a 20 page cutter and 100 number memory. It will also feature a 16 grey scale scanner and centronics port to allow data to be dumped from a PC as if it were a printer. The unit will shortly be available in Australia with a cost of around \$1600.

The PC2286 and PC2386 range will be re-organised with the introduction of 'sawn-off' versions of both. The PC1286 (80286-based) and the PC1386 (80386-based) will have a choice of two mono and two colour monitors or just the system units on their own. The PC1286 will

start at £750 for a 12MHz unit with 1mb of RAM and a single 3.5" disc drive. The 20MHz PC1386 will start at around £1250. Neither model will have hard drives fitted but will support VGA graphics.

The logic behind the decision to release these two new machines comes from Malcolm Miller, Amstrad's (UK) group sales and marketing director. "We consider that up to 30% of the market for 286/386 machines is not satisfied with highly specified models. There is a gap for the value-added market which we aim to fill with our new PC1286 and PC1386." The move clearly makes the PC2000 range now more flexible in terms of configuring say, a multi-station environment.

NEW PCW SOFTWARE

Owners of PCW8256 and 8512 will be happy to know (PCW9512 owners are excluded unfortunately) that a new games compilation is about to be launched for their machines. It contains four games - the very popular flight simulator ACE (Air Combat Emulator we think), Sky War, Formula 1 and Strip Poker. Hopefully these will be available by the first week in December at a cost of \$39.95 + postage.

For all PCW owners comes a useful piece of software called 'PCW ToolKit' used to examine, copy and recover information from damaged or corrupted floppy discs. Although ToolKit is a full-function disc editor capable of satisfying the expert, you don't need to be one to use it. All commands are selected from menus, the options available at any time being clearly shown. Operations follow a natural order, and full use is made of the PCW's keyboard to make commands as intuitive as possible - you don't have to remember arcane key sequences. There's also a 'first-aid' section in case of emergencies. The cost will be \$69.95 + postage.

CHRISTMAS MAIL ORDER CLOSE-DOWN

The run-up to Christmas traditionally means working 25 hours a day to get all our pre-Christmas orders out in time to avoid disappointments. It also means that once we have cleared them all we can close for our one and only yearly holiday. Naturally, a more than usual number of stock items run out during this period, so we suggest that you give an alternative choice or two. We are pretty certain (as long as Australia Post perform well) that any orders received up to 12th December will arrive on time. Any received after that cannot be guaranteed. We will be closed for business from Tuesday 19th December 1989 and re-open on Tuesday 16th January 1990.

Our retail outlet, The Amstrad User Computer Shop on the corner of Blackburn and High Street Roads in Mount Waverley, will close at 5.00 pm on Saturday 23rd December 1989 and re-open at 9.00 am on Tuesday 2nd January 1990. The shop will stay open until 9.00 pm from Monday to Friday during the week prior to Christmas. Please remember that the shop does **not** handle any mail order enquiries.

PRICE CHANGES

Since the introduction of The Amstrad User mail order service nearly three years ago, we have not charged postage (with the exception of just a few lines). Back in those heady days, the humble letter cost 36¢ to post. It now costs 41¢ - an increase of nearly 14%. Other postal charges have also increased by more or less the same percentage rate. Unfortunately the time has now come where we cannot absorb these compounding postal increases any more. So, from 1st December 1989, the following postage and handling rates will apply:

Orders under \$20	\$1.00
Orders from \$20 to \$50	\$3.50
Orders over \$50	\$5.50

The above rates will apply to all orders within Australia unless another rate is specifically stated. For example disc drives, TV modulators and the like carry a special postage and handling rate. They also apply to book and magazine purchases which, up to now, have been charged a flat \$5.00 or \$1.00 per copy respectively, and means that you can save \$3.00 on the purchase of four back copy magazines.

Overseas orders will incur different rates to compensate for higher postal charges:

Orders under \$20	\$2.50
Orders from \$20 to \$50	\$6.00
Orders over \$50	\$10.00

These rates are for sea/surface mail only.

At the same time, due to creeping printing and paper costs over the last two years (ask any printer!) we have found it necessary to increase the cover price of the magazine by 25¢ to \$4.50. This represents an increase of just 5.8% from the price first set in November 1987. The small adjustment (much less than inflation over the same period) reflects a healthy and steadily growing circulation.

SIERRA SURGE IN THE PIPELINE

Sierra have now established themselves as producers of quality software for PCs with the King's Quest, Space Quest and Police Quest series to name a few. Sierra followers will be very pleased with the news that *Leisure Suit Larry 3* and *Manhunter 2* (San Francisco) are due shortly. They should arrive before Christmas (so we are told!) along with a new murder mystery called *The Colonel's Bequest*, a new 3-D adventure called *Hero's Quest* (a new series perhaps?), an Arthurian style adventure called *Conquests of Camelot* and more.

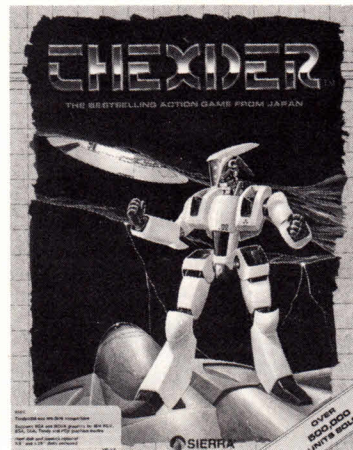
Leisure Suit Larry 3 (meets *Passionate Patty*) features good-time guy Larry Laffler trying to find himself in the overgrown jungle of a south-sea island, and *Passionate Patty* a night club entertainer extraordinaire who is searching everywhere for the man of her dreams. What makes *LSL3* different is that you control both characters and are able to switch roles in mid-game. The game claims to be sexier than *Land of the Lounge Lizards* (*LSL1*) and more challenging than *Looking for Love* (*LSL2*) with a strong plot and all the humour you have come to expect from the *Leisure Suit* series.

Manhunter 2 (*San Francisco*) is a graphic adventure which takes place in the year 2004 when San Francisco is under the rule of aliens who have transformed the city into a nightmare of tyranny and death. You take the role of an undercover manhunter working for alien invaders against your own kind, penetrating hideouts and infiltrating evil organisations. You discover clues and revelations in your pursuit of freedom for all human-kind. The game contains sophisticated picture-within-picture effects and arcade sequences with various levels of difficulty.

A murder-mystery-adventure in the tradition of Hitchcock and Christie, deep in the bayous of

Southern Louisiana in 1925 is the setting for *The Colonel's Bequest*. The Colonel's relatives meet for the reading of his will, but already you sense greed and suspicion among the prospective beneficiaries. You must explore the gloomy estate to discover who is murdering the Colonel's guests. Survive the long night... if you can!

Sierra introduces their first interactive "role-playing" 3-D animated adventure with *Hero's Quest*, in which players construct a character from the ground up,



combining the basic attributes of Strength, Agility, Intelligence and Charisma into game characters that will gain skills and abilities as the game progresses. By creating an entirely different kind of character you can approach problems in different ways. These range from combat with dragons, goblins, brigands through to the great bear that guards the kobold's cave.

Historically accurate *Conquests of Camelot* is a stunning fantasy saga, filled with myths and lore of legendary Camelot, beautiful graphics and geographically accurate maps of ancient Britain featuring detailed descriptions of historical and mythological points of interest. You take King Arthur in a quest for the Grail from the magical kingdom of Camelot to the Holy

City of Jerusalem and beyond, facing tests of courage, skill and wisdom.

Codename Iceman takes you into the 21st century in an intriguing and sometimes chilling adventure in an attempt to crack the deadly security of a terrorist base. The game includes a state-of-the-art submarine navigation simulation to give you a sense of total control as you penetrate a harbour bristling with lethal security devices. A one-man diving vehicle must be manoeuvred through sensitive magnetic fields without being detected and destroyed.

Action, adventure and quest combine with sophisticated and varied role-playing to make *Sorcerian* the most exciting Japanese import yet. It contains three diverse scenarios, each containing five separate quests, effectively fifteen games in one! Seven magic elements combine to form over 120 magic spells to defeat dragons, monsters, evil sorcerors and wicked thieves. The game contains stunning graphics (in EGA/VGA 640x200 resolution) and adjustable ten-speed scrolling.

Back in the mid-eighteenth century, Edmond Hoyle compiled the basic rules of play for cards in one book. Sierra's *Hoyle's Book of Games Volume 1* combines these rules and the Sierra brand of humour in a compilation of card games with a difference. For the serious player, a choice of opponent can be made from a formidable group to give a really cut-throat game. The cast of characters from a list of eighteen include King Graham and Rosella (from *King's Quest*), Larry Laffler (*Leisure Suit Larry*) or Roger Wilco (*Space Quest*) - all providing an amusing dialogue as you play. The pack features *Gin Rummy*, *Cribbage*, *Klondike Solitaire*, *Hearts* and *Old Maid*, the latter being fully animated for children.

PACTRONICS XMAS IDEAS FOR CPC & PCW

One of the smash hits on the Amiga, the **Eliminator**, now comes to the Amstrad CPC. A long, twisting high speed highway stretches out before you. Your land-jet is fuelled up and ready, but so are the aliens. They are dotted along the highway and are determined to obstruct you as much as possible.

Nebulus is the latest release for the Amstrad CPC from Hewson, home of the greatest hits. It uses some of the finest animation ever seen on the CPC, with stunning use of graphics. Addictive gameplay, combined with these features will make Nebulus one of the best sellers.

International Soccer is the best of all football games which has been killing them on the Commodore and is now available for the Amstrad CPC. Emlyn Hughes, one of the greatest players of all time has designed a game that allows you to have your own teams and set their skill levels individually. Diving headers, sliding tackles, free kicks,

corners, penalties etc. will make you feel like you really are there at the game. One or two players, or even two players at the computer.

Classic Games 4 is probably the world's finest classic games collection and certainly the best to ever be released for the CPC. The compilation contains 3-D Chess, Backgammon, Bridge Player and Draughts/Checkers. It's tremendous value.

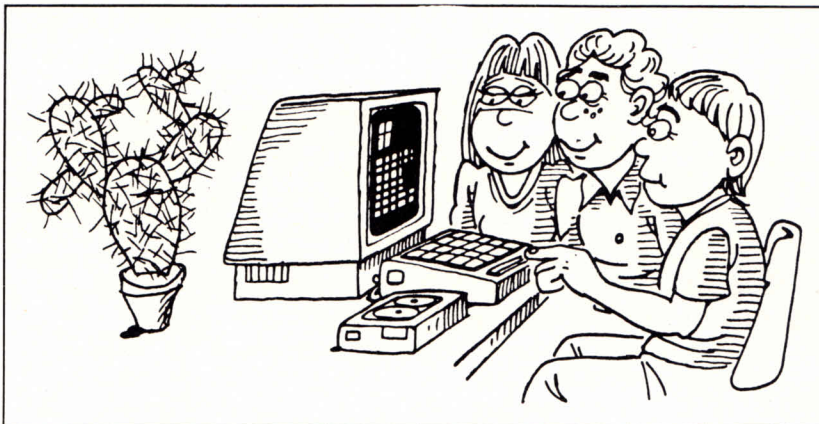
For the PCW comes the strongest and most versatile chess program yet with the most advanced 3-D graphics and widest range of features, never before been implemented on a home computer. Clock Chess 89 has a massive 44,000 byte openings library and a unique feature that allows you to extend this library. It has a special easy mode for beginners but will challenge the strongest players.

All the above should appear soon at your local Amstrad retailer, The Amstrad User Computer Shop or mail order on (03) 233 9661.

POINTS OF VIEW

According to Peter Campbell from Cirrus Associates (a UK food and environmental consultancy), we should take precautions when sitting in front of a VDU. "I am not saying that VDUs (screens) constitute a major hazard to the health of operators, just that they do appear to contribute to the total load

of e/m radiation to which we are all subjected." He suggests placing a *Cereus Peruvianus* cactus at the side of the screen. Apparently, research has shown that the plant is capable of absorbing e/m radiation. We figure that if you leave the cactus there long enough, you may be able to do away with a desk lamp!



Tasman

SOFTWARE

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GAMES ARCADE

Not found any good Christmas gifts yet? Here are some great games to tempt your tastebuds!

THE
GAMES REVIEWED
THIS MONTH:
Gary Lineker's
International Soccer
Supertrux • Nebulus
Navy Moves

NEBULUS

A "cerebral haemorrhoid" from Hewson

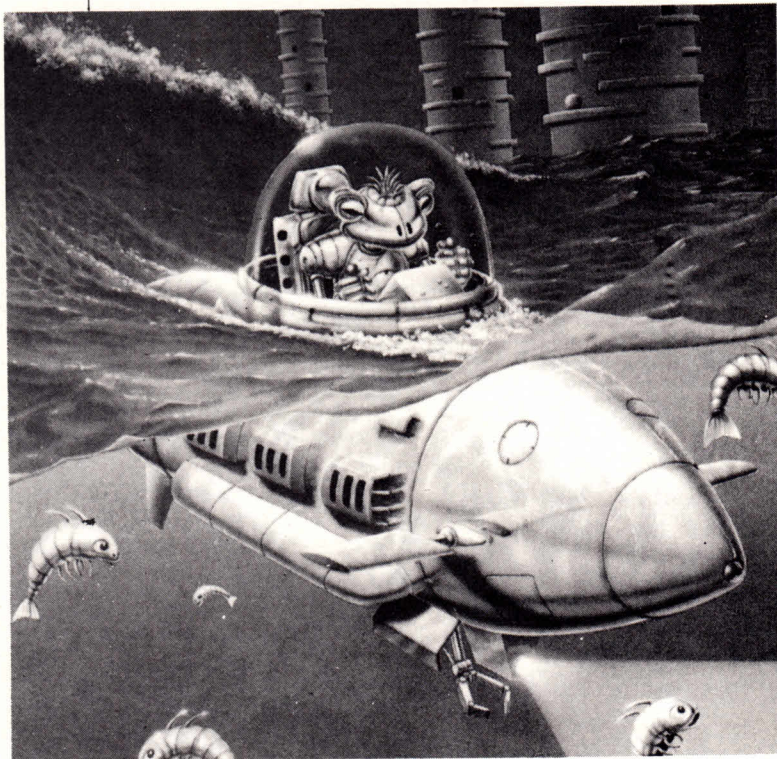
CPC Disc - \$39.95 CPC Tape - \$29.95
PC 5.25" - \$49.95

John Phillips looks like a reasonably OK kind of guy. An unimposing, laid-back sort of character. Could be a Sunday school teacher, or maybe the simpleton-type behind the counter at the local petrol station. Nothing a protective mother would lock her daughters away from, anyway. But don't let that fool you. Don't be the sucker.

Under that soft, unpretentious exterior I'm convinced lies the pulsing heart of a froth-at-the-mouth sadist, who's every thought and action is dictated by an all-consuming lust for pain and torment. Even now I can hear that horrifying laughter as another victim writhes in agony, unable to find release from the war being lost on the battlefield of their mind.

Clearly, John is a master of disguise. Who would ever suspect him in the guise of a mild mannered computer games programmer? But that he is, and a very good one, too. The tool of his trade is a game. Nothing more than a simple arcade-style computer game called Nebulus. Yet this game has the ability to reveal to you facets of your personality that you never knew existed. Fits of aggression, sudden bursts of uncontrollable laughter, night after night of introspective melancholy - what painful emotions overtake you just depend on your own individual weaknesses. Be warned, the emotional scarring may never go away.

I had no forewarning of what was ahead. Review this game, I was told. I enjoy reviews so loaded it up expectantly. The scenario is simple: you are Pogo, an employee of Destructo Inc. and you have been given the job of blowing up a number of towers that have been popping up all over the ocean. These towers are "occupied" by various different characters and objects. Some you can kill, others must be avoided. Since the towers can only be destroyed by laying a charge at the top, you need to make your way to the top of each tower by means of platforms, steps, elevators, passages and your ability to jump small distances, avoiding or killing all obstacles. If you succeed at destroying



one tower it's on to the next. Between towers you are given the opportunity to amass bonus points by torpedoing fish that swim by your Mk. 7 Mini-sub.

This may sound easy. If it does you are sadly mistaken. To make the challenge a bit more unbearable, there is a time limit imposed on each tower destruction job. So if you fail to make it to the top of each tower within the time allowed, you lose a life and start again from the bottom.

There are two versions of the game - one for CGA systems and one for EGA systems. I had a choice and chose EGA (who wouldn't?). The opening screen is similar to the picture on the front of the box. It's very nice indeed. Following this is the "options screen" - that's what I call it. There are a few choices available to the player: joystick or keyboard; one or two players; sound on or off and mission 1 or mission 2. From here it's straight into the game.

Most impressive of all is the presentation. Some games scroll, some don't. This game sort of scrolls and sort of does something a bit different as well. As you climb the tower, the screen scrolls upwards and downwards so that Pogo always remains in the centre of the screen. Since it is a circular tower, Pogo needs to walk all around it and so the game has been designed so that the tower rotates in both directions as Pogo walks around it. In this way Pogo is always in the centre of the screen. It is quite impressive to watch the tower rotate as Pogo goes walkabout. At bit of clever

programming was needed here, I imagine.

Graphics throughout are very good (mono or green screen owners should have no problems). In terms of speed, the on-screen action is actually quite slow. You would have enough time, in most instances to calculate your movements, were it not for the clock ticking away. The sound is, shall we say, adequate while the opening music is probably best avoided. The documentation provided is thorough, even detailing a history of Hewson, the publishers responsible for both Nebulus and John Phillips.

You will really enjoy this game if you appreciate the mental equivalent of self-flagellation. I spent about an hour playing Nebulus and spent the first half hour just on level one. It is intensely infuriating to get four fifths of the way to the top of the tower and then make one infinitesimally small error that sends you tumbling two-thirds of the way down the tower. I did this a thousand times. Need I say my keyboard is black and blue and won't be speaking to me for a few weeks. The game however, is not impossible. And that very fact is what will keep you coming back for more. Nebulus sits up there alongside cocaine, nicotine, heroin and Tim Tams. It's VERY addictive! If you can put it down, you're stronger than I am.

I'll conclude by pleading with some wiz-kid out there to find me a cheat for Nebulus. There is no other way I'll ever find out how many towers there are.

NAVY MOVES

A nautical mission from Electronic Arts

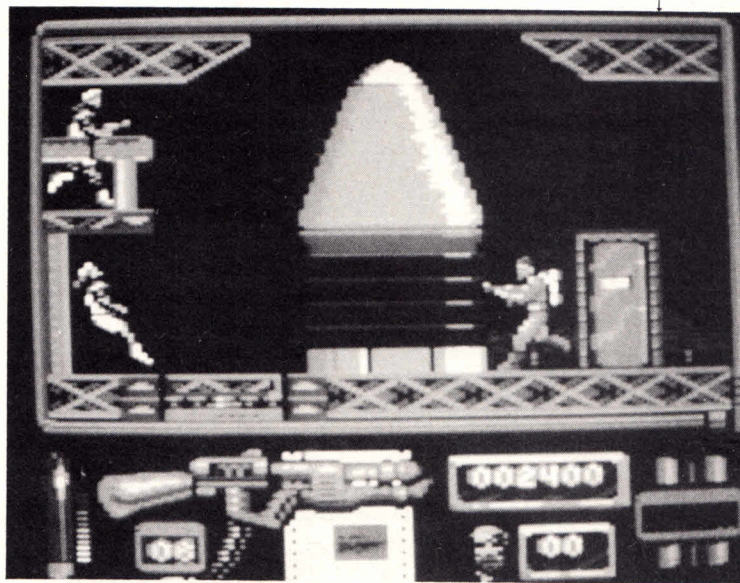
CPC Disc - \$29.95

CPC Tape - \$19.95

Do you remember Army in Army Moves? Well he's back with a vengeance in this follow-up as a Navy commando with a mission to destroy a U-5544 nuclear submarine moored at an enemy base. The game is effectively split into three sections.

The first section in turn is split into three areas of action. The first area sees Army (that's you) guiding a motor boat through a sea pockmarked with mines and some clever timing is required here to jump over them. To make things even more difficult, enemy forces on their aqua-bikes do their best to ram you out of the game. The second area deals with undersea action and starts at the entrance to the enemy base. Of course, it is well guarded by enemy scuba divers and an occasional shark, all trying to stop you from reaching the bathyscape (or bathyscaphe to save arguments) which is your means of moving to the third area. Ensnared and seemingly safe in your miniature submarine, you make your way towards the nuclear sub. However, your rest is short lived as you have to negotiate giant octopi and what looks like a long, fat sea snake.

The second and third sections to the game result in you placing a bomb at the base of the nuclear reactor,



take it out to sea and transmit a message back to your own base. These actions can only be carried out if the correct code-words are fed into the submarine's main

computer. Needless to say, the sub is swarming with the enemy and if you are not careful, you will soon run out of your limited ammunition. Obviously the enemy think that there must be more than one intruder because if you play 'dead' by lying on the deck they ignore you and search elsewhere. This way you can catch them by surprise. You can also replenish your ammunition by recovering some from the enemy you kill.

There are a number of officers aboard, each carrying codes necessary for you to complete your task. If you are lucky enough to kill the Captain you will get all the codes at once, but for your information killing the First Officer will give you the code to stop the submarine and make it surface, the First and Second Machine Officers will give you the codes to open the reactor

door, and the First and Second Transmission Officers will give you the code to make your transmission to base. Navigating an unfamiliar submarine in enemy waters is no doubt a difficult proposition, so the game helps by displaying a map. If you find you are getting into deep water (or should that be shallow?) you can pause the game to study it more closely. Once you have transmitted your message the game ends with you being rescued by your fellow commandos.

I found Navy Moves equal to, if not better than, Army Moves. The three stages are sufficiently different to maintain interest throughout the game. The graphics are well done (little problem with green screen owners) and the game has all the action and strategy you would expect in a well constructed package. I liked it.

EMLYN HUGHES INT. SOCCER

The most realistic soccer game yet to hit the CPC screen

CPC Disc - \$34.95
CPC Tape - \$29.95

This game of computerised soccer is probably the best you're likely to see on the CPC and knocks all the others (even Matchday II) into a cocked hat. It has trick shots, dribbling, headers, volleys, chip shots, back heels and even a visual commentary giving details of who has the ball.

There are a number of games to play during a season of matches spanning league and a cup competition. Not

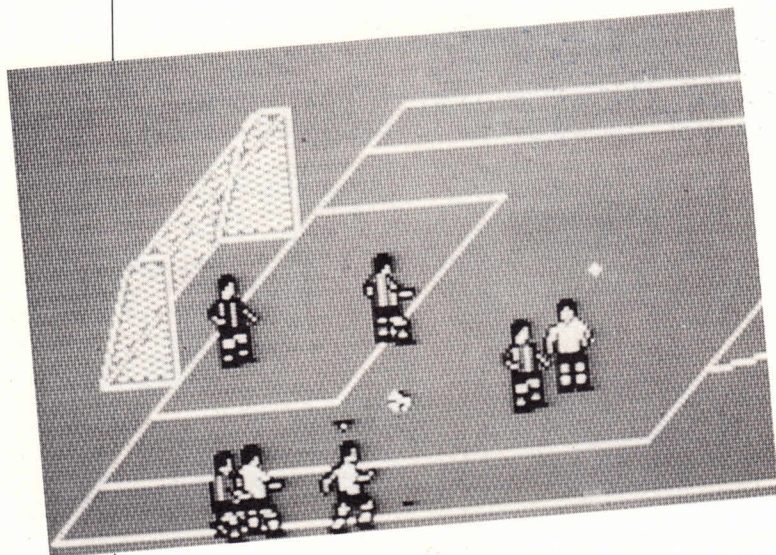
match from half way up the stands. This is obviously much better than an overhead view as it gives you a chance to make more realistic decision on what to make your player do, like jumping or heading the ball. It's very difficult to judge these sorts of shots from an aerial view.

You always know who has the ball by the presence of a small arrow above the player's head. As you play the game, you'll begin to notice who has particular skills and this should be remembered for future games. As you race down the field, the opposing players will rush in to take the ball from you. A careful pass, a turn on the ball or shoulder dip will trick them into pulling back. If you manage to get the ball to the goalmouth and make a successful shot, the crowd roars its approval. The scorer rushes to the touch line and acknowledges the crowd with arms punching the air.

While you may find defending a little more tricky, in your armoury of shots is the sliding tackle, which is effective in forcing the ball out of play for a throw-in or corner kick.

The secret with most simulations is practice, so playing a few friendly matches first to get the hang of things is vital. They may be a little one-sided (usually in your favour) but at least you get to see how each player performs and master the skills of CPC soccer at the same time before embarking on the major tour.

The graphics contain superb sprites and the overall presentation is very smooth (green screen owners have no worries). There are 10 levels in all, the lowest letting you into a successful game immediately with the highest pitting your team against the best of the international players, so there is something for soccer fans of all ages. Emlyn Hughes International Soccer is no doubt the best soccer simulation available and should be part of your library of games whether you play soccer or not.



only that, the touring team has to managed and players selected based on their current fitness (this can alter as more matches are played) and skill level. The selections are handled through pull down menus along with a choice of colours and information about your current position in the league or competition.

The on-field game play is brilliant. The screen displays the field as though you were watching the

SUPERTRUX

Thundering Big Rig action from Elite

CPC Disc - \$ N/A

CPC Tape - \$ N/A

RED You scan the horizon (you see Big Ben so it must be London).

ORANGE You wait!

YELLOW Still you wait!

GREEN GO - and its off on the first leg of the rally which will take you to nine major cities throughout Europe.

Bored with the traditional rally using Ferrari Testarossa or Ferrari F40's? Ever thought it may be fun to push a big rig around a race track, or through the streets of a city? Well, here's your chance to push a prime mover in a rally which will take you through some of Europe's most famous cities, racing an infinite number of opponents and the old enemy of computer gamers - the clock.

The European cities have come together to award the "Supertrux Trophy", which is described as the most coveted trucking award ever devised. You and your truck, a cute little red one with a white diagonal stripe, have been allowed to enter this competition. You start in London, where on go, it's off into the first bend, avoiding the opposition and their hazards. Road side obstacles are not a major hazard but if you hit them, your speed is reduced. Other trucks bring you to a complete stop, so be careful when overtaking.

London has another hazard for the unwary driver. Called a 'Box' this consists of a number of red and white witches hats placed on alternate sides of the road. Opposition trucks can drive straight through these, but, alas, you must avoid them. The end of the stage comes in the form of a fork in the road. Decisions, decisions. Do I go left to Brussels or right to Paris? Avoid the truck, steer right and its off to gay Paris. About half way through Paris, the road again splits and you have the choice of hills (where you could almost believe that a truck can fly) or slippery roads where there is a collision waiting around every bend. Back onto the main road and, a while later (about 50 seconds without accidents) you again have to make a choice of city for the next stage, either Rome or Madrid. And on it goes, through Pisa, Venice, Vosges and Athens.

To make it easier, your truck is fully automatic, so the only controls you need are left, right, accelerate (forward) and brake (backwards). Nothing could be easier - could it? All the information you need to play the game is displayed on the top of the screen. On the right hand side you have Rally elapsed time, time left in the current stage, current city, score and speed. On the left are three panels which show upcoming road conditions and control lights. Keep an eye on this section as knowing that a right or left hand turn is approaching is helpful for deciding on which side to overtake an opponent.



Animation of your truck is very good. From the way it moves up and down when it is idling, to the way smoke comes from your brakes on cornering, the sprite are well programmed. Each city has a different background colour and the city seen on the horizon is present, complete with the most famous landmarks of each city. The road side hazards also change in almost every city, and the statues of David along the road in Rome are particularly dangerous (the ones on the left of the road have an arm that invades the road space - go too close and you hit it). Hit road side obstacles and they break apart in a myriad of small fragments.

As a racing game, Supertrux is not bad. It has a bit better speed sensation than the CPC conversion of OUTRUN (which is good if you are driving a semi trailer prime mover, but not so good if you're in a Ferrari Testarossa). The hill sensation is produced by having the bottom of the playing area compress so that it appears that the road is going up. This produces a bit of a problem, because sometimes this doesn't let you see approaching vehicles or obstacles, but that helps to keep you on your toes. For reasons best known to the programmers, the road only goes half way to the horizon, which looks a little bit weird but, that's only a minor gripe. The music which accompanies the well drawn title screen is cheerful, but the in game sounds are limited to the truck sound, which sounds more like a mini minor idling than a truck at full power, and the sounds made by you colliding with something.

ELITE have previously produced some very good games, but unfortunately nothing much of late. While Supertrux is not a great game, it's certainly a much better effort than some of the other driving games that have been produced for the CPC (take Outrun as an example). Driving a truck is a different slant to an old theme and could find a market among those frustrated big rig drivers out there in consumer land.

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...

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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).

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Last month, I failed to include one famous definition (just so I could say that I had written at length about AI without mentioning it) that you have probably heard of before. This originated in 1950 with an English Mathematician called A.M. Turing, and is called the "Turing criterion". Turing postulated that if a person communicating with a computer could not tell whether there was a computer or a person at the other end of the line then the computer's output, and therefore the computer itself, was "intelligent". (Those of you to whom "computer" means something like a CPC may need reminding that this was back in the dark ages when one's VDU - if one had such a luxury - was connected to a more or less distant computer at the other end of a phone line).

This definition is not as bad as you might think at first glance, in fact it encapsulates quite a bit of what I said last month. An "intelligent" computer (or, if you like, an "intelligent" program) ought to respond more or less as an intelligent, helpful person might. Turing correctly identified the actual result, that is the output, as the criterion by which the computer's intelligence is to be judged, not a theoretical examination of the logical validity of the algorithms it used to arrive at its conclusion, nor an analysis of how closely it duplicated human thought processes.

Actually, since Turing's day menu and icon systems of program control have come so far that we might question whether a computer's ability to understand "natural language" (i.e. ordinary English, Russian or whatever) is an essential feature of computer "intelligence" or not. A menu system is almost certainly the best way to "drive" a simple program like "Structured Data"; and a complicated "Mac-style" icon system can surely be "intelligent" too - however we will assume, at least for the time being, that "natural language" input has real advantages for an intelligent program.

Now the ultimate artificial intelligence would no doubt be a generalist, and be able to converse on any subject - for practical purposes however we are more likely to be able to achieve a specialist, with a rather narrow area of expertise. This kind of thing is called an "expert system".

The crudest possible form of this would be something like "Eliza". This program (a version of which, written by me, appeared in an early TAU) follows the psycho-analytic theories of one Carl Rogers - the principle elements of which are, conveniently for our purposes, lack of value judgements and avoidance of premature, "canned" solutions. This "accepting", neutral technique can theoretically be duplicated by limiting the program to a syntactical analysis (with little or no attempt to deduce "meaning") of the user's input. If you have ever played with Eliza you will realise that she is very limited, and that you would not take very long to determine that whatever you had "at the other end of the line" was certainly not an intelligent person! To be fair, she was written very much with tongue-in-cheek,

EXPERT SYSTEMS

Paul Gerard considers a conversation with "Eliza" and provides some new listings too!

and her creator (one Joseph Weizenbaum) was quite shocked to find how seriously she was taken; but the basic trouble with Eliza (as an "intelligence" rather than a joke) is that she attacks the problem from the wrong end. Computers are good at storing and retrieving information (an essential function of "intelligence") while Eliza has no meaningful information to impart at all, only an elaborate set of "keys" which trigger pre-set responses. We will be using a rather Eliza-like (or, if you like, adventure game-like) parser to allow natural language input, so as to try to satisfy the Turing criterion, but the really intelligent part of the program will lie elsewhere, in the way we manipulate stored data.

NOW FOR SOME PROGRAMMING!

I have to assume here that you have your copy of "Structured Data" - either built up as you followed the last series, or acquired "complete" in the last couple of months. Now as I warned you, our "expert system" is going to use a lot of the routines from the older program. The fact that we can do this so easily is, of course, one of the best features of a thoroughly structured approach to programming. As I said last month, if you want to follow this series in any practical way and you don't have a copy of this program (let's call it "SD" in future) then you will have to acquire one. We don't have the space to re-print each routine in its entirety here, but I will indicate line numbers, variables and the function of each routine. Locate each one of these in your copy of SD, and save it separately (by deleting the lines you don't want). If you have a CPC464 with a DDI this will have to be in the form of an ASCII file, thus:

```
SAVE "INPUT.LIB",A
```

as otherwise they will refuse to merge - a CPC664 or CPC6128 does not suffer from this "bug" and the file can be saved as a normal BASIC file, thus saving a little disc space. You will note that I suggest using the file extension ".LIB". This indicates that you are building up a "library" of BASIC routines that will prove useful in

many of your programs. What you call each file I leave up to you, although you will find that descriptive names will save bother later on!

When all of the routines are on a disc (or discs) merge them all together and save the result as "EXPERT.BAS". It will not run in its own right just yet - have patience and this will be rectified.

These are the SD routines you will want :

(a) The "heading" routine (lines 100-190). This prints one of a number of alternative headings, all nicely centered regardless of the screen mode we are in at the time. The user defined function "FNcentre" is of course defined elsewhere, as is the array heading\$(n). To print heading number three (for instance) from our list we call this routine as follows:

```
head=3:GOSUB 100
```

(b) The "input" routine (lines 200-290). For those of you who joined us since the first few articles in the last series - this routine gets around the various quirks of the INPUT command in BASIC. In particular we can look at each character as it is typed in and decide if we want it to be part of our input. Thus we can have the computer accept only numeric input (for instance), or only "Y" and "N". Variables used by this routine which must be set up elsewhere are byte\$ (as you might expect, a single character string), and user.input\$ (a string of 254 characters). We also need an array of strings called control\$(n), which contain sets of "legal" characters for different types of input. In case this seems a lot of string space to take up, notice how all string values are changed with MID\$, thus actually saving string space in the long run. The routine is "called" with a line like this:

```
caps=TRUE:control=1:length=1:GOSUB 200
```

This indicates that all input is to be converted to uppercase, that the legal characters are selected from control\$(1), and that the length of the input is to be restricted to 1 character. Output from the routine is identified by LEFT\$(user.input\$(length)).

(c) The "clear memory" routine (lines 300-390). This is fairly self explanatory - it simply induces a "garbage collection". The call of GOSUB 700 (our general "pause" routine) ensures that the computer pauses long enough for our user to read the "please wait" message, even if the garbage collection itself only takes a fraction of a second.

(d) The "record display screen" routine (lines 400-490). This sets up a neat mode 2 screen that is nice for inputting and displaying data.

(e) The "yes/no" routine (lines 500-590). This gives the user a simple yes/no choice.

(f) The "mode change" routine (lines 600-690). As well as changing the screen mode, this routine sets a variable (modewidth) corresponding to the number of characters wide the screen is in each mode (20, 40 or 80), and also sets up some standard windows.

(g) The "pause" routine (lines 700-730). This is self

explanatory - although note the use of the real number indicator (!) for the variables pause! and t!. This is necessary because we have set up all variables to default as integers with DEFINT a-z in our initialisation. A case of one or two "!"s saving hundreds of "%!"s!! (If you don't know what I am talking about try to get hold of TAU for August 1988 and read my article there, where all is made clear).

(h) The "press any key to continue" routine (line 800-890).

(i) The "menu" routine (lines 2000-2170). We will be keeping this mainly as a kind of backup for the confused user rather than the "primary driver" that it was in SD. All menu options, as well as the lengths of the menus and their starting points in the master list are all kept in master arrays set up when the program is initialised. This is why we can use this same routine for any program using menus!

Got all those saves and merged? Now as I said, these will not run just yet, as we need to set up a main program loop, as well as the initialisation routine and one or two other odds and ends. The following pieces of code all differ, in major or minor ways, from the corresponding lines in SD, although you may find it easier to edit the SD lines rather than type the whole thing in from scratch.

```
5 OPENDOUT "dummy":MEMORY HIMEM-1:CLOSEOUT
10 ' Main program
20 GOSUB 1000 ' initialise
30 WHILE NOT chosen
40 GOSUB 1100
50 IF menu THEN GOSUB 2000
60 IF choice THEN chosen=TRUE
70 WEND
80 CHAIN MERGE choice$(choice),3000,DELETE 10000-
90 chosen=FALSE:GOTO 30
100 ' Heading routine
110 PRINT#2,TAB(FNcentre(heading$(head),0))heading$(head)
120
130 RETURN
140 ' User Input Routine (mark 1.3)
150 long=0:MID$(byte$,1)="#"
160 WHILE byte$<>CHR$(13) AND long<length 'CR or max
length
170 MID$(byte$,1)="#"
180 WHILE byte$="#"
190 MID$(byte$,1)=INKEY$
200 PRINT CHR$(143);:PRINT CHR$(8); 'cursor
210 IF (byte$=CHR$(127)) AND (long>0) THEN PRINT CHR$(8);" ";CHR$(8);CHR$(8);:MID$(user.input$,long,1)="#"
220 long=long-1:MID$(byte$,1)="#"
230 WEND
240 IF byte$=" " THEN IF long=0 THEN 220 ELSE IF (MID$(user.input$,long,1)=" ") THEN 220
250 IF caps THEN IF (ASC(byte$)>=97) AND (ASC(byte$)<
```

```

=122) THEN MID$(byte$,1)=CHR$(ASC(byte$)-32)
270 IF INSTR(control$(control),byte$) AND long<length
THEN long=long+1:MID$(user.input$,long,1)=byte$:PRINT
byte$;
280 WEND
285 PRINT " " 'wipe cursor at end of line
290 RETURN
300 ' clear memory for data
310 CLS#1:CLS#3
320 t!=TIME
330 PRINT#1,TAB((modewidth-13)/2)"Please wait !"
350 room=FRE("")
360 IF TIME-t!<1000 THEN t!=1000-(TIME-t!):GOSUB 700
370 CLS#1
390 RETURN
400 ' Record display screen
410 mde=2:GOSUB 600:WINDOW #3,2,79,4,23:WINDOW #2,1,80,
2,2
415 PEN 1
420 PRINT CHR$(150)STRING$(78,CHR$(154))CHR$(156);
430 GOSUB 100:LOCATE 1,2:PRINT CHR$(149):LOCATE 80,2:PR
INT CHR$(149);
440 PRINT CHR$(151)STRING$(78,CHR$(154))CHR$(157);
450 FOR I=1 TO 20
460 LOCATE 1,I+3:PRINT CHR$(149):LOCATE 80,I+3:PRINT CH
R$(149);
470 NEXT
480 PRINT CHR$(147)STRING$(78,CHR$(154))CHR$(153);
490 RETURN
500 ' Yes/No
510 CLS#1:PRINT#1,TAB((modewidth-12)/2)"Press Y or N"
520 caps=TRUE:PEN 0
530 control=1:length=1:GOSUB 200 ' User input
540 caps=FALSE:PEN 1
550 IF byte$="Y" THEN yes=TRUE ELSE yes=FALSE
590 RETURN
600 ' mode change (Version 1.0)
610 MODE mde
620 modewidth=(2^(mde+1))*10
630 WINDOW#1,1,modewidth,25,25
640 WINDOW#2,1,modewidth,1,1
650 WINDOW#3,1,modewidth,2,24
690 RETURN
700 ' pause routine
710 pause!=TIME
720 WHILE TIME<pause!+t!:WEND
730 RETURN
800 ' press any key
810 CLS#1:PRINT#1,TAB((modewidth-13)/2)"Press any key";
820 WHILE INKEY$<>"":WEND
825 WHILE INKEY$="" :WEND
830 CLS#1
890 RETURN
900 ' User defined functions
910 DEF FNcentre(strg$,offset)=(modewidth-offset-LEN(s
trg$))/2
990 RETURN
1000 'initialise
1010 GOSUB 10000 ' set inks
1040 GOSUB 13000 ' initialise variables
1050 GOSUB 900
1060 mde=1:GOSUB 600 ' set mode & windows for s
tart
1090 RETURN
1100 ' command input
1110 mde=1:GOSUB 600 'set mode
1120 head=menu.number:GOSUB 100 'print heading
1125 mistake=0
1130 choice=1:menu=FALSE
1140 LOCATE 5,12:PRINT"What can I do for you ? ";:lengt
h=10:caps=TRUE:control=11:GOSUB 200:caps=FALSE
1145 IF long=0 THEN 1180
1150 FOR i=1 TO menu.length(menu.number)
1160 IF INSTR(command$(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
2000 ' menu routine (Version 3)
2010 mde=1:GOSUB 600 'set mode
2020 head=menu.number:GOSUB 100 'print heading
2030 choice=1:doit=FALSE
2040 FOR i=1 TO menu.length(menu.number)
2050 LOCATE 7,5+(i*2):PRINT STR$(i)". "menu$(i+start
(menu.number))
2060 NEXT
2070 CLS#1:PRINT#1," 1-"STR$(menu.length(menu.number)
)" to select - [RET] to execute"
2080 WHILE NOT doit
2090 LOCATE 7,5+(choice*2)
"STR$(choice)". "menu$(choice+start(menu
"
2100 control=menu.length(menu.number)-1:length=1:PEN
0:GOSUB 200:PEN 1
2110 IF VAL(byte$)<>choice THEN LOCATE 7,5+(choice*2)
:PRINT STR$(choice)". "menu$(choice+start(menu.number)
)
2120 IF byte$=CHR$(240) THEN choice=choice-1 ELSE IF
byte$=CHR$(241) THEN choice=choice+1 ELSE IF VAL(byte$)
>0 THEN choice=VAL(byte$)
2130 IF choice<1 THEN choice=menu.length(menu.number)
ELSE IF choice>menu.length(menu.number) THEN choice=1
2140 IF byte$=CHR$(13) THEN doit=TRUE
2150 WEND

```

```

2160 choice=choice+(start(menu.number)-1)
2170 RETURN
3000 ' Sub-programs loaded here
3010 CLOSEIN
3015 mde=2:GOSUB 600 ' set mode
3020 GOSUB 900 ' recover functions
3030 GOSUB 300 'clear memory
10000 ' set inks etc.
10010 INK 0,23 ' light background
10020 BORDER 23 ' matching border
10030 INK 1,1 ' default & mode 2 writing
10040 INK 2,0 ' black writing
10050 INK 3,11 ' light blue writing
10090 RETURN
13000 ' initialisation of variables etc.
13010 DEFINT a-z
13015 ' Boolean operators
13020 TRUE=-1:FALSE=0
13030 ' User input
13040 DIM control$(12)
13050 RESTORE 40000
13060 FOR i=1 TO 12:READ control$(i):NEXT 'User input
control
13065 FOR i=2 TO 9:control$(i)=control$(i)+CHR$(240)+C
HR$(241):NEXT
13070 user.input$=STRING$(254,"#")
13080 byte$="#"
13090 menu.number=1
13100 ' Menus
13110 DIM menu$(17)
13120 RESTORE 40100
13130 FOR i=1 TO 17:READ menu$(I):NEXT ' Menu opt
ions
13140 DIM menu.length(6)
13150 FOR i=1 TO 6:READ menu.length(i):NEXT 'Menu leng
ths
13160 DIM start(6)
13170 FOR i=1 TO 6:READ start(i):NEXT 'Menu star
ting points
13200 ' Headings
13210 DIM heading$(6)
13220 RESTORE 40200
13230 FOR i=1 TO 6:READ heading$(i):NEXT 'Heading valu
es
13250 ' Commands
13255 DIM command$(17)
13260 RESTORE 40300
13270 FOR i=1 TO 7:READ command$(i):NEXT "commands"
13280 ' Sub-programs
13282 DIM choice$(3)
13284 RESTORE 40400
13286 FOR i=1 TO 3:READ choice$(i):NEXT ' sub-programs
13300 ' Current file name
13310 file.name$=SPACE$(8)
13315 keep$=SPACE$(12)
13320 file.extn$=".EXP"
13330 file.iden$=file.name$+file.extn$
13340 file.test$=file.iden$
13400 ' Dummy dimensioning of data array
13410 DIM file.data$(1,1),point(1)
13800 ' User defined functions
13810 DEF FNcentre(strg$,offset)=(modewidth-offset-LEN(
strg$))/2
13900 RETURN
40000 ' DATA for control$(n)
40010 DATA "YN","123","1234","12345","123456","1234567"
,"12345678","123456789","1234567890","ABCDEFGHIJKLMNOPO
RSTUVWXYZ 1234567890","abcdefghijklmnopqrstuvwxy ABCDE
FGHIJKLMNOPQRSTUVWXYZ"
40015 DATA "1234567890.,;:&'()/-abcdefghijklmnopqrstu
vwxyz ABCDEFGHIJKLMNOPQRSTUVWXYZ"
40100 ' DATA for menu$(n)
40110 DATA Look at the MENU,SETUP a new expertise,TEACH
existing expertise,ENQUIRE within on any subject,NAME
expertise,DEFINE elements,RELATE elements,CONFIRM exper
tise structure,PERSON,VERB,OBJECT,INSTRUMENT,SURNAME,GI
VEN name(s)/ initials,DATES
40115 DATA BIRTH place,DIED (place)
40120 ' DATA for menu.length(n)
40130 DATA 3,4,5,5,0,0
40140 ' DATA for start(n)
40150 DATA 1,4,8,13,0,0
40200 ' DATA for heading$(n)
40210 DATA Main Menu,Set up new expertise,Teach me !,En
quire herein,Name Expertise,Define Elements
40300 ' DATA for command$(n)
40310 DATA MENU,SETUP NEW START,TEACH OLD INPUT ADD EDI
T,ENQUIRE SEARCH LEARN LOOK,NAME,DEFINE,RELATE
40400 ' DATA for choice$(n)
40410 DATA setup.bas,teacher.bas,enquire.bas

```

You will notice that I have incorporated the "command" structure we discussed last month into this program. We may change this a bit to make it even more flexible, and we will certainly be adding and changing a fair few of the DATA lines, but apart from that THIS PROGRAM IS FINISHED. The reason it won't actually do anything yet lies in line 80.

(80 CHAIN MERGE choice\$(choice),3000,DELETE 10000-)

With this line we move into the area of overlays. You may have run some CP/M programs that use this technique - every now and then the disc drive buzzes and the program pauses for a moment before continuing. What happens is that when an option has been selected, either through the command structure or from the menu, then a subprogram is loaded into memory, MERGED with the current program, and run. All our current variables remain, and we can get rid of all the initialisation lines that we will never need to use again. The advantage of the whole exercise is, of course, that we

will be running a smaller program and thus have more room for data. This is essential for this particular application, as each "function program" is likely to be rather large, and we are probably going to have a fair bit of data. Apart from those "little" pauses while pieces of subprogram are loaded the drawbacks (dare one call them bugs?) in the whole business is that we lose all our user defined functions, and any current loop or GOSUB nesting. There is also, intriguingly, an open input file which must be closed before we try to do anything with files. These quicks are easily enough accommodated - you will notice that line 3010 is a CLOSEIN, and we have moved our functions to a separate routine (at 900) where they can easily be recovered. The last line of each subprogram will need to be GOTO 90 rather than RETURN, but this needn't worry us too much either. Generally it should prove to be an interesting way of maximising the use of our RAM - I say "should" because I have not used this particular technique in BASIC before myself (!) and we will be "learning together"!

For an initial trial of "EXPERT.BAS", save the following very similar programlets as SETUP.BAS, TEACHER.BAS and ENQUIRE.BAS.

```
3000 ' Set up new expert system
3040 head=2:GOSUB 100
3050 LOCATE 7,10:PRINT"This routine will set up a dataf
```

ile, with preset relationships etc."

```
3060 GOSUB 800
3090 GOTO 90
10000 '
3000 ' Edit existing data file for expert system
3040 head=3:GOSUB 100
3050 LOCATE 5,10:PRINT"This routine will enable the edi
ting of datafiles for our expert system"
3060 GOSUB 800
3090 GOTO 90
10000 '
3000 ' Consult expert
3040 head=4:GOSUB 100
3050 LOCATE 14,10:PRINT"This routine will be used for e
nquiries and reports"
3060 GOSUB 800
3090 GOTO 90
10000 '

```

These are "stubs" which will not actually do anything except tell us what they are going to be when they are finished. They are NOT a waste of time, however, as they enable us to test the main or "control" program calling them (see the article in the March 1989 TAU).

See you next month!

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NO FUSS CP/M PLUS

Mike Turner wraps up his series on CP/M Plus with a few extra utilities and commands explained, as well as more useful tips.

Hello again and welcome to this month's epistle on CP/M+. As this is the last article in this series I will cover a real mixed bag of various utilities and hopefully provide you with some helpful hints for the future.

Let's start by looking briefly at some of the other files you will find lurking on your system discs. They are covered in no particular order of importance. In fact there are some files that many users (including myself) will rarely if ever use. Some of these relate to assembly language programming and debugging of such programs. However, once you are aware of what they are all about you will know what to steer clear of if you are a non-programmer. I certainly won't waste your time with half baked explanations of utilities about which I know nothing. There are plenty of publications around that can help you with these should you need to delve further.

A FEW MORE UTILITIES TO LOOK AT

So, on to the utilities for this month. First up let's look at DEVICE.COM which can be used to display or set various logical input or output devices for the computer. It can be used to tell the computer to look for input from a modem or a digitiser rather than expect it to come from the keyboard. You can also use this command to set the parameters for these various devices. Say you have hooked up a modem to the serial

port of your computer, DEVICE will allow you to set up the communications protocol for that port so that it correctly talks to the modem. Don't worry any further about this type of operation at this stage. If and when you fit such a device to your computer adequate instructions should accompany the hardware concerned.

The other thing device can be used for is to alter the dimensions of the screen. You can use this to set the screen to a certain number of rows and columns. Those with PCWs may be aware of a file on their system disc called SET24X80 and your screen then works like other computers with 80 column monitors. The command SET24X80 OFF restores the default 90 column setting.

The next file to look at is DUMP.COM. It allows you to display the contents of a file to the screen in both HEX or ASCII. You may recall the TYPE command can be used to display text files to the screen. However, it is totally useless in displaying .COM type files which come out as a heap of gibberish. DUMP overcomes this by giving you a hexadecimal listing of the otherwise unprintable parts of the file. Great if you have a knowledge of these things and of only passing interest to the rest of us.

Next let's look at two utilities called GET.COM and PUT.COM which are used to augment the normal file management system.

GET can be used to get keyboard input from a file. Once run an application program will look for a disc file to provide input which you would otherwise have to type. I have not yet had the need to use this utility but you may find it useful. PUT is similar but works in the reverse order. It works on a program's output and re-directs it to a file on the disc. Output from the program that would normally go to either the screen or the printer can be re-directed as required. This can be very useful. The resulting output can of course be edited by a word processor and can be included in other documents. This can be handy for production of such things as training manuals or documenting of bugs in programs.

Other common command files to be found on your discs include such things as RENAME.COM and ERASE.COM. I won't dwell on these as they are fairly well covered in your manual. There are also other files relating to GSX which is the Graphics System Extension for CP/M+ residing on your system disc. Again you will rarely need to use these except to run certain pieces of software such as Digital Research's D.R. Draw, in which case the installation process for the package concerned should guide you through the appropriate steps. Consult the HELP utility for further details on these and other command files at your disposal. For those interested in going deeper, there are some quite good books on CP/M+ available including a complete reference manual from Digital Research themselves which is available through The Amstrad User.

Finally this month, I wish to cover a bit more on system management. This is a really broad area and one that is most often misunderstood. True, the term system management grew up in the business environment where one person in the office was given the task of keeping track of what was going on with the computer system; but is equally applicable to home computer use. In the home environment most

users tend to be their own system manager with pretty disastrous results. Many a keyboard command issued either in haste or out of ignorance has resulted in the loss of valuable data that may have taken months to amass. But system management is even more basic than this.

So what should you as a system manager be doing to keep your computer running properly? Well, you should be concerned with all of the following:

- **hardware maintenance and care;**
- **software maintenance and care;**
- **prevention of errors** (operator and otherwise);
- **data integrity and security;** and
- **education of users.**

CARE OF YOUR EQUIPMENT

Even though Amstrad have brought home computing into the reach of many people through competitive pricing, computer equipment still isn't cheap by most peoples standards. So why reduce its life by not treating it properly? Be guided by the manual that accompanied your particular machine. In it will be contained some useful hints on how to keep your computer like new. Here are some general rules that I abide by in my home. They are really common sense, but may not be apparent to the uninitiated.

Firstly keep the equipment clean. I shudder to think of the number of times that I have visited peoples homes and found computers and other electronic equipment struggling to survive under a layer of dust. Heat, dust and excessive moisture are the greatest enemies of all electronic equipment. If you do not have dust covers for your computer then either buy or make some as soon as possible. Nylon shower curtain material from your local draper will do the trick. The covers don't have to be snug fitting, in fact it's best if a bit of air is left to circulate. However, all components should be thoroughly covered when not in use. Vacuum your equipment at least once a week. That's right once a week! You would be sur-

prised what manages to get down between the keys on your keyboard that a mere dusting with a cloth won't clean.

Try to keep your equipment out of direct sunlight from windows nearby. Again covering the machine when not in use will suffice here. This will ensure that the plastic casing of your monitor, keyboard etc. will not be weathered by ultra violet radiation in the same way that car dashboards weather in the sun. Do not eat drink or smoke when operating the computer. Apart from the obvious risk of spilling a cup of coffee down the guts of the machine, food crumbs and smoke particles can also cause damage. Children with biscuits and potato chips are public enemy number one on my list of computer destroyers. Despite your best attempts, the keys on your computer will eventually become slightly soiled with use. Follow the cleaning instructions in your manual to clean off the accumulated grime. In the absence of other advice, I have found slightly diluted methylated spirits applied sparingly with a cotton bud will clean up stained keys quite well.

We have all at one time or other put a cleaning tape through our stereo tape decks or our video recorders to get rid of oxide build up from the magnetic tapes that pass through these machines. Well, disc drives also suffer the same fate. A floppy disc is also a form of magnetic media. Dust particles and magnetic oxide can affect the performance of your disc drive. If you haven't already used a cleaning disc in your computer do so as soon as possible and keep doing so on a regular basis. This will help prolong the drive's life and prevent disc read errors.

Keep your printer free from dust and grime. Paper dust from continuous stationery will quickly build up inside your printer as will other dust and debris. The vacuum will help here and help avoid damage from this build up of grime. Printer ribbons also tend to deposit excess ink on the print head and on the paper guides. Only clean what you

can easily access without dismantling things like the print head itself. Should these ink deposits start to cause problems and affect the quality of your printing, seek professional help from a reputable service centre.

Don't try to cut corners with costs on consumables like printer ribbons. Trying to prolong the life of a ribbon with oil base lubricants like WD40 or RP7 is sheer madness. Whilst it will work in the short term, the long term damage to your print head will prove very costly! You may re-ink your ribbons with proper dot matrix ink available from such suppliers as AusSoft in Brisbane. This ink is specially formulated with the correct emollients to prolong print head life. However, be sparing in its use to avoid build ups of ink deposits as mentioned earlier.

Store your floppy discs in a clean dry place away from strong magnetic fields. Just as you shouldn't leave audio or video tapes on top of a TV or computer monitor, so to should you treat your discs with care. This will help ensure that the previous data they contain will not become corrupted.

SOFTWARE TIPS AND TRAPS

The most neglected thing that people do with regard to software is the use of work discs rather than the originals. I have stressed this many times during these tutorials and I hope that it has not fallen on deaf ears. I know that there are certain pieces of software around that are uncopyable. This is an unfortunate legacy bequeathed to us by software pirates. Companies are often forced to these sort of measures to help ensure their continued survival.

However, having said that, if the disc is copyable, then copy it for your own use only. The original of the software concerned should then be stored in a safe place, preferably in a different building from that which houses the computer. I know this sounds a bit extreme but it really isn't. I will talk more about "off-site" storage of magnetic media in a moment. These original discs will form a back up of the software that

you will use daily. Should a work disc become corrupted you can simply make another one from the original. If the making of a work disc involves some form of installation process, then it might be advisable to store a copy of the installed version of the program to suit your machine along with the original. This will save time in the reconstruction process should disaster strike.

WHAT SOFTWARE TO CHOOSE

While we're on the subject of software, choose what you buy carefully. The best guide you can have as to whether a particular package will be suitable for you is to see it in operation. It is preferable to talk to people who are using it already and see what degree of success they are having, along with any problems. The next best source of information is reviews of various packages in magazines such as this one. Don't just take the word of a salesman in your local department store that this package is for you.

Stick to tried and tested products. This is no guarantee of success mind you. I have heard all sorts of reports about bug ridden programs like the latest version of Mini Office Professional for the PCWs for example. Upgrades aren't always what they seem. Still, if you always use legitimate software, at least you will have some form of support from the manufacturer or distributor should problems arise.

BACKING UP

As well as the originals of your software you should also store in a safe place back up copies of discs containing important data. Taxation records, household inventories for insurance purposes, your university thesis etc. are all examples of what I would classify as being important files. Don't be a penny pincher when it comes to purchasing discs. What is important to realise here is that your time is a very valuable commodity. The price of a CF2 disc is far less than a couple of days re-keying in all of your tax records from scratch in the event of a disaster. That's assuming that you have the information necessary to enable you to do this. Quite often the computer record is the only one you have, as in the case of a taxation diary for recording laundering expenses for uniforms. Why tempt fate by not having a backup copy?

The method you use will depend on the number of files you consider to be in this "important" category and what software you have available to you for the purpose of making back ups. There are programs around that will squeeze data onto back up discs with a considerable saving of space. One such program is NewSweep which is available from The Amstrad User on one of the Public Domain CP/M discs. Text files backed up in this manner can occupy as little as 40% of the disc space of the original. All of a

sudden the back up process isn't as expensive as you would have first thought. The big thing to remember is to back up regularly and to verify that what you have copied to the second disc did in fact get there intact.

Now let's talk about "off-site" storage of back ups. The principle behind this is both simple and sound. If the computer goes up in smoke, at least you will have retained the majority of your software and data with which to start again on another machine. As an example, more and more people are using computers for family tree research. The months or in some cases years worth of research that goes into these studies could all be lost in a house fire. So why not store back ups at a relative's house or in a secure cabinet at your work?

EDUCATION OVERCOMES IGNORANCE

During this series we have concentrated on learning more about the CP/M+ operating system. Don't hoard this information but share it with other users in your home or office as applicable. I know people say that a little knowledge is dangerous, but I firmly believe in involving people with computers at all levels. Not everybody wants or needs to be a programmer but it is getting to the stage these days where we will all need to be computer literate to some degree in order to survive. Don't stop here. Keep striving to know more about computing and take pleasure in mastery over your machine. Then you can really have fun and be creative.

Well folks that's it for this series. I've had fun writing for you and hope I've been able to help some of you along the way. Stay tuned for further CP/M+ related articles in future issues of TAU. I have some items planned that I think will be of interest to all of you. May I wish you and yours all the best for the Christmas season. And so, until the New Year, Happy Computing.



Just a reminder that while this handsome fellow goes about his business we take a break from ours for a few weeks of rest and relaxation. The Amstrad User mail order service will therefore be unattended between **Tuesday 19th December** and **Monday 15th January**. We'll be back raring to go after that!

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AUTOMATIC FORTH+

This is the last article in Roger Williams' series on Forth+. This month Roger provides an auto start-up feature and more...

I hope you read Mike Turner's CP/M Plus tutorial in the August 1989 issue of this magazine. Thank-you Mike, for saving me the trouble of explaining how SUBMIT.COM works. SUBMIT is the secret of creating auto start-up discs, and is particularly useful with FORTH+. In my first article on FORTH+ I recommended that your work disc should be in CP/M Plus system format, and should also contain a copy of the CP/M .EMS file for your machine. If you followed this advice you should now copy SUBMIT.COM and your favourite text editor to your work disc.

Last time we used screen 8 to add several new words to our system. Did you wonder why I did not start with screen 7? I wanted to reserve screen 7 for use with the automated start-up procedure. Enter FORTH+ as you have been doing so far, request the EDITOR and list screen 7 (if this screen is not empty, either clear it or change to a screen which is empty). Make line zero a comment line which indicates that this is the start-up screen, and make line 1 print a message to the same effect. Line 2 should contain the instructions

```
2 LOAD 3 LOAD 8 LOAD
```

and line 3 should contain the ;S stop-loading command. Use the list screen 6 "trick" to force FORTH+ to record your new screen on the disc,

exit from the EDITOR by typing FORTH+
<cr>, and then exit back to CP/M by typing BYE<cr>. As a precaution, re-enter FORTH+ and list screen 7 (or whatever screen you have decided to use). If what you have typed looks okay, load this screen (i.e. type 7 LOAD<cr>) to confirm that the stack dump and memory dump utilities, and your vocabulary extensions can all be loaded from this screen. Typing VLIST<cr> will display the names in the vocabulary, and pressing any key will halt the display so that it can be inspected. (Press the C key to continue the listing, or the Q key to return to FORTH+). The dictionary is listed backwards, so only the first few lines need be checked. When you are sure that everything works as it should, return to CP/M.

Now for the auto start-up feature. Use your text editor to create the following PROFILE.SUB file-

```
FORTH+
<NFORTH.SCR
<7 LOAD
```

The first line tells CP/M to load and run FORTH+. The less than (<) character at the start of lines two and three tells SUBMIT to pass these lines to the running program just as if you, the user, had typed them at the terminal. (The second line assumes that you have experienced the screen loading problem which I described in my first article on

FORTH+; if this is not the case, it can be omitted). Once this file has been created on your work disc, totally reset your computer (CTRL/SHIFT/ESC on a CPC6128), place your FORTH+ work disc in the default drive, and activate CP/M Plus (1CPM on a CPC6128). Not only should CP/M load, but FORTH+ should be started, find its default screen file, and load the utilities and vocabulary extensions. If you exit back to CP/M for any reason, typing SUBMIT PROFILE will restart FORTH+ for you.

For CPC users, only one problem remains - remembering to set CAPS LOCK (this may also apply to PCW users; I haven't been able to check). Although it is somewhat of a digression, there is a very neat solution to this CAPS LOCK problem for CPC users, and I cannot resist including it in this article, particularly as Joseph Elkhorne has been carefully explaining the intricacies of assembly language in recent issues, and many readers appear to be intrigued but mystified by CP/M's USERF function. The CPC6128 FIRMWARE has a routine to set/reset the CAPS LOCK/SHIFT LOCK status of the keyboard; its address in hex is BD3A, but this is in bank 0 and not directly available to user programs which CP/M Plus runs in bank 1. However CP/M Plus allows access to this, and other FIRMWARE routines through USERF. What follows is the 8080 assembler code to set CAPS LOCK on a CPC6128. I know that this computer has a Z80 processor, and I know that some readers might be upset because I have not used Z80 assembler. My reason is that every user has MAC.COM and HEXCOM.COM on their system discs; not every user will have made the effort to acquire (or even be interested in) a Z80 assembler.

If you have plenty of free space on your FORTH+ work disc, copy MAC.COM and HEXCOM.COM onto it from your system discs; if not, you will have to do a bit of disc juggling. Use your text editor to create the following file with the

name SETCAPS.ASM. (To allow for the column size of this magazine, all comments have been made on separate lines, and can be omitted if you like).

(See listing above...)

Type MAC SETCAPS<cr> to assemble and, providing no errors are detected, type HEXCOM SETCAPS<cr> to create the executable file. (The most likely source of errors in this program is confusing the number zero with the letter oh; check lines 5 [one hundred H], 14 [zero FFH], 16 [L, zero], 22 [zero BD3AH] and 24 [zero]. Line 6 has a one, not an el, following the LHL D instruction). To test this program, make sure that your keyboard is set to lowercase and then run your new program by typing setcaps<cr>. Now see what happens when you type something to CP/M. It should be in CAPITALS.

Once your adventure with assembler has been completed, you can include the SETCAPS program into your auto startup of FORTH+. Use your text editor to make SETCAPS the first line of PROFILE.SUB; which should now look like -

```
SETCAPS
FORTH+
<NFORTH.SCR
<7 LOAD
```

Check that all is okay by com-

pletely resetting your computer and invoking CP/M from your FORTH+ work disc. I hope you are pleased (and impressed?) with the improvements we have achieved.

Now back to Starting Forth, and the missing words from Chapter 5. The first two I found are 2* and 2/. They are not really necessary, but if you want them add the following definitions to screen 8, remembering to keep the line containing the ;S instructions as the last line of this screen.

```
: 2* 2 * ;
: 2/ 2 / ;
```

NEGATE in the book is called MINUS in FORTH+. You can either remember this or add it to the screen 8 as

```
: NEGATE MINUS ;
```

For second edition readers, R@ can be replaced by I, but it cannot be defined this way as a new word in your dictionary! The reasons relate to the way FORTH+ uses the return stack. A suitable definition is

```
: R@ R> R> DUP >R SWAP >R ;
```

First edition readers will find that neither I nor J are available. Since these are mainly used with loops, I will not bother with them at this stage. In fact, I am going to take a

```
; CPC6128-CP/M PLUS FIRMWARE
; CALL TO SET CAPS LOCK
; FIRST - SET UP CALL TO USERF.
; (1) GET BIOS WBOOT ADDRESS
                ORG 100H
START:         LHL D 1
; (2) ADD OFFSET TO USERF ENTRY
                LXI B,87
                DAD B
; (3) STORE JUMP ADDRESS
                SHLD USERF+1
; 2ND - SET UP REGISTERS.
; (1) CAPS LOCK ON
                MVI H,0FFH
; (2) SHIFT LOCK OFF
                MVI L,0
; 3RD - MAKE THE CHANGE.
                CALL USERF
; USERF NEEDS THE ADDRESS OF THE
; FIRMWARE ROUTINE AS AN INLINE
; PARAMETER, SO -
                DW 0BD3AH
; 4TH - ALL DONE, SO EXIT TO CP/M.
                JMP 0
; HERE IS THE PROGRAM'S ENTRY
; TO USERF; THE ACTUAL ADDRESS
; IS SET FROM ABOVE.
USERF:         JMP 0
                END
```

ASSEMBLY LISTING

little holiday for a couple of months. Please let the Editor of the magazine know if you want more on FORTH+, SCI, ED.COM or USERF. Bye for now.

...listing continued from page 30

```
550 WHILE TESTR(0,-2)<>col AND YPOS>endy:WEND
560 IF spoint<101 AND YPOS>endy THEN storex(spoint)=XPO
S:storey(spoint)=YPOS:spoint=spoint+1
570 WHILE TESTR(0,-2)=col AND YPOS>endy:WEND
580 WEND
590 side=pixwid
600 NEXT
610 MOVE topx,topy:DRAW topx,endy+2
620 linecount=linecount+1
630 linex(linecount)=topx
640 linetopy(linecount)=topy
650 linendy(linecount)=endy+2
660 spoint=spoint-1
670 MOVE storex(spoint),storey(spoint)
680 IF storex(spoint)>639 OR storex(spoint)<0 OR TESTR(
0,0)<>col THEN 660
690 WEND
700 RETURN
710 ' Fill lines with pattern
720 FOR count=1 TO linecount
730 FOR county=linetopy(count) TO linendy(count) STEP -
2
740 PLOT linex(count),county,pmatrix((linex(count))/2) M
OD 8,(county/2) MOD 8)
750 NEXT
760 NEXT
770 RETURN
```

PRETTY PICCIES

Travis Hall has waited ages to see his PCW Dr. Logo listings, but here they are! You'll love them.

This month I'm going to give you all some programs I have written in Logo. These are some great little programs that only take a few seconds to type in, and can be very useful to you. (*Make for nice pics too -Ed.*)

```
Program 1a :-      >to triin :side
                  >repeat 3 [fd :side rt 120]
                  >end
```

```
Program 1b :-      >to tris
                  >triin 20
                  >triin 30
                  >triin 40
                  >triin 50
                  >triin 60
                  >triin 70
                  >triin 80
                  >triin 90
                  >triin 100
                  >end
```

```
Program 1c :-      >to rectin :side
                  >fd :side
                  >rt 90
                  >fd :side * 4
                  >rt 90
                  >fd :side
                  >rt 90
                  >fd :side * 4
                  >rt 90
                  >end
```

```
Program 1d :-      >to squarein :side
                  >repeat 4 [fd :side rt 90]
                  >end
```

```
Program 2 :-      >to pyramid
                  >st
                  >rt 160
                  >tris
                  >lt 20 fd 95
                  >rt 90 fd 35
```

```
Program 3 :-      >ht
                  >end
                  >to nedkelly
                  >squarein 60
                  >pu setpos [ 10 30] pd
                  >rectin 10
                  >pu setpos [ 20 33] pd
                  >squarein 2
                  >pu setpos [ 40 33] pd
                  >squarein 2
                  >pu setpos [ 35 0] pd
                  >rt 180 squarein 10
                  >fd 10 lt 90
                  >fd 40 rt 90 fd 40
                  >pu setpos [25 -10] pd
                  >rt 90 fd 40
                  >lt 90 fd 40
                  >ht
                  >end
```

```
Program 4a :-      >to blades
                  >repeat 4 [ triin 40 rt 90]
                  >ht
                  >end
```

```
Program 4b :-      >to windmill
                  >pu bk 40 pd
                  >lt 90 rectin 30
                  >fd 5 rectin 5
                  >pu rt 90 fd 90 pd
                  >blades
                  >ht
                  >end
```

```
Program 5a :-      >to web
                  >squarein 10
                  >squarein 20
                  >squarein 30
                  >squarein 40
                  >squarein 50
                  >squarein 60
                  >squarein 70
                  >squarein 80
                  >squarein 90
                  >end
```

```
Program 5b :-      >to webs
                  >repeat 4 [ web rt 90]
                  >ht
                  >end
```

```
Program 5c :-      >to weblines
                  >repeat 16 [fd 150 bk 150 rt 22.5]
                  >ht
                  >end
```

```
Program 5d :-      >to spiderweb
                  >window
                  >webs
                  >weblines
```

```

>end
Program 6a :-
to mitsubishi
>lt 30 fd 50 rt 60 fd 50 rt 120 fd 50 rt
60 fd 50 rt 60 fd 50
>lt 60 fd 50 lt 120 fd 50 lt 60 fd 50 rt
120 fd 50 lt 60
>fd 50 lt 120 fd 50 lt 60 fd 50
>end

```

```

Program 6b :-
>to flower
>repeat 4 [mitsubishi]
>end

```

```

Program 7 :-
>to ironcross
>st
>lt 30
>repeat 4 [ tris rt 90]
>ht
>end

```

```

Program 8 :-
>to flagin :side
>st
>repeat 36 [fd :side squarein :side bk
:side rt 10]
>ht
>end

```

```

Program 9a :-
>to square
>st
>repeat 4 [ fd 40 rt 90]
>ht
>end

```

```

Program 9b :-
>to board
>st
>repeat 3 [square fd 40]
>rt 90
>ht
>end

```

```

Program 9c :-
>to board 2
>st
>pu bk 40 pd
>repeat 4 [board]
>ht
>end

```

```

Program 10 :-
>to cottage
>ht
>pu setpos [ 110 20] pd
>setpos [-110 20]
>setpos [-70 60]
>setpos [70 60]
>setpos [ 110 20]
>setpos [ 90 20]
>setpos [ 90 -60]
>setpos [-90 -60]
>setpos [-90 20]
>pu setpos [ 20 -60] pd
>seth 0 st
>end

```

```

Program 11a :-
>to arm
>fd 40
>seth 0
>rt 150
>triin 15
>pu home pd
>end

```

```

Program 11b :-
>to arms
>arm
>seth 80
>arm
>seth 140
>arm
>seth 200
>arm
>seth 260
>arm
>seth 320
>arm
>end

```

```

Program 11c :-
>to ferriswheel
>rt 30 bk 80
>triin 80 fd 80
>arms
>ht
>end

```

```

Program 12a :-
>to leye
>fd 40 lt 90 fd 40
>bk 40 rt 90 bk 40
>ht
>end

```

```

Program 12b :-
>to reye
>fd 40 rt 90 fd 40
>bk 40 lt 90 bk 40
>ht
>end

```

```

Program 12c :-
>to bloodshot
>repeat 36 [lt 10 leye]
>lt 90
>pu fd 60 rt 90 pd
>repeat 36 [rt 10 reye]
>pr [I FEEL TERRIBLE]
>pr [NO MORE DRINK FOR ME]
>ht
>end

```

Programs 1a to 1d are the important programs that act as primitives in the other listings. Those programs with the same number and a letter next to them should be kept together as they build on each other.

Note: first load up CP/M and put in the disc with Dr. Logo. Type LOGO at the CP/M prompt and type cs once in Dr. Logo. You can now type in the programs. Associated programs will all need to be loaded together, of course, as Logo needs to recognise these primitives.

FULL TO THE BRIM

Returning with the last in his series of articles on fill algorithms, here's Gary Koh.

This month marks the last article in this series on fill algorithms. To finish it off we will be looking deeper into pattern fill algorithms.

As we saw last month it was fairly easy to rig up a simple pattern fill. But things rapidly get complex as we try to go further than this. Admittedly you see plenty of examples of pattern, or stipple fills as they may be called, all over the place. But just remember, these are written either in machine code or on computers many times more powerful than a CPC and they make use of very complicated algorithms. I am not trying to re-invent fills, but to teach you about them.

The one real major stumbling block to producing one is knowing whether an area has been filled in or not. This might sound a bit silly, but as we will soon see it is a real pain in the neck.

Say we had a pattern like figure 1. This pattern has a

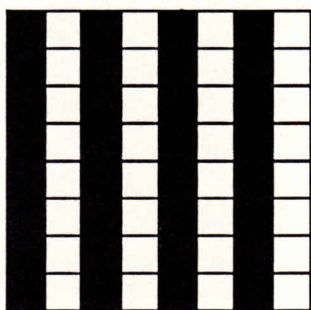


FIGURE 1

lot of empty lines in it. Now, take figure 2 as a part of an area to be filled in. The area marked B is the area the fill is filling in and the fill is moving towards the left. The area starting at the line marked A between the two blocks is empty and needs to be filled. Now, how do you tell if the area starting at A has been filled in or not?

This might sound like a silly question but it is not. What happens if the area is filled? If you did not do any checking, the fill would just go in it and get lost. The

problem is that it is not a very simple matter to check if an area has been filled in or not.

One way is to check the sequence of pixels in the line marked A as the fill searches down the line next to it and see if it matches the pattern that is being used to do the fill. This, at first glance might seem to work. However, what happens if line A happens to coincide with one of those empty vertical lines in the pattern in Figure 1? The fill would just abandon that area although it needs to be filled in.

What other way could you use then? The only other way I can think of is to have some way of remembering the sections it has filled in, but even this is not 100% effective. If a fill using this second method alone came across a section that was filled in with the same pattern as it was filling, but that section was filled in at a different time and is not stored, then the fill would get a bit lost. The best alternative would be to have a combination of the two methods.

The only problem now is that an algorithm based on this technique is going to need a very large amount of processing power to work effectively, and a fair bit of memory work space. Doing this in Basic would be excruciatingly slow and the only real alternative is machine code. That alone makes it unsuitable to our needs.

One other way, based a bit on that technique is to have a kind of "block fill". This works by searching quickly in an outline of a box and then filling it in. At the edges of this one big box you set up smaller boxes and so on. This makes it fast, but it only works well if the area to be filled in is not complicated.

Besides these there is another method you could use. This involves storing a whole bit image of the screen somewhere else in memory. This second screen needs to have four different colours. You transfer the real screen to this, but you convert them into two different colours on the "second" screen. For instance, say the real screen supports 16 colours on at the same time. The fill algorithm would look at the pixel at the storing position to fill in and store away this colour, say in the variable col. When it transfers the screen to the second screen it will convert all the pixels in colour col to say colour one on the new screen and all the other fifteen colours would be converted to say colour two on the new screen.

We then go to the starting pixel in the second screen and fill in that section with the third colour using a normal flood fill. Now what we have on the second screen are two or three main colour areas. The next thing is to transfer the second screen to the main screen. Only the pixels in the third colour are transferred and when they are transferred they are plotted in the main screen in the shape of the pattern.

This technique would work best for very complex fills. Undoubtedly it is not exactly the best algorithm in the world; it needs a huge amount of memory, but it goes to show you how many varied ways there can be

to solve a problem.

Obviously our main problem is going to be creating an algorithm that does not require a heap of processing power like the above ones. The solution then is to limit the cleverness of the algorithm. There are three ways I can think of to do this.

One way is to have something like that simple shape fill I first showed you, except instead of filling in solid colour it would fill in a pattern.

The second way allows you to have a flood fill, but with restrictions on colour. When you fill in an area what you are doing is replacing a certain section of colour with another colour. A pattern fill just replaces that old colour with a new colour, but with bits of the old colour showing through where there are gaps in the pattern. This is just like placing a character on the screen where the foreground colours the character and the background colour (paper) shows through the gaps.

This is where the problems lies when you are using something like that flood fill algorithm and try filling in with a pattern. This algorithm relies on looking for the old colour and replacing it with the new colour. If you placed a pattern onto the screen there are going to be areas of old colour in it. Like I said before the problem is how does it tell if a section of old colour is actually a part of the pattern and already has been filled. The solution here is to have the two colours used in the patterns different from the old colour. That however severely limits the colours you can have. It would also be impossible to use in mode 2.

The third way is to design an algorithm in such a way that it can never search back on itself so it will never encounter the pattern it is filling in and get mucked up. You can base this on something like the simple shape fill algorithm, by making it have a memory as it searches left or right.

All these three solutions are very limited as pattern fills. The trouble here is really to do with filling the shape in as we go along. But what if we left that till last?

This happens to be the basis of the solution I have adopted. What this algorithm does is to fill in the area conventionally first, but storing all the lines as it goes along. When it finishes this, it goes back and replaces the lines it stored with patterned lines. This method ends up working quite well, but at a large cost to memory, rendering it infeasible for a commercial product, but it is an interesting way to solve this problem, and it is not hard to understand or is obscure. This is the pseudocode listing of it.

Pattern fill algorithm

```
Do Set up variables
Do Set up pattern matrix
Do Seeking fill
Do Fill lines with pattern
End of algorithm
```

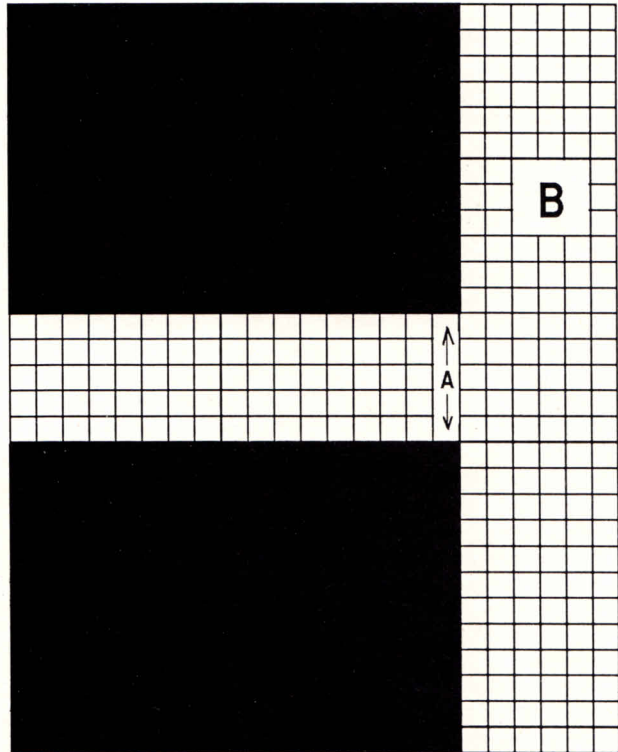


FIGURE 2

Subroutine: Set up variables

```
col=colour of the pixel we are on
pencil=colour to fill
if col=pencil 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
maxlines=800
linex(maxlines), linetopy(maxlines), linendy(maxlines) for line
storage
linecount=0
Move to pixel at (storex (1), storey (1))
End of subroutine
```

Subroutine: Seeking Fill

```
While spoint<>0 and linecount<maxlines 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 sncnt=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)
    linecount=linecount+1
    linex(linecount)=topyx
    linetopy(linecount)=topy
    linendy(linecount)=endy
    Repeat
      spoint=spoint-1
      Move to pixel at (storex(spoint),storey(spoint))
    Until pixel we are on<>col
  End
End of subroutine

```

Subroutine: Fill lines with patterns

```

For count=1 to linecount Do
  Begin
    For county=linetopy(count) to linendy(count) Do
      Begin
        Change pixel at (linex (count),county) to colour
        pmatrix(line(count) mod 8,county mod 8)
      End
    End
  End
End of subroutine

```

This algorithm looks a bit different from any ones in the past because it was so big I decided to break it up into subroutines. One subroutine, Set up pattern matrix, was given last week and so is not in the listing.

The main part of this algorithm is based on last months flood fill algorithm and looks almost the same except for a few extra bits that store the line in the arrays linex, linetopy and linendy. The only part that is radically different is the Fill lines with pattern subroutine. This has the job of getting the lines that were stored in the three arrays and filling them in with a patterned line.

Listing 1 gives you the Basic version of the algorithm. Unlike last months fill algorithm this one does not employ any machine code, to make it easier to dissect and understand. This one is a little different from previous listings in that the arrays needed by the fill are defined in the fill and erased after the fill has finished.

With this listing ends our series on fill algorithms. I hope you have had as much fun with fills as I have had!

```

1 REM  Pattern Fill Algorithm
2 REM      by Gary Koh
3 REM  The Amstrad User, Dec. '89
4 REM
100 ' Demo part
110 '
120 DEFINT a-z
130 MODE 1:INK 1,26:INK 2,0:SYMBOL AFTER 32
140 MOVE 50,115:DRAWR 380,0,3:DRAWR 0,-52:DRAWR -380,0:
DRAWR 0,52
160 LOCATE 5,20:PRINT"abcdefghijklmnopqrstuv"
170 LOCATE 1,1
180 pixwid=2:pencol=2:pat=207:MOVE 54,108:GOSUB 210
190 END
200 ' Pattern fill routine
210 GOSUB 280 ' set up variables
220 GOSUB 380 ' Set up pattern matrix
230 GOSUB 460 ' Seeking fill
240 GOSUB 720 ' Fill lines with pattern
250 ERASE linex,linendy,linetopy,storex,storey,pmatrix
260 RETURN
270 ' Set up variables
280 col=TESTR(0,0)
290 IF col=pencol THEN RETURN
300 maxlines=800
310 DIM storex(100),storey(100),linex(maxlines),linetop
y(maxlines),linendy(maxlines),pmatrix(7,7)
320 storex(1)=XPOS:storey(1)=YPOS
330 PLOT 800,800,pencol
340 spoint=1
350 linecount=0
360 RETURN
370 ' Extract pattern
380 loc!=(HIMEM+(pat-32)*8)+1
390 FOR y=0 TO 7
400 FOR x=0 TO 7
410 IF (PEEK(loc!+y) AND 2^(7-x))>0 THEN pmatrix(x,(7-y
))=pencol ELSE pmatrix(x,(7-y))=col
420 NEXT
430 NEXT
440 RETURN
450 ' Seeking fill
460 MOVE storex(spoint),storey(spoint)
470 WHILE spoint<>0 AND linecount<maxlines
480 WHILE TESTR(0,2)=col AND YPOS<400:WEND
490 topx=XPOS:topy=YPOS-2
500 WHILE TESTR(0,-2)=col AND YPOS>0:WEND:endy=YPOS
510 side=-pixwid
520 FOR sndcnt=1 TO 2
530 MOVE topx+side,topy+2
540 WHILE YPOS>endy

```

...continued page 25

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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COMMS PROBLEMS

Joseph Elkhorne offers some advice for users suffering from "Handshaker's Cramp"!

As you get more experienced with your computer, you will discover that you can transfer data from BASIC programs to other applications. Indeed, most software these days allows greater flexibility than ever before in exporting and importing data fairly easily.

Even a simple program like DBQ has the import and export quality facility. A typical example is given in the documentation of a BASIC program to organise a file for use by DBQ.

On one job, I started organising the technical manuals by listing them on WordStar. Before long, I saw the process was getting out of hand, so modified the text file for handling by dBase III+. It took some fiddling, but was easier and quicker than keying in all the data again.

Software transfers may take a little planning, but they are almost certainly easier than hardware bashing. If you started out with a 464 and have progressed to perhaps a machine of the MS-DOS ilk, you've probably wished there was an easy way to transport some of the file you created on the first machine.

Naturally, the dialects of BASIC will differ, so programs themselves would be of limited use - but text and data files could be utilised on the new computer.

In certain instances, you can use a utility like PC-Alien to read "foreign" discs. I've successfully done this with 5-1/4" discs created on a CP/M based terminal called a "Topper" but never succeeded with my Amstrad format(s).

And, of course, the IBM compatibles don't know anything about the 3" disc size and format. Another approach, therefore, must be found.

The most direct - and confoundedly hardest way - is with serial communications. Someone once suggested that the C in RS-232C is for Clayton's. The alleged standard for serial transfer has more variants than a mongrel has fleas.

Although only about 7 lines of the D-25 connector are vital for hardware control, the road to success has a surfeit of pitfalls. Probably no single concept in the computer industry has caused more grief than RS-232C, except perhaps that of "compatibility".

The simplest serial connection between two devices uses only 3 wires, 2 to 3 crossed, and 7, signal earth. Provided neither end demands one or more lines be tied to a certain voltage, communication is achieved by means of software control.

Handshaking is the term used for control of transmitting and receiving data. If the data pouring out of one end cannot be assimilated by the receiving device, characters will be missed or corrupted. Essentially, one piece of equipment must be able to say "I'm capable of accepting data," and the other to assert, "I'm ready to spit it out."

Software handshaking uses XON-XOFF control characters. Hardware Control can involve DSR, DTR, RTS, CTS, and other arcane terms. Devising a cable to satisfy the demands for both pieces of gear requires patience, knowledge - and sometimes, a magic wand!

To further confound the novice, hardware rigged for serial interchange will also require software. The rate of transfer, number of data bits, stop and start bits and the evil thing called "parity" must all be taken into account.

In some cases, these factors are set by DIP switches. A further lurk exists in that the switches are normally "read" on power-up. Changing them with the unit activated will cause no change. Many a person has fallen into this trap in trying to get his first serial printer to work properly.

Even experienced practitioners who think they know what they are doing will likely not succeed with a new rig they go.

You will absolutely need the handbooks on all the gear. A reference text on RS-232C will be helpful. The good ones point out the problems and offer solutions. This will keep you from re-inventing the wheel, as it were. A test instrument such as a breakout box, or even a so-called mini-tester will probably be useful. And the flashing lights are nice to look at...

Add a couple of connectors, some cable, the soldering iron - and be prepared to spend a lot of time.

As an example of why you might bother with all this, suppose you had heaps of C source code on discs created on the old machine. You could, of course, do hard copy and then key in everything, and then spend heaps of time debugging the typos.

Better to bite the bullet and learn about serial communications the hard way. There isn't any easy way. If you've previously added a serial printer or a modem, you have a head start on some computer enthusiasts.

My first modem was an old and dumb CEI. It only required a general purpose ribbon cable to hook up between the PACE interface and the unit. No agony was involved. A few DIP switches on the modem front panel handle a few of the variables. Handshaking was configured via the firmware, and I usually used XON-XOFF in telecommunicating.

About three months after I started using it, I'd outgrown it. So I bought another brand with bells and

whistles. The CEI was loaned to a programmer acquaintance, who has delved into hardware more than some.

He rang me shortly after borrowing it - finding the dumb terminal he'd hooked it up to, simply didn't want to talk to the BBS computer. I could only advise him to investigate the configuration of the terminal, i.e. parity, bits etc.

This bloke had previously used the terminal with a couple of other borrowed modems, only needing to cable the two together. What the problem was in this instance, I have no idea. This example will give you some idea of what you're in for, when you get into the area of serial communications.

The complete RS-232C implementation can use all 25 lines. Each of them might be referred to by four different names. Further, not all manufacturers do things the same way!

"The New Hacker's Handbook" by Hugo Cornwall gives a short discussion of the RS-232C standard. This book has also a wealth of useful information in other areas.

SYBEX offer an excellent text called "The RS-232 Solution" by Joe Campbell. This is a complete how-to guide for trouble-free interfacing, and well worth the money. It is written in a readable and informative style.

I have a copy of the former at home, and convinced one of my employers to buy the latter. In its first problem-solving, the purchase paid for itself in time saved, and perhaps proved that 're-inventing the wheel' is not the best way to do business.

Moving to another topic, I present a little program which started solely as a self-appointed task. I got rather annoyed at a dumb program which insisted number entry be in fixed format. Thus '003' was required instead of only '3' so I said to myself, surely it can't be too hard to do it the human way. After I developed the subroutine, I wondered what to do with the thing.

Then, I hit on the idea of generating 'random numbers' - or pseudorandom, to the purists. Putting the two ideas together resulted in the accompanying listing.

As I'm writing this in September, I don't feel much of the Christmas spirit yet. When you read this column in December, however, accept my wishes for the best of the holiday season and a great 1990.

```

; program -- numb
; number guessing game
; begun May '87
;
bdos equ 5 ; cp/m hook
prints equ 09h ; print string call
buffin equ 0ah ; read console buffer call
datim equ 69h ; get date & time call
;
; routine to generate a "random" number
; 18/05/87 - J.L. Elkhorne

```

```

org 100h
lxi d,rand
mvi c,datim ; get date & time call
call bdos
xra a ; zero accumulator
mov d,a
mov e,1 ; copy returned value to e reg.
lda rand+3 ; use minutes as loop counter
multy: dad d ; go forth and multiply
dcr a ; decrement loop counter
jnz multy ; do more if not finished
;
; make sure <1000
check: mov a,h ; check msb
cpi 3
jc ok
jz lesser ; if match, check lsb
dcr h
jmp check
lesser: mov a,l ; check lsb
cpi 0e0h
jc ok
ani 11011111b ; logical mask to lessen
mov l,a
;
; main program block
ok: shld random ; save random number
mvi a,3 ; length of string
sta nbufrr
ok1: call getkey ; get user's guess
lda random+1 ; get high byte value
lxi h,numero+1 ; point to user's guess
cmp m ; does a = m?
jz clow ; if so check lower byte
jc toohi ; user's bigger than random
jmp toosml
;
clow: lda random ; get low byte value
dcx h ; pointer goes back one
cmp m
jz match
jc toohi
;
toosml: lxi d,sml
mvi c,prints
call bdos
jmp ok1
;
toohi: lxi d,big
mvi c,prints
call bdos
jmp ok1
;
match: ; prompt tells user he got it and bye
ret
; ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** ** **
; routine to accept numeric input 0 - 999
; 16/3/87 - j.l. elkhorne
;
getkey: mvi c,prints
lxi d,plentr ; prompt for input
call bdos
lxi d,nbufrr ; the store address

```

```

mvi    c,buffer
call   bdos
lda    nbuffer+1
cpi    01
jz     unit
cpi    02
jz     ten
;
lda    nbuffer+2    ; hundreds
call   num          ; strip ascii value
ora    a            ; look for true zero flag
jz     t            ; go if zero encountered
ldi    h,0
ldi    d,100d
cs:    dad    d      ; make 1st hundred
dcr    a            ; decrease counter
jz     t            ; go if finished
jmp    cs
;
t:     lda    nbuffer+3    ; get 2d digit
call   num
ora    a            ; look for true zero flag
jz     u
ldi    d,10d        ; tens value
ts:    dad    d
dcr    a
jz     u
jmp    ts
;

```

```

u:     lda    nbuffer+4    ; get 3d digit
call   num
ora    a            ; look for true zero flag
jz     numout
ldi    d,1
us:    dad    d
dcr    a
jz     numout
jmp    us
;
ten:   lda    nbuffer+2    ; get 1st of 2 digits
call   num
ora    a            ; look for true zero flag
jz     un
ldi    d,10d
tens:  dad    d
dcr    a
jz     un
jmp    tens
;
un:    lda    nbuffer+3    ; get 2d of 2
call   num
ora    a            ; look for true zero flag
jz     numout
ldi    d,1
uns:   dad    d
dcr    a
jz     numout
jmp    uns
;
unit:  lda    nbuffer+2    ; one digit of one
call   num
ldi    h,0
mov    l,a
;
numout: shld  numero      ; put away and
ret     ; go back to calling routine
;     ***   ***   ***   ***   ***   ***   ***
; subroutine to verify numeral in range 0 - 9
num:   sui    30h        ; drop from ascii value
cpi    0
jm     splat           ; if not a number
cpi    10d             ; see if too big
rm     ; in range, so go back
;
splat: lxi    d,numum    ; wrong number message
mvi    c,prints
call   bdos
pop    psw             ; correct stack
jmp    getkey
;     ***   ***   ***   ***   ***   ***
plentr db    0ah,0dh,'Please enter number (0-999) ... $'
nonum  db    0ah,0dh,'Not a number, bozo!$'
big    db    0ah,07h,' is too big!$'
smll   db    0ah,07h,' is too small!$'
numero ds    2          ; store for main program use
random ds    2
nbuffer ds    5         ; 1st 2 digits describe string
rand   ds    6
end

```



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In a previous issue of The Amstrad User we concentrated on the master document which is merged with a data file to give a set of personalised letters or labels. This month we look at the data file.

Our ladies in the mail order department often gets asked if LocoMail can sort a data file such as an address list into alphabetical order. The answer is no, LocoMail can't - but Mallard BASIC can.

This articles looks at how you can use Mallard BASIC to sort your LocoMail data file. You won't need to know about BASIC to put this into practice, but we do assume you have got to grips with LocoMail.

A programming language like Mallard BASIC lets you use the PCW in the traditional way computers are used. You write commands and the PCW carries them out. Unfortunately, you can't just give the command "Sort my data file," you have to break down this complex command into a number of simple steps- a program.

Mallard BASIC is particularly suited to sorting files, since in addition to the features that most versions of BASIC have, Mallard is able to handle so-called keyed files. These files effectively have a built-in alphabetical index which Mallard keeps up to date for you. Consequently, it is very easy to use Mallard to sort information in a LocoMail data file by reading it into a keyed file and then reading back the information in alphabetical order before writing the sorted LocoMail data file back onto the disc.

However, you can't just use Mallard BASIC by putting in a disc and resetting the PCW, as you do to use LocoScript. Instead, you first need to load CP/M, then you can run Mallard BASIC.

We'll describe how to use Mallard BASIC to sort your file shortly, but first a note about LocoMail data files. LocoMail data files are typically LocoScript documents. Unfortunately, Mallard BASIC cannot work with LocoScript

files: like most CP/M programs, Mallard uses ASCII (American Standard Code for Information Interchange). ASCII is a way of representing textual information in a standard (if rather limited) way. LocoScript 2 documents do not use ASCII, they use a much more complex system to represent the characters so that all the formatting information can also be remembered. So, before you can use Mallard to sort your LocoMail data file, you have to convert it to ASCII.

The way to convert your LocoScript data files to ASCII is to use LocoScript's "Make ASCII" file feature. Then you'll be able to use your data file with Mallard BASIC. The sorted file the program produces will also be ASCII and you may think this means that you have to convert it back to LocoScript before you can use it again with LocoMail. However, LocoMail does not need the full power of LocoScript documents to represent the data; in fact, it also accepts ASCII files for the data files. So you can use the sorted file straight away.

DECODING THE DATA FILE

The structure of a LocoMail data file is first a record pattern, then a sequence of data records. Each of these is governed by a strict set of rules:

- The record pattern consists of patterns for each data item, possibly starting with or

separated by spaces or tabs, and finishing with a record terminator - a special character.

- Each data item in the record pattern consists of a "name" made up of letters and numbers, possible spaces or tabs and then a separator - which can be one of a set of special characters.
- The data records consist of data items, each of which is terminated by the separators defined in the pattern.

Working through the records bearing in mind these rules allows us to read and understand the data. Converting this into Mallard BASIC commands is the secret of breaking down the operation of sorting the data file into a program.

For example, a typical record pattern might be:

```
First_name<cr>
Last_name<cr>
Street<cr>
Town<cr>
County<cr>
Postcode<cr>
```

This requires the following data records to consist of each subject's first name, a carriage return, their last name, a carriage return, the first line of the address, a carriage return etc. until the fourth line of the address where the end of the record pattern is marked by an End-of-page character. What our sort program has to do is to read this pattern so that it can ask whether to sort on First_name or Last_name

SORTING & LOCOMAIL

It isn't possible to sort data files into alphabetical order from within LocoMail but it can be done with this basic program...

MIXING CP/M AND LOCOSCRIPT DISCS

CP/M and LocoScript organise their discs in the same way but use them differently. CP/M splits its files into 16 user groups. LocoScript also splits its files into 16 groups, but you can only use 8 of them (corresponding to the CP/M User groups 0 to 7). LocoScript uses the remaining 8 groups to hold the Limbo files. These Limbo files are only deleted when LocoScript needs space for a new file.

The problem is that a LocoScript disc might appear to be half empty, when the other half is full of Limbo files. Such a disc looks almost full to CP/M as it thinks the Limbo files are real files. In addition, if you save files in CP/M in User groups 8 to 15, LocoScript might delete these files because it thinks they are Limbo files.

We advise you not to mix LocoScript discs with CP/M. Instead, reserve some discs for use with CP/M and only use LocoScript to read the files on them or to save new ASCII files on them.

etc. Then it reads each record into a keyed file, remembering the item separators, and so sorts the data.

There are a number of programs which can do this task and on page 11 we give an example of such a program for you to use. This will sort a LocoMail data file which has been saved in ASCII. You will need to type in the program following the instructions we give later, and then use it to sort your data files. You'll be able to use the sorted data file with LocoMail, but you won't be able to use LocoScript 2 to edit it after sorting unless you use the "Insert Text" feature to convert it back to a LocoScript 2 document.

To keep the program simple, you will have to supply the maximum number of characters in any of your data records and the number of data items in each record.

It would take too much space to describe the whole program in detail here, but for those who are interested, an outline of how it works will now follow.

The program starts with a section (lines 1000-1320) which sets up all the information that Mallard requires. This asks for details of the data records, makes sure that enough memory is set aside to hold all the information and creates the keyed file on disc which will be used to sort the data.

The next section (lines 1330-1590) reads the record pattern of the LocoMail data file looking for the

various names of the data items and the item separators. It stops when it finds the signifying the end of the record. It is also prepared to understand the / form of record separator using a special subroutine which starts at line 2500. However, it cannot understand (UniT) terminators because these, like other LocoScript codes, were removed when you converted the data file into an ASCII file. This section relies on the rules for the pattern to extract the various item names and separators and they are used later to decode the items in the data records. The names are also used in the next section (lines 1600-1710) where the user is asked which of the data items are to be used to sort by.

The next 25 or so lines are obeyed repeatedly, once for each set of real data in the file. First a record is read (and its items are decoded). Then a "key" is constructed from the items to be sorted. Then the record is saved in the keyed file, marked with this key. These simple steps essentially sort the data file!

The lines 2010-2320 read back the records in sorted order and write the sorted data file to disc. Of course, this section also adds the record pattern at the very beginning of the data - otherwise LocoMail wouldn't understand it!

The lines 2330-2770 look at the characters in order to find the start of the next record and recognise when the end of the file has been

reached. They also deal with such special cases as two consecutive carriage returns and line feeds.

TYPING THE SORT PROGRAM.

Note: We suggest that you use the newly formatted disc as your 'Sortmail' disc - i.e. to store the Sort program and the ASCII versions of your data files. If necessary, prepare this first using LocoScript's Format disc option (see p. 76 of the User Guide).

1. Load CP/M from your CP/M master disc (Side 2 on 8256/8512, Disc 2 on 9512)
2. Load Mallard BASIC by typing BASIC<cr>
You will see Mallard's copyright message followed by the prompt OK.
3. Replace the CP/M master disc by your Sortmail disc.
4. Type AUTO 1000<cr> so that Mallard will prompt you with the line numbers of the program.
5. Type the program lines following the line numbers exactly as shown, terminating each by pressing <cr>. Otherwise the program will not work correctly.
Be careful to distinguish between 1 (one) and I (letter) and between 0 (zero) and O (letter). Also look out for the lower case l (ell) which resembles both 1 and I. If you make a mistake, use [] and [] to move around the line and [DEL] and [DEL] to remove incorrect characters. You can only correct the line you're working on - if you notice a mistake in a previous line wait until you've finished typing the program then re-type the whole of the incorrect line including the line number.
6. When all the lines have been typed, press [STOP]. BASIC will display the OK prompt. It is now time to retype any incorrect lines.
7. Type SAVE "SORTMAIL"<cr> to save the program to disc as SORTMAIL.BAS.

SORTING A DATA FILE.

1. If the data file is a LocoScript document, use LocoScript's Make ASCII file option to create an ASCII version of the file and store this in group 0 on your Sortmail disc (see p. 153 of the User Guide). If the data file is already ASCII, simply copy it to your Sortmail disc (e.g. using LocoScript's Copy file option).
2. Load CP/M from your CP/M master disc (Side 2 on 8256/8512, Disc 2 on 9512)
3. Load Mallard BASIC by typing

- BASIC<cr>
4. Replace the CP/M master disc by your Sortmail disc.
 5. Type RUN "SORTMAIL"<cr>
- The program will prompt you for the name of the data file, the maximum record size and the maximum number of fields in each record i.e. the number of data items specified in the record pattern, and finally the number of the data item you want the file sorted on. If you type any of this incorrectly, the program will give you an error message (see page 12). Simply

restart the program by typing RUN <cr> and type in the details again.

Important: The maximum record size you give should be the number of characters in your largest record - plus a few because Sortmail needs extra space for carriage returns and end-of-record markers. However, the size doesn't need to be precise - so we suggest rounding it up to 100 or 200.

When the program has finished, your data file will be sorted in the order you specified and ready for use with LocoMail.

The Sortmail Program

```

1000 REM SORTMAIL.BAS : sorts ASCII LocoMail data files
1010 REM written by Locomotive Software Ltd : January 1988
1020 REM featured in "Script" Issue 2 : Jan 1988
1030 '
1040 disp = -1 'set disp=0 to avoid displaying records
1050 '
1060 IF FIND$( "SORTFILE.$D" ) <> "" THEN KILL "SORTFILE.$D"
1070 IF FIND$( "SORTFILE.$I" ) <> "" THEN KILL "SORTFILE.$I"
1080 IF FIND$( "SORTFILE.BAK" ) <> "" THEN KILL "SORTFILE.BAK"
1090 '
1100 tab$=CHR$( 9) 'tab
1110 ff$ =CHR$(12) 'formfeed (end of page)
1120 eof$=CHR$(26) 'end of file
1130 cr$ =CHR$(13) 'carriage) return
1140 lf$ =CHR$(10) 'line feed
1150 crlf$=cr$+lf$
1160 '
1170 infile =1
1180 keyfile=2
1190 outfile=3
1200 '
1210 INPUT "File to be sorted: "; filename$
1220 INPUT "Maximum record size: "; recsize
1230 INPUT "Maximum number of fields: "; maxfields
1240 '
1250 BUFFERS 10
1260 MEMORY ,,MAX(recsize,128)
1270 '
1280 OPEN "I", #infile, filename$
1290 pb$=""
1300 CREATE #keyfile, "SORTFILE.$D", "SORTFILE.$I", 2, recsize
1310 DIM name$(maxfields), sep$(maxfields)
1320 '
1330 PRINT
1340 PRINT "Reading the pattern"
1350 PRINT "_____"
1360 PRINT
1370 GOSUB 2340 'find start of the pattern
1380 crcr = -1 'amalgamate CRs
1390 namechar$="ABCDEFGHIJKLMNOPQRSTUVWXYZ_012345789"
1400 ' Continentals should add their accented characters!
1410 fld=0
1420 WHILE (c$<>ff$) AND (c$<>eof$)
1430 fld=fld+1
1440 fldname$=""
1450 WHILE INSTR(namechar$,UPPER$(c$)) <> 0
1460 IF LEN(fldname$)<16 THEN fldname$=fldname$+c$
1470 GOSUB 2590 'read a character
1480 WEND
1490 name$(fld)=fldname$
1500 GOSUB 2440 'skip spaces
1510 sep$(fld)=c$
1520 GOSUB 2590 'move past separator
1530 GOSUB 2440 'skip spaces
1540 IF c$="/" THEN GOSUB 2500 'check for / terminator
1550 WEND
1560 '
1570 PRINT #keyfile,eof$; 'mark end of pattern
1580 rc=ADDREC(#keyfile, 0, 1, "Pattern")
1590 IF rc>0 THEN PRINT "Pattern add failure: "; rc
1600 PRINT
1610 PRINT "Field names:"
1620 PRINT "_____"
1630 PRINT
1640 FOR f = 1 TO fld
1650 PRINT USING "### &"; f; name$(f);
1660 IF (f MOD 3)=0 THEN PRINT ELSE PRINT TAB((f MOD 3)*28);
1670 NEXT
1680 PRINT
1690 PRINT
1700 INPUT "Type field number to order by: "; keyfield
1710 IF keyfield<1 OR keyfield>fld THEN GOTO 1640
1720 PRINT
1730 PRINT "Reading records to sort"

```

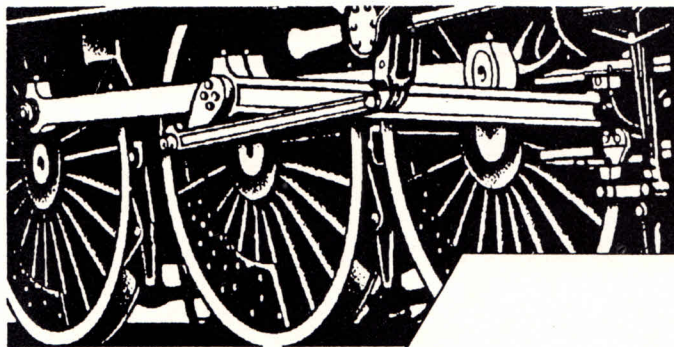
LOCOSCRIPT

```

1740 PRINT "-----"
1750 recs = 0
1760 WHILE NOT EOF(infile)
1770   recs = recs + 1
1780   GOSUB 2340 'find start of record
1790   IF disp THEN PRINT:PRINT "Record "; recs
1800   FOR f = 1 TO fld
1810     crcr = (sep$(f)=crlf$+crlf$)
1820     item$=""
1830     IF disp THEN PRINT name$(f);" = ";
1840     WHILE (c$<>ff$) AND (c$<>sep$(f)) AND (c$<>eof$)
1850       IF disp THEN PRINT c$;
1860       IF LEN(item$)<31 THEN item$=item$+c$
1870       GOSUB 2590 'read character
1880     WEND
1890     IF disp THEN PRINT
1900     IF f=keyfield THEN key$=item$
1910     IF f=flid THEN 1950 'stop at last separator
1920     crcr = (sep$(f+1)=crlf$+crlf$)
1930     GOSUB 2590 'read past separator
1940     GOSUB 2440 'skip spaces
1950   NEXT
1960   PRINT #keyfile,eof$; 'mark end
1970   rc=ADDREC(#keyfile,0,2,key$)
1980   IF rc>0 THEN PRINT "Data add failure: ";rc
1990 WEND
2000 CLOSE #infile
2010 PRINT
2020 PRINT "Writing records in sorted order"
2030 PRINT "-----"
2040 PRINT
2050 NAME filename$ AS "SORTFILE.BAK"
2060 OPEN "O", #outfile, filename$
2070 '
2080 rc=SEEKRANK(#keyfile,0,1) 'first record in sorted file
2090 PRINT "Pattern"
2100 recs = -1
2110 WHILE rc=0 OR rc=101 OR rc=102
2120   recs = recs + 1
2130   IF disp THEN IF recs>0 THEN PRINT:PRINT "Record "; recs
2140   GET #keyfile
2150   c$=INPUT$(1,#keyfile)
2160   WHILE c$<>eof$
2170     PRINT #outfile, c$;
2180     IF disp THEN PRINT c$;
2190     c$=INPUT$(1,#keyfile)
2200   WEND
2210   IF disp THEN PRINT
2220   rc=SEEKNEXT(#keyfile, 0)
2230 WEND
2240 IF rc<>103 THEN PRINT "Seeking failure: ";rc
2250 '
2260 CLOSE #outfile, #keyfile
2270 KILL "SORTFILE.$$D"

2280 KILL "SORTFILE.$$I"
2290 PRINT
2300 PRINT UPPER$(filename$); " now sorted"
2310 PRINT "Original version is saved as SORTFILE.BAK"
2320 END
2330 '
2340 ' subroutine to find start of record
2350 ' -----
2360 '
2370 c$="" 'we have not seen FF
2380 crcr = 0 'do not amalgamate CRs
2390 GOSUB 2590 'skip a character
2400 GOSUB 2440 'skip spaces
2410 IF c$=crlf$ THEN GOTO 2390 'skip CRs
2420 RETURN
2430 '
2440 ' subroutine to skip spaces and tabs
2450 ' -----
2460 '
2470 IF (c$=" ") OR (c$=tab$) THEN GOSUB 2590:GOTO 2470
2480 RETURN
2490 '
2500 ' subroutine to spot special pattern terminator /CR
2510 ' -----
2520 '
2530 GOSUB 2710 'fetch next character
2540 IF c$<>crlf$ THEN pb$=c$ : c$="/" : RETURN
2550 PRINT #keyfile,c$;
2560 c$=ff$
2570 RETURN
2580 '
2590 ' subroutine to read character (or last put back)
2600 ' -----
2610 '
2620 IF c$=ff$ OR c$=eof$ THEN RETURN 'FF/EOF ends all items
2630 IF pb$<>" THEN c$=pb$:pb$="":GOTO 2680
2640 GOSUB 2710
2650 IF c$<>crlf$ OR crcr=0 THEN GOTO 2680
2660 GOSUB 2710
2670 IF c$=crlf$ THEN c$=crlf$+crlf$ ELSE pb$=c$:c$=crlf$
2680 PRINT #keyfile, c$;
2690 RETURN
2700 '
2710 ' subroutine for raw character read
2720 ' -----
2730 '
2740 IF EOF(infile) THEN c$=eof$ ELSE c$=INPUT$(1,infile)
2750 IF c$=lf$ THEN 2740 'ignore line feed
2760 IF c$=cr$ THEN c$=crlf$ 'but convert CR to CR+line feed
2770 RETURN

```

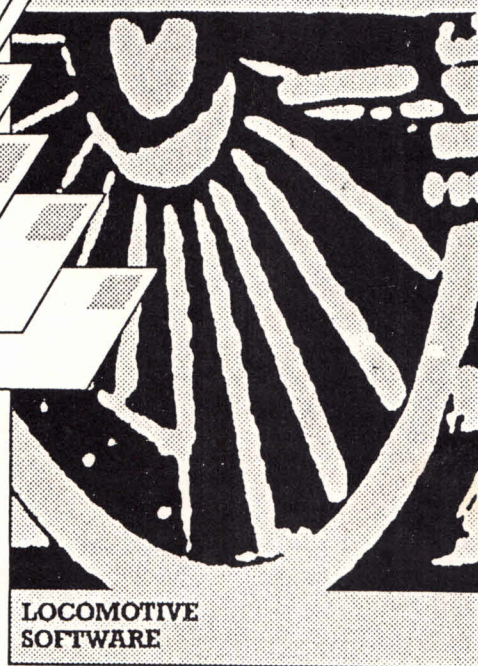
LocoMail for LocoScript 2

Mr J Smith
24 Larches Rise
New Westering
Hessex

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

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

LocoMail
Mail Merge for LocoScript 2



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

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

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

- | | |
|------------------------------|----------|
| • LocoMail | \$105.00 |
| • LocoScript2 with LocoSpell | \$130.00 |
| • LocoMail User Guide | \$54.95 |
| • LocoMail Examples Disc | \$17.50 |

Mail your orders to:
THE AMSTRAD USER,
641 High Street Road,
Mount Waverley, Victoria. 3149.
Phone your firm orders to:
(03) 233 9661
Bankcard, Mastercard or Visa accepted.

AUTOCAD'S DAUGHTER

From the makers of AutoCAD comes a powerful, low-cost drawing tool for students and professionals alike - AutoSketch.

AUTOSKETCH is a full-function computer-aided design package for generating line art. It opens up a whole new world of possibilities for PC users who have the need to express their ideas by using drawings.

AutoSketch is very easy to use and most users are drawing within an hour. And the benefits are immediate. Drawings become far more accurate and you spend less time creating them.

One of the most attractive aspects of AutoSketch is that it is powerful

but cost-effective, it retails in Australia for just \$250.

Line art can be created automatically with a mouse, using pulldown menus and dialogue boxes. With AutoSketch you can draw lines, arcs, circles, points, polygons and spline curves. (Spline curves are curves fitted to a frame of control points that have been specified. The more control points specified the smoother the curve).

If you want to draw a circle, for example, you simply select "circle" from the menu and indicate the centre and radius and AutoSketch draws the circle for you.

Once something is drawn, it can be moved anywhere in a drawing; it can also be copied, stretched, rotated, mirrored or scaled. To duplicate a square that has been drawn, AutoSketch can do it automatically.

Objects can be combined into groups and edited as a whole, which means you can simultaneously scale both squares in a drawing to a larger size. Objects

can also be erased or broken apart and text of any size can be placed anywhere in a drawing.

Everything a user does is instantly shown on the screen. If you change your mind you can undo anything that's been done, then change your mind again by using the redo facility to put it back.

With AutoSketch, repetitive drawing is virtually eliminated. Previously made drawings can be inserted as parts, building up libraries of frequently used symbols.

Drawing can also be done in colour. If a colour monitor isn't available, then colours can be assigned to a drawing and then printed with colour ink pens in a plotter.

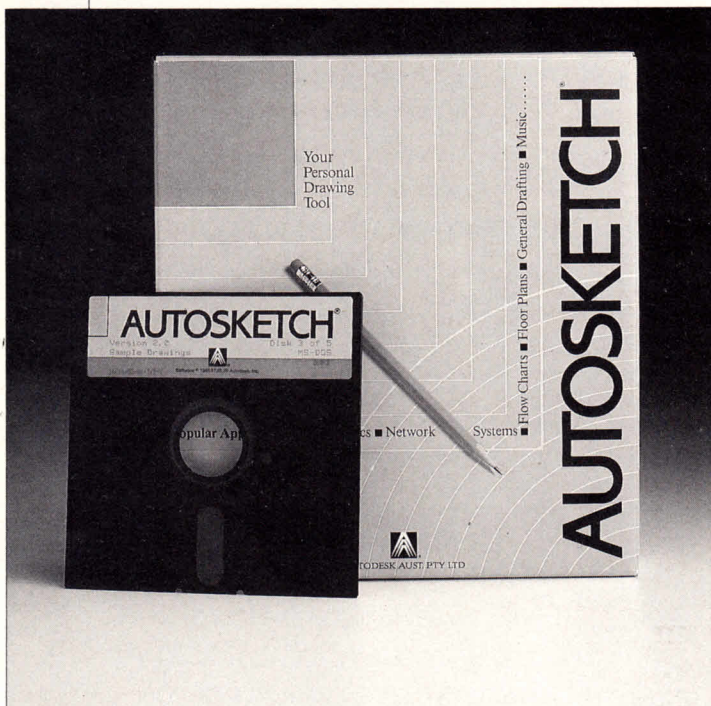
There are 10 layers on which to draw in AutoSketch; you can work on, look at and print those layers individually or in any combination. When designing a house, for example, the floor plan can be put on one layer, electrical circuitry and plumbing on a second, furniture on a third and landscape design on a fourth. Each layer can be further distinguished with different colours and line types.

AutoSketch drawings are precisely maintained, with an accuracy of more than six significant digits. Drawings can be dimensioned by pointing to the distances to be measured, and when the drawing is scaled or stretched, the dimensions change automatically.

The program allows a user to "zoom in" on a small section of the drawing to work in detail, then "zoom out" to see the whole picture. AutoSketch also allows for the measurement of angles and areas.

When a design is complete, a paper copy can be made on any one of a large selection of printers and pen plotters. And any section of a drawing can be printed at any scale.

If a user wants to go further with computer-aided design than AutoSketch, then they can move on to AutoCAD, the most widely used computer-aided design software in the world. AutoSketch drawings are



DRAW	CHANGE	VIEW	ASSIST	SETTINGS	MEASURE	FILE	0% 12:00
Function Key (Alt+F3) A3 Arc Portion of a circle (Alt+F4) A4 Circle Spine curve Fill Region NEW Line (Alt+F1) A1 Part Insert or existing drawing Point (Alt+F2) A2 Polygon Sequence of connected lines Text 8 New Fonts	Function Key Undo last operation F1 Redo Reverses "Undo" F2 Erase F3 Group (Alt+F9) A9 Combine separate objects Ungroup (Alt+F10) A10 Move F5 Copy F6 Stretch F7 Property Change color, layer or line type Rotate Scale Mirror Break F4 Cut an object Chamfer NEW Fillet NEW Box Array NEW Ring Array NEW	Function Key Last View F9 Last Plot Box Zoom X Choose magnification Zoom box F10 Enlarge boxed area Zoom limits View of drawing limits Zoom full View entire drawing Pan F8 Shift view of drawing Redraw	Toggle On/Off Ortho (Alt+F5) A5 For horiz and vert lines Frame Displays spline curve frame Grid (Alt+F6) A6 Displays grid of dots Snap (Alt+F7) A7 Alignment aid Attach (Alt+F8) A8	Set values and drawing modes Attach Box Array NEW Chamfer NEW Color Curve Fillet NEW Grid Layer Limits Line type Part base Pick Property Ring Array NEW Snap Text Units	Distance Angle Area Point Displays pointer coordinates Bearing Compass direction Angle dimension NEW Align dimension Horiz dimension Vert dimension Show properties Dimension in feet & inches NEW	New Open Save Save as Make DXF NEW Allows drawing to be read by AutoCAD Read DXF Pen info Select pen colors and speeds Plot area Select paper size, scaling, and orientation Plot name Assign plot file name Plot Send drawing to plotter Information Displays version number Game Make slide Makes "snapshot" of drawing View slide Quit Exit AutoSketch	Memory Usage Meter

This schematic of AutoSketch's menu bar was taken from the Quick Reference Card supplied by the package. Note the Memory Usage Meter and 24-hour clock in the top right hand corner.

fully compatible with AutoCAD version 2.5 and later.

AutoCAD slides of AutoSketch drawings can also be produced - all that has to occur is for the user to pick AutoSketch's "make slide" command. (Slide files are useful for desktop publishing applications).

If you have a 8087, 80287 or 80387 math co-processor you will be able to use the enhanced version of AutoSketch. This allows you to run AutoSketch as much as nine times faster than the regular version.

Despite its low cost, AutoSketch is used by an incredible amount of design professionals. In fact, AutoSketch can be used by any professional who needs to draw something, whether they be an industrial designer, architect or interior designer.

AutoSketch is also being used widely in construction and manufacturing, and it's a great school aid to assist in educating students in fields such as graphics, technical drawing, engineering, industrial arts and commercial design.

WHAT THE PROFESSIONALS THINK

A good example of the professional application of AutoSketch can be found in its use to design interiors at the Adelaide Convention Centre.

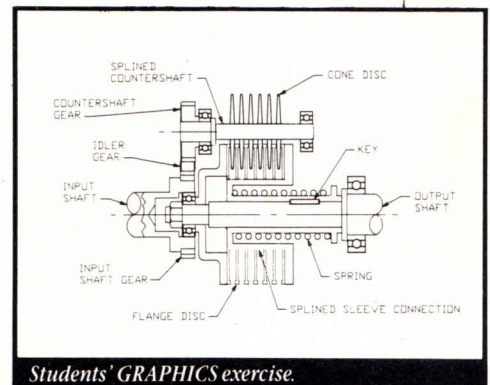
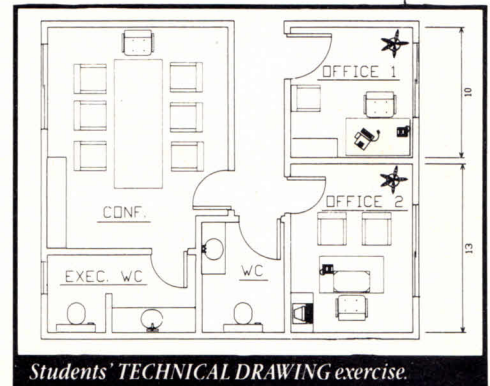
For different events, the Centre can be completely internally rearranged. Matching layouts to clients' requirements to produce interior plans quickly and effectively is done completely with AutoSketch.

"In a few hours I was hooked. Most of the design work is now done by myself and two assistants, and none of us have a computer background.

"Every client wants to see what it's going to look like. They want to be sure they are going to get the most out of the space they are hiring.

"When we have the design the way we want it, we make the drawings for the client right here. It saves us time, money, and gives us control over the whole design process."

Richard Quigley
 Operations Manager
 Adelaide Convention Centre



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 it 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.

Garfield fans rejoice. Now you can create your own Garfield cartoons, posters and labels. With "Create with Garfield - Deluxe" the process is easy. Within 5 minutes of putting the disc in the drive I had a 1 page poster printed out.

Since this program is aimed at children, the simplicity of use is an important factor. The program is all menu driven and the Escape key can get you out of every option (and out of the program). The disc is copy-protected (a definite minus) so you have to use the original disc all the time. I am not in favour of this, but I suppose it does help stop software theft.

In the "Create with Garfield - Deluxe" program you are invited to create a scene with Garfield and friends (Jon, Odie, Nermal et al) in various settings and backgrounds. A good selection of backgrounds and "stick-ons" (props or additional pictures) are provided to give a great variety of scenes and situations in which to place the characters. Additional backgrounds and stick-ons are provided on the library disc. The library disc can be accessed from the menu or if you are using 3.5" discs, they are on the same disc.

To create a scene, you first select a background, then select the "stick-ons" that you want to use, placing each one by using the arrow keys to position them. You can then add text in several different sizes, with or without balloon surrounds. After your comic genius is captured on the screen, you may then send your masterpiece to a disc or print it out as a cartoon, poster or four page poster. A cartoon is approximately one quarter of the page, while a poster is almost a full A4 page with a line around the edge. A four page poster

THE CAT'S IN THE BAG!

Shane Kelly discovers two educational software titles featuring the world's laziest yet most popular feline fur-ball - Garfield!

is printed in sections, requiring cutting and pasting for the final product to take shape.

If you were limited to the scenes and stick-ons provided, the novelty would soon

scenes and have them displayed continuously. In this way it is possible to create a "cartoon" with a running theme. A program is supplied to display the scenes created with various scroll and fade options.

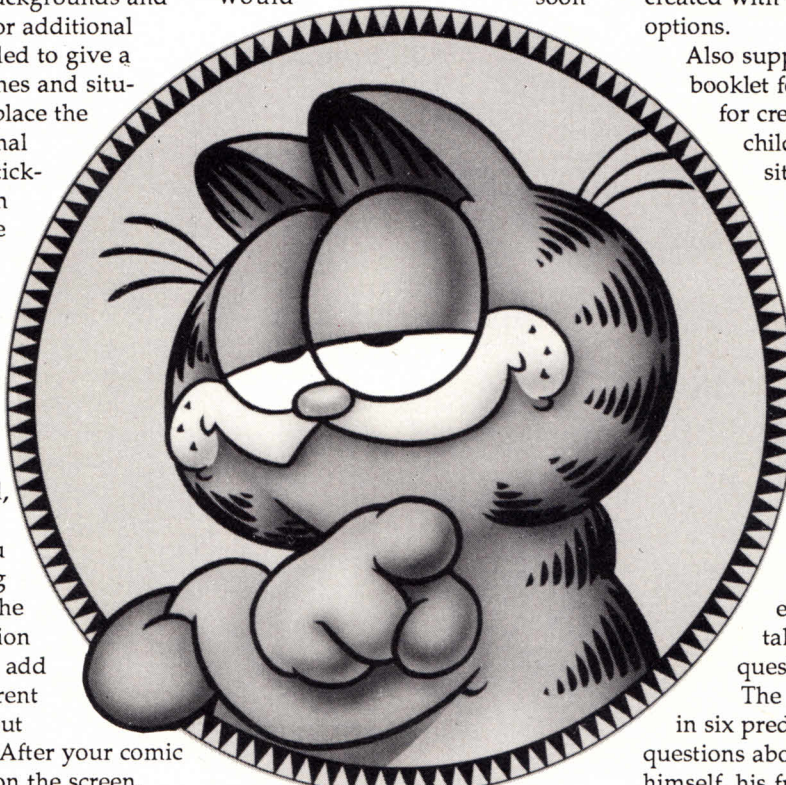
Also supplied is an activities booklet for teachers full of ideas for creative learning for children in a group situation.

The other program to feature the fat furry feline is a Garfield Trivia Quiz. The manual in this game refers to the Apple range of computers, but an insert is provided for IBM and compatibles.

You can play in teams or alone. The team option allows individual names to be entered and players take it in turns to answer questions.

The game questions come in six predefined categories of questions about the fat furry feline himself, his friends, dates/facts or importance about Garfield, his T.V. shows, his wisdom and wit on many subjects and odds and ends. Any four may be chosen for play.

The question categories are chosen at random, with a mystery box providing random penalties and

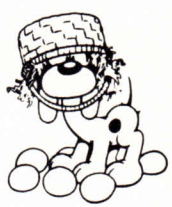


wear off. But you can design your own backgrounds with a drawing program (not supplied) that is compatible with BASICA's GET and PUT commands.

Another nice touch is the ability to create a repeating sequence of

bonuses (I always seemed to get the penalties)! You may choose to play or pass and if you play, the quicker you answer the question, the more bonus points you get. A wrong answer gives you a picture of Garfield slapping his forehead, while a correct answer gives you a picture of the furred feline cheering. Scores are kept on screen at all times, and a game consists of twenty questions. The winner is the player with the highest score at the end of the twenty questions.

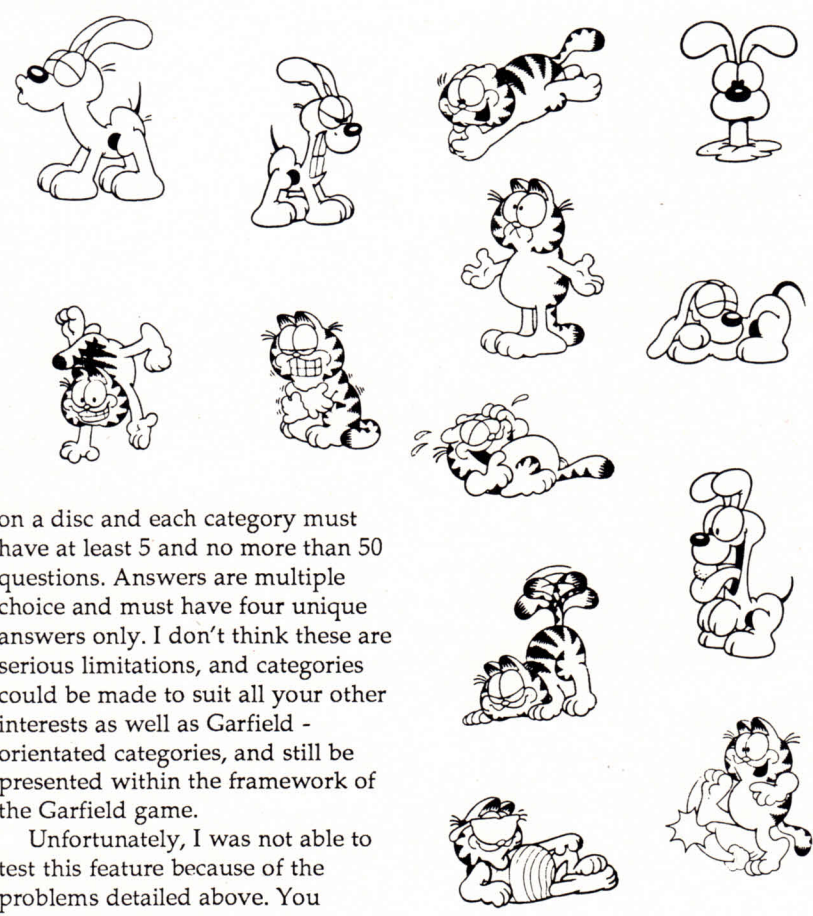
After playing for a while, you are sure to know all the answers. To get around this, you can enter questions and answers and have them saved onto disc for later use. The questions can be on any subject, not only Garfield. There are some limitations as you can only have six categories



on a disc and each category must have at least 5 and no more than 50 questions. Answers are multiple choice and must have four unique answers only. I don't think these are serious limitations, and categories could be made to suit all your other interests as well as Garfield - orientated categories, and still be presented within the framework of the Garfield game.

Unfortunately, I was not able to test this feature because of the problems detailed above. You should check out this feature yourself if you think it may be important to you.

Overall, I think these games are for Garfield fans firstly, Garfield fans secondly, and all the rest of us after that. I did spend quite a few hours making Garfield cartoons and



printing them out and I learnt more than I would ever want to know about Garfield and his friends from the trivia game, but I would have to recommend these two for Garfield fans only.

You will need a minimum of 256k and at least one disc drive. The programs are copy-protected so you will have to use the originals. The manuals are easy to use and read and the provision of an activities book is a great idea for supervised groups of children. Buy these programs if you are a Garfield fan (or want to be).

"Create With Garfield - Deluxe" and "Garfield Trivia Quiz" are available from various retailers throughout Australia, from The Amstrad User Computer Shop (retail), or through the mail order service on (03) 233 9661 at \$69.95 and \$39.95 respectively.

Selected images from "Create with Garfield - Deluxe Edition"

This is the second article for budding batch-file fanatics.

In the last issue we covered:

- a) The scope of these articles
- b) DOS version under discussion (v3.2)
- c) What a Batch file is
- d) How to create one
- e) Examples of one-line Batch files
eg HOME.bat, UP.bat and WHERE.bat
- f) AUTOEXEC.BAT

If in doubt on any of these topics, refer back to the previous issue of the magazine.

REPLACEABLE PARAMETERS

These refer to the text that you follow a command with.

For example, when you want to delete a file you MUST supply a filename (or wildcards potentially covering several files) otherwise DOS will not know what to delete.

eg DEL temp.txt
or ERASE temp.txt

Wouldn't it be useful if you didn't have to remember whether the command was DEL or DELETE, ERASE or ERA? Easy. The following Batch files will cope:
DELETE.BAT, ERA.BAT

```
ECHO OFF ; stifles display of batch file
ERASE %1 ; deletes filename as specified
```

TY.BAT

```
ECHO OFF ; stifles display of batch file
TYPE %1 ; displays filename as specified
```

You could of course be really lazy, and just create DELETE.BAT, then use COPY DELETE.BAT ERA.BAT, because they both perform identically! The files perform well, unless you forget to specify a filename. We'll deal with this 'feature' another time.

WARNING

- BEWARE! Deleting files should be only done with care! You can't easily get them back afterwards (unless you have a copy on another disc or directory). This copy is known as a Backup. There are also several useful files both in the Public Domain (see the User Group Library), and payable for (eg Norton Utilities) which can SOMETIMES get them back for you - but don't bank on it!

Practice on a dummy file you don't want!

- Deletions with Wildcards are even MORE dangerous! Practice deletions using wildcards (eg *.BAK) by using DIR with the same wildcard first. You can see if you accidentally catch any files you didn't intend to, such as all *.BAT, by accident. It's safer to DIR than DEL them!

There is at least one delete-with-query in the software library - does anyone know where?

BATCH BAG #2

Bob Waixel returns with more of everything you'll ever need to know about batch files...

ECHO OFF

a) Why start nearly all batch files with this?

It suppresses the listing of the batch file on the screen when it executes.

b) How to suppress the ECHO OFF from appearing?

Under DOS version 3.2 and earlier the only way of suppressing the ECHO OFF command itself appearing is to perform a CLS (clear screen) immediately afterwards. This will wipe everything else on the screen at that point - which is not always what you may want.

With DOS 3.3, putting '@' before a command will suppress it - so start all your batch files with:

```
@ echo off
```

and you can rest in an ongoing echo-less environment situation.

CONDITIONAL PROCESSING - THE "IF" COMMAND

This is one of the few useful features that allow DOS batch commands to pretend to be a 'language' in their own right.

Syntax: IF <MIO> <M>and to be performed

Notes: There is no 'THEN' statement (BASIC programmers beware)

There is no comma or any other symbol between the condition and the resulting command.

```
IF NOT <MIO><M>
```

and provides the equivalent of an ELSE statement.
Example:

```
IF EXIST A:FILE. ext echo.copied A:file.ext from A:
IF EXIST A:FILE copy A:FILE.EXT C:
IF NOT EXIST A:FILE.EXT echo.Can't copy FILE.EXT
IF NOT EXIST A:FILE.EXT echo.from A:
IF NOT EXIST A:FILE.EXT echo.File not present
```

ECHO

More notes:

ECHO. (full stop) is my workround for being unable to easily echo a blank line. I usually prefix all my ECHOed statements with a '.' (full stop) also, to show some degree of uniformity when displayed onscreen.

I have not yet discovered under what conditions batch command statements have to be in uppercase (ie CAPITALS), or when they will work in lowercase. My experience has been that UPPERCASE always works, but DOS sometimes ignores lower case batch commands! What's yours?

With a straight forward command, upper and lower case are ignored, but if you have to type parameters after a program name these parameters are passed through to the program unaltered and some programs are fussy about when upper and lower case is used. Also the IF and SET commands do distinguish between upper and lower case.

The ECHO problem is that ECHO on its own just tells you whether ECHO is on or off. In early versions of DOS there was no way to ECHO a blank line. DOS 3.2 and above can use either ECHO. (ECHO - dot - no space) or ECHO ALT-255 (ECHO - space - hold down the ALT key and type 255 on the numeric pad) to generate a blank line. - Ed.

REPLACEABLE PARAMETERS - FURTHER TIPS

a) We have seen that %1 refers to the first parameter entered on a DOS command line.

Example:

```
C> DELETE filename.ext (where DELETE calls DELETE
                        .BAT and FILENAME.BAT
                        is the file to be deleted.)

rem DELETE.BAT
echo off
DEL %1
```

b) Normally you can have up to 9 of these, i.e. from %1 to %9.

You can access more than 9 by using the SHIFT command, which I will explain to you when I have found any real use for it!

c) Using %0 - the batch file's own name

What is useful, but hardly ever explained is that %0 is the name of the command typed in at the command line to access the batch file itself.

I have used this to build one batch file to perform two very similar, although different tasks. It was easier to create one batch file for the two tasks, then copy it to a second filename. Then I had ONE batch file to keep up to date, rather than two very similar ones.

Example mythical extract:

```
rem Batch files command for setting up/initialising
something
rem
rem
```

```
if %0==batfile1 <MO>and1
if %0==BATFILE1 <MO>and1
if %0==batfile2 <MO>and2
if %0==BATFILE2 <MO>and2
rem
rem Batch file commands for finalisation/tyding up
```

NOTES:

%0% (or %0) in a batch file allows comparison with the following string literal. (It could just as easily have been any of the other parameters).

== must be double equals with no spaces on either side.

The comparison is case sensitive so an UPPER and lower case version must be provided to cater for both usual eventualities. The comparison will still fail for invocation from the DOS command line with a mixture of upper and lower case.

<MO>and refers to the name of an executable file (*.EXE) or (*.COM) which returns control to the batch file afterwards, but could be any other valid batch file command.

Calling another batch file won't return control afterwards (unless you use CALL Batchfile only available in DOS 3.3.).

4. Echoing the name of the Batch file itself (or any parameter)

Any of the parameters, including %0, can be ECHOed onto the screen using the syntax %n% (where n is between 0 and 9)

This is very useful when reassuring a user of the file they are running!

Example:

```
echo off
rem TEST.BAT
rem
if %0==TEST echo %0%batch file called
if %0==test echo %0%batch file called
```

BYE FOR NOW

That's all folks. Next time we'll cover GOTO and :LABELS. Until then, may your batch files bloom like roses in the desert.

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Pactronics

THE YEAR GONE BY...

Chris Collins looks back over a year of Compatibles Corner, highlighting some of the exciting public domain discs on offer!

Welcome once again to Compatible's Corner. The end of the year is near, and Christmas is only a couple of weeks away. So for this month's column, I would like to run back over the diskettes that I have been able to supply you with this year, offer you a few new ones, and hopefully make you realise that your computer can be fun.

This month, we will not have a command for you, as I don't want to seem to be shoving DOS down your throats. However, come January, we will be able to get back into our normal routine.

For our look back, I will break them down into month's with only a small remark on each one. If you need to know more, please check the months magazine that is mentioned.

JANUARY 1989

Well this was the beginning of the year, and we had a couple of specials for the PC1640/ECD owners. The first bit of news regarded the telecommunications special of a modem, a cable to connect it to your computers and six diskettes of software. The diskettes that we looked at were as follows:

EGA Games 1: EGAroids, Mahjong, Omega Chess, Mahjongg and Triskellion.

EGA Games 2: Aldo's Adventure, Breakout, EGABomb, EGATrek and EGA Risk.

EGA Demonstrations 1: Bioflav,

EGADemo, Kal, Panscreen, Power-EGA and many others.

The command of the month didn't exist because of the Christmas Season.

FEBRUARY 1989

We did a lot more work with telecommunications and Telix in particular, this month. We didn't have any diskettes, apart from announcing that the six diskette package had grown to seven diskettes with the arrival of Telix v3.11.

MARCH 1989

This month we announced the arrival of PC File:dB and PC Write v3.02. The command that we looked at was ATTRIB, and the diskettes covered a wide range of subjects.

Image 3d: 3 dimensional drawing package. Version 2.6 was later released and consequently was upgraded.

EZ Forms and EZ Forms Executive: Two form producing programs from America. We found EZ forms to be limited, but well workable, and EZ Forms Executive to be 'Crippleware'.

Archive Tools 1: first release of the Archive Tools collection of diskettes. Includes PAK, PKARC and PKXARC and others for you to use.

APRIL 1989.

Information about the upgrade to

Image 3d was raised, and everybody was notified that all copies were the new version. CHKDSK was the command of the month, and is probably one of the more popular commands that I got some response from.

Archive Tools 1 was re-released from last month with two upgrades to the programs on the diskette.

Archive Tools 2 was released with some more programs to help you. These included ARC600, IDCHELL and many others.

Captain Comic, a new EGA arcade adventure game was the last diskette of the month.

MAY 1989

This month we looked at CLS and COMMAND. The first diskette was Archive Tools 3. This contains an early version of PAK, 9 utilities dealing with ARC files, a menu system for PAK, and the new PKWare program PKZip v0.92.

We also had a look at EGA Games disc 3, which contained the following programs for you to play: SCRABBLE, EGASORRY, DEFENDER and STOCKS. SCRABBLE appears to have given some people some slight problems with getting it going, but I think that the few phone calls were well worth while.

EGA Demo Disc 2 was the other diskette of the month and contained CHEMVIEW (a graphic program about the construction of molecules), CONFETTI (an excellent full colour demonstration from IBM), FANTAMOV (a screen graphics demonstration with excellent animation), FUSE (kaleidoscope demonstration), TEAPOT (rather obvious really) and SPLAT (if I describe it, you probably wouldn't look at it!)

Also information about the new price structure was included.

JUNE 1989

This was a very short column, because I had finally been able to get away for a short holiday. However, we had information on an update of QModem to version 4.00, and what a wonderful update it

was! Also news was released about the new Japanese archiving program LHarc. (True PUBLIC DOMAIN, not shareware!)

The first collection of diskettes were four (4) courses diskettes for Mean 18, that wonderful golf game from Accolade. The first diskette included a menu program to run the new courses with Mean 18, and the other diskettes included the forty two (42) new courses for you to play.

GRASP was another program diskette that we looked at. This is a GRaphical Presentation System. This is an excellent package that allows for picture editing, display commands and various animation commands to allow you to put together a really top class presentation. This is the shareware version. The full version (3.10) currently retails for approximately \$300.

ASSIGN was the command that we had a quick look at.

JULY 1989

Information about version 1.1 of PC File:dB was dispersed to one and all. Mainly a simple upgrade, it included a couple of much needed features. The command that we looked at was JOIN, and it was discussed in quite some detail.

First diskette of the month was Archive Tools 4. This included the programs LH112 (LHarc v1.12, which was upgraded to v1.13 before release of the diskette), LHTOOLS (a collection of tools to help you with LHarc, this is from the same author as PK-KIT71 and ZIP-KIT2), AM431 (Arcmaster v4.31, probably the best shell program for all the archive types), ZIP-EM (a small utility to convert ARC or PKPAK files to ZIP format), ZIP-KIT2 (a collection of tools to help with PKZIP and PKUNZIP), ZIPQUIK5 (another program to help convert from various formats to ZIP format).

CARTOONS is a GRASP animation diskette, and contains a lot of characters from the Warner Brothers studio. Will just barely unarchive to one diskette for display purposes, but basically only for hard disc

users.

GRASP VIDEO 1 is a collection of animated files to run under GRASP. It includes the MTV symbol, MAXBALL (an animated ball game based on Max Headroom's face), and VIDAD1 (an advertisement for an American BBS).

CROSSWORD CREATOR is almost the last diskette that we looked at, and is for crossword freaks who wish to create their own, for themselves and others to solve. Used to be on two diskettes, but now compressed onto one diskette only!

UNIVERSE is a collection of EGA slides showing scenes from around the Universe. It includes pictures of the Moon, Jupiter, a quasar and Saturn among other things. Too big to run off a floppy, must have a hard disc and EGA to operate correctly!

AUGUST 1989

August brought us information of an upgrade to PC Calc to version 2.00. Also mentioned was the upgrade from v1.12 to v1.13c of LHarc. This was done before any diskettes were sent out, so nobody missed out on this upgrade.

KEYBxx was the command that we looked at this month, and simply allows you to load a different keyboard setup into DOS.

SCOUT was the first diskette that we looked at this month, and is a memory resident disc, directory and file manager, as well as being a great DOS shell to help you control your machines.

TO_DO v.3.5 was another diskette that we had a look at, and T_DO is a program to help you keep track of things that you need to do (hence its name!) Very good, and I have a lot of friends that use this one continuously.

The last one that we had a chance to look at in August was W-W-W-W. This is another style of TO_DO program, but it allows you to keep track of WHO, WHAT, WHEN and WHERE. It is an appointment scheduler, which can be also used as a project management tool.

SEPTEMBER 1989

This month we looked at the command LABEL, and also checked up on a Lotus problem with the new PC2000 series Amstrads.

4DOS was the program diskette of the month, and if ever I have come across a shareware program that required registration, this was it! What a shareware program!

A replacement for COMMAND .COM, it has so many new features built into it, a lot of which should have been in DOS already, that it actually encourages you to work with DOS, rather than through a DOS shell. One excellent program!

OCTOBER 1989

This month we got straight into a 4DOS upgrade, and an upgrade to LHarc. This went from v.1.13 (LHarc) to v1.14 (LHice). Seems to be mainly a name change to save any problems with S.E.A. (the originators of the ARC format).

The command that we looked at was MODE, and boy did this one take a bit of looking at.

We looked at two collections of utilities in October. The first was the DEWER utilities from a person called Robert Dewer from New York. A good collection of utilities, including an editor, a directory lister, a printer control program, a trap handler and many others. This is a single diskette.

The second collection of utilities is from Australia, and occupies three diskettes. These are the famous CALMER UTILITIES. There are so many useful utilities in this package, that it is almost impossible to talk about all of them. Some of them are SI+ (an information program about your computer), NBY (Not Born Yesterday, a Trojan protection program), and SCR (a simple program to allow EGA users to flip backward and forward between 25 line and 43 line modes).

PFS CLIP ART is a collection of 9 diskettes to do with First Publisher from Software Publishing Corporation. These diskettes include animals, computers, medical, men,

women, transportation and sports. The response to these 9 diskettes has been excellent, just showing that people out there are using First Publisher, probably the best cheap desktop publishing program.

NOVEMBER 1989

This month we had a small article from Miklos, describing archiving programs, and their capabilities. I also informed you that Archive Tools 5 is under construction.

Well that has been a quick run-down on the past years Compatible's Corners, and the diskettes and commands that were contained in them. Now onto this month's column.

DECEMBER 1989

This month's diskettes include a couple more to help users of First Publisher, a collection of macro's for users of PC Write (v3.02), and a graphics converter.

1ST PUBLISHER FONTS AND MORE

First off this month, we have more diskettes for the users of First Publisher. Simply called First Publisher Fonts 1 and 2, these two diskettes include three sets of fonts to be used as replacements for the set that came with First Publisher.

The three font files are called PUBFONT1.FNT, PUBFONT2.FNT, and PUBFONT3.FNT. To make them active in First Publisher, all you need to do is to copy the font file that you wish to use to MASTER.FNT. Make sure that you first copy MASTER.FNT to PUBFONT.FNT, otherwise you will lose the original font list.

PUBFONT1.FNT contains the following type-faces, and in the following sizes and styles:

FUTURE	9,12,18, 24	Plain
HAM	14	Normal
HUMAN	18 and 36	Plain
KANSAS	10	Plain
LED	24	Plain
OBLIQUE	12 and 18	Plain
OPHIR	12 and 24	Normal
PLAYBILL	12,18 and 24	Plain

and a couple of other single size

type-faces.

PUBFONT2.FNT contains the following;

SQUARE SERIF	24	Plain
STAR FLEET	9, 12, 18 and 24	Plain
STEEL BRUSH	12, 24 and 36	Plain
VANCOUVER	9,10,12,14,18,20 and 24	Plain

and again, a couple of other single size type-faces.

PUBFONT3.FNT is by far the largest of the three and contains the following:

VENICE	10 and 20	Plain
VENICE LIGHT	9 and 18	Plain
HAPPY CANYON	12 and 24	Plain
OBLIQUE	9,12,18,24 and 36	Plain
ELLESMERE	10,12,14,20,24 and 28	Plain
MANTECA	18 and 24	Plain
MADERIA	9,10,12,14,18,20 and 24	Plain
KENDALL	12 and 24	Plain

and yet again, there are a couple of single type-faces that I haven't listed!

Diskette 2 of this pair of diskettes, also contains a group of .MAC files that you can import into First Publisher and turn into .ART files for your publications. Included on this diskette is also ARTCON14, a program to let you collect graphic files from PRINTSHOP, PRINTMASTER and NEWSMASTER and convert them for use with First Publisher. All in all, a good pair of diskettes to go with last month's collection of Clip Art.

PC WRITE MACRO'S

This is a single diskette of macro's to be used with PC Write v3.00 and above. Registration fee is US\$5.00 and covers the manual on diskette and 100 macro's to help you use PC Write better.

Some of the macros are listed below:

- AUTOMATIC SAVE at a time period that you specify
- REMINDER TO SAVE
- SET HIDE MODE, AUTO

REFORMAT and SPELLING CHECK at start-up

- FAST CURSOR
- HALF SCREEN SCROLL up or down
- GO BACK
- HALF SCREEN LEFT or RIGHT
- HALF SCREEN UP or DOWN
- DELETE ENTIRE WORD no matter where the cursor is on the word
- DELETE SENTENCE LEFT or RIGHT
- DELETE PARAGRAPH
- SWAP word, line, sentence or paragraph RIGHT or LEFT
- MARK letter, word, line, sentence or paragraph LEFT or RIGHT
- INSERT LETTER-HEAD
- ADDRESS GRABBER
- INSTANT PRINT
- INDENT and UNINDENT LINE and many others that I haven't mentioned. The manual has a very good description of what you need to do to ED.DEF to have these macros load at start-up time, and also a good section on which keys you should assign the macros to, and why!

For those of you who are into PC Write, this is an excellent helper for you to get the best out of PC Write. For those of you with a version of PC Write earlier than v3.00, a similar program called WRITER'S HEAVEN is available that will do the same job.

ICONVERT V1.49

The last single diskette for this month is another graphics converter, called ICONVERT. This is a great little utility that will allow you to convert graphics files backwards and forwards between the following formats:

- ASCII (8*8 and 8*14)
- BASIC BLOAD (Colour and Hi-Res)
- DOODLE (CBM - Commodore)
- Dr Halo II
- First Publisher (Both .ART and .MAC)
- FONTASY (Block and Pic)
 - GEM
 - GIF
 - IFF

- NEWSMASTER
- NEWSROOM
- MACPAINT
- PC PAINTBRUSH (Clip and Pic)
- PRINTMASTER (Both IBM and CBM)
- PRINTSHOP (Both IBM and CBM)
- RLE
- WINDOWS PAINT

In addition to all these conversions, ICONVERT also allows you to view, mark and modify the colour map of any of the above graphic formats. When doing the conversions, you can get unattended conversion of up to 255 files, as well

as clipping of graphics, conversion from colour to mono, colour separation, mirroring, flipping, inverting and double width. It also allows for file maintenance as well.

ICONVERT is a menu driven program, and it is very easy to use. If you have a wonderful graphic that you wish to convert to another format, give ICONVERT a go and you might just be able to load the GIF picture into a document as your letter-head in First Publisher.

Well, that's it for this month. If you require any of the above diskettes, please forward a cheque or money order for \$7.50 per diskette to the following address:

MacroDisk
1 Woods Street
Newport, Vic. 3015

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- (e.g. of the (1) keyboard (2) disk drive (3) monitor).

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A18	1512 CPU, DD only		
A19	1512 Mono VDU only		
A20	1512 Colour VDU only		
A21	1512 Mono VDU, DD, KB comb		
A22	1512 Colour, DD & KB comb		
A23	1512 Mouse with ears, tail & whiskers		
A24	1640 VDU & DD only		
A25	1640 KB only		
A26	1640 VDU, DD & KB only		
A27	9512 VDU only		
A28	9512 DD only		
A29	9512 KB only		
A30	9512VDU, DD & KB comb		
A40	DMP2000 Printer		
A41	DMP3000/3160 Printer		
A42	DMP4000 Printer		
A43	LQ3500 Printer		
A44	9512 Printer		
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 R. Britton (08 258 7861)
 Venue: Lacrosse Hall, Terama Street, Gepps Cross every Wednesday at 7.00 p.m.

AMSTRAD COMPUTER CLUB INC. (SA)
 President: Ross Barker (08 374 0565)
 Vice Pres: David Simpson (08 373 1693)
 Vice Pres: Paul Beard
 Treasurer: Les Jamieson (08 356 9612)
 Secretary: Debra Dienel (08 339 1314)
 Venue: Torrensville Primary School, Torrensville every tuesday between 6.30 & 9.00pm.
 Mail: PO Box 210, Parkholme, SA 5043.

NORTHERN COMPUTING SOCIETY Inc.
 President: Valerie Clarke (08 248 4031)
 Vice Pres: Tony Mackereth (08 281 3968)
 Sec./Treas: Graham Berwin (08 258 5320)
 Venue: Drop-In Centre, Salisbury North Primary School, cnr. Bagsler & Woodayates Rds every Wednesday from 7.00.
 Mail: PO Box 482, Salisbury, SA 5108.

SOUTH EAST AMSTRAD USER GROUP (SA)
 Contact: Neil Taylor (087 25 8068)
 Venue: Mount Gambier from 1.00p.m. to 4.00p.m. on the 3rd Sunday of each month. Ring above number for address.

VICTORIA

CENTRAL AMSTRAD USER SOCIETY
 President: Fred Gillen (03 580 9839)
 Vice-Pres: Dennis Whelan (03 367 6614)
 Treasurer: Doug Jones (03 560 8663)
 Secretary: Craig Tocke (03 359 3736)
 Venue: Bogarts Restaurant on the corner of Victoria and Errol Streets, North Melbourne on the first Sunday of each month starting at 1.00 pm.

EASTERN AMSTRAD USER GROUP Inc.
 President: Tony Blakemore (03 890 3116)
 Secretary: S. Muir
 Treasurer: Les Kovack (056 234 836)
 PCW rep: Ron Hawthorn
 Venue: St. Ninian's Church Hall, cnr. McCracken Avenue and Orchard Grove, South Blackburn on the 1st Sunday of each month from 1.00pm.
 Mail: PO Box 583, Croydon, Vic 3136.

GEELONG AMSTRAD USER CLUB
 President: Diarth Pounsett (052 78 2160)
 Vice-Pres: Arthur Kuhlmann (052 81 9200)
 Secretary: Mick Stone (052 91 505)
 Venue: South Barwon Community Services Ctr, 33 Mount Pleasant Rd, Belmont on the first Wed. of each month, from 7.30pm
 Mail: 346 Autumn St., West Geelong, 3218.

GOULBURN VALLEY AMSTRAD USERS CLUB
 President: Roger Tracey (058 23 1449)
 Secretary: Rod Raven (058 21 9034)
 Treasurer: Bev Felton (058 21 2703)
 Venue: North Shepparton Community House, Olympic Ave. Every 3rd Thur. from 7:30pm
 P.O. Box 1713, Shepparton 3630.
 Mail:

MOUNTAIN DISTRICT AMSTRAD USER GROUP Inc.
 President: David Jamieson (03 870 1016)
 Treasurer: Ian Pearson (059 965 019)
 Secretary: Ian Pearson (059 965 019)
 Venue: Country Womens Association Hall, 4 Sundew Avenue, Boronia from 7.00 pm. every 2nd & 4th Monday of the month.
 Mail: PO Box 132, The Basin, Vic 3154.

SOUTHERN AMSTRAD USER GROUP Inc.
 President: Gerry Goody (03 786 3489)
 Secretary: Bob Patterson (03 786 6976)
 Treasurer: Geoff Wales (03 786 9212)
 Venue: Karimgal Tennis Club, Gretana Crescent, Frankston every third Tuesday at 7.30pm
 The Sec., PO Box 100, Seaford, Vic 3198.
 Mail:

SUNBURY MELTON AMSTRAD USER GROUP
 Contacts: Wayne Urnston (03 744 2719)
 Norman McEntee (03 743 7104)
 Venue: Toolern Vale Hall, Toolern Vale every third Saturday of the month at 10.00 a.m.

WENDOUREE AMSTRAD USER GROUP
 Contact: Brad Maisey (053 44 8356)
 Venue: Cnr. Charles and Appleby Drive, Cardigan Village on the first Sunday of the month at 3.00 pm.

WESTERN AMSTRAD COMPUTER CLUB
 Venue: Fairbairn Kindergarten, Fairbairn Road, Sunshine on alternate Tuesdays from 6.30pm.
 Mail: PO Box 161, Laverton 3028.

ACT

CANBERRA AMSTRAD USER'S GROUP
 Convenor: Paul Kirby (062 86 5460)
 Secretary: James Gifford (062 47 5126)
 Treasurer: Rod MacKenzie (062 54 7551)
 Venue: The Oliphant Building, ANU, Canberra on the first Tuesday of each month from 7.30 pm.
 Mail: PO Box 1789, Canberra, ACT 2601.

NEW SOUTH WALES

BLUE MOUNTAINS AMSTRAD USERS
 President: Bob Chapman (047 39 1093)
 Vice Pres: Dennis Shanahan (047 39 4568)
 Treasurer: Peter Traish (047 53 6203)
 Secretary: Malcolm Stone (047 51 2791)
 Jun. Rep: Nathan Stone (047 51 2791)
 Venue: Springwood Neighbourhood Centre, Macquarie Road, Springwood on 2nd and 4th Wednesday of each month at 8.00pm.

CENTRAL COAST AMSTRAD USERS CLUB
 President: Lloyd Mitchell (043 88 2950)
 Secretary: Douglas Green (043 42 2568)
 Treasurer: Nick Winter (043 84 6766)
 Venue: Minjarra Recreation Club, Adelaide St, Tumby Umbi every 2nd and 4th Monday at 7.30 p.m. sharp. Also every 3rd Thurs. at 'Meals on Wheels', Woy Woy.
 Mail: C/o 1/254 Railway St., Woy Woy, 2256.

COFFS HARBOUR AMSTRAD COMPUTER CLUB
 President: Bruce Jones (066 52 8334)
 Secretary: Colin Jones (066 49 2127)
 Treasurer: Brian Claydon (066 49 4510)
 Venue: Orara High School, Joyce Street from 7.00 on the first Friday of each month.
 Mail: 169 Beryl St, Coffs Harbour, 2450.

HAWKESBURY AMSTRAD USER GROUP
 President: Terry Webb (045 76 5291)
 Secretary: Dave Keen (045 77 5536)
 Venue: Richmond Swimming Club Rooms every third Tuesday of the month at 7.30 pm.

ILLAWARRA COMPUTER USERS CLUB
 President: Mark Jones (042 29 2109)
 Secretary: Neville Dillon (042 56 2642)
 Treasurer: Steve Astill (042 71 5462)
 Librarian: Peter Platts (042 56 1956)
 Venue: AGA Gremania Club, Berkeley at 2.00 pm. every third Saturday of the month.

LISMORE DISTRICT AMSTRAD COMPUTER CLUB
 President: Tom Wright (066 291 302)
 Secretary: Russell Bell (066 216 888)
 Treasurer: Deborah King (066 864 424)
 Librarian: Ben King (066 864 424)
 Venue: Goolnabah Public School, Ballina St. on the last Tuesday of each month from 7pm.
 Mail: PO Box 771 Lismore, NSW 2480.

PARKES COMPUTER USER GROUP
 Contact: Eileen Magill (068 643 285)
 Mail: North Gunning, Gunningbland, NSW 2876.

S & W MILLER AMSTRAD USER'S CLUB
 President: Wal Sellers (049 33 5459)
 Secretary: Nikki Lee (049 33 5459)
 Treasurer: Georgina Todd (049 66 2788)
 Venue: Maitland Park Bowling Club, Maitland on the second Tuesday of each month at 7.30pm.

MURWILLUMBAH AMSTRAD USERS GROUP
 President: Nick Bruin (066 79 3280)
 Vice Pres: Kal Philip (066 77 1440)
 Secretary: Laura Goode (066 72 2499)
 Treasurer: Lorraine Montgomery (066 72 1823)
 Venue: Murwillumbah High Sch. on the 2nd

user group lately?

NATIONWIDE USER GROUPS

Wednesday of each month at 7.00pm.
Mail: c/o Post Office, Burringbar, 2483.

NEWCASTLE AMSCLUB (USER GROUP)

President: Bill Simkus (049 52 4638)
Secretary: Rex Morris (049 62 1221)
Treasurer: Roy Hannon (049 51 3167)
Venue: Waratah-Mayfield RSL Club (upstairs room), Hanbury St, Mayfield on the first and third Tuesday of the month at 7.30pm.

PCW AUSTRALIA GROUP

Secretary: Clyde Gittins (02 579 3984)
Treasurer: Geoff Bolton (02 745 2230)
Venue: Burwood RSL Club, 96 Shafesbury Road, Burwood every second Tuesday of the month at 7.30 pm.
Mail: PO Box 478, Smithfield, NSW 2164.

SYDNEY AMSTRAD COMPUTER CLUB

President: Tom Caldwell (02 661 7573)
Sec/Treas: Reed Walters (02 560 9487)
Venue: Camdenville Comm. Ctr., Newtown on the 1st Saturday of every month at 2.00 p.m. For more details contact the Secretary between 6.00 p.m. and 9 p.m.
Mail: PO Box 423, Matraville, 2036.

SYDNEY PC1512 USER GROUP

Contact: Geoff Craine (02 76 6467) A/H (02 412 9213) B/H
Venue: To be arranged; meeting initially on the third Tuesday of each month at 7.00 pm.

QUEENSLAND

AMSTRAD AND PC USER GROUP OF LOGAN

President: Michael Toussaint (07 200 5414)
Vice-Pres: Peter Incoll (07 208 2332)
Secretary: William K. Giles
Treasurer: Bryan Carter
Librarian: Carol Watts (07 287 2882)
Newsletter: Rhys Watkins
Venue: Loganlea State High School (in the Communications Room) every 3rd Sat. of the month starting at 2.00 p.m. A Basic programming course is held fortnightly.
Mail: 10 Carraram St, Loganlea, 4204.

BRISBANE AMSTRAD COMPUTER CLUB

President: John O'Connor (07 271 3350)
Vice Pres: John Digby (07 351 2553)
Secretary: Bob Ashe (07 355 5699)
Treasurer: Ivan Dowling (07 269 8795)
Tech. Editor: Franz Hendrickx (07 356 0633)
Venue 1: NEWMARKET: Newmarket State Sch., Banks St., Newmarket on the 2nd Sat. of each month at 1.30pm. Any executive member can be contacted for information.
Venue 2: REDLAND BAY: Birkdale State Sch., Agnes St, Birkdale 4159 on the 3rd Sat. of each month from 1.00pm. Co-ordinators are Paul Peterson (07 206 7214) and New Taylor (07 207 3435).
Venue 3: SUNNYBANK: Sunnybank State Sch., Turton St, Sunnybank 4109 on the 3rd Sun. of each month from 1.30pm. Contact Jim Papadimitriou (07 344 2067).
Venue 4: WESTERN SUBURBS: Jamboree Heights State Sch., 35 Beanland St, Jamboree Heights 4074 on the 1st Sat. of each month from 1.30pm. Contact Gordon Bradford (07 814 4746) or Helda & Jim James (07 376 1137).
Venue 5: REDCLIFFE PENINSULA: Kippa-ring State Sch. (library), Elizabeth St, Kippa-ring 4020 on the 2nd Sun. of each month from 1.30pm. Contact Ivan Dowling (07 269 8795)
Mail: PO Box 167, Alderley, Qld. 4051.

BUNDABERG AMSTRAD USER'S GROUP

President: Ray Babbidge (071 72 1223)
Secretary: Clive Barrett (071 71 3668)

Treasurer: Sheila Coe (071 72 8884)
Venue: The third Tuesday of the month. For more details contact the above.
Mail: 11 Laack St., Bundaberg, QLD 4670.

CAPRICORN AMSTRAD USERS GROUP

Pres/Sec: Anthony Trost (079 33 1951)
Treasurer: Dorothy Jasperson
Venue: Block 2, Waraburra State School, Johnson Road, Gracemere on the first Friday of each month at 7.00 pm.
Mail: 4 Sunrise Crescent, Gracemere, 4702.

COMPUTER USER GROUPS OF AUSTRALIA Pittsworth Branch

President: David Siebuh
Contact: Ron Langton (076 931 690)
Venue: Every first Tuesday of every month from 5 pm. at the St. Peter Lutheran Church Hall, Grand Street, Pittsworth.
Mail: CUGA, PO Box 166, Pittsworth, 4356.

GOLD COAST AMSTRAD USER GROUP

President: Stephen Greenwood (075 572 442)
Treasurer: Pamela Scott (075 323 334)
Secretary: Ray Maclaren (075 398 743)
Venue: Benowa State High School, Mediterranean Drive, Benowa on the first Saturday of each month at 2.00 pm.
Mail: 7 Coral Gables Key, Broadbeach Waters, QLD 4218.

IPSWICH AMSTRAD USER GROUP

Contact: Peter Wighton (07 288 4571)
Venue: Every second Wednesday from 7.15 p.m. at Bremer High School, Blackstone Rd, Raceview.

MACKAY AMSTRAD USER GROUP

Contact: Des Mulrailey (551 409)
Geoff Taylor (552 350)
Venue: Meet every second Sunday morning. Contact the above for location and time.

PENINSULA AMSTRAD CLUB (amalgamated with BACC)

President: Ivan Dowling (07 269 8795)
Treasurer: Keith Johnston (07 203 2339)
Venue: Kippa-Ring State School Library, Elizabeth Avenue every third Tuesday of the month at 7.30 pm.

TOOWOOMBA AMSTRAD USERS GROUP

President: Tony Carlaw (076 91 6161)
Secretary: David Culliford (076 32 7277)
Asst Secs: Chris & Glen Jones (076 91 2643)
Treasurer: Angela Geschidie (076 34 1692)
Librarian: Shane Geschidie (076 34 1935)
Venue: Toowoomba Education Centre, Baker Street, Toowoomba on the 4th Monday of each month starting at 7.30 pm.
Mail: c/o Secretary, 58 Curzon St, Toowoomba, QLD 4350.

TOWNSVILLE AMSTRAD USER GROUP

President: Ian Wallace (077 73 1798)
Vice Pres: Doug Selmes (077 79 6011 xt 252)
Treasurer: Chris Nisen (077 79 6299)
Secretary: Alister Buckingham (077 73 3955)
Venue: Science Block of the Kirwan High School in Thuringowa Drive on the first and third Tuesdays each month at 7.30pm.

THE WARWICK AMSTRAD USER GROUP

President: Mrs. D. Christensen
Secretary: John Wode (076 61 5176)
Treasurer: Neville Christensen

WEIPA AMSTRAD USERS CLUB

President: Andrew Seaborn
Vice-Pres: Dave Wootton
Treasurer: Frances Casey
Secretary: Gary Chippendale (070 69 7448)
Venue: Noola Court in Weipa. Contact above for more details.
Mail: 15 Noola Court, Weipa, QLD 4874.

TASMANIA

SOUTHERN TASMANIAN AMSTRAD CLUB

President: David Burt (002 44 3385)
Secretary: Lance Brown (002 28 2018)
Treasurer: Cindy Campbell (002 34 8003)
Venue: Glenorchy Regional Library, Glenorchy at 7:30pm on the 4th Wed. of each month.
Mail: PO Box 247, North Hobart, 7002.

NORTHERN TASMANIA AMSTRAD COMP. CLUB

President: David Double H (003 444 243)
V. Pres.: Shane Crack H (003 446 525)
Sec/Treas: Enid Baker B (003 431 313)
Librarian: Paul James H (003 273 525)
Junior Del: Jason Donati H (003 316 597)
Tech. Off.: Richard Wilson H (003 931 437)
Venue: Launceston Community College (opposite Park Street) in Room 27 on the first Saturday of the month at 5.00 p.m.

N.W. COAST AMSTRAD USER'S CLUB

President: Peter Gibson (004 24 7586)
Treasurer: John Westerhof (004 24 3977)
Secretary: John Westerhof (004 24 3977)
Venue: Don College, Watkinson St Devonport the third Sunday of every month at 7.30pm.
Mail: Secretary, 7 Bishton St, Devonport, Tas.

NEW ZEALAND

THE AMSTRAD COMPUTER CLUB OF CANTERBURY

Contact: Ian Orchard (524 064)
Venue: Four Avenues School, cnr. Madras Street and Edgeware Road, Christchurch 1 on the fourth Wednesday of each month.
Mail: C/o 50 Rapaki Road, St. Martins, Christchurch. 2 NZ.

AMSTRAD USERS GROUP

Contact: John Court H (666 143)
Venue: Oranga Scout Hall, Fergusson Park, Waitangi Road, Auckland. Between 9.30 am and 4 pm on the third Saturday and the last Sunday of the month. CPC and PCW's catered for.

WELLINGTON AMSTRAD USER GROUP

President: Patrick Faury (766 185)
Secretary: Lesley Walker (679 169)
Treasurer: Gareth Purchas (764 111)
Librarian: Dennis Lowe (887 919)
Librarian: Ewen McNeill (784 520)
Mag Editor: Steve Lillis (675 524)
Venue: Cafeteria, NZ Fisheries Research Division, Greeta Point, Evans Bay, on the first Monday of each month from 7.30 pm.
Mail: PO Box 2575, Wellington, New Zealand.

CONTACT LIST

Victoria:

Brian Ellis, Reservoir
(03) 469 4425 A/H

New South Wales:

Chas Fletcher, Toongabbie
(02) 631 5037

South Australia:

Dave Green, Port Pirie
(086) 326 834

You'd need to search the high seas for gems like these!

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

The second disk to be released is PC-SOFT #2, in either 5.25" and 3.5" formats, and contains the following:

3DOXO.EXE

A three dimensional version of Noughts and Crosses played on four planes against your computer. Each plane, one above the other, contains a grid of sixteen squares. To win, you must get four of your counters in a row - vertically, horizontally or diagonally. It's not as easy as it sounds and the computer plays a strong game. However, you can cheat a little by pressing [H] which will prompt the program to suggest a move.

BOUNCY.COM

A giant nuclear-power station that orbits the planet Abraxii has gone terminal. You have been raced to the scene, encased in your Ultra-Ball, to restabilise the reactor by colliding with the uridium cooling rods and driving them home one at a time. Your score 10 points for each rod successfully replaced. The only problem with the Ultra-Ball is that it is unsteerable and always travels in a straight line, horizontally or vertically. What you must do is activate the deflector shields that are built into the reactor so that the ball will bounce off them and hit the cooling rods. Within the reactor are anti-matter death stars which will destroy you on contact and inter-spatial gateways which will take you from one side to the other.

DRAGONFLY.EXE

A full colour action arcade game originally designed for the PC1512, but also works on EGA if you don't mind a messy title screen. The games centres on a tract of water patrolled by a helicopter. Your mission is to blast enemy hydrofoils out of the water before they blast you. The helicopter can be controlled with the numeric keypad (or a nine-pin joystick fitted into the keyboard of a PC1512/1640).

JOIN4.COM

This strategy game is based on the 'board' game Connect4 and involves two players dropping counters alternately onto one of the seven to try and produce a line of four in any direction - but be warned, it plays a mean game! It is self-contained and displays its own instructions. The game can be played against your computer, against another player with the computer keeping score, or the computer can play itself.

MM.EXE

This is the infamous Mastermind game of logic but with

some additional features. You can play against a clock and have to keep a watchful eye on an ever dropping thermometer style scale on the right of the display. There's also a digital clock to remind you how long you have been playing. There are four levels - Amateur, Average, Expert or Master and the range of numbers for any sequence can vary from six to ten using any digit between 0 and 9. It also features sound effects and you can alter your guess as many times as you like within a time limit. You get a progress report after every ten moves.

MOLECULE.EXE

A jazzy version of Black Box in which you fire beams into a lattice of squares and determine where the molecules are hidden by analysing the reflections and absorptions. It's a bit like a 3D version of Mastermind but with more information provided.

A ray is absorbed by a direct hit and reflects from any of the corners of a molecule. You mark where you think each molecule is and check your guesses at the end of the game. There is a variable time limit to add tension to the game with sound, level of play and number of molecules also optional. There's also a demonstration mode to show you how it all works.

RACE.COM

Race simulates a six-race meeting at any of four courses. Each race is of a different length and you have to study the form to select the horse most likely to win. You start off with £50 (pretend they are dollars) and can bet up to £99 for a win or place to a maximum of four place bets in any meeting. The race is shown in colour (you must at least have CGA) as the horses come to the last fence, and although form plays a major part, your horse can still fall at the last fence.

REVERSI.COM

A very good version of Othello (for CGA graphics screens) with menu options offering instructions, programming details and a high score table. The object of the game is to have more squares covered with counters of your own colour than your opponent's when the board is full. You must place each counter to trap at least one counter of the opposite colour between your new one and another of yours already on the board. All trapped counters are then flipped over to your colour.



PC-SOFT #1 was released last month and contained 19 Basic2 programs for PC1512 and PC1640 users. If you need details, take a look at Page 50 of the November 1989 issue or send for a copy of that page.

The disk contains:

3DGRID.BAS,	3DVIEW.BAS,
ANAGRAM.BAS,	ANGLES.BAS,
BAS-INIT.BAT,	BRAHMA.BAS,
BRAHMA2.BAS,	BUSES.BAS,
ENIGMA.BAS,	EUROQUIZ.BAS,
MANDEL.BAS,	MATHS.BAS,
OXO.BAS,	ROBOPOST.BAS,
STYLISER.BAS,	SUNDIAL.BAS,
TENPIN.BAS and	TURTLE.BAS

5.25" format will be supplied unless 3.5" is requested

To get your copy of PC-SOFT #2, simply send \$12.50 (plus P&P), or \$15.00 (plus P&P) if ordering a 3.5" format, by cheque or money order (or quote your Bankcard, Mastercard or Visa number with expiry date) to:

THE AMSTRAD USER
1/641 High Street Road,
Mount Waverley, Victoria 3149.

Or ring (03) 233 9661 with credit card details.

5.25"
\$12.50
(plus P&P)
3.5"
\$15.00
(plus P&P)

Next month we release #3 on 5.25" and 3.5". Utilities for all Amstrad PCs!

FOR SALE

Start Computing with the Amstrad CPC6128 - by Judith Thamm.

A Basic course for beginners, full explanations. 112x44 photocopied pages coil bound with over 50 programs. Ideal for computer clubs. Book \$20.00, 3" disc \$10.00, P&P \$2.00

Ribbons re-inked \$4.50 plus return postage. Judith Thamm, Box 269, Two Wells SA 5501 (Ph 085 20 2377)

Start Computing on a PC - by Judith Thamm. Learn quickly and easily at home. Hints, tips and traps for DOS and an intro to BASIC.

Book plus 5.25" disc - \$35.

Book plus 3.5" disc - \$38.

Cheque, Money Order, Bankcard, Mastercard accepted. Ring Judith Thamm, (085) 20 2377. Box 269, Two Wells SA 5501

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

WANTED

3 INCH disc drive for CPC464 in good condition. Write of phone Brian Pink. 60 Bristol Avenue, Bicton WA 6157. Phone (09) 339 3288

WANTED JUNE, JULY, AUGUST 1987 Computing with the Amstrad; JANUARY MARCH APRIL 1988 issues 8000 Plus; will pay retail plus postage. Don Cottrell 26 Inglis St, Grange 4051 (07 356 1759)

SERVICES

ROM Programming Service - Any program/s (upto 16k) transferred to ROM. \$25.00, including cost of blank ROM and return postage. BASIC, BINARY (or a combination of both) supported. Phone Ted Krapkat (079) 751 181 (after 5.00pm)

FABRIC RIBBONS re-inked. DMP, LX86, LC10 - \$4; PCW - \$5; LINE from \$6.50; Multi-colour \$4 per track (min 2 tracks). WE PAY surface post both ways. Windsor Software, FREEPOST 47, BOX 408, Lutwyche, QLD 4030. Ph (07) 356 1759

CPC464 POWER COMPUTING can make super computers green with envy, without emptying your pocket. Details, John Taunins: Box 2008, Geraldton 6530. Specify CPC464 tape or MS-DOS disc as transfer media.

Personalised Stationery - an ideal gift for any occasion. 100 sheets of high quality paper with address and phone number printed plus 50 matching envelopes. Ring (03) 233 9661 for details.

USER GROUPS

W.A. PC Owners are invited to join the expanded "Southside Amstrad Users' Club" which caters for all PC and Amstrad CPC users. See "User Groups" for details. Mail members welcome.

SYDNEY AMSTRAD COMPUTER CLUB for CPC only. Meets first Saturday of the month in Inner Suburbs. Details Ph. 560 9487 or 661 7573, 6-9pm only.

CONTRIBUTIONS

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

DISPLAY ADVERTISING DEADLINES

Issue	Booking by	Copy by
FEB'90	01/12/89	08/12/89
MAR'90	15/01/90	26/01/90
APR'90	12/02/90	23/02/90

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

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

NOTE: Classifieds are reserved for readers' use only. Commercial companies or traders are excluded.

Classified Ads Order Form

This section of the magazine offers you the chance to speak directly to the huge waiting world of Amstrad owners - or would-be owners.

You can place an ad of up to 30 words for just \$7.50. So you could use it to sell a printer, launch a user group or publicize a piece of software you have written.

One thing you can't advertise is the sale or swap of software you've purchased. Such ads can be misused by software pirates.

Just fill in the application form and send it to us together with payment. We'll then place the ad in the next available issue (published 3 to 7 weeks after we receive your order.)

Classification: For Sale Wanted Services User Groups

Please place the following advertisement in the next available issue of The Amstrad User

I enclose payment of \$7.50 by Cheque/MO/Bankcard/ Visa/Mastercard (cheques payable to The Amstrad User).

Credit Card Number

Credit Card Expiry date

Name

Address

Telephone

Write your advertisement here, one word per box. If you want your phone number printed, it must be included in one of the boxes.

CPC & PCW PUBLIC DOMAIN SOFTWARE

The following discs contain compilations of public domain programs put together by the Advantage Computer User Group (in England) and which have been tested under CP/M Plus.

Unless otherwise stated, programs will run on the PCW, 6128 and 464/664 with extra memory and CP/M Plus. Programs for the 464/664 are on the CP/M 2.2 Collection. The discs are supplied in

Data format and contain documentation files to help the user get started and provide instructions on running the programs plus useful sorted directory and MENU systems.

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

CP/M 2.2 COLLECTION

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

CPC Ref: #430

FULL SCREEN TEXT EDITOR

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

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

CPC Ref: #601 PCW Ref: #801

DATABASE

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

CPC Ref: #602 PCW Ref: #802

COMMUNICATIONS

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

CPC Ref: #603 PCW Ref: #803

VIDEO CLERK

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

CPC Ref: #604 PCW Ref: #804

FIXED ASSETS LOG

Allows you to keep a record of all your assets and their value. For example, at home, you may wish to

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

CPC Ref: #605 PCW Ref: #805

COMPLETE UTILITIES

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

CPC Ref: #606 PCW Ref: #806

TEXT PROCESSING UTILITIES

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

CPC Ref: #607 PCW Ref: #807

DISC ORGANISATION

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

CPC Ref: #608 PCW Ref: #808

Z80 PROGRAMMER

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

CPC Ref: #609 PCW Ref: #809

'C' PROGRAMMER

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

CPC Ref: #610 PCW Ref: #810

'C' TOOLBOX

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

CPC Ref: #611 PCW Ref: #811

FORTH, STOIC AND 'C' INTERPRETER

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

CPC Ref: #612 PCW Ref: #812

GAMES COMPENDIUM

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

CPC Ref: #613 PCW Ref: #813

ADVENTURES

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

CPC Ref: #614 PCW Ref: #814

PCW GRAPHICS (PCW only)

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PCW Ref: #815

HOW TO ORDER YOUR DISCS

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

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

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3. Most orders can be reserved for up to 7 days pending payment after which they will be released for others to buy.
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Amstrad CPC Range 464, 664 and 6128 (unless otherwise stated)

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PCW - continued

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PC - continued

PC - continued

PC - continued

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PC - continued

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PC - continued

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PC - continued

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PC - continued

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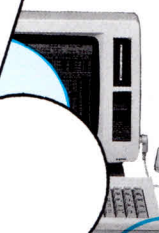
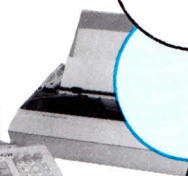
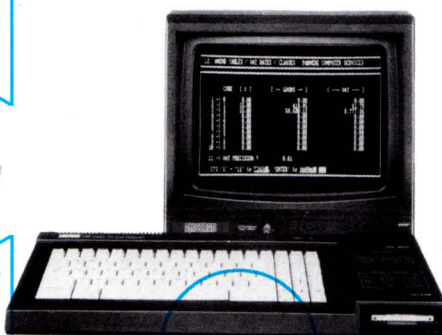
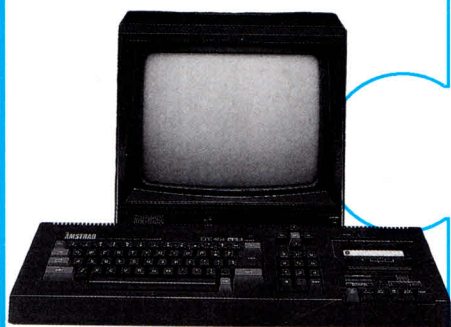
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MASTERFILE 8000

FOR ALL AMSTRAD PCW COMPUTERS

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

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

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

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

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

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

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

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

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

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

Megaglomerate Ltd

Sales Contact : Martin McManic
Telephone : 0245 654321
Reference : MGL
Date of last order : 14 Aug 86
Value to date : £31,455.00

Mega House
143-145 London Road
Chelmsford
Essex CM12 5DG

Ref	Maker	Model	Specification	Price ex VAT
		FX85	180cps 48MLD 80col	£310
		FX105	180cps 48MLD 132col	£410
		FX100	180cps 132col	£195
		EX90	180cps 28MLD 80col	£195
		LA1000	180cps 58MLD 132col	£435
		EX1000	180cps 58MLD 80col	£375
		AS9	180cps 48MLD 80col	£225
		AS5	180cps 48MLD 132col	£370
		SS10	180cps 48MLD 80col Colour	£240
		SS20	15cps daisywheel	£410
		SS100	30cps daisywheel	£530
		SS100	35cps daisywheel	£530
		SS300	280cps 58MLD 80col	£1,795
		DX	280cps 58MLD 132col	£2,700
		DX	8 page min AM	£1,300
		DX	8 page min AM graphics	£2,650
		LIPSA1	8 page min AM	£280
		LIPSA2	8 page min AM graphics	£280
		LP	100cps 58MLD 80col	£285
		LP-810		
		TXan		

03: Display Options
Steer using F10
Alter data F11
Erase data DEL
Assign to set F12
First page F13
Next page ENTER
Find key F14
Go to record number F15
Print single record F16
Print range record F17
Erase record F18
Insert new record F19
Show re-sequenced R
Rotate format R
Go to search S
Exit to main menu W

File: INVOICES Records: 00017 Selected: 00009 Key: Format: 1

Customer Details and Invoices

British United Freight
493 Western Avenue
Gloucester
GL9 5JN

Tel: 0452 6
Contact: Mike
Ref: BUF

Invoice	Tax point	Amount	Date paid	Comments
12004	20 Aug 87	£235.00	02 Oct 87	
12339	29 Aug 87	£38.00	02 Oct 87	
12450	01 Oct 87	£305.00		re
12453	21 Oct 87	£133.00		
12533	03 Nov 87	£1,004.50		
12538	10 Nov 87	£355.65		
12703	14 Nov 87	£200.00		
12782	11 Nov 87	£39.20		
12839	04 Dec 87	£883.55	04 Dec 87	Cash with order
Totals:		£3,253.90		

Date of invoice

03: Display Options
Steer using F10
Alter data F11
Erase data DEL
Assign to set F12
First page F13
Next page ENTER
Find key F14
Go to record number F15
Print single record F16
Print range record F17
Erase record F18
Insert new record F19
Show re-sequenced R
Rotate format R
Go to search S
Exit to main menu W

File: INVOICES Records: 00017 Selected: 00009 Key: Format: 1

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

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

Bankcard, Mastercard or Visa orders are welcome, written or telephoned, quoting the card expiry date.

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Mount Waverley
Victoria 3149
Tel: (03) 233 9661

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