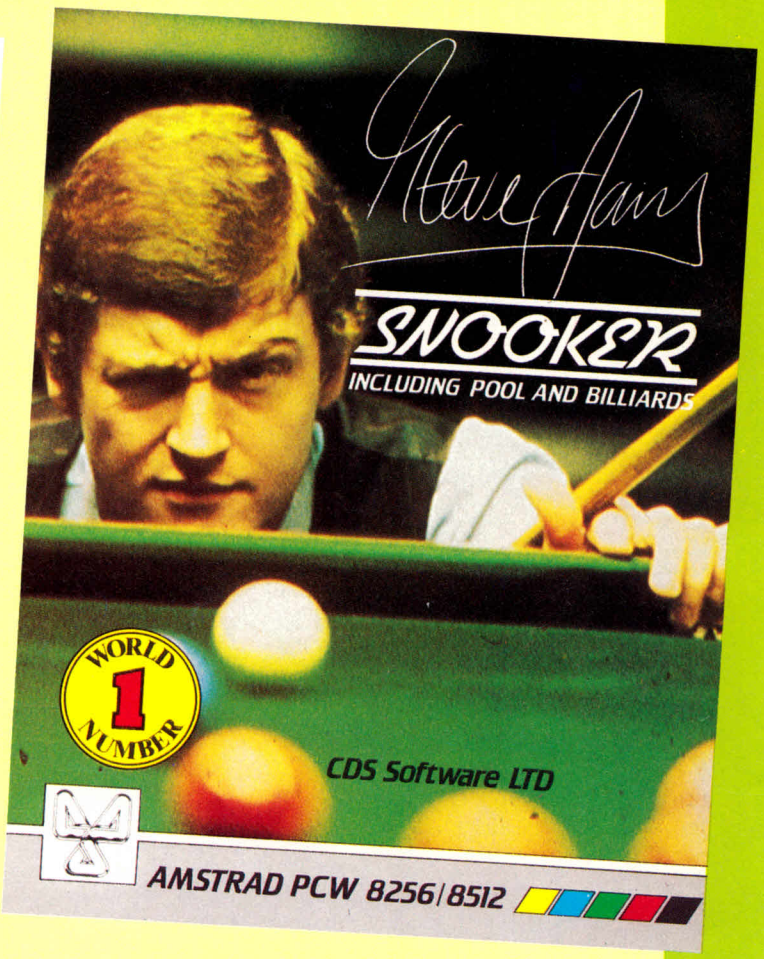
The Aussie Mag for Amstrad owners

THE AMSTRAD USER

Issue No. 34 $4.25 November 1987



- *LOGO Special: including a new tutorial series and a type-in to create a customized quiz*
- *A guide to selecting the right database + a Mallard Basic/Jetsam demonstration type-in*
- *PC Help section and Compatibles Corner*

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THE AMSTRAD USER

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November 1987

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

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All enquiries and contacts concerning this Publication should be made in the first instance by writing to The Amstrad User, Suite 1, 245 Springvale Road, Glen Waverley, Victoria 3150, Australia. Urgent matters can be phoned through on (03) 233 9661.

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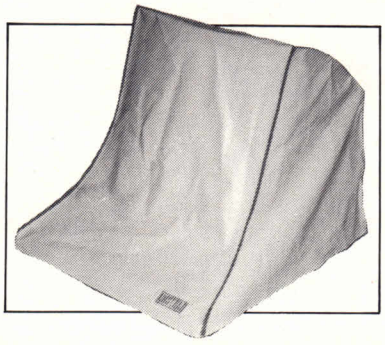

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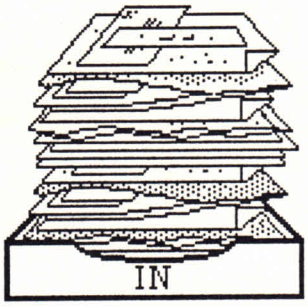
Letters



About six months ago I purchased an Amstrad PCW8512. The main purpose envisaged was to use it as a wordprocessor for home use and as a means to keep track of my personal accounts if suitable software was available.

I have no complaints about the hardware for the price. No other machine is comparable. But I consider that the software available has severe limitations.

Locoscript performs adequately as a very basic wordprocessor. It falls down in that other fairly standard attributes of other wordprocessing systems such as a spelling checker and mail merge have to be purchased separately. Its main drawback however is its slow speed. I do understand however that these problems have been rectified with Locoscript 2. I hope so.

My main gripe however is with accounting software. I was attracted to "Money Manager" because it appeared to offer everything I wanted to keep track of my own finances. It is advertised as being for the PCW8256/8512. It certainly works on the PCW8512 but you may as well forget that you have two disc drives. It will not save to any disc in Drive B. It takes no advantage of the PCW8512's larger RAM or capacity of Drive B and the limitation of 100 transactions per month make its use very limited. One can split up transactions into separate files but it then looses the advantage of having all relevant data in the one file and much additional keying in of information is required.

Because of all these frustrations I then purchased "PlanIt" which promised to resolve my problems with the additions of other useful parts of the package such as a card index and diary etc.

The system is beautifully presented on screen but after a short time its limitations have become very apparent and annoying. In its accounts module it is limited by the fact that it will only allow for one bank account. While several credit cards are catered for, they have fixed English names and it is not possible to change these to Australian names ie. you can have an English "Access Card" but you can't change its name to "Bankcard" for example. This is strange because the program does permit change of name and expenditure accounts. The program does not provide for dollars either. All transactions are recorded as pounds. One would imagine if software was being sold around the world, it would not be difficult to configure a program to accord with a few basic practices of the country to which it is being sold. Surely a dollar sign ($) is not too difficult to configure in a program.

While the program is sold as being configured for the PCW8512 it only uses Drive B for its card index module. This means that saving of data in the accounts or diary modules requires much changing of discs. This is rather annoying if one of the main reasons in buying a PCW8512 was to minimise disc swapping.

So I am becoming reluctant to buy any further software without knowing what it does first. I find that most software suppliers know little about the software they are selling. I still don't have what I consider to be an adequate home accounting package and I don't believe I need "Accounting 1" at over $600 to keep track of my personal accounts. I am beginning to think however that this may be the only way to get a program to do the simple things I want it to do. Perhaps some other reader may have a cheaper

All letter for the Mailbag section should be addressed to:
The Editor
The Amstrad User
1/245 Springvale Road
Glen Waverley, Vic 3150
We regret that we cannot enter into any personal correspondence.

suggestion.

Thank you for an excellent magazine by the way.

Douglas Junor, Paddington, NSW

Since buying my PCW8256 15 months ago I have purchased two new printer ribbons. The original ribbon lasted quite a lot longer than the first replacement, or so it seemed. At first I thought it was just my imagination, you know the way things always seem worse than they used to be.

Now my second replacement ribbon is becoming quite faint, and I took the time to open up two ribbons at the same time for comparison. The original equipment ribbon has approximately 3 times as much ribbon as the two replacement ribbons. The plastic case is also slightly different having a white winder knob at the left end, and two lift out handles equally spaced along the top of the case. The original package has a block winder knob and a single long lift out handle. I have also found that this ribbon design is used in other printers, the SEIKOSHA SP-1000AS being one of them. Unfortunately the agents for SEIKOSHA ribbons is AWA, the same as for AMSTRAD, so I suspect that both replacement ribbons may be of similar inferior quality. I have also tried restoring both types of ribbon using the WD-40 treatment. The original ribbon responded reasonably well after a period of blotchiness, but the short ribbon turned a purple colour that does not photocopy very well. I am continuing my investigations and shall report the eventual outcome.

So, shop around and make sure you get the full value ribbon instead of the rip-off version at the same price.

Arnold Goldman, N. Dandenong, Vic

I would like to congratulate Chris Collins for his very "intelligent menu" which was published in the January issue. I have discovered a slight flaw in that program. If you run the program after running a Program involving graphics, or using various windows, or various pen & paper colours for these windows, some very strange visual effects are created. As 4 separate windows are created in the program to erase the program/file size on the disc, and if these windows paper and pen colours were set to varying colours, you will get 4 long "bars" of the pen colour in these columns, and the arrow is then superimposed on these "bars", and may or may not be erased with subsequent cursor movement.

Another flaw is, that the lines drawn around the edge of the screen may not appear upon running the program. This is because the pen colour is not possible to be printed on a mode 2 screen.

The solution to this small cosmetic problem is fairly simple. Firstly, select the pen, paper & border colours you wish to use with the program (my favourite colours are bright cyan for the pen, blue for paper, and sky blue for the border - and these are the colours I have used in my example). Place your paper colour number into ink 0, and pen colour number into ink 1 and then change the border colour. This will ensure that the frames around the edges are always drawn in your favourite colours. These changes are made in line 30. Then add line 45 which ensures that the "bars" don't appear.

```
30 DEFINT a-z: INK 0,1: INK
```

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```
1,20:BORDER 11:MODE 2:PAPER 0:PEN
1:GRAPHICS PAPER 0:GRAPHICS PEN 1
45 FOR CL=1 TO
4:PAPER#CL,0:PEN#CL,1:NEXT
```

I hope this will be of use to your readers.

Phil Street, Mirrabooka, WA

I compile a crossword each month for a hardware magazine (I own a small hardware store), lately by using PRO-SPELL on my 6128. The trouble is that it takes nearly as long to draw the grid and blacken the unused squares as it does to work out the words. Have you published a graphics screen dump that will work on my SEIKOSHA SP-800 printer so I can speed the process and produce a neater result?

One of your reviewers referred to there having been several of these programs printed over the last couple of years but I have become a computer user only fairly recently and have not been able to find what I need without buying expensive commercial software.

If you have not published such a program perhaps you could include this letter in your mailbag column and a reader may be able to help me out.

Rick McGowan, Crafers, SA

I gleaned from one of your earlier issues that your magazine has no interest in racing or lotto orientated programs. I can understand this stand as you were no doubt inundated with such programs all purporting to have discovered the magic formula.

The enclosed short program is intended for use by your readers like me who submit the same numbers from week to week. It is a simple number checker which can be used for lotto or the pools. It really comes in handy for those who take multiple week entries where it is not practical to mark the coupon from week to week.

All the reader need do is enter his or her own numbers, a square at a time, in the date lines 50 through 140.

The rest is simple. Each week run the program, enter the numbers to be checked and the screen will display the squares together with any numbers appearing in those squares. Very easy then to check that square on your coupon and verify the prize.

Soccerpools players or interstate lotto players need only make the following minor alterations:

Line 160 alter to read (6 Plus 1 supp.)
Line 170 delete the "s"
Line 270 delete.

I am new to programming (as may be evident in my listing). If the listing is used I would appreciate any advice from your readers through your column as to any easier way of executing lines 200 to 270.

ALSO ALSO ALSO (just in case you were going to throw this in the bin the moment you saw the word lotto). Regarding R.W. JONES's problem of double spacing in Mini Office II (Issue 29). He may have to disconnect the wire to pin 14 on the printer cable. I found it necessary to do this for the Citizen 120D as it continually doubled whatever the required line spacing was, even with the internal switching for auto line feed set to off.

```
10 CLS
20 BORDER 0:PAPER 0:INK 0,0
30 FOR p=40000 TO 40059
40  READ a:POKE p,a:NEXT
50 DATA 1,9,11,12,28,38        ' Insert
60 DATA 2,3,6,22,29,36         ' Your
70 DATA 3,16,19,23,29,30       ' Own
80 DATA 2,7,17,31,32,35        ' Numbers
90 DATA 4,16,19,21,39,43       ' In
100 DATA 5,8,11,21,25,35       ' Data
110 DATA 5,7,29,35,40,43       ' Lines
120 DATA 8,13,27,30,35,42      ' 50
130 DATA 14,17,18,20,25,39     ' Through
140 DATA 16,19,21,24,44,45     ' 140
150 PRINT " List numbers.      (6 Plus 2
supps.)"
160 PRINT:PRINT " Place a comma
between each number."
170 PRINT:INPUT"",z,y,x,w,v,u,t,s
180 p=40000
190 FOR b=40100 TO 40159
200 IF z=PEEK(p)  THEN POKE b,z
210 IF y=PEEK(p)  THEN POKE b,y
220 IF x=PEEK(p)  THEN POKE b,x
230 IF w=PEEK(p)  THEN POKE b,w
240 IF v=PEEK(p)  THEN POKE b,v
250 IF u=PEEK(p)  THEN POKE b,u
260 IF t=PEEK(p)  THEN POKE b,t
270 IF s=PEEK(p)  THEN POKE b,s
280 p=p+1:NEXT:CLS
290 y=1
300 FOR c=65 TO 74
310 LOCATE 1,y:PRINT CHR$(c);
320 y=y+2:NEXT
330 y=1
340 b=40100
350 FOR x=6 TO 28 STEP 4
360 p=PEEK(b)
370 LOCATE x,y:PRINT p
380 b=b+1
390 IF b=40160 THEN END
400 NEXT:IF x>28 THEN y=y+2:GOTO 350
```

R.S. Muir, Endeavour Hills, Vic

Would you pass on the following request, to the Editor, about how to increase the number of files on the sides of the discs used on my CPC 6128. I am interested because I am building up Text files on genealogy and as initial amounts of information are small, so too are the file sizes, subsequently I fill the directories before disc space has run out. This usually means about 100k of temporarily unusable disc space.

The reason I ask is because of the article you had in one of the recent editions of TAU which outlined the answer to the same problem for the PCW machines. I also made enquiries at my Amstrad dealer who hadn't been asked about this problem before this stage and suggested that I should perhaps contact you for some suggestions.

I look forward to your suggestions and to the next 12 months of TAU.

David Fisk, St. Agnes, SA

I have a problem with an Amstrad CPC6128 and wonder if you or one of your readers can help me. I am using the computer with a DMP105 printer which needs control codes in the range CHR$(0) through CHR$(255) in order to use its full potential. It responds perfectly to codes up to CHR$(127) but not for codes CHR$(128) and above. I am working in basic and not CPM.

Any help that you or anyone can give would be greatly appreciated. I am a regular subscriber to TAU and enjoy the magazine very much.

I. Manning, Forster, NSW

I bought a TANDY DMP 105 printer. It works very well character mode except

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Italic characters. The main problem is in graphics mode. When I send chr$(18) nothing happens. Is anybody around who can help me?

Sandor Csendes, St. Kilda, Vic

I recently purchased the graphics program 'Melbourne Draw' by Melbourne House. I own an Epson GX-80 printer and find dumping pictures very frustrating, nothing will come out proportional to the screen. I have tried everything that the printer manual suggests but nothing ever works.
Can anybody shed some light on my problem?

Lee Drury, Jamboree Hts., QLD

Using LOGO on the 6128, did you know that it's very easy to write LOGO in LOGO?
Try this:

```
To TAU
> TYPE [?]
> MAKE "inst rl
```

(I haven't tried this, but instead of these 2 lines, ">RUN rl" might work.)

```
> RUN :inst
> TAU
> END
```

You'll notice that any LOGO command entered will execute as if in "real" LOGO. Two more points:
1. Think of the possibilities of writing another "TAU1" procedure the same as "TAU" (but written using "TAU") then "TAU2" in "TAU1" and so on!
2. For error handling try: [Use "NEWTAU" to start the procedure now].

```
TO NEWTAU
>CATCH "error [TAU]
>Pr [Error - sorry]
>NEWTAU
>END
```

Interesting, no?

B. Ayton, Warwick, WA

I am the breeder of Belgian Shepherd dogs and although I have seen products advertised for farmers such as "Easibreed" and "Supermix" for use on the PC or other compatibles, I have been unable to secure such a program for my breeding purposes to use on the Amstrad PCW8512.

Since I am a relative newcomer to the world of computers and as I have only been using my PCW as a wordprocessor so far, I was hoping someone might be able to help me. I would be needing a program whereby I would be able to see at a glance the family tree of, say, 5 generations and also the relationship between any two animals to avoid inbreeding.

I know there are programs like the one that I am looking for, however, I don't seem to be able to procure one for my machine. So, if any of your readers out there are able to help me I would be most grateful.

(Miss) S.K. Lowe, Bathurst, NSW

Hot Tips

September 1987 (Page 61)

The last CALL command should read BC7A and not BC74 as printed. Apologies!

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Kensington N.S.W. 2033, Australia
Tel: (02) 662 4884 Fax: (02) 662 1339
Telex: AA121822 (SY2567)

Nationwide User Groups

There are quite a few changes again this month, including the Macedon Ranges group name change to **Sunbury Melton Amstrad User Group**. A reminder also that Mrs. Beryl Schramm can be contacted on (079) 738035 for starting a group in **Boyne Island** (Qld); Don Cottrell for a group in **Bribie Island** (Qld) on (075) 488158, Nick Rogers on (068) 641170 for a group in **Bogan Gate** in NSW, R. Kernebone on (050) 233708 for a group in **Mildura** (Vic), and Neville Eriksen on (079) 782418 for a group in **Gladstone**.

WESTERN AUSTRALIA

ALBANY AMSTRAD USER GROUP
President: Gerry Barr (098 41 6884)
Secretary: Steven Hands (098 44 7807)
Treasurer: Gavin Grose
Venue: Priess Street Centre, 14 Priess Street, Albany on the first and third Mondays of each month at 7.00 pm.
Mail: 20 Anuaka Road, Albany, WA 6330

AMSWEST (Perth)
President: Carl Hindle (09 419 1411)
Vice Pres: John Lansdown (09 342 3154)
Secretary: Saskia Quinn (09 444 8147)
Treasurer: Mario Ioppolo (09 444 7691)
Venue: Royal Institute for the Blind, cnr. Whately Cres. and Guildford Road, Maylands on the first and third Tuesdays of each month starting at 7.30.

AMSWEST (Blackwood) USERS GROUP
This small group is affiliated to AMSWEST (Perth). For further details contact George Muscat on (097) 61 1488.

ROCKINGHAM-KWINANA AMSTRAD USER GROUP
President: Bob Harwood
Vice-Pres: Keith Saw
Treasurer: Rob Macilroy
Secretary: Ben Hille (095 27 5246)
Venue: Cooloongup Primary School, Westerly Way, Cooloongup (Rockingham), every second Wednesday at 7.30 pm.
Mail: 29 Milgrove Avenue, Cooloongup, WA 6168

SOUTHSIDE AMSTRAD USER CLUB
President: W. Van Der Kool (09 271 1085)
Secretary: Steve King (09 354 2068)
Treasurer: Eric Tytherleigh (09 390 8865)
Venue: Wandarrah Hall, Edgeware Street, Lynwood every 2nd and 4th Wednesday of each month from 7.00 pm.
Mail: The Secretary, Southside Amstrad Users Club, 61 Keslake Way, Parkwood, WA 6110.

AMSTRAD COMPUTER CLUB TOM PRICE
President: Colin Smith (091 89 2074)
Secretary: John Eliot (091 98 1735)
Treasurers: Peter & Carolyn Montgomery (091 89 2398)
Venue: Primary School every 2nd Wednesday night. Contact the above for more details.

SOUTH AUSTRALIA

AMSOUTH AMSTRAD USER'S GROUP
President: Drew Ames (085 371 0151)
Treasurer: Bob Bleachmore (085 56 2048)
Secretary: Ross Kennewell (08 386 2737)
Venue: Christies Beach High School, Western Section, Beach Road, Christies Downs (adjacent to Staff Car Park off Mander Road) every 2nd Wednesday of each month at 7.30.
Mail: PO Box 612, Noarlunga Centre, SA 5168

AMSNORTH AMSTRAD USER'S GROUP
Organisers: J.T. Clarkin (08 262 6342)
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: Frank Matzka (08 382 2101)
Vice Pres: Andrew McDade (08 79 5414)
Treasurer: Les Jamieson (08 356 9612)
Secretary: Ross Barker
Venue: The Church Hall, 15 Clayton Avenue, Plympton between 6.30 p.m. and 9.00 p.m. each Tues.
Mail: PO Box 210, Parkholme, SA 5043

NORTHERN COMPUTING SOCIETY INC.
President: Grant Wilson (08 250 2760)
Treasurer: Percy Cook (08 248 1065)
Secretary: Judith Thamm (085 20 2377)
Venue: Salisbury North Primary School, cnr Bagster & Woodyates Rds every Wednesday from 7.00.
Mail: PO Box 269, Two Wells, SA 5501

PORT LINCOLN AMSTRAD USERS GROUP
Contact: Rita Bascombe (086 82 1633)
Venue: Third Tuesday of each month from 8.00 pm. Ring above number for address.

PORT PIRIE AMSTRAD USER GROUP
President: Doug Gowers (086 36 5206)
Treasurer: Dave Green (086 32 6834)
Secretary: Tim Eckert
Youth Rep: Mark Fusco (086 36 2452)
Venue: Education Centre, 370 The Terrace, Port Pirie every 2nd and 4th Monday from 7.30 pm.
Mail: The Port Pirie Amstrad User Group, c/o D.T. Green, 207 Senate Rd., Port Pirie, SA 5540.

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.

NORTHERN TERRITORY

DARWIN AMSTRAD USER GROUP
President: Kevin Bateman (089 32 1463)
Treasurer: Jeff Powis (089 27 5557)
Secretary: Kiem Le (089 32 1828)
Venue: Meetings are held twice monthly. Contact any of the above for more details.
Mail: 45 Priest Circuit, Gray, Palmerston, NT 5787

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: John Holmes (03 434 1607)
Venue: Hall at the corner of Church and Somerset Streets, Richmond on the first Sunday of each month commencing at 1.00 p.m. and generally twelve days later on a Friday evening starting at 7.00 p.m.

EASTERN AMSTRAD USER GROUP Inc.
Secretary: Bob MacDonald (03 878 7783)
Treasurer: Ron Dunn (03 277 7868)
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: R.D. MacDonald, 6 Ashwood Drive, Nunawading, Vic 3131

GEELONG AMSTRAD USER CLUB
President: Reg Morse (052 43 3239)
Vice-Pres: Arthur Pounsett (052 78 2160)
Secretary: Ron Butterfield (052 50 2251)
Venue: South Barwon Community Services Centre, 33 Mount Pleasant Road, Belmont on the first Wednesday of each month, starting at 7.30p.m.

GOULBURN VALLEY AMSTRAD USERS CLUB
President: Shad Aitken (058 52 1001)
Sec/Treas: Bill Brown (058 21 7569) or (058 22 1011)
Venue: 98 Nixon Street, Shepparton on the first floor every third Wednesday from 7.30 pm.

LATROBE VALLEY AMSTRAD USER GROUP
President: Stan Hughes
Secretary: M.G. Donaldson (051 345 711)
Venue: Morwell Neighbourhood House, 17 Symons Crs., Morwell on the first Thursday of each month at 7.30pm.
Mail: PO Box 947, Morwell, Vic 3840

MARYBOROUGH AMSTRAD USER CLUB
President: Chad Banfield (054 68 1351)
Treasurer: Brendan Severino (054 61 3191)
Secretary: J. Fothergill (054 75 2667)
Venue: Maryborough CCC each week on Tuesday from 12.10 p.m. to 12.45 p.m.

MOUNTAIN DISTRICT AMSTRAD USER GROUP
President: Ian Poli (03 758 5282)
Treasurer: Lindsay Bell (03 758 9921)
Venue: Country Womens Association Hall, 4 Sundew Avenue, Boronia from 7.00 pm. every second Monday of the month.
Mail: PO Box 132, The Basin, Vic 3154

NORTHERN AMSTRAD USER GROUP
Contact: Brian Ellis (03 469 4425 A/H)
Venue: Every three weeks in Brunswick West for CPC owners with a sincere interest beyond games.

SOUTHERN AMSTRAD USER GROUP INC.
President: Noel Sheard (03 786 5469)
Secretary: Bob Patterson (03 786 6976)
Treasurer: Christine Donaghey
Venue: Senior Campus at John Paul College, Frankston every third Tuesday from 7.30p.m.
Mail: The Secretary, PO Box 100, Seaford, Vic 3198.

SUNBURY MELTON AMSTRAD USER GROUP
Contacts: Wayne Urmston (03 744 2719)
Norma McEntee (03 743 7104)
Venue: Contact above for more details.

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.

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

ACT

CANBERRA AMSTRAD USER'S GROUP
Convenor: Neale Yardley
Secretary: Steven Walker (062 58 2323)
Editor: John Ault (062 47 5747)
Venue: The Oliphant Building, ANU, Canberra on the first Wednesday of each month from 7.30 pm.
Mail: PO Box 1789, Canberra, ACT 2601.

NEW SOUTH WALES

AM-USER's (North Ryde)
Contact: Lawrence Walters (02 888 1898)
Venue: Meeting Room at 2 Leisure Close, North Ryde from 7.30 p.m. on the first Tuesday of each month.

BLUE MOUNTAINS AMSTRAD USERS
President: Bob Chapman (047 39 1093)
Vice Pres: Dennis Shanahan (047 39 4568)
Treasurer: Peter Traish (047 53 6203)
Secretary: Christine Preston (047 51 4391)
Venue: Springwood Neighbourhood Centre, Macquarie Road, Springwood on the fourth Wednesday of each month at 8.00 p.m.

CENTRAL COAST AMSTRAD USERS CLUB
President: Lloyd Mitchell (043 88 2950)
Secretary: Ray Thompson (043 32 9095)
Venue: The Entrance Aquatic Club, Salt Water Reserve, Long Jetty every second Monday at 7.30 p.m. sharp.

USER GROUP INFORMATION

COFFS HARBOUR AMSTRAD COMPUTER CLUB
President: Bruce Jones (066 52 8334)
Secretary: Don Donovan (066 52 6909)
Treasurer: Brian Claydon (066 49 4510)
Venue: Orara High School, Joyce Street from 7.00 pm. on the first Friday of each month.

FAIRFIELD MICRO USER GROUP
Contact: Arthur Pittard (02 72 2881)
Venue: Room 65, Canley Vale High School, Prospect Road, Canley Vale every third Wed. from 7.00.

HAWKESBURY AMSTRAD USER GROUP
Contact: Terry Webb (045 76 5291)
Venue: Richmond Swimming Centre, East Market St., Richmond every third Tuesday at 7.30 pm.

ILLAWARRA AMSTRAD USERS CLUB
President: Paul Simpson (042 27 1574)
Secretary: Ken Waegele (042 56 6105)
Publicity Off: Steve Parsons (042 96 3658)
Venue: AGA Gremania Club, Berkeley at 2.00 pm. evey third Saturday.

LISMORE DISTRICT AMSTRAD COMPUTER CLUB
President: Max Muller (066 337 113)
Vice Pres: Nick Van Kempen (066 874 579)
Sec/Treas: Chris Rosolen (066 219 754)
Venue: Goonellabah Public School, Ballina St. on the last Tuesday of each month from 6.30 pm.
Mail: PO Box 88, South Lismore, NSW 2480

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 7.30 pm.

NAMOI AMSTRAD USERS GROUP
Contact: Martin P. Clift, JP (067 92 1333) B/H (067 92 3077) A/H
Venue: Narrabri Technical College, Barwan Street, Narrabri on the first Saturday of each month at 2.00 p.m.

NEWCASTLE AMSTRAD USER GROUP
President: John Harwood
Treasurer: Erica Harwood
Secretary: Janet Bowen
Venue: Kotara Public School, Park Avenue, Kotara on the first Tuesday of each month. Contact the above for meeting times.
Mail: PO Box 18, Charlestown, NSW 2290

PCW AUSTRALIA GROUP
President: John Joseph (02 331 2717)
Treasurer: David Springett (02 660 4515)
Venue: Auburn Public School, Adderley St., Auburn every second Tuesday of the month at 7.30 pm.
Mail: PO Box 1879, North Sydney, NSW 2060.

PORT MACQUARIE AMSTRAD USERS GROUP
Mail: Craig Tollis, Box 584, Port Macquarie, 2444.

SYDNEY AMSTRAD COMPUTER CLUB
President: Bob Knowles (02 810 7373)
Secretary: Reed Walters (02 560 9487)
Treasurer: Jim Chryss (02 327 7872)
Venue: Newtown area on the 1st Saturday of every month for a normal club meeting and on the 3rd Saturday for the purposes of programming tutorials only. Both meetings commence at 2.00 p.m. For more details contact the Secretary or Treasurer between 6.00 p.m. and 9 p.m.

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

BRISBANE AMSTRAD COMPUTER CLUB
President: John O'Connor (07 271 3350)
Vice Pres: John Digby
Secretary: Bob Ashe (07 355 5699)
Treasurer: Ivan Dowling (07 269 8795)
Tech. Editor: Franz Hendrickx (07 356 0633)
Tech. Lib.: John Wotton
Venue: Main meetings at in Room 15a of Junction ParkState School, Waldheim St., Annerley starting at 7.30p.m. Another is held at Wynnum Central State School, Florence Street, Wynnum Central on the first Saturday of each month at 1.00p.m. The co-ordinator is Warren Kennedy (07 351 4232). A third is held at Newmarket State School, Banks St., Newmarket on the second Saturday of each month at 1.30p.m. The co-ordinator is Cherry Shrier (07 351 6179).

BUNDABERG AMSTRAD USER'S GROUP
President: Ray Babbidge (071 72 1223)
Secretary: Clive Barrett (071 71 3668)
Treasurer: Sheila Cole (071 72 8884)
Venue: The third Tuesday of the month. For more details contact the above.
Mail: PO Box 865, Bundaberg, QLD 4670.

CABOOLTURE AMSTRAD USER GROUP
President: John D'Archambaud (071 95 4860)
Secretary: Stephen Yench
Treasurer: Craig Deshon
Venue: Contact above number for more details.

CAPRICORN AMSTRAD USERS GROUP
Contact: Graeme Annabell (079 27 4915)
Venue: Waraburra State School, Gracemere on the first Friday of each month at 7.00 pm.

COMPUTER USER GROUPS OF AUSTRALIA Pittsworth Branch
President: David Siebuhr
Contact: Ron Langton (076 931 690)
Venue: Every 1st Tuesday of each 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: Mark Abbott (075 31 2114)
Treasurer: Pam Scott
Secretary: Mary Maclaren
Venue: Benowa State High School, Mediteranean Drive, Benowa on the first Saturday of each month at 2.00 pm.
Mail: 17 Ewan Street, Southport, Qld 4215

HERVEY BAY - MARYBOROUGH AMSTRAD COMPUTER USER GROUP
President: Ian Jardine (071 28 3688)
Vice-Pres: Gerhard Schulze
Sec/Treas: Les Patford (071 28 9737)
Venue: The first Thursday of each month at 7.00 pm, alternating between the Hervey Bay Senior College and Maryborough TAFE College. Contact the above for more details.
Mail: Les Patford, PO Box 24, Torquay, Qld 4657

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 Mulrealiey (551 409)
Ron Coates (547 222)
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)
Secretary Tracie Payne (07 267 6645)
Venue: Kippa-Ring State School Library, Elizabeth Avenue every third Tuesday of the month at 7.30 pm.

SOUTHSIDE AMSTRAD USER GROUP (QLD)
President: Michael Toussaint (07 200 5414)
Vice-Pres: Peter Incoll (07 208 2332)
Secretary: Mick Howe (07 209 1839)
Treasurer: Wayne Stephens (07 287 2459)
Librarian: Carol Watts (07 287 2882)
Venue: Loganlea State High School (in the Communications Room) every third Saturday of the month starting at 2.00 p.m. A Basic programming course is held fortnightly.
Mail: 10 Carramar St, Loganlea, 4204

TOOWOOMBA AMSTRAD USERS GROUP
President: Stephen Gale (076 35 5001)
Vice-Pres: Priscilla Thompson (076 35 5092)
Secretary: Adrian Dunsmore (076 91 1561)
Treasurer: Edwin Gerlach (076 33 1054)
Venue: Toowoomba Education Centre, Baker Street, Toowoomba on the 4th Monday of each month starting at 7.30 pm.

TOWNSVILLE AMSTRAD USER GROUP
President: Ian Wallace (077 73 1798)
Vice Pres: Doug Selmes (077 79 6011 xt 252)
Treasurer: Allan Maddison (077 79 2607)
Secretary: S. Crawshaw (077 73 3933)
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
Venue: Warwick Education Centre on the first Saturday of each month from 3.00 p.m.

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.

WESTERN SUBURBS AMSTRAD USERS GROUP
President: Peter Wighton (07 288 4571)
Secretary: Jimmy James (07 376 1137)
Contact: Keith Jarrot (07 376 3385)
Venue: The Jamboree Heights State Primary School, 35 Beanland Street, Jamboree Heights at 1.30 p.m. on the first Saturday in each month.
Mail: Jimmy James, 36 Penong Street, Westlake, Brisbane 4074.

TASMANIA

SOUTHERN TASMANIAN AMSTRAD USER CLUB
President: Frank Self (002 49 5499)
Secretary: Peter Campbell
Treasurer: Cindy Campbell
Publicity Off: Danny Brittain (002 47 7070)
Venue: Elizabeth Matriculation College on the first Wednesday of each month from 7.30 pm.

NORTHERN TASMANIA AMSTRAD COMPUTER CLUB
President: Russell Lockett (003 44 8972)
Treasurer: Keith Chapple (003 26 4338)
Secretary: Shane Crack (003 97 3298)
Publicity: Michael Watts (003 31 1944)
Librarian: Patrick Salter (003 97 3379)
Junior Del: Bobby Lockett (003 44 8972)
Venue: Launceston Community College (opposite Park Street) in Room 11 on the first Saturday of the month at 5.00 p.m.

N.W. COAST AMSTRAD USER'S CLUB
President: Rick Ferguson (004 31 6280)
Treasurer: Robert Simpson
Secretary: Karen Stevenson
Venue: Burnie Technical College, Mooreville Road, Burnie on the third Friday of each month at 6.30 p.m.

NEW ZEALAND

THE AMSTRAD COMPUTER CLUB OF CANTERBURY
Contact: Christine Linfoot 897 413
Ian Orchard 524 064
Venue: Four Avenues School, cnr. Madras Street and Edgeware Road, Christchurch 1 on the fourth Wednesday of each month.
Mail: PO Box 23.082 Bishopdale, Christchurch, NZ.

WELLINGTON AMSTRAD USER GROUP
Contact: Tony Tebbs 791 072 (evgs)
Venue: Room 718, Kirk Block, Victoria Univ. on the last Wednesday of each month from 7.30 pm.
Mail: PO Box 2575, Wellington, New Zealand.

The closing date on amendments to this list for Issue 37 (January 1988) is 13th November 1987

More Tas-releases from Dolphin

Dolphin Computers, distributors of the popular Tasman range of software for Amstrad computers, has recently announced the release of three more packages.

For the IBM compatible PC1512 comes TAS-SPELL, a spelling checker used with TASWORD PC. It features an impressive 70,000 word dictionary with provision for addition and deletion of users' special words. It retails at $115.00.

For CPC6128, 664 or 464 with disc drive, and electronic diary called TAS-DIARY is now available at a retail price of $45.95. It's a fast and efficient day to day diary, featuring a separate screen display for every day of the year. TAS-DIARY enables users to create a diary for every year into the future and entries made are automatically saved to disc upon closing the diary.. It includes useful sorting and displaying facilities and is a most valuable aid to keep records, reminders and any other data related to that most valuable commodity - time.

Finally, TAS-SIGN has arrived for the PCW 8256/8512 and CPC6128. It allows users to produce and print their own signs, posters, banners and large notices. It features four distinctive lettering styles, characters of any height from less than one inch up to the full width of the paper, printing either across the paper or along the length of the paper, constant or proportional spacing, underlining, borders and various shading options.

TAS-SIGN drives nearly all dot matrix printers, and maintains the high Tasman standard of ease of use and straightforward instructions. It retails at $89.95.

These new products will be reviewed in the next issue of The Amstrad User.

ISD equals IQ

ISD (International Software Distributors) are one of the largest distributors of entertainment and business software in Australia covering Amstrad and Commodore computers, importing among others the Mastertronic, Firebird, Codemasters, Bugbyte and Players budget games titles and Migent, Caxton, Mirrorsoft and Mainstream business titles.

Since September 1987, the company has split its operations into two divisions. One, under the name IQ Smart Software, is responsible for the entertainment area, and the other, IQ Smart Business, deals with the more 'serious' areas. Watch out for the new logo.

Computers at the Bay

After nestling in the foothills of the Dandenongs at Boronia for six months, Capacity Computers is now testing the water at Mentone.

Following calls for help from many Amstrad users in areas such as Bentleigh, Moorabbin and Mentone, Carole and George have decided to start a new branch of Capacity Computers to support this market.

A lot of interest has been shown in forming an Amstrad user group in the area, so Carole and George have offered use of the premises for the inaugural meeting at least, and probably for the first few meetings until the group outgrows the space available.

"We will attend meetings when we can," says George, "but we will not be holding office or taking a really active part, because that would seem to me to be a conflict of interest. After all, it wouldn't be right for a retailer to be guiding people as to what to buy and where to buy it. It's up to them to find out that Capacity has the best range and the best value."

Capacity has recently taken on an Atari dealership, as that company's offerings complement rather than compete with the Amstrad product range. However, Amstrad users may be assured that their product is still Capacity's main thrust and is still supported as strongly as ever, now at two stores.

Capacity Computers can be found at Shop 6, 41,Florence Street, Mentone (entrance in the Safeway carpark), and their telephone number is (03) 583-1255. Capacity is collecting a list of names and telephone numbers of people who would like to form a local user group, so if you are interested, why not give them a call, or pop in to see them?

Scan the Pages

Database Software (UK) have just launched a new low cost scanner which will reproduce images or text in a PCW. Masterscan is clipped on to the PCW printer head. The image to be scanned is fed into the printer and read, a line at a time, into the PCW. The company claim that by using this method (similar to Thunderscan on the Macintosh) and a modem you can send images all over the world, making it a low-cost fax-type machine although it is not compatible with fax machines as such.

What it does provide is an alternative to video digitisers and could provide an inexpensive source of illustrations for users of desktop publishing packages such as Fleet Street Editor, Newsdesk International and the Desktop Publisher. It is claimed that it can reproduce any part of an A$ page from half size to six times magnification.

Gremlin News

As reported in the September issue of The Amstrad User, Gremlin have now released the small screen versions of "Masters of the Universe" and "Basil, the Great Mouse Detective". This should keep the youngsters happy over Christmas.

The Gremlin PR machine has been quite active this month with information on four new titles:

Deflektor

No heroes. No foes. Only pure skill and technology. As you guide your laser beams through a sea of danger, a pyramid of obstacles reflect it from mirrors, bounce it off walls and deflect it through lenses.

The player must forever calculate the angles, carefully judging the beam's path towards the home receiver. After that, another fiftynine levels of frustration and mind boggling intrigue. It's addictive, compulsive and only for those who can withstand defeat.

Compendium

Wacky Wacky Wacky is the best way to describe Gremlin's new adaptation of the traditional board games compendium! Your hosts are the Winks - father Tiddly Wink and and his wife, Mavis Wink.

Up to four players can compete by taking the role of either one of the Wink children, the baby or the Wink dog. Play snakes and hazzards - real snakes wriggle across the board. Or perhaps the pub game where a rather drunk Tiddly Wink flips his beer glasses into the air for the rest of his long suffering family to catch. Old favourites Ludo and Bingo are not forgotten in this hilarious game for one to four players.

Alternative World Games

Remember when the Olympic Games were free from diplomatic blunders and political boycotts? When sportsmen and women competed against one another for the sheer challenge and fun of it? Well, Gremlin have re-captured the very essence of this spirit in this comical new sports spoof. Up to eight players are each able to choose one of eighteen countries to represent. Each game takes place at a different location. You'll be sack racing in Naples, Boot throwing at the Colosseum, Pole Climbing in Verona and Running up walls in Venice! There's also piling plates, jumping rivers, pillow fighting . . the list goes on.

Tour de Force

This is a sports simulation game that captures all the thrills and excitement of International Grand Prix cycling. The action takes place in five stages. Your main objective is to win each leg and then score the greatest number of points over the five legs. As the action begins to heat up, things start to turn nasty. That American Wild Bill Stacey and Russia's Ivan Ivanoff won't be pleased to see you in front. If you don't get kicked off first, the assortment of potholes, broken bottles and bales of hay that litter the course won't speed you on your way either. It all adds up to the world's toughest sporting event on computer written with tongue in cheek.

Start Computing on the Amstrad CPC6128

That's the title of a new book written by Judith Thamm from South Australia.

What is different about this 112 page book, for a start, is that it has been produced in Australia; and second, it comes with a tutorial disc.

We expect to give you a review on it in the next issue of The Amstrad User, but if you require any advance information, you can write to Judith at PO Box 269, Two Wells, SA 5501.

PACTRONICS SECURES RIGHTS FROM UK

Pactronics, the Chatswood - NSW based Educational and Utility Software importer has recently gained exclusive distribution of a number of titles spanning the Amstrad range of computers. Negotiations were concluded following a visit to various UK software houses.

Mini Office II, Desktop Publisher and Plan-it are three from Database Publications. From Arnor comes Protext and Prospell. For more details contact Pactronics on (02) 407 0261 or any of the state distributors printed on this month's inside front cover.

New software titles arrive at TAU

Genealogists with any of the Amstrad range will be pleased to know that a Genealogical Database is now available from The Amstrad User for $119.00.

Tomahawk has taken a long time to get replenished, but limited stocks are now available for the PCW and CPCs.

A new word processing system for youngsters (Junior Wordpro) has also arrived. It is available on tape or disc for CPCs and will cost $29.95 and $34.95 respectively.

Games for PCW owners are also in the shipment. Distractions - with three arcade style games on one disc ($59.95); Colossus Bridge (with free book) and Steve Davis Snooker (plus Pool and Billiards) - both at $49.95 each.

On the more serious side, copies of LocoScript2 are also available at $65.95.

For more details turn to pages 32 and 63.

Firing-up CP/M - 2

Turning the spotlight on STATUS, DEVICE and SHOW

Last month's episode of this series was dominated by the DIRectory command, and the wonderful things it could do for CP/M PLUS users. Users of CP/M 2.2 can get their revenge now, because most of this episode goes into the depths of the STATus command, which is not even implemented for CP/M PLUS. But Matt Nicholson covers something for everyone, so read on....

Before we start, let's make a backup of your CP/M system disc. This means copying the contents of the master system disc on to a blank, and using the copy for day-to-day work so that if anything goes wrong you've still got a working master disc. This is something that you should do with all your program discs, otherwise you could have an expensive problem when your only copy of a program gets corrupted!

Fortunately Amstrad supply a program file on your master disc for this very purpose: called DISCKIT2.COM on CP/M 2.2 and DISCKIT3.COM on CP/M PLUS. The program is run by entering DISCKIT2 or DISCKIT3 as appropriate, and following the on-screen instructions. Remember to press the function keys to select and option and select 'copy' at the first menu. Also remember to copy both sides of the discs. Once you have successfully copied your master discs, put them away somewhere safe and use your copies in future.

Last month we showed you how to use the STAT command to give you a directory of the contents of a disc - something which is done in CP/M PLUS with the DIR command. However this is just part of the STAT command 's function, as it can also show you the full STATus, or vital STATistics, of your micro.

DEVICE ASSIGNMENT

As far as the operating system is concerned the disc drive is just one of the elements of your micro that has to be taken care of. Other elements are the keyboard and screen, and any interface ports. On the Amstrad these are the Centronics port for your printer and, if you have one fitted, the RS232 or Serial port used for communicating with other computers.

However CP/M was not designed specifically for the Amstrad range: it was designed long before Arnold was just a twinkle in Alan Sugar's eye; and to be portable - i.e. to work on a wide range of makes and models, with a wide range of keyboards, screens and interface ports. CP/M takes care of this by distinguishing between 'Logical' devices and 'Physical' (or actual) devices. Physical devices are best regarded as the actual keyboard, screen and interfaces of your computer. Logical devices are part of the CP/M operating system, and are the same regardless of the computer itself. CP/M operates by assigning the logical devices to the actual, physical devices of your micro.

CP/M 2.2 has four logical devices, and their names reflect the vintage of the operating system: CON: stands for 'CONsole', and usually covers both the keyboard and the screen; RDR: stands for 'paper tape ReaDeR', and covers the serial input device; PUN: stands for 'card PUNch', and covers the serial output; and finally LST: stands for 'LiST device', and is usually a parallel or centronic printer. CP/M PLUS is a little more up to date, dividing the console between CONIN: and CONOUT: for the keyboard and the screen respectively, and using AUXIN: and AUXOUT: for the serial input and output. LST: remains for the printer output, giving five logical devices in all.

The physical devices are named differently, and again reflect the vintage. The actual keyboard and screen are called CRT:, standing for 'Cathode Ray Tube'. The serial interface is called TTY: in CP/M 2.2, standing for "Tele-TYpe', and the more reasonable SIO in CP/M PLUS, standing for 'Serial Input Output'. Finally the printer is labelled LPT: in both versions of CP/M, standing for 'Line PrinTer'. CP/M itself supports a lot more Physical Devices than these, including such things as Paper Tape Reader, Batch processing and User Defined Punches, but these are not applicable to the Amstrad machines as they stand.

Anyway, back to the 20th Century and down to work. Turn on your Arnold and boot up CP/M 2.2 (PCW owners hang on!). On the A-prompt type STAT DEV: and hit return - remember the colon, otherwise it won't work. The result will look like this:

```
A>stat dev:
CON: is CRT:
RDR: is TTY:
PUN: is LPT:
LST: is LPT:
```

This command shows you the STATus of your DEVices, listing the logical devices on the left and their assigned physical devices on the right. So this listing tells you that CON: is indeed mapped to the keyboard and screen,

RDR: and PUN: are the input and output of the serial port respectively, and LST: is the centronic printer port. Now enter STAT VAL:, and you should get something like this:

```
A>stat val:

Temp R/O Disc: d:=R/O
Set Indicator: d:filename.typ
               $R/O $R/W $SYS $DIR
Disc Status  : DSK: d:DSK
User Status   : USR:
Iobyte Assign:
CON: = TTY: CRT: BAT: UC1:
RDR: = TTY: PTR: UR1: UR2:
OUN: = TTY: PTP: UP1: UP2:
LST: = TTY: CRT: LPT: UL1:
```

What is shown here is a complete list of the VALid entries and formats for STATus assignments. Ignore the top bit for the moment, and concentrate on the bit below the words 'Iobyte Assign'. Listed here are all the possible physical devices that can be mapped to the four logical devices. It is quite possible, using the STAT command, to assign CON: to the serial port, in which case Arnold would take all information coming through the serial port as though it was keyboard input, and would send its display through the serial port instead of to the screen.

To do this enter STAT CON:=TTY:. The result will be unspectacular, as nothing you enter on the screen will appear on the keyboard. Luckily this is not permanent, but you will have to reset Arnold and re-boot CP/M to regain control.

If, however, you had another micro connected to your Amstrad, via serial interfaces on each machine, you would have found that the second micro had taken control of Arnold.

BACK TO THE DISC DRIVE

All of this probably seems singularly useless, which indeed it is at this stage, but devices come into their own later in this series. The final use of STAT that we shall cover here is concerned with the disc files.

From CP/M 2.2 enter the command STAT*.*, as we did last month. On the screen should appear a complete list of the files on your disc. Notice the fourth column, headed 'Acc' for Access. All entries in this column should stand at 'R/W', standing for Read/Write which means that you can both read or use the contents of the file, and change it by writing to it. Now enter the command STAT XSUB.COM $R/O, followed by STAT*.*. The new directory listing reveals that the bottom file, XSUB.COM, is read-only, which is a useful way of stopping the accidental corruption or erasure of important files. Enter STAT XSUB.COM $R/W, and list the directory again, and the file reverts to read/write. Once again wildcards can be used, so STAT*.COM $R/O sets all COM files to read-only status, and STAT*.COM $R/W sets them back to read/write files.

OVER TO CP/M PLUS

As we said at the beginning, none of this is implemented in CP/M PLUS. However, there are two other files, DEVICE.COM and SHOW.COM which, between them, cover the functions provided by STAT in version 2.2. Although they do the same thing needless to say they do it in a different way! If you own an Arnold both these files are on the main system disc, Side 1. If you own a PCW, then you will find SHOW.COM on the system disc, Side 2, but the DEVICE.COM file is on the second disc, Side 3. Remember that the active side faces left when you put the disc in Joyce's drive.

The SHOW command is of limited use at this stage. Just entering SHOW has a similar result to the STAT command on its own in CP/M 2.2; it simply shows the amount of free disc space. More useful is DEVICE.COM. Try entering DEVICE on the A-prompt:

```
A>device

Physical Devices:
I=Input,O=Output,S=Serial,X=Xon-
                                Xoff
CRT    NONE   IO    LPT    NONE   O

Current Assignments:
CONIN:    = CRT
CONOUT:   = CRT
AUXIN:    = Null Device
AUXOUT:   = Null Device
LST:      = LPT

Enter new assignment or hit
                              RETURN
```


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TOP DISKS

Like STAT DEV: this lists the current assignments of logical device to physical device, but with a prompt allowing you to alter the assignments there and then, or exit by hitting RETURN. Note also the different names used for the devices by the PLUS version of CP/M. This command is also a little more intelligent than STAT: if you do not have a serial interface it lists AUXIN: and AUXOUT: as being assigned to 'null device'; but if you do have a serial interface you will find them assigned to SIO.

Another difference is that you can assign the logical devices to more than one physical device. At the prompt within the DEVICE program, try entering conin:=crt,lpt. A very understandable error message comes up pointing out your mistake: you can't assign CONIN: to the printer LPT: because the printer is not an input device, only output. Enter DEVICE CONOUT:=CRT,LPT this time. If you have a printer connected, and on-line, then anything you enter on the keyboard is also sent to the printer and printed out. If you do not have a printer connected you get a scrolling error message - hit the C key to cancel. This format can be used for any combination of device assignments.

Finally, and something that PLUS owners will be glad to know is not implemented in CP/M 2.2, try entering DEVICE CONSOLE[PAGE] at the A-prompt:

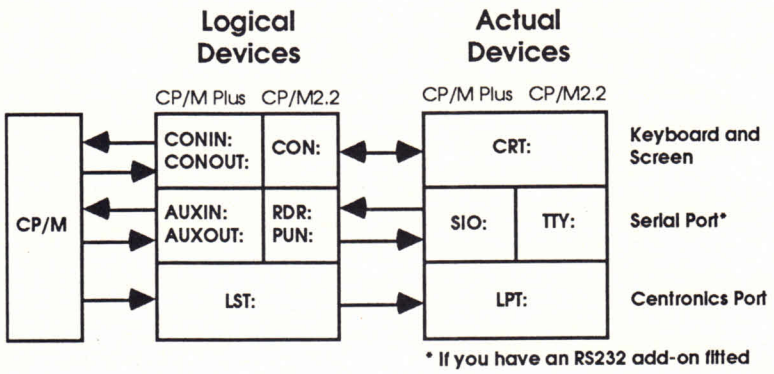
```
A>device console[page]

Console width set to 89 columns
Console page set to 31 lines

A>
```

What you see is the format of your display - and you can alter it too! The format for doing this is DEVICE CONSOLE [COLUMNS=nn LINES=nn], where nn is any full number. Try playing around with it for a while.

Next month when we will look at the PIP command for copying files, and start creating files of our own.



This is how the logical devices of CP/M map onto the actual devices of the micro, for both CP/M Plus and CP/M 2.2

STATUS - CP/M 2.2 only

The STAT command is a powerful way of examining the STATus or STATistics of your machine. Used by itself it looks pretty puny, but used with qualifiers it enables you to examine and alter the whole nature of your machine. These are the most useful variations:

STAT Simply shows you the amount of space left on the disc, and whether the disc is 'R/O' (read only) or 'R/W' (read/write).
STAT filename Gives you full details of the named file on the disc, including its size and status. Wildcards can be used, so *.* would give full details of all the files on the disc

.STAT VAL: Provides a list of the valid formats for the various STAT qualifiers.
STAT DISC: Lists the full characteristics of the current disc drive. STAT B:DISC: would give the characteristics of Drive B.
STAT DEV: Lists the current assignment of Physical (Actual) devices to the CP/M Logical devices.
STAT logical:=physical: Assigns the specified logical device to the specified actual device.
STAT filename $R/O Sets the specified files to read-only status. Again, wildcards can be used.
STAT filename $R/W As above, but setting files back to read/write status.

SHOW & DEVICE - CP/M PLUS only

The CP/M PLUS operating system does not use the STATus command, however it shares the facilities over three other commands: DIR, DEVICE and SHOW. We covered the DIRectory command and all its options last month. The SHOW command covers the remaining disc specifications, while DEVICE covers the input and output characteristics of your micro:

SHOW Like the bare STAT command, this simply shows the amount of disc space left on the active drive and whether it is Read/Write or Read Only. It can be followed by a disc letter, so SHOW B: would show you the amount of space left on the disc in drive B.
SHOW[SPACE] As above, but for all the disc drives connected, not just the one you are logged on to.
SHOW [DRIVE] Like STAT DSK: this gives the full characteristics of the active drive. Again, SHOW B:[DRIVE] would give the characteristics of drive B.
DEVICE This shows the current assignment of Physical devices to Logical devices, and certain characteristics of the Physical devices.
DEVICE NAMES Just shows the characteristics of the Physical devices.
DEVICE VALUES Just shows the current assignments.
DEVICE logical:=physical Assigns the specified logical device to the specified physical device. More than one physical device can be assigned to each logical device by separating their names with commas.
DEVICE logical:=NULL Disconnects that particular logical device.
DEVICE CONSOLE[PAGE] Shows the current number of columns and lines that can be displayed on the screen.
DEVICE CONSOLE[COLUMNS=nn LINES=nn] sets a new format for the screen display.

Gallimaufry VI

Four type-ins, slightly longer than normal, but quite different from each other.

579Magic

The first of our type-ins comes from Jerry Vinopal. You may remember that he is responsible for producing the Vin-System Disc Organiser, Vin-System Maths 1 and Vin-System Maths 2 packages. (More details on those can be obtained by contacting J.J. Vinopal Electronics on (049) 674006).
579MAGIC comes from Maths 2. It's a clever little program, which gives your computer three guesses at a number you have chosen between 0 and 315. You merely give the remainders of divisions by 5, 7 and 9 of the chosen number.

```
10 '********* 579magic.bas ***********
20 '******* part from VIN-SYSTEM MATHS 2 ********
30 MODE 2:INK 1,26:PEN 1:CLS:BORDER 1
40 WINDOW 1,80,3,24:WINDOW#3,1,80,2,1
50 PRINT#3,"   "CHR$(24)"    J.J.Vinopal  VIN-SYSTEM (C)
M Y S T E R Y   NUMBER  v 1.32  1987   "CHR$(24)
60 '********************** INIT ************************
***
70 ENT 1,1,-100,1,5,25,3
80 FOR mn=1 TO 78:oo$=oo$+CHR$(233):NEXT
90 ENV 1,1,15,2,5,-3,4
100 poa$=CHR$(207)+CHR$(207):pob$=CHR$(143)
110 FOR mm=1 TO 74:pok$=pok$+pob$:NEXT
120 PRINT#3,oo$:pok$=poa$+pok$+poa$:po$=STRING$(78,CHR$(20
7))
130 INK 1,26:PEN 1:INK 0,1:PAPER 0
140 petka=&7E:sedma=&E1:devet=&118
150 '********************* paint job *********************
****
160 PRINT po$:PRINT pok$:PRINT pok$:PRINT pok$
170 PRINT pok$:PRINT pok$:PRINT po$
180 '********************* INSRUCTIONS *******************
****
190 PRINT CHR$(22);CHR$(1);:LOCATE 1,2:PEN 0
200 PRINT"                    THINK OF A NUMBER BETWEEN  0
AND  315 ":PRINT
210 PRINT"   I WILL TRY TO FIND YOUR MYSTERY NUMBER BY ASK
ING THREE SIMPLE QUESTIONS."
220 PRINT:PRINT"          When you are ready press  ANY KEY
  for first question.
230 PRINT CHR$(22);CHR$(0);:PRINT:hs=26:CALL &BB03
240 ON BREAK GOSUB 690
250 PEN 1:PRINT oo$
260 t1$="***    YOUR  NUMBER  IS -"
270 LOCATE 50,21:PRINT CHR$(24)" Press < SPACE > "CHR$(24)
:CALL &BB18
280 LOCATE 50,21:PRINT"                  ";
290 t3$=" - AM  I  RIGHT ??    ***"
300 '********************* No. FIVE **********************
****
310 LOCATE 3,11:PRINT"        Divide your number by 5 and
tell me remainder";
320 CALL &BB03:INPUT b
330 IF b<0 OR b>=5 THEN SOUND 1,2000,20,9:GOTO 310
340 FOR Ba=1 TO 57
350 SOUND 1,hs,1,9,0,13
360 hs=hs+3:NEXT
370 hs=29:ON BREAK GOSUB 690
380 '********************* No. SEVEN *********************
****
390 LOCATE 3,12:PRINT"        Divide your number by 7 and
tell me remainder";
400 CALL &BB03:INPUT c
410 IF c<0 OR c>=7 THEN SOUND 1,2000,20,9:GOTO 390
420 FOR Ca=1 TO 77
430 SOUND 1,hs,1,9,,8
440 hs=hs+4:NEXT
450 hs=34:ON BREAK GOSUB 690
460 '********************* No. NINE **********************
****
470 LOCATE 3,13:PRINT"        Divide your number by 9 and
tell me remainder";
480 CALL &BB03:INPUT d
490 IF d<0 OR d>=9 THEN SOUND 1,2000,20,9:GOTO 470
500 FOR Da=1 TO 97
510 SOUND 1,hs,1,9,3,9
520 hs=hs+5:NEXT
530 ON BREAK GOSUB 690
540 '******************** CALCULATIONS *******************
****
550 koe=c:dif=INT(koe):g=c-dif
560 xb=INT(b):xc=INT(c):xd=INT(d)
570 A=petka*xb+sedma*xc+devet*xd
580 x=(A-INT(A/&13B)*315)+g:t2$=t1$+STR$(x)+t3$
590 PRINT:PRINT:PRINT oo$
600 '********************* TOTAL *************************
****
610 PRINT:PRINT oo$
620 FOR n=1 TO LEN(t2$)
630 LOCATE 11,17:PRINT RIGHT$(t2$,n);
640 FOR m=1 TO 89:NEXT:SOUND 1,1000,1,9
650 NEXT
660 CALL &BB03
670 LOCATE 50,21:PRINT CHR$(24)" Press < SPACE > "CHR$(24)
680 '********************* RERUN *************************
****
690 CALL &BB03:CALL &BB18:CLS:GOTO 130
```

Zycloid

Using the CPC's extensive mathematical functions, J. Smeets has produced a program that will create many wonderful patterns. The graphics formed are cycloids or rolling curves - the curves you get if you taped a pencil to a wheel rolling along a line or even around another wheel. The program will ask you to choose epicycloids or hypocycloids. The radii of circle 1, circle 2 and the stretch factor must then be specified.

```
1 ' Zycloid
2 ' by J Smeets
3 ' Amstrad User  Nov 87
40 MODE  2: INK 0,1: INK 1,25: BORDER 1: PLOT -1,-1,1
50 ON BREAK GOSUB 510
60 CLS: PRINT: PRINT SPC(5)"1) draw epicycloid"
70 PRINT: PRINT SPC(5)"2) draw hypocycloidc"
80 PRINT: PRINT SPC(5)"3) end"
90 PRINT: PRINT SPC(5)"please choose"
100 a$=INKEY$: IF a$="" THEN 100
110 i=ASC(a$)-48
120 IF i=1 THEN m=1: GOTO 160
130 IF i=2 THEN m=2: GOTO 160
140 IF i=3 THEN CLS: END
150 GOTO 60
160 CLS: PRINT SPC(5): INPUT"radius of circle 1: ";ra
170 PRINT SPC(5): INPUT"radius of circle 2: ";rb
180 PRINT SPC(5): INPUT"stretching        : ";st
190 CLS
200 ra=INT(ra+0.5): rb=INT(rb+0.5)
210 ' * number of points of support *
220 np=10*(ra+rb)
230 ' * calculation of scale factor *
240 IF m=1 THEN d=rb*(st+1)+ra
250 IF m=2 AND rb<=ra THEN d=rb*(st-1)+ra: rb=-rb
260 IF m=2 AND rb >ra THEN d=rb*(st+1)-ra: rb=-rb
270 ' * calculation of number of loops *
280 ' * ( reduce ra/rb if possible)    *
290 z1=ra: z2=rb: z=z1: IF z2<z1 THEN z=z2
300 IF z=0 THEN 160
310 FOR i=z TO 1 STEP -1
320 IF INT(z1/i)<>z1/i THEN 350
330 IF INT(z2/i)<>z2/i THEN 350
340 z1=z1/i: z2=z2/i
350 NEXT i
360 ' * calculation of stepwidth *
370 h=z2*2*PI/np
380 ' * define parameters of circle *
390 DEF FN xx(t)=(ra+rb)*COS(t)-st*rb*COS((ra+rb)*t/rb)
400 DEF FN yy(t)=(ra+rb)*SIN(t)-st*rb*SIN((ra+rb)*t/rb)
410 ' * calculation of starting point *
420 x1=INT(FN xx(0)/d*100+320)
430 y1=INT(FN yy(0)/d*100+200)
440 ' * drawing of circle in the points of support *
450 FOR t=h TO z2*2*PI+h STEP h
460 x2=INT(FN xx(t)/d*100+320)
470 y2=INT(FN yy(t)/d*100+200)
480 PLOT x1,y1:DRAW x2,y2: x1=x2: y1=y2
490 NEXT t
500 BORDER 13
510 MODE 2: END
```

Neutron Maze

Tommy Daffin has converted Neutron Maze which was originally written for the BBC micro by P. Dixon. It's original, fun and to a certain extent addictive.

The idea is to guide an electron though a neutron fence using two keys: the spacebar and Return (or Enter). The spacebar causes the electron to change its vertical direction. Return alters the electron's horizontal movement. Before you start you are given the choice of start-level (1-10). Hardest level is 1 and easiest is 10. Stay sane and choose levels above 6. All other instructions you need or don't need are contained within the listing.

```
1 '            Neutron Maze
2 ' this version by permisson of P Dixon
3 '   Amstrad version by Tommy Daffin
4 '       Amstrad User   Nov 87
70 REM *** setup ***
80 GOSUB 520: 'set up sound,variables
90 GOSUB 600: 'choose keys and difficulty
100 GOSUB 820: ' set up screen
110 PLOT x,y,3: WHILE INKEY(18)=1: WEND
120 st=TIME: ox=x: oy=y
130 x=10
140 INK 3,26
150 REM *** Main Loop ***
160 PLOT x,y,3: ox=x: oy=y: x=x+x1: y=y+y1
170 IF nty>0 THEN nty=nty-1: GOTO 190
180 IF INKEY(47)<>-1 THEN y1=-y1: nty=2
190 IF ntx>0 THEN ntx=ntx-1: GOTO 210
200 IF INKEY(18)<>-1 THEN x1=-x1: ntx=2
210 GOSUB 300: ' check hit
220 IF x>630 THEN GOTO 340: ' finished
230 CALL &BD19
240 PLOT ox,oy,0
250 GOTO 160
260 ' delay
270 FOR del=1 TO 60
280 NEXT del
290 RETURN
300 REM *** check Hit ***
310 IF TEST(x+x1,y)<>0 THEN x1=x1: SOUND 129,1500,0,1,1,1
320 IF TEST(x,y+y1)<>0 THEN y1=-y1:SOUND 130,1000,0,1,1,1
330 RETURN
340 REM *** Finish ***
350 en=TIME
360 ti=en-st
370 PRINT CHR$(22)+CHR$(1)
```

```
380 LOCATE 11,12: PEN 3: PRINT"YOU HAVE SUCCEEDED"
390 LOCATE 7,14: PRINT"Your Time was: "+STR$(ti)
400 LOCATE 9,16: PRINT"Press [SPACE] to play."
410 PRINT CHR$(22)+CHR$(0)
420 no=0
430 INK 3,I(no):no=no+1: IF no=16 THEN no=0
440 IF INKEY(47)<>-1 THEN GOTO 470
450 FOR del=1 TO 30: NEXT del
460 GOTO 430
470 FOR h=1 TO 30: LOCATEW 1,25: PRINT CHR$(10)
480 NEXT h
490 IF INKEY$="" THEN RUN
500 GOTO 490
510 END
520 REM *** Set up sound,variables ***
530 ENV 1,14,-1,2
540 ENT 1,100,5,1
550 x=10: y=10
560 DIM i(15): FOR f=1 TO 15: READ i(f): NEXT f
570 DATA 1,2,11,20,26,23,16,7,3,6,15,24,22,18,9,10
580 no=0: x1=2: y1=2
590 RETURN
600 REM *** Choose keys and diffuculty ***
610 CALL &BC02: INK 0,0: BORDER 0
620 PAPER 0: MODE 1
630 LOCATE 14,2: PEN 3: PRINT"NEUTRON MAZE"
640 PRINT CHR$(22)+CHR$(1): LOCATE 14,2: PEN 2:PRINT"-----
    ": PRINT CHR$(22)+CHR$(0)
650 LOCATE 2,4: PEN 2: PRINT" THE AIM IS SIMPLE: ";: PEN 1
:PRINT"You have to guide an electron through  the neutron
 fence."
660 PEN 2: PRINT" THAT'S IT!"
670 PRINT: PEN 2: PRINT"  KEYS: "
680 PEN 1
690 PRINT"    Reverse up/down=SPACE"
700 PRINT"    Reverse left/right=ENTER"
710 PRINT: PRINT: PEN 3: PRINT"Choose difficulty(1-10): ";
720 INPUT"",dif$
730 dif=VAL(dif$)
740 IF dif<1 OR  dif>10 THEN GOTO 710
750 PEN 1: PRINT: PRINT"Get ready to play."
760 PRINT: PRINT: PEN 3:PRINT"  Then press [SPACE] when y
ou are ready."
770 FOR del=1 TO 25
780 IF INKEY(47)<>-1 THEN RETURN
790 NEXT del
800 INK 3,i(no): no=no+1:  IF no=16 THEN no=0
810 GOTO 770
820 REM *** Setup Screen ***
830 MODE 1: INK 1,6
840 MOVE 0,0:DRAW 638,1:DRAW 638,398:DRAW 0,398:DRAW 0,0
850 FOR x=20 TO 620 STEP 6
860 h=20*dif: le=(400-h)/2
870 l=(le/2)+(INT(RND*(le)))
880 MOVE x,0
890 DRAWR 0,1,1: DRAWR 0,h,0: DRAW x,398,1
900 NEXT x
910 RETURN
```

Fancy Text Generator

This text-printing routine from Richard Turner works in modes 0 and 1. Character position, character width and character height can all be defined, making it very easy to print text in a multitude of shapes and sizes.

The following listing includes a short demo (starting at line 190) which can be omitted.

The word or sentence you want printed in fancy text must be located at the bottom left corner of the screen. The Call then transfers it to the given coordinates. To avoid text showing at the bottom of the screen, it is best to print it with PEN set to the current background colour.

To produce the text the routine must be given a few parameters:

```
CALL 40000,x,y,len*m,xstep,ystep
```

where x and y are the coordinates (0-639 by 0-399); len*m is the length of the word or sentence multiplied by 16 for mode 1 or 32 for mode 0; xstep is the character width; and ystep is the character height.

You must be careful that XOR mode is off, that xstep and ystep are never zero, and that len is never greater than 15.

```
10 ' Fancy text generator
20 ' by Richard Turner
30 ' Amstrad User  Nov  87
40 ' call 40000, x, y, len*m, step, ystep
50 ' for above m must be 16 (mode 1) or 32 (mode 0)
60 FOR X=40000 TO 40129
70 READ A$: POKE X,VAL("&"+A$)
80 NEXT
90 DATA FE,05,C0,11,00,00,21,00,00,DD,4E,08,DD
100 DATA 46,09,ED,43,28,A0,DD,4E,06,DD,46,07,ED
110 DATA 43,2A,A0,D5,E5,CD,F0,B8,FE,03,CA,B0,9C
120 DATA E1,D1,13,00,DD,7E,02,ED,4B,28,A0,3D,03
130 DATA FE,00,C2,72,9C,ED,43,28,A0,00,7A,B3,DD
140 DATA BE,04,C2,5D,9C,23,00,DD,7E,00,ED,4B,2A
150 DATA A0,3D,03,FE,00,C2,8F,9C,ED,43,2A,A0,00
160 DATA 11,00,00,DD,4E,08,DD,46,09,ED,43,28,A0
170 DATA 7C,B5,FE,10,C2,5D,9C,C9,ED,5B,28,A0,2A
180 DATA 2A,A0,CD,EA,BB,C3,67,9C,00,00,00,00,00
190 ' EXAMPLE
200 MODE 1: INK 3,0: INK 0,0
210 PEN 3: LOCATE 1,25: PRINT "TEXT": PEN 1
220 CALL 40000, 10, 350, 4*16, 3, 3
230 CALL 40000, 30, 310, 4*16, 2, 2
240 CALL 40000, 50, 290, 4*16, 2, 1
250 PEN 3: LOCATE 1,25: PRINT "STYLE": PEN 1
260 CALL 40000, 70, 220, 5*16, 1, 4
270 CALL 40000, 90, 160, 5*16, 2, 4
280 CALL 40000, 110, 90, 5*16, 4, 4
290 PAPER 3:PEN 0:LOCATE 1,25:PRINT "TEXT":PEN 1:PAPER 0
300 IF INKEY$="" THEN 310
310 IF INKEY$="" THEN 310
```

DOS Copy and PD Games

from Chris Collins

We've got quite a lot to get through this month, so I'd better get on with the job. We will be looking at the DOS COPY command, a bit of news about the column, and last but definitely not least, a collection of games for your PC1512s

From all the things that I've been hearing at the clubs I attend, it appears that a lot of people are having trouble with the COPY command, and all its many idiosyncrasies. This is rather typical of all of the DOS commands in any version. The manual will explain what a DOS command is supposed to do, and usually gives a couple of examples, but it never explains it clearly enough for a newcomer to computers.

The correct syntax for a COPY command is as follows:

```
COPY [d:][path]filename.ext
[d:][path][filename.ext][/v]
```

While that looks very confusing, if we break it down into little pieces, it becomes rather easier to understand. One thing to remember, almost everything in the square brackets is optional to the command. The COPY command needs three basic pieces of information to proceed:

1. Name of the file to copy,
2. Drive with original copy of file (called Source Drive), and
3. Destination Drive.

To make things a bit easier, I will show you how to copy a file called TEST.DOC from drive A: to drive B:. This should save confusing the issue, as it would undoubtedly become if I keep referring to filename.ext.

And now, on with the show. The simplest way to copy our file is as follows:

```
COPY a:test.doc b:
```

This tells DOS to copy the file called TEST.DOC from drive A: to drive B:. However, if we are already on drive A: (eg. the DOS prompt shows A>), we can make the command even easier, and simply type the following:

```
COPY test.doc b:
```

This tells DOS to copy the file called TEST.DOC from the default drive to drive B:. The default drive is the one that we are logged onto and is shown by the DOS prompt.

Now we can start to complicate things a little. The switch that is listed at the end of the command line above (/v), is a verify switch that tells DOS to check the file after it is copied, to ensure that it copied correctly. So the following command line:

```
COPY a:test.doc b:/v
```

would copy test.doc from drive A: to drive B: and then check to see that both files are the same. Very useful.

Into the command line can also be put the PATH that you wish the COPY command to follow. This is especially important if you are operating off a hard disc. To copy the file from the utility directory on the hard disc to drive A: can be written in two ways. One is for me to log onto the utility-subdirectory on my hard disc and type the following command:

```
COPY test.doc a:
```

This is possible because my default drive is c:\utility, not simply c:. When you are logged into a sub-directory, your default drive then becomes the pathname of that directory (ergo c:\utility).

If I was logged onto another area of my hard disc, the command is slightly different, because I must tell DOS where to find the file that I wish to copy. Therefore the command would run as follows:

```
COPY c:\utility\test.doc a:
```

This simply tells DOS to go to the subdirectory c:\utility, grab the file called test.doc and then copy it to the A: drive. The verify switch (/v) could also be added if required. This verify switch can also be called when you boot your computer. If you include the following line in your AUTOEXEC.BAT file:

```
VERIFY ON.
```

I hope that this has made things much clearer to all of you, and will just go to prove that DOS is not really as dangerous or difficult as people would have you believe. Of course, all this is rather redundant if you have a copy of CWEEP or VFILER as they will do all the hard work for you.

The second part of this month's article has to do with documentation as it is provided on the public domain discs. There are a couple of ways that documentation is provided on these discs.

The simplest way is a simple ASCII file that would probably have an extension of .TXT or .DOC. An ASCII file is simply a copy of what you see on the screen. These can be produced with a word processor such as Tasword or even with DOS commands.

The second type of documentation file is a compressed format file. These are used if the documentation for a particular program is very large. Also on the disc will be a program that will print this out for you. The best example of this type of program is probably PC Write. It's documentation files are called MANUAL?.CRN. Also on the discs are two programs to print these multiple files out. One is called TYPEMAN and is used to print the manual files to the screen and the other (called PRINTMAN) is used to direct the output to the printer. If you check any public domain disc, you will find documentation of one type or another.

Now what's next. Oh yes, the Editor wanted me to do a quick rundown of the public domain discs that I have reviewed to date. The list is below, but is by no means complete. All the people who have ordered discs since the beginning of August have been receiving a catalogue, so they will have a much better idea of what I have available.

PC File III:	Database (July)
Deskmates:	Memory resident desktop organiser (August)
Fas-Type:	Typing Tutor (August)
PC Write:	Word Processor (2 discs -

September)

PC Utilities: 5 disc collection of the best public domain utilities and

PC Games: this month's 5 disc collection.

All of these programs are still available if anyone feels that they have been missing out. Single discs cost $10, 2 disc packages cost $20, and the 5 disc packages are $40. This includes postage and handling and possible future updates. If you require any of the discs mentioned, send your requests and cheques/money orders to me (please don't mix them up with any other orders) at the following address:

C.J. Collins
c/- The Amstrad User
1/245 Springvale Road
Glen Waverley 3150

Please allow me 14 days to send you the discs.

Something that's only just come up. If you purchase a public domain disc the first thing you should do is to make a backup copy onto another disc. This can be done in one of two ways, either format a disc and copy *.* across, or do a diskcopy from one to the other. You can then put away the original in a safe place in case something happens to your copy. The second thing that you should do is look on the disc for any files called README or READ.ME or something similar. This file will contain up to date information about the program that didn't make it into the manual, or a few other hints that might help you understand how to better use the program. Some programs also have a program called GO.BAT. This file simply tells you how to print out the instructions and how to start the program. Very useful for learners.

Now onto this month's special. We have a bonanza for all you game lovers out there. This month I show you how you can enjoy your PC1512 to the limit, with the best games that I have been able to find in the public domain. I did mention in last month's article that this games package would include 4 discs, but in the past month I have found another disc of excellent games. So this month's games package is also 5 discs and is available for $40. These games include graphic games, text adventures, and even some old favourites that have been converted to run on computer. As with the utilities discs from last month, all the files on the games discs are archived. This is simply a method of collecting all the necessary files for a program, squeezing them down, and then putting the result in one large file. The necessary program to unarchive the files is also on the disc. To carry out the operation, simply place a formatted disc in drive B:, place the original disc in A:, and type the following command:

```
PKXARC filename B:
```

where filename is the name of the program you wish to unarchive. This will have the effect of separating the archive file, and putting the resulting files on drive B:. As I have a habit of supplying programs in this format, those of you that buy my discs had best get used to doing the above operation. And before anyone asks why I do it, I will tell you. It allows me to supply you with more programs on less discs, therefore giving you more value for your money. As an example, the five disc utility package will expand to fill at least eight discs. This has got to be better for you.

And now, on with the games. On the first disc we have 7 games. These include 3-D Demon, Canfield, Hanoi, Landmine, Mahjong, Monopoly and PC chess. A quick rundown of each is probably in order, so here goes.

3-D Demon is a 3 dimensional version of PACMAN. It is rather confusing to play, mainly because one can only see corridors in front of you. There is a small overhead map beside the main screen, but I got very confused trying to watch both screens at once.

Canfield is an American card game. The easiest way to describe it is a computer version of patience.

Hanoi is a game to make one think. It involves transferring rings from one pole to another, whilst never putting a big one on top of a little one. This one I can win at.

Landmine involves getting from one corner of a grid to the opposite corner without stepping on the landmines. Oh yes, you can't see the landmines.

Mahjong is an excellent implementation of the game. Unlike most of the other games it is not by an American author but by an Australian one. The gentleman involved resides in Essendon, Victoria. The game offers three types of play at three different levels. The author promises a 40 page book and newer version of the game when you register. The instruction book is well worth the $25 registration fee. I know because I have already registered my copy.

Monopoly is the normal game except for a couple of pertinent points. It relates to the American version of the game, so most of the streets will not be familiar to you. It also does almost everything for you, and it won't let you cheat. If you owe someone money, it will attempt to pay them for you, and it will not let you go on with the game until they are paid. Very good and very graphical.

PC Chess is a chess game. The function keys control most of the game. You have a choice between playing the computer or playing another person. In full colour but unfortunately no instructions available.

On disc two, we come across 8 different pinball games. All of these are in full colour, and are very easy to play. The only keys required are the two SHIFT keys and the ESCAPE key. Pressing the SHIFT keys in alternate fashion will change the number of players, start the game and then they are used to control the flippers. The ESC key will simply exit the game and put you back at the DOS prompt. Also on this disc are PANGO and ROUND 42. Pango is a slightly simple game that involves running around a maze and kicking blocks around so that they will squash and kill the bees. It is hard to explain, but fun to play. Round 42 is an arcade type shoot-em-up that supposedly has 42 levels, hence the name. The cursor keys move the little rocket, F1 fires the bullets and F2 fires the laser. I have managed to get to about level 5 in this, what happens then I have no idea.

The third games disc is very full. 13 different games are on this disc, and they cover a wide range of subjects.

ABM is the short name for Anti Ballistic Missile. In this game your city is being attacked by falling bombs. It is your duty to line these bombs up in your sights and blow them up.

Asteroid is the old arcade game classic. In your little rocket ship you

have to try to keep away from all the asteroids on the screen.

Battle for Altair, Buck Rogers and Moonbugs are all from the same author. These games are all rather self explanatory when you start to play them. F1 is usually the fire key in these. As in most of the games, the cursor keys move you around the screen.

Two of my favourite games are on this disc. Flight and Striker are two of the best games I have found in the public domain. With the quality of these games, you would be very happy if you had bought them.

Flightmare (Flight) is a full colour game of an unusual type. Instructions are in the game, and it revolves somewhat around a Mad Max type theme. 'Nuff said.

Striker is a helicopter game. Your mission at different levels is to get through the screens and either pick up or drop off passengers or cargo. On the first level, you pick up passengers, and then drop them off in the second level. The third level involves getting to the end of the screen and picking up cargo. I assume that at the fourth level your job is to deliver that cargo. I don't know, I've never made it that far.

There is also a version of Galaxians on this disc which is called SpaceCom. A couple of extra games fill up the disc.

Disc four is another full one. This disc includes a frogger clone (Ribit), a pacman clone (Packgal), a donkey kong clone (Kong) and also a JBird clone (Qubert). Also a game called Baby is here. In this game babies keep jumping out of a burning building. Your job is to use your stretcher and bounce them across to the ambulance. It sounds simple and it is until you're juggling 3 babies in the air. A rather sick premise, but a great game.

Liza is a computer psychiatrist. She will attempt to help you with your problems.

It is rather easy to get her to believe that she is the one with the problem, if you do it the right way. There is also a poker game on this disc.

Onto the last disc in the set and we come across some text adventures. I wasn't really going to put any of these into the collection, but I know that some people really enjoy them. So for those people we have 5 different adventure games.

Castaway and S. America are from Jim Button (of PC File II fame). The title explains as best I can what the games are about.

Sleuth is a crime solving game similar to Cluedo (or so I believe).

Also available is Venture, which is the Wang version of the original Classic Adventure. There are a couple of others on this disc that will also make you think.

I hope that this will keep you game addicts happy, and all you other PC1512 owners should now know how to use your computer for fun. For the moment these will be the last games we look at for a while. I am trying to get together a disc of casino games and I will let you know when that is ready.

As for next month's article, I can't even give you a hint of what we will be talking about as I haven't got the faintest idea. I'll have to decide shortly, otherwise you won't have a column to read. But that is my problem. Until next month, Happy Amstrad Computing and enjoy your games.

> PC HELP

Through this column we will publish your tips, discoveries, advice or any other help you may wish to pass on to other PC users. They may be obvious to you but could save a lot of work for others. Send your hints to:

The Editor
The Amstrad User
1/245 Springvale Road
Glen Waverley
Victoria 3150.

Easy Loading

Here's a tip that does not work with all software, but is useful and always worth a try. If you are using a program that does not log onto drive B by means of question and response (assuming a twin drive and the program in A with the data in B) then at the A> prompt the following keystrokes appear to ensure that data remains on B while the program stays on A:

```
A>B:
B>A:progname datafile
```

Disabling Routine

The following short program is a neat way of using DEBUG and can be used to disable the [PrtSc] key so that hitting it accidentally doesn't hang the computer if a printer is not attached. Don't create or test this file on a disc that's got anything you care about on it though - it could easily corrupt if you've entered anything wrong!

```
n noprtsc.com
a
jmp 0103
iret
mov dx,0102
mov ax,2505
int 21
mov dx,11
mov ax,3100
int 21

rcx
0013
w
q
```

To create NOPRTSC.COM enter the lines of the program into a text file called NOPRT.TXT exactly as written, using RPED or a similar text editor. Note the blank lines after the "int 21" must be present.

Now, with a disc containing the DEBUG program, enter DEBUG <noprt.txt. This will load Debug, execute the commands to create NOPRTSC.COM, and exit back to the A> prompt. A file called NOPRTSC.COM should have been created on the disc. Executing this file means that pressing [Shift][PrtSc] will

have no effect until the computer is re-booted or GRAPHICS.COM or similar program is loaded. The command NOPRTSC can be placed in the AUTOEXEC.BAT file if required.

Cut disc swapping

The manual's approach to dedicated GEM Paint discs (on pages 50 and 471) leaves the user needing to swap three discs before they can start painting. Here's another method to get one disc rather than three - but you will need a twin drive.

The idea is to get Desktop, GEM Paint and Output on one disc so only the GEM start-up disc needs to be loaded first. There is no need to write any batch files, and the clock, calc and snapshot utilities are all included. Drive B will be used for the image files.

Using either the desktop or operating system proceed as follows with the first of two empty formatted discs (no system files):

1. Open three folders/make directories called GEMSYS, GEMAPPS and GEMDESK.
2. In the GEMAPPS folder/directory open/make another called PATTERNS.
3. Into the GEMSYS folder/directory copy all files from the GEMSYS on Disc Three and the two OUTPUT files and one DEFAULT file from GEMSYS on Disc Two.
4. Into GEMDESK copy all files in GEMDESK on Disc Three.
5. Into the ROOT folder/directory copy DISKCOPY.COM from the Root on Disc Three and the two PAINT files from GEMAPPS on Disc Four.
6. If you have already generated some pattern files, copy them into the PATTERNS folder/directory in the GEMAPPS folder.

For the second (images) disc, open one folder called IMAGES and copy into it the contents of the IMAGES folder on Disc Four.

This completes the setting up of the two discs. If you haven't already done so, rename SNAPSHOT as SNAPSHOT.ACC in the GEMBOOT folder on disc two. This will make the utility available under the PAINT menu.

To start GEM Paint from scratch, first load the GEM start-up disc (Disc Two) in drive A and let it boot up. Replace it with the new Desktop/Paint disc when prompted and whilst that is loading insert the IMAGES disc in drive B. The A:window of Desktop shows PAINT.APP ready for loading and DISKCOPY.COM available for backing up. Behind the scenes OUTPUT is ready to send Image files to the printer. To load a .IMG file (once PAINT has been selected) select OPEN . . fro mthe FILE menu and in the ITEM SELECTOR window alter the directory to read b:IMAGES*.IMG - hereafter Images will automatically be loaded and saved in the right directory.

Happy painting!

(More tips on next page)

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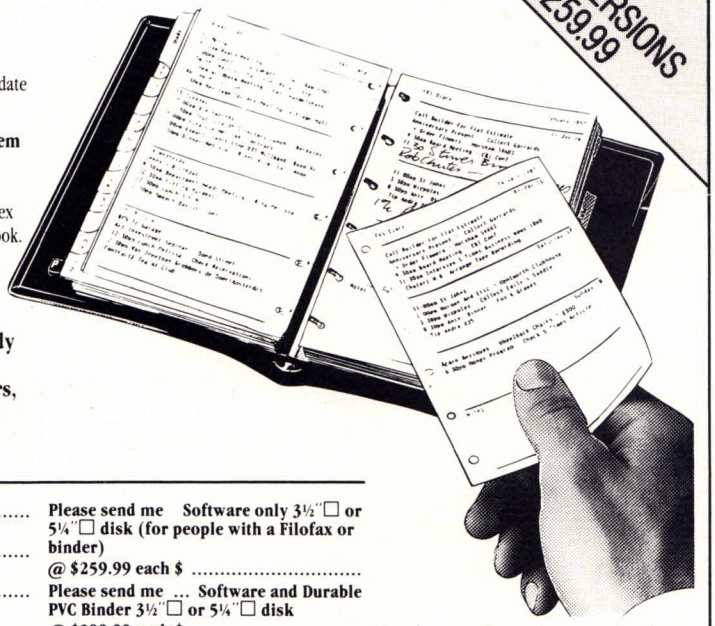

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More Paint tips

Solid Colour Patterns

To edit a pattern: Double-click on it. This produces an edit box, centre screen, which represents the pattern in magnified form (like microscope) and normal size.

Select a pen colour from the edit palette.

Click on the normal-sized edit pattern to fill with solid colour, and on the magnified pattern to change individual pixels.

Dual Solid Colours

For a pattern of two solid colours (half each): set up two patterns with the required solid colours.

Use the Rectangle to produce two adjoining areas, one of each colour, on the screen

Select as Current Pattern that you wish to contain the final two tone mixture.

Place the selector tool (dotted rectangle) over the two-colour area to include equal amounts of each colour. Note that a single click with this tool will produce a small dotted rectangle of 16x16 pixels exactly as required by the Make Pattern utility.

Now select Make Pattern and you have it.

No Make Pattern?

Make Pattern is only available after selecting and positioning the Selector tool. The Make Pattern option will then 'light up'.

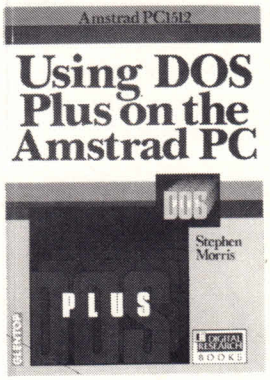
Some other Pitfalls

Make sure there is enough disc space before attempting to save a GEM Paint picture. It is safer to Save then Close, rather than Close and use the 'Do you want to save' option.

Renaming GEM Paint files (.GEM and .IMG) can lose them. Use GEM Paint to recall the picture and then Save As with the new file name, deleting the old after checking the new.

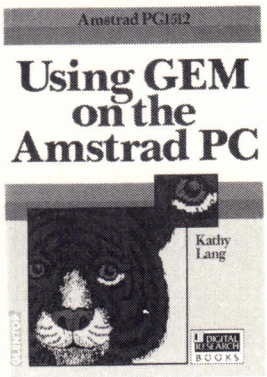
Changing the picture size in mid-picture is sometimes OK - save the picture before trying it.

Don't save a picture with the ABC text cursor in view - that gets saved as well.



Using DOS Plus on the Amstrad PC1512 concentrates on getting things done using DOS Plus operating system supporting both MS-DOS and CP/M applications.
It goes through the basics of file copying, deleting and organisation, through tree-structured directories, batch commands and print queueing and then on to advanced DOS commands.
Normal Price $39.95 + p&p

Using GEM on the Amstrad PC1512 is an introduction to users who will be working with GEM and GEM-based products. It expresses things very much in terms of users and their objectives, concentrating on how to get things done using GEM and assumes little or no knowledge of computers. The book contains many informative illustrations.
Normal Price $55.00 + p&p
Subscribers Price $50.00 + p&p



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Account for yourself

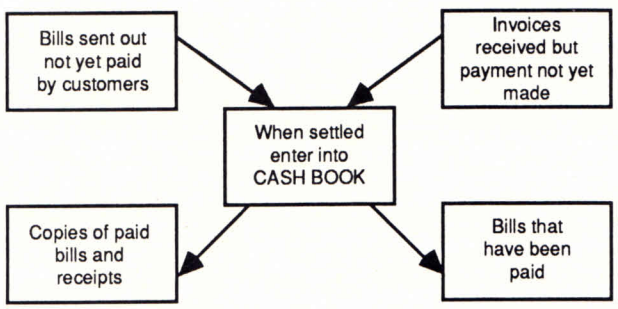
Ian Berry concludes his DIY accounting series - watch out for rampaging gangs of redundant accountants.

In the first two articles we looked at 'single-entry' book-keeping, and now the time has come to look at 'double-entry'. Book-keeping always has been and always will be tedious, and computers only take some of the tedium away. If your business is nearly all cash transactions then you don't need double entry and it would be a waste of time. The best advice every time is "keep it as simple as you can". This not only reduces the work, it also means fewer mistakes.

What is different about 'double-entry' book-keeping? To understand this you need to know a bit more about 'transactions'. A transaction is an exchange: first you exchange goods (or services) for a debt, then you exchange the debt for cash to complete the 'deal'. If most of your activity is in this form you need to keep records of every individual transaction to know which deals have and have not been completed and what they will cost to complete. It is no good entering only deals completed as you would not get a true picture of your profits or situation at any time.

Remember the four-file system from last month? This is fine if all your business is cash, or if there are few credit transactions to keep a mental picture of what is outstanding. Once you go beyond this more detailed records are needed. This is done with books called 'ledgers' which are simply collections of individual accounts.

An account is simply a list of all transactions in some group. They might be all with a specific person or all for a specific service. Every transaction will affect two accounts, usually one personal and one impersonal - here are some examples:



1. You receive your electricity bill for the quarter
2. You buy some letterheads from J Pelforth & Co on credit
3. You pay wages in cash to your staff
4. You pay your electricity bill by cheque

Taking each in turn:

1. You have been using electricity all through the quarter but since you did not know how much it was costing you, the bill is the first thing to go into your books. You must show the cost of electricity, in an 'impersonal' account for electricity, and you must also show the amount that you owe, in a 'personal' account for the electricity board.
2. You have bought the letterheads so put the cost to stationery account and you owe Pelforth's for them so enter this in Pelforth's account.
3. This is a 'cash' transaction, but it still requires two entries, one to wages account and one to cash account.
4. Now you are clearing the debt to the electricity board so adjust their account, and adjust the bank account for the cheque you have drawn.

Errors

People think errors only result from negligence - in book-keeping they are a fact of life. The aim is to keep them to a minimum and - most important - to find and correct the ones that are made. In computer book-keeping errors can only come from copying and to identify them we use check-totals. When a check-total does not match it can only be one of two errors - simple copying or transposition.

Copying errors are caused by numbers looking alike (check your writing when you are tired to see which might give trouble and watch for them).

Transpositions are harder to spot since you often make the same mistake in checking. The 'good' thing is transposition is easy to identify - the difference always divides by 9, and the number of times 9 goes into it is the 'gap' between the digits. For example, if you write 93 for39 the difference is 54 (6x9 and 9-3=6). Of course, the same 'gap' can come from transposing 28, 17 or 60, but you have reduced the field!

What isn't yet clear is exactly how to go about writing these details into the accounts. This is where debits and credits come in. As a general rule, the left side of the account (debit) is used when something is 'taken in' and the right (credit) when something is 'given out'. Don't say 'received' and 'paid' because that could only refer to cash or cheque accounts and the rule must apply to all accounts - both personal and impersonal. The second general rule is that, on personal accounts debit balances (or 'debtors') represent money owed to you and credit balances (or 'creditors') money that you owe to somebody else.

Although thinking of everything in terms of debits and credits is useful, its importance can be exaggerated and you can choose to ignore it. You can instead talk about accounts (or more correctly the balances on the accounts) increasing and decreasing - so long as you understand what each account is doing.

For convenience, all the accounts are divided into three separate ledgers: First there is a Sales (or Debtors) ledger - containing a personal account for each customer (or debtor) who might owe you money. Second, a Bought (or Creditors) ledger - containing a personal account for each supplier (or creditor) to whom you might owe money. Third, there is a Nominal (or Impersonal) ledger - containing all the accounts that are not 'personal'. Third may be (but very rarely is) divided into a 'Revenue' ledger (containing income and expense items) and a 'Capital' ledger for the assets and liabilities.

In order to feed the information into these ledgers you have four books of 'original entry'. Compare this to the single journal mentioned in the first of these accounts articles. The four books are:

1. Sales Day Book showing individual sales made. This might be analysed into a column for each category of goods sold. The only difference between this and the left-hand side of the 'spreadsheet cash book' shown earlier is that you enter the sales made and not the cash received.
2. Bought Day Book for purchases of goods and services - again this tends to be analysed like the right-hand side of the spreadsheet cash book and shows purchases regardless of whether they have been paid for or not.
3. Cash Book - showing all cash receipts and cash payments and balanced off periodically to show the cash in hand.
4. Bank Cash Book - as the cash book shows the cash received and paid, this book shows the money paid to bank and all the cheque payments.

With manual systems there would be a written record at each step of the way, and this 'hard copy' would remain intact for any subsequent checking that might prove necessary (which is called doing an 'audit') or to amplify the information if necessary ('analysis'). This paperchase came to be known as 'the audit trail'.

When accounting is switched to a computer system, there is no longer any need for much of this hard copy material. The initial entry will come from a document but once it has been keyed in, all future transfers ('postings') will be made electronically and, at year -end, much of the information needed to verify the final accounts will no longer exist. In order to overcome this, an 'artificial' audit trail is laid to keep the accountants happy. The irony is that this artificial audit trail actually looks remarkably like the four old manual 'day books' listed above!

It wasn't so hard after all

It might be a good idea to look back over the past couple of articles and sum up what accounting in small businesses is all about. Hopefully some of the layers of professional mystique that surround book-keeping have been stripped away, to show you that it is only a form of specialised diary-writing.

The amount of information you have to record depends on the size and type of the business. The bigger the business the more transactions; cash traders need fewer records than credit traders; and limited companies have to be stricter than unlimited operations. A cash business will not need a 'full set' of ledgers, but a credit business might.

The simplest form of book-keeping is a diary, and if that satisfies all your needs why do more? Although there are computer programs that purport to do this for you, it is probably just as easy to do it by hand. The next level of sophistication is the analysed cash book that many people

Limited companies

I have tended to ignore the requirements of limited companies. What is different about them? Well, a business is a business and everything said about businesses still applies, but a limited company has an unexpected legal aspect. At law, such a company is a separate person. If you start an ordinary business, although you would want to keep the business records separate from personal affairs there is no legal separation and if things go wrong you are personally liable for the debts of the business.

With a limited company, even though you might 'own' it, it is still a separate legal person and if you are to get anything out of it the company would have to employ you. If the company falls on hard times the creditors would not be able to sue you for the company's debts.

Because of the 'separate legal personal' some quite stringent rules apply to limited companies. The company has to publish an annual report containing a set of accounts by filing it with a registrar of Companies or Department of Corporate Affairs every year (where it is open to public inspection), and these accounts should be audited by an independent auditor who satisfies himself that the accounts show a 'true and fair view' of the company's affairs. This means the book-keeping must be of a slightly higher standard. That is not to say that we who are not limited companies can put any old rubbish into our accounts - at least not if we want the Commissioner of Taxation to accept them! - but we don't suffer the stringent audit that a company does - at least, not yet!

would keep manually, but there are cases where a computer could be helpful, and a spreadsheet program properly used would do all you need and give you all the information you require.

The third stage is 'double entry'. For this, a computer would be very helpful if only because it would know where to post the other side of each transaction.

This series has deliberately not reviewed the available programs but has set out to help you to make up your own mind what you want your book-keeping system to do for you and, if you choose to use the computer, to help you work out some of the questions you would want answered in choosing your program. If you have an accountant then ask his advice, but remember that few accountants have personal experience of microcomputer accounts programs - all he can do is analyse your needs. The best person of all to talk to would be somebody in your own line of business using the system under consideration - but not many people will admit making a bad choice!

Finally, once you have decided on a system, bought the program and got some practice on it, you will need to set it up. This is a pretty daunting task and you must set aside quite a lot of time for it. Once done, you must run both systems (the new computer system and your old manual one) in parallel for several months to check you get the results you expect. Stopping the manual system on the day that you start the computer system without a period of 'parallel running' is known as the 'sudden death' method - and for many businesses it is just that!

Debits and Credits

There are many non-technical uses of these words which tend to confuse the innocent, but probably most confusing is that on bank statements credits are money paid in and credit balances are 'money in the bank' while debit entries are cheques paid out and debit balances are overdrafts. This is because your bank statement is a copy of your ('personal') account in the bank's ledger. When you pay in money, the bank debits their cash account and credits your personal account to show they owe you this money - your own books would show the reverse since you would credit your cash account with money paid over and debit the bank to show they owe you the money.

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Turning Turtle

John Connell begins a new series introducing the delights of programming in Logo. Although written specifically for the PCW, in most cases other machine owners should find it just as relevant.

The PCW comes with two programming languages. Everyone knows about Mallard BASIC, but also, hidden away on side 4 of the master discs, is Dr. Logo. This language works quite differently to BASIC, and over the next six issues I hope to demonstrate the power and potential, the strengths and weaknesses of the PCW's implementation of Dr. Logo.

Every programming language has its own way of doing things - called its 'environment', and Logo's is especially rich and varied. The most immediate, and best known, aspect of the Logo environment is its Turtle Graphics.

The 'turtle' is actually an arrow shape which lives on the screen of the PCW. To draw lines in Logo you give the turtle commands like 'go forward 100 steps'. This special turtle grips a pen as it moves, and so draws a line behind it as it moves.
To get going with the turtle, type

```
cs [RETURN]
```

This is the 'Clear Screen' command, and you will see the screen go blank and the 'turtle' appear in the middle. Logo is now ready to accept commands, which in Logo jargon are known as 'primitives'.

With a series of simple primitives, the Turtle can be made to go, not only anywhere on the screen but also anywhere within a vast field off-screen and unseen, either trailing a line behind it or not. cs, incidentally, normally leaves ten lines at the foot of the screen to display your text commands. fs (Full Screen) followed by cs will give the full screen over to graphics - but you will be unable to see what you type in at the keyboard. I normally use the command

```
setsplit 4
```

which splits the screen to give only four lines for text, leaving the rest free for graphics. If you prefer a larger or smaller text area under the graphics screen, simply alter the number accordingly.

From its central position, the Turtle can be made to move forwards (fd) and backwards (bk), and to turn to the right (rt) or left (lt). Try experimenting with these commands:

`fd 100` takes you forward 100 units
`rt 90` turns the turtle right 90 degrees
`fd 100` takes you forward 100 again, but 'forward' now is not the same way as 'forward' was before you turned right.
`pu` makes the turtle pick up its pen, so that when it moves, it doesn't leave a trail
`pd` puts the pen down again

You can string a series of commands together just by putting then one after the other on the same line, like

```
fd 100 rt 90 fd 100
```

If you get lost, cs will always clear the screen, returning the Turtle to its home at the centre and leaving it pointing north once more. It is useful to think of the screen in terms of north, south, east and west.

The diagram shows the extent of the screen in terms of the number of units which the Turtle can travel from the centre before reaching the edges. However, the screen is, in effect, only a tiny 'window' onto a vast plane which can be travelled by the Turtle. If you direct the turtle to go 'fd' enough to be outside the field of view, it will quite happily do so, but of course you won't be able to see it anymore.

You can track the position of the Turtle, whether on-screen or off, by using the primitive

```
tf
```

(standing for 'Turtle Facts'). Try giving this command and seeing what happens. The first two items in the list that prints out are Cartesian co-ordinates giving the precise current position of the Turtle. Centre screen is 0 0.

Proceed to procedures

Try these four instruction lists (clear the screen between each one!).

```
1. fd 200 rt 90 fd 200 rt 90 fd 200 rt 90
   fd 200 rt 90
2. repeat 4 [fd 200 rt 90]
3. repeat 3 [fd 200 rt 120]
4. repeat 6 [fd 100 rt 60]
```

Instruction list two is a shorthand version of number one - the 'repeat' command simply repeats what is inside the brackets however many times you tell it. Three and four are simply

further examples of the same. This is Logo in 'command mode', in which your instructions are executed each time you press [RETURN].

The next step, of course, is to begin to build these and other primitives into 'procedures', Logo programs. If you want a procedure which will draw a square, then type

```
to square
repeat 4 [fd 200 rt 90]
end
```

This says to Logo, "in order to do a square, execute all the commands between here and 'end'". By typing in square the Turtle will draw exactly that. You have, in effect, added another primitive to our Logo vocabulary. Realising this is the big step towards appreciating just how Logo works - you build up a series of commands and operations which will eventually allow you to do whatever you set out to do. Logo is an *extensible* language: if Dr Logo does not have the primitive you need, you simply define it yourself by building from the supplied primitives.

We can also introduce a variable into the procedure-name, like this:

```
to square
repeat 4 [fd 200 rt 90]
end
```

':side' is a variable name, which means that whatever number you type after square will be used wherever :side is used. For instance, if you give Logo the command

```
square 100
```

a square of side 100 units will be drawn.

```
square 300
```

will draw a square of side 300 units.

The two short procedures in Listing One makes use of some of the things you have looked at so far - once you have it working, why not try to add some short procedures to draw windows, a chimney, a fence and so on?

To save your own work on a disc, type

```
save "filename
```

The 'save' command saves *all* the procedure definitions that you have typed into the Logo workspace under your chosen filename. This means that if you want to save a single procedure on disc you will first have to erase any other programs you happen to have in the workspace first. The filename you choose can only be a maximum of eight characters long.

```
load "filename
```

will load named file from the current disc into the Logo workspace.

The `to...end` method of defining a procedure is useful with

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very short procedures. It has the advantage, however, of making it impossible to amend a line once you have pressed [RETURN]. You have to wait until the whole procedure has been defined before you can re-work it. An alternative is to call up the Logo editor by

```
ed
```

which will clear the screen, allow you to write your procedures and amend any parts of them at will (using the cursor and delete keys), and then enter them into the Logo workspace as defined procedures when you tap the [EXIT] key. The editor does not restrict you to working on only one procedure at a time; you can have as many as the editor's workspace allows. To recall an already defined procedure into the editor for amendment, simply type

```
ed "procedurename
```

and you will be presented after a second or two with the text of the named procedure, which, again, you can rearrange to your heart's content.

A taster

Finally, here is a taster of what Logo can achieve with a simplicity which even the powerful Mallard BASIC cannot match. The listing is given in Listing Two. Erase all previous procedures from your workspace with the command

```
erall
```

type in the listing, check it and then type

```
pond waterflea 100
```

(you can of course, change 100 to an input of your own choice). The Turtle has taken on the characteristics of a waterflea, 'evolved' by yourself, which is trapped within the confines of a square 'pond'. Whenever it attempts to step onto land, the PCWs wonderful beep sounds and it is hauled back into the pond. You have created, in Logo jargon, a microworld, albeit a very simple one.

Work your way through the listing and figure out how it does what it does. As a simple exercise to test your new-found knowledge of Logo, why not try to rework waterflea so that the pond has a narrow outlet through which the fleas can escape if it is lucky enough to find it?

When you have had enough, press [STOP] to interrupt the program, and then type `bye` to leave Logo.

Big is beautiful

One simple, if imprecise, way to compare the relative 'powers' of Logo and BASIC is to look at how much space each of the two take up.

Of course it means that you have less space to play around with when you use Logo, but that's a shortcoming of CP/M, not a failing of Logo! Logo is a language awaiting the march of the megabytes.

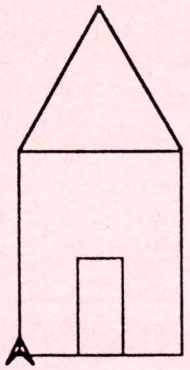
Listing One

This simple listing draws a house of a size specified by you. It uses a number of things we have looked at up to now, with two additions.

Type in the listing and then type

```
setup house 200
```

Once you have it working, try changing the input to 'house'. There are two new commands used here, setpos and seth. 'setpos' moves the turtle directly to the specified co-ordinates, and 'seth' (for 'set heading') turns the turtle so that it faces the bearing given. If you look at what happens at the end of this program's running, you should be able to see what the 'setpos' and 'seth' commands are doing.



Listing 1

```
to house :size
pd repeat 4 [fd :size rt 90]
fd :size rt 30
repeat 3 [fd :size rt 120]
rt 60 fd (:size / 2)
rt 90 pu
fd :size rt 90 fd (:size / 8)
rt 90 pd
fd (:size / 2) rt 90
fd (:size / 4) rt 90
fd (:size / 2)
setpos [-200 -200] seth 0
end

to setup
fs cs pu
bk 200 lt 90 fd 200 rt 90
end
```

Listing Two

This listing involves a number of aspects of Logo which will become clearer in the later parts of the series. In the meantime, bright sparks among you may like to ponder on:

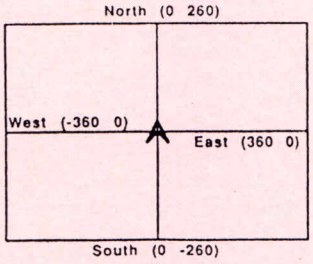
What is the difference between "move and :move?

Why is the input for the primitive random 360?

'xcor' and 'ycor' use the list brought up by 'tf'. From this, you can see how the primitive 'item' extracts a particular element from the list - either the first (in xcor) or the second (in 'ycor').

Listing 2

```
to pond
ct cs st
setsplit 2
pu bk 200 lt 90 fd 200 rt 90 pd
repeat 4 [fd 400 rt 90]
pu home
end

to waterflea :dist
make :move random :dist
fd :move
check
rt random 360
waterflea :dist
end

to check
if xcor > 200 [oops]
if xcor < -200 [oops]
if ycor > 200 [oops]
if ycor < -200 [oops}
end

to xcor
op item 1 tf
end

to ycor
op item 2 tf
end

to oops
type char 7
bk :move
end
```



Making a Logo startup disc

Since you are going to be regularly running Logo on your PCW, you will find it handy to make up a special disc which will start the PCW up and then load Logo automatically. Take a blank, formatted disc for the A drive, and the two PCW master discs that came with the machine. Using PIP, copy the following files from the master discs onto the new disc:

J14CPM3.EMS (found on side 2)
SUBMIT.COM (side 2)
SETKEYS.COM (side 2)
KEYS.DRL (side 4)
LOGO.COM (side 4)

Now using a text editor like RPED which is also on the master discs (see the PCW manual for details on running RPED), create a new file on the Logo startup-disc-to-be-called PROFILE.SUB. This file should contain the two lines

SETKEYS KEYS.DRL
LOGO

Now whenever you use this disc as a start-of-day disc (ie. insert it in the drive after you turn the power on or reset the machine), Logo will start up automatically.

Picture it

Andrew Cameron (11 years old) of Warwick, WA has put together the following coding to draw a picture of a PCW. To run it, just type `start`.

```
to monitor
ht fs cs pu fd 200 lt 90 fd 200 pd
rt 180 fd 400 rt 90 fd 250 rt 90
fd 400 rt 90 fd 250 pu rt 135 fd 45 pd
rt 45 fd 180 lt 90 fd 300 lt 90 fd 180 lt 90 fd
300 lt 90 fd 180
pu fd 20 pd fd 5 rt 90 fd 20 rt 90 fd 5 rt 90 fd
20 lt 90 pu fd 20 pd
rt 90 fd 300 lt 90 fd 180 pu rt 90
fd 20 pd
end

to d.drives
fd 30 rt 90 fd 60 rt 90 fd 30 rt 90 fd 60 rt 135
pu fd 20 rt 45 pd
fd 40 bk 40 lt 90 pu fd 10 rt 90 pd fd 10 lt 90
pu fd 6 rt 90 fd 70
pu home
end

to keyboard
bk 49 rt 135 pd fd 30 rt 90 fd 30 rt 45 fd 210 bk
420 lt 90 fd 120
rt 90 fd 420 rt 90 fd 120 pu rt 135
lt 45 fd 20 rt 90 fd 20 pu fd 65 lt 90 fd 370 lt
90 fd 65 lt 90
fd 370 rt 180 fd 15 rt 90 fd 65 lt 90 fd 15 lt 90
fd 65 rt 90 fd 15
rt 90 fd 65 lt 180 fd 20 rt 90 fd 140 rt 90 fd 20
bk 20 rt 90 fd 125
rt 90 fd 45 rt 90 fd 15 rt 90 fd 45 lt 90 fd 15
lt 90 fd 45 rt 90 fd 15 rt 90 fd 45
lt 90 fd 15 lt 90 fd 45 rt 90 fd 15 rt 90 fd 45
lt 90 fd 15 lt 90 fd 45
rt 90 fd 15 rt 90 fd 45 lt 90 fd 15 lt 90 fd 45
rt 90 fd 15 rt 90 fd 65
repeat 5 [lt 90 fd 15 lt 90 fd 65 rt 90 fd 15 rt
90 fd 65]
lt 90 fd 15 lt 90 fd 65
end

to start
monitor
d.drives
keyboard

end
```

If you want to move on to something a little more complex, turn to page 49, where you will find a Logo Quiz written by Richard Parkes.

Friendly Keyboards

Ben Taylor explains how to customise individual keys to do your bidding.

Users of LocoScript are positively pampered by the PCW - all the keys on the keyboard are nicely labelled and set up to make life specially easy. However, if you run programs using CP/M you know that things get a lot harder. In general, the f-keys and the arrow keys cannot be used, and at the same time many CP/M programs (like *WordStar*) use horrific choices of keys for commands, like [ALT]+KQ. Wouldn't it be nice to be able to use those spare keys to replace the complex multiple keystrokes?

Fortunately there is a way to do this on the PCW, which is to use the SETKEYS program that comes free on the CP/M master discs delivered with the machine. You can make all the unused keys on the keyboard do useful things, including automatically typing entire CP/M command lines.

The keys numbered

The principles behind altering the keyboard layout are quite simple really. Every key on the keyboard has a unique number associated with it, as shown in the diagram - so the space bar is key number 47, and so on. But the alphabet letter that the PCW links with each number can be altered, thereby changing the effect of pressing the key.

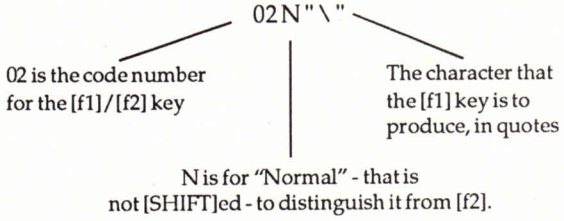
In fact, the most useful part of SETKEYS is that you can define a single keystroke to "expand" to more than one letter - it could represent an entire string of words or characters.

The key facts

The simplest way to explain is to go through a worked example. Suppose that a program you use often requires you to type a backslash, "\", as part of its commands. On the PCW, backslash is awkward to get, you have to type [EXTRA]+1/2. Lets fix the keys so that the unused key [f] produces the backslash character.

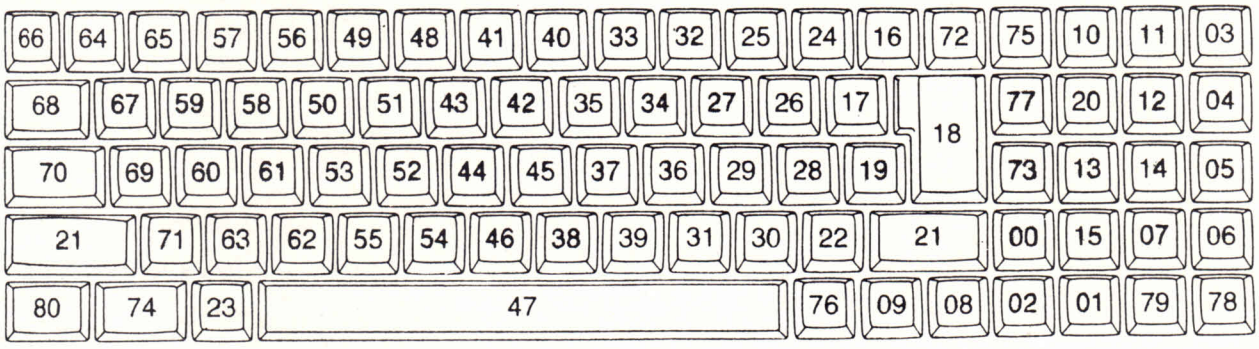
So, checking on the number diagram, [f1] is key number 02. Note that the number, 02 identifies the actual physical key labelled [f1]/[f2], and so the key number for [f2] would also be 02. To distinguish [f1] from [f2] we have to tell SETKEYS a bit more, namely whether the [SHIFT] key is being pressed or not.

Without further ado, here's the command that sets up [f1] as we want:



The next step is to get the SETKEYS program to read and act on this cryptic command. To do this, the command first has to be put into CP/M text file (see box at end of feature), which for argument's sake will be called BSLASH.KEY.
now for the exciting part. Find a disc with the file SETKEYS.COM on it (side 2 of the original master discs), and copy it onto the same disc as BSLASH.KEY is on.
Type: SETKEYS BSLASH.KEY

Now if you press [f1], a backslash appears on the screen. [f1] will produce the backslash character from now on until you reset the machine (eg. to run LocoScript), and it can be used inside any program. Characters produced in this way can be



▲ The PCW keyboard showing each key with the code that SETKEYS knows it by.

deleted and edited like any normal keystrokes.

You can of course set up many keys at the same time - you don't have to have a separate command file for each. Just put each command on a new line one after the other in the file that you give to SETKEYS.

Some final frills

Remember how you identify a key to SETKEYS by its number and its shift state - "02 N" means key code 02 (the [f1] key) used Normally (i.e. unshifted). The "N" in there can be replaced by several things: "S" means [SHIFT], "A" means [ALT] and "E" means [EXTRA].

Here are a couple of example SETKEY commands, and by now hopefully you will be able to see where their translations come from:

02 S "a" means: set the [f2] key (which is [SHIFT]+[f1] to "a"
78 A "b" means: set [ALT]+[ENTER] to be "b"

With a bit of effort you can convert your PCW keyboard to one that can enter all the commands you regularly use for your favourite programs at a single keystroke. You can of course put the SETKEYS command in your PROFILE.SUB command file to set the keys automatically when you start CP/M up.

It's a good idea to put sticky labels on the tops of your redefined keys, in case someone else unused to your conventions uses the machine.

Special Keys

Some characters, such as the "per thousandth" sign, cannot be typed directly from the keyboard in CP/M, but nevertheless can be displayed on the screen. To get at them, you have to know their ASCII codes. These are listed on pages 113-118 of the PCW CP/M manual - for example, the per thousandth sign is code 181.

Using ASCII codes in SETKEYS is broadly similar to ordinary keys. When defining [f1] to be \, the command was:
02 N " \"
To define it to be a per thousandth sign, the command is just:

02 N "↑'181'"

Note how the code, 181, is between single quotes and preceded by ↑, but otherwise placed exactly where the backslash was in the first example. So putting this new command in a file and running SETKEYS with it will now define [f1] to print out a per thousandth sign on the screen.

Another possible problem crops up if you want to specify to SETKEYS that a key is to represent [RETURN] (a useful thing to do as you'll see). How you would go about this? - to set the [f1] key to be [RETURN], you want to have a command something like:

02 N "[RETURN]"

But you simply can't type this! If you press [RETURN] after the open-quote, the line will end and when you run SETKEYS it

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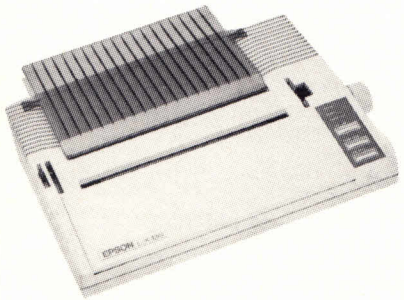

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won't understand what 02 N "
"
means. So there is a special way to specify the [RETURN] key: you type↑M instead ("↑" is [EXTRA]+[;] on the keyboard). To set [f1] to be [RETURN] then, you would type this line into your SETKEYS files:
02 N "↑M"

This mightn't sound too useful, since no-one would want to change the [RETURN] key's placing. but it does have an extremely powerful function in helping to create whole command lines.

Boffin note 1
The full story is this:
[RETURN] is ASCII code 13 (decimal), and M is the 13th letter of the alphabet, so we use↑M to represent [RETURN]. All the ASCII code numbers 1 to 26 can be specified to SETKEYS in this way, offering the full range of control functions.

COMMAND LINES

Getting keys to produce special single characters is useful, but it is also possible to produce entire lines of text at a single keystroke, although this requires a little more effort.

Suppose that a command you use regularly is ERA *.BAK, to delete your backup files and clear some disc space. You can do this using SETKEYS in a two stage process.

First, pick a number between 80 and 99. This will be the special number that will identify the text to be produced by the appropriate keystroke. So, picking 80 as our chosen number, the first command to give SETKEYS is

E #80 "ERA *.BAK↑M'

This says to "expand" (hence the "E") the special code 80 into the letters ERA *.BAK followed by a [RETURN] character - as explained in the "special keystrokes" box, [RETURN] is represented by ↑M. Now all we have to do is tell SETKEYS which key will generate the special code 80, and this is done similarly to the backslash example. Suppose we want to use the keypad key "2" to do the file erasing for us, then put in the command file the line:

07 N "↑' #80 '"

07 is the code for the "2" key (at the centre of the cursor keys)

80 is the special code to be generated. The quotes and arrows all have to be there - don't ask why!

N is for Normal use - no [SHIFT], [ALT] or [EXTRA]

So, bringing it all together, create a file (we'll call it ERABAK. KEY) containing two lines:
E #80 "ERA *.BAK↑M"
07 N "↑'#80'"

Now, back at CP/M type SETKEYS ERABAK.KEY. From now on, pressing the keypad key "2" will automatically type on the screen ERA *.BAK and, because of the final ↑M, execute the command as if you had typed it normally, ending with [RETURN]

Boffin note 2
In fact, the # sign introduces a hex code, so rather than talking of codes between 80 and 99, really the codes are from hex 80 to hex 9E, 9F means "ignore this code".

CREATING A FILE

In this article we've talked a lot about creating text files of a few lines. If you're using LocoScript and its "Make ASCII file" option, this is very time-consuming and frustrating.
If you don't have a special CP/M text editor like WordStar, there is a quick way to create short files using the CP/M command PIP, which everyone has on their master disc. Put your PIP.COM disc in the drive, and type:

```
PIP filename=CON:[RETURN]
```

After the [RETURN], PIP waits for you to type the text to go into the file. Type each line, press [RETURN], and then hold down the [ALT] key and press J to get to the next line. After the last line of the file, type [ALT]+Z, and you are returned to the familiar A> prompt.

If you make a mistake typing the file, you can't edit it with PIP, so you'll have to retype the whole thing. This is why it's only useful for small files.

Creating the file ERABAK.KEY, as used elsewhere in the article, and checking it by TYPEing it afterwards ▼

```
E>pip erabak.key=con:
E #80 "ERA *.BAK↑M"
07 N "↑'080'"
B> type erabak.key
E 080 "ERA *.BAK↑M"
07 N "↑'080'"
```

and using it - after the SETKEYS, pressing the single key '2' on the cursor key pad produces the rest of the text ▼

```
B>
B>
B> setkeys erabak.key
B>ERA *.BAK
ERASE *.BAK (Y/N)? y
B>
```

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TIP-OFFS

More magic than most mortals can manage

Getting the Best from Printmaster

Attention PCW 8512 owners out there who have bought the PRINTMASTER PLUS program put out by Dataflow. You will be aware that the suppliers tell us the font called Computer type won't work because of lack of room due to the different format between the master disc and the format used by the PCW.
I found the program will work with all fonts if you pip the "A" side to your single sided disc and the "B" side plus Computer Font to another disc formatted for the second or B drive of your PCW.
I also use the companion program "Art Gallery" which fits on the disc in the second or B drive. You can then erase Computer font from the single sided disc in the A drive plus all the unnecessary Printer commands. This leaves more than enough storage space for designs etc from the program you might want to save.
The spare side of the disc in drive A can be used for storage of designs or if you're like me and don't like too many discs to run your programs you can put CPM on that side to restrict disc swapping to a minimum.
Don't forget when the program asks you to insert your disc for the graphics they are now already at hand and you only have to push ENTER/RETURN.
I guess any PCW 8256 owners may be able to adapt this method to suit their single drive.
David Breach, SA.

Save Money on Discs

I saw this tip printed in an English magazine and I have never seen it printed for the benefit of Australian users of PCWs with 2 drives. Contrary to what dealers might tell you there is no difference between the Amsoft CF2 and CF2DD discs except the price. The latter is no longer available in England and Europe because though they were supposed to be of different quality the supplier made them all to the standard expected for the CF2DD. I hope I don't upset suppliers with this but at the price of the discs I think it should be known.
The CF2 formats and works in the double sided drive and is cheaper than the CF2DD.
David Breach, SA.

Dashing titles

Have you often wished you could label a document in two words rather than running them together in the file name. For instance, if you are writing a treatise on decomposing automobiles, you might feel the name CARROT.DOC is misleading. The PCW won't let you type CAR/ROT or CAR-ROT but it will allow CAR_ROT. A simple underline dash will separate the words and they'll be understandable at a glance.
Dr. Dale Beckett

Economy drive

How many PCW8256 owners realise that they have, in many respects, a three drive machine? The actual drive at the top right corner can be either A or B. there are several uses this can be put to. For example using A>DIR[FULL] to get a full directory of any disc without DIR.COM on it will get "DIR COM required".
You could go to the lengths of using PIP to move DIR.COM to the M drive and then put the disc back in and enter M:DIR[FULL] but it is much easier to put the CP/M disc in and enter DIR[FULL]B:.
You will then get the prompt "Please put the disc for B: into the drive and then press any key."
Put the disc you need the full directory for into the drive, press any key and you will get the required result listed as drive B. The prompt in the bottom right will state "Drive is B:". The next time Drive A is needed you will be prompted to put the disc for A into the drive and press any key.
This technique can be used for any program that needs all the discs to be available as soon as [RETURN] is pressed (eg. PIP.COM, DUMP.COM, SETKEYS.COM) when any files that are needed from another disc are prefixed with B: eg B:DATA.ASM. An extra advantage if using it with large programs is that it leaves the M drive available for data files rather than being full of program files. With an 8256 without an expanded memory this method can in some cases allow programs to be run that would only be possible on the 8512 without this technique.
It should be pointed out that the drive B in these examples is still of the normal drive A format and not the double sided drive of the 8512.
Richard Yorke

Clearing the screen

If you are fed up with screenfuls of rubbish littering your monitor screen when you're running CP/M why not try a simple example of this PIP file creation. You can include a file on your CP/M disc which will clear the screen whenever you type CLS.
First, use PIP to create a file called CLEAR containing the control codes 'escape',E,'escape' and H. Do this by typing

```
PIP CLEAR=CON:
[EXIT]E[EXIT]H
[ALT]Z
```

[EXIT]E here means press [EXIT], then release it and press E (it must be a capital E). The [ALT]Z used to end the file means hold down [ALT] and press Z at the same time.
You could now clear the screen any time by entering TYPE CLEAR - the PCW will attempt to print out to the screen the above two escape codes, which merely cause the cursor to return to the top left corner and the screen to

be wiped.
However if you have SUBMIT.COM and SETDEF.COM on your disc and given the command

SETDEF
[ORDER=(SUB.COM)]

then you can make up an additional file CLS.SUB containing the single command TYPE CLEAR and wipe your monitor clean any time (well, the screen, anyway) just by entering CLS[RETURN].

Why stop there?

When writing a second LocoScript letter to the same correspondent, a convenient way to save looking up and typing out their address again is to start with an empty file, and use the [f7] Insert Text option to start inserting the first letter with your finger poised over the [STOP] key.
Just after the "Dear Mr Smith" is reached you press the [STOP] key twice and the program stops inserting text. All you have to do now is change the date.
John Levitt

Full LocoScript discs in CP/M

When you've been using a CP/M program (such as a spellchecker) on LocoScript files, and you want to transfer the altered document back to the LocoScript disc, it often happens that you get a 'full disc' error message when there appears to be plenty of room left on the disc.
The reason is that your disc is full up with LocoScript 'Limbo' files. Whereas LocoScript will happily erase these files to make room for new ones, CP/M thinks that they are valid files and not to be erased.
These Limbo files are stored in CP/M's 'user groups' 8 to 15. To erase them, you either have to have a program which recognises these groups and can erase files, like NewSweep, or do as follows:
Change to group 8 with the command USER 8, do a DIR to check whether there are any files there. If so, type ERA*.* and confirm it (make REALLY sure that the prompt has changed from 'A>' to '8A>', or you will be erasing your non-Limbo group 0 files!).
Change to group 9 with USER 9, and repeat until you have done group 15. Now get back to group 0 (USER 0) and you will find that you're not all clogged up with unnecessary files in Limbo.
Hilary Hayes

From the New Word: print codes

If you are running NewWord on the PCW you may have experienced a few difficulties with the print control codes. You can make things easier for yourself by choosing the correct printer driver from the mass that are offered to you. The PCW printer is best served by NewWord's Epson LX80 driver (not the FX, which doesn't have a High Quality font) and then you find that the obtaining NLQ printout is a simple matter of entering the dot command .BP ON at the top of the letter template. Incidentally when using this command you must also enter the dot command .UJ OFF to eliminate the awful printer judder which will otherwise occur.
The NewWord manual claims that ↑PY will do italics, but it doesn't seem to work. Here is a list of printer effects obtainable by the control codes. To use these, put the dot commands once only at the start of the text file, which then sets NewWord up. Then the text which you want to be in italics or enlarged should be enclosed by the 'on' and 'off' codes indicated. The effects work for one line only; to do a complete passage enlarged requires the 'on' code at the start of each line.
NewWord v2.17 for the PCW comes already installed for an Epson FX80 printer, which doesn't have a NLQ mode. To change, install NWINSTAL and at the prompt select the Epson LX80 as your default printer.
When entering the dot commands always ensure that the dot is at the extreme left margin. It doesn't matter how many dot commands you enter, they will have no effect on your header position. You will still be at Line 1 Column 1 after entering them all.

Action	Dot Command	Code
Enlarged print on	.XQ 1B 0E	↑PQ
Enlarged print off	.XW 14	↑PW
Italics on	.XE 1B 34	↑PE
Italics off	.XR 1B 35	↑PR
Proportional on	.X[1B 70 31	↑P[
Proportional off	.X] 1B 70 30	↑P]

So to do a phrase in italics, the file would read

.XE 1B 34
.XR 1B 35

Normal text then ↑ Eitalic text ↑ R
Shaun Mahon

Easy hard copy

You can obtain hard copy from any BASIC listing without ever using an LPRINT command. Once the screen printout is to your satisfaction merely type POKE 8792,205 and re-run the program. All the screen output will be printed out as well. When finished just enter POKE 8792,195 to return to normal. Remember that screen cursor positioning commands may not work on the printer and that the width of the screen and the printer may be different.
Dave Atkin.

Put yourself on the map

When playing adventure games it's essential to keep a map showing your progress. The following LOGO listing will print out grids for you with cells and compass directions. After typing in the listing run the program by entering begin [RETURN]. To get a small print of the pattern you can do a screen dump, but to get a full-size version, use Anthony Gravell's BASIC listing (next page) by answering GRID when asked for the file name. The command "savepic" in line 8 automatically writes the picture to disc and you'll need at least 23k free on your disc

```
to begin
cs
fs
pu
start
pd
ht
repeat 8 [again]
savepic "grid
end

to start
make "x -315 make "y -215
setx :x sety :y
pd
end

to square
pd
repeat 4 [fd 15  lt 90 fd
15 bk 15 rt 90 fd 15 lt
45 fd 21.2132 bk 21.2132
rt 135]
pu
fd 60
pd
end

to again
repeat 8 [square]
move
end

to move
pu
make "x :x + 60
setx :x sety :y
pd
end
```

Paul Hodgson

Logo Print

One of the functions missing from Digital Research's version of Logo is a command to write grapics output to the printer. Although you can of course use [EXTRA] + [PTR] to take a dump of the whole screen, the resulting print is small and includes the status line.

This Basic listing from Anthony Gravell takes a saved Logo picture file (a file with a .PIC filetype) and prints out a near-A4 dump. The program works by reading in the data from thre Logo picture file and loading it byte by byte into the string 'char$'. It then prints a column of eight dots by LPRINTing char$. It prints each column twice in order to expand the picture to the correct shape on the paper. At the end of each line of the picture, it drops down to the next line and starts again.

```
10 INPUT "Enter name of picture to be printed";a$
20 REM MAKES FILETYPE AS LOGO PIC FILE
30 a$=a$+".pic"
40 REM SETS e$ AS AN 'ESC' CHARACTER
50 e$=CHR$(27)
60 REM SETS SIZE OF 'BIT-IMAGE' PATTERN
70 lsb=220:msb=1
80 REM SETS PTR L/F TO 8 DOTS
90 LPRINT e$;"A";CHR$(8);
100 REM THESE TWO LINES PREPARE THE FILE TO BE REA
D
110 OPEN "R",1,a$,1
120 FIELD 1,1 AS char$
130 FOR x=1 TO 90
140 REM SETS PTR 'BIT-IMAGE' MODE
150 LPRINT e$;"K";CHR$(lsb);CHR$(msb);
160 REM SETS PTR LINE LENGTH TO INFINITE
170 WIDTH LPRINT 255
180 FOR y=21458+x TO 128+x STEP -90
190 REM READS RECORD y INTO char$
200 GET 1,y
210 LPRINT char$;char$;
220 NEXT y
230 REM SENDS CR / LF TO PTR
240 LPRINT
250 NEXT x
260 REM SHUTS FILE READY FOR END
270 CLOSE
```

Ye Olde Tea Shoppe

In the "olde worlde" font of Supertype, text in 15 and 17 pitch doesn't come out in the new font as you might expect, but produces the normal condensed type in both upper and lower cases. So there is a quick way of overcoming the fact that you normally have to change to another disc to get a different typeface.

Jessica Barnes

Speedy SuperCalc

Working with involved spreadsheets in SuperCalc can be a labourious process as every time new information is entered all the entries are recalculated. However, if you select the 'manual' on the Global option you only get a recalculation when you want it, which you get by typing a! This speeds up large spreadsheets considerably.

The erased...raised

You're in CP/M editing your 132,000 word thesis in a wordprocessor and suddenly realise to your horror that you've erased it by mistake...disaster! Months of work down the drain! But with a little chicanery you can recover your THESIS.DOC.

First, on no account write any new files to the disc containing the file you have just erased. Next make sure you have PIP.COM on the M drive (if it isn't, copy it on to M drive). Now erase PIP.COM. Read on. This isn't quite as stupid as it sounds! Then insert a disc with BASIC on it, run BASIC, and enter the following commands:

```
poke 64480,229
poke 64432,229
poke 64348,229
poke 64040,229
```

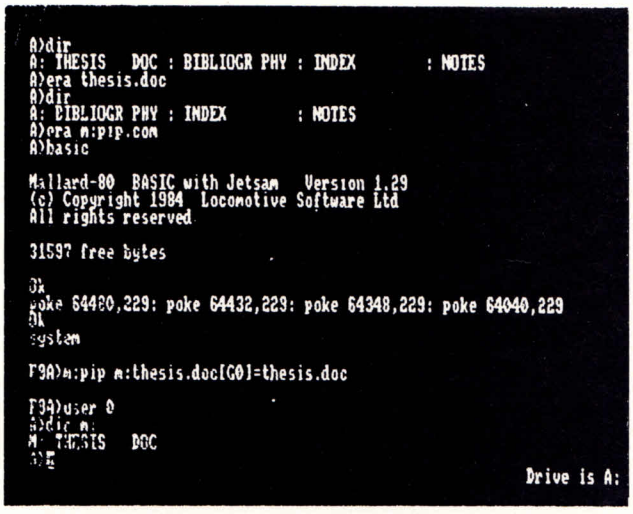
and then exit to CPM with the command SYSTEM. Up will come the prompt F9A>. The pokes have persuaded the machine that you're now in user group number 229 (don't believe the F9) where CP/M stores the files it has 'erased'. If you type DIR now, you'll see the names of many deleted files, though of course most of their contents will have been overwritten with new files by now. (As this is the trash heap, if you ERA a file here it just won't go away!) Now, because you've just 'erased' PIP, it appears here in group 229 too, so after reinserting your erased thesis disc you can use PIP to copy the file back to group 0 of your disc (the land of the living where unerased files are normally stored) with

```
M:PIP M:THESIS.DOC
[GO]=THESIS.DOC
```

Type USER 0 and everything will be back to normal. Try a DIR on drive M and you'll see your precious document back where it belongs - now you can copy it back to your work floppy disc and carry on normally.

What is really happening here is that when you erase a file you don't wipe it from the disc - you only make CP/M think that you have stored it in user group 229. Normally when you type DIR the machine looks round for all the files with the current group number. If you persuade the PCW that the group you are in contains all the files with the address mark E5 up will come all the erased files.

CP/M gradually re-uses the space that erased files take up as it needs it, so if you write a new file to a disc you may overwrite previously erased files.



Only a phone call away

Learn how to dial into Jetsam files with Bob Walsh's telephone directory

PHONE.BAS is a telephone directory using Mallard Basic and Jetsam files. It is suitable for the PCW range of computers and while it is not a great subject it does show how Mallard Basic can be used to produce an efficient filing type program. I have used the same concept to write small business accounting packages but these programs are rather large and do not use many more functions than are used in this program.

Operating guide for PHONE.BAS

A main menu is included as well as on screen instructions for all functions.

1. Where operator's choices are provided on screen these choices are made by typing a single key. In such cases it is not necessary to follow this key entry with a [RETURN] key operation.

2. The opening screen is:

```
TYPE [G] IF YOU WANT THE SCREEN TO HAVE A GREEN BACKGROUND
TYPE [B] IF YOU WANT THE SCREEN TO HAVE A BLACK BACKGROUND
```

Having made the choice the screen will remain in that configuration until shut down.

3. The following screen is:

```
TYPE [A] IF FILES ARE TO BE STORED ON A DISC IN DRIVE [A]
```
Drive [A] disc will store approximately 2000 entries
```
TYPE [B] IF FILES ARE TO BE STORED ON A DISC IN DRIVE [B]
```
Drive [B] disc will store approximately 8000 entries

This assumes that the whole of the disc will be reserved for Jetsam files which are "PLIST.DAT" & "PLIST.IDX". The first of these contains the actual records while the second contains the index. When using drive [A], side 1 of the disc can contain the programs while side 2 can contain the Jetsam files. When using drive [B] the whole of the [B] disc can be reserved for the Jetsam files.

4. Having made the choice above the next screen will read:

```
LOAD DISC INTO DRIVE [?] AND PRESS ANY KEY TO CONTINUE
```

The [?] will be replaced by [A] or [B] depending on the choice made.
The disc will be searched to find the required Jetsam files and if this search is successful then the main menu will show on screen. If the search is not successful the screen will change to :

```
THERE ARE NO SUITABLE FILES ON THIS DISC
ENTER [C] IF YOU WANT TO CHANGE DISC IN DRIVE [?]
ENTER [F] IF YOU WANT TO START NEW FILES ON THE DISC IN
DRIVE [?]
```

On original start entering [F] at this stage will create the Jetsam files. At other times the opportunity is given to replace the disc or to turn it around.

5. On completion of the above the main menu will be available:

```
JOBS YOU CAN DO ARE

1 - SEARCH PHONE BOOK
2 - ADD NEW ENTRIES
3 - DELETE ENTRIES
4 - PRINT PHONE BOOK
5 - FINISH

TO SELECT THE JOB TO BE DONE
TYPE GROUP NUMBER
```

6. Both the "SEARCH PHONE BOOK" and "PRINT PHONE BOOK" portions use the same area of the program. The main features are:

The entries will be listed in either alphabetical or numerical order either completely or in part depending on the choice made. A complete alphabetical listing is available after entering ? [RETURN] while a complete numerical listing is available after entering 1 [RETURN].

Partial listings are also available for example:

Entering a [RETURN] will list all entries starting with A
Entering BOU [RETURN] will list all entries starting with BOU
Entering 77 [RETURN] will list all entries starting with 77
Entering 7723 [RETURN] will list all entries starting with 7723

The screen will list a maximum of 20 entries and then offer the

choice of either continuing the listing or finishing.
A counter shows the number of entries found in each selection.

A [RETURN] operation on its own will return to the main menu.

7. The "ADD NEW ENTRIES" portion provides the following features:

A length guide is shown for the Subscriber's Name. If this is exceeded then the number of excess characters and spaces is shown and a revised entry is requested. The original entry is shown for comparison.

All entries are converted to upper case. The conversion of "Mc" type names is catered for. "mcleod" will convert to "McLEOD".

The screen will display up to 15 entries before writing them to file. When the 15 entries have been reached an opportunity is offered for correction before this writing to file occurs.

Before the 15 entries have been made the operator can either alter one or more of the entries by entering [#] [RETURN] when at the Subscriber's name entry position. The program then asks for the line number of the entry altered and replaces that line with the new entry.

The operator can finish at any time prior to the 15 entries limit by hitting [RETURN] at the Subscriber's name position (being a blank entry). The list is then offered for alteration if required before writing to file. After writing to file a further blank entry [RETURN] will display the main menu.

Each entry is added to the bottom of the screen and the screen scrolls upwards as further entries are added. The scrolling is effected by deleting the uppermost blank space immediately below the list heading.

8. The "DELETE ENTRIES" portion provides the following features:

The entry to be deleted is found by using entries identical to the "SEARCH PHONE BOOK" portion. When found the entry is confirmed by entering its phone number. The choice will then be offered to delete that entry or not. If there is more than one entry with the same phone number then the "NO" answer will cause the next entry to be displayed and the choice to delete or not is re-offered.

This portion is exited by entering a blank [RETURN] as above.

9. It is important that Jetsam files are closed correctly otherwise they will be unable to be accessed. If the program is shut down either intentionally or inadvertently (by use of the [STOP] key) then it can be restarted by typing CONT [RETURN]. If it is not restarted then the instruction CLOSE 1 [RETURN] should be entered. It is always advisable to keep a back-up copy of the files and program made with "DISCKIT".

Program notes for PHONE.BAS

1. A "PROFILE.SUB" file is used for automatic cold or warm start of the program. This file was written using "RPED.BAS" and contains the following instructions:

```
setdef m:,* [order=(sub,com) temporary=m:1
paper 11
basic phone
```

The "paper 11" instruction sets the printer for continuous stationery, while the "basic phone" instruction first loads "BASIC" and then loads & runs "PHONE.BAS".

2. Sub Routines
Lines 10 - 40 are the opening controls and set the variable names to suit the choice made between drives A and B.

Lines 60 - 130 set the numeric and string variables, define a number of string variables and dimension some string arrays.
DEFINT x sets all numeric variables beginning with x as integer
DEFSNG y sets all numeric variables beginning with y as single length
DEFDBL z sets all numeric variables beginning with z as double length
DEFSTR a-w sets all variables beginning with any letter from a to w as string variables.
This eliminates the need to further define variables during the course of the program. For example it is not necessary to use the $ sign to show that a variable is a string. If it begins with any letter from a to w then BASIC will treat it as a string. Any variable beginning with x, y or z will be a numeric variable. The $ sign is still required for those basic keywords which end with $ such as UPPERR$ and the like.

Lines 150 - 170 set the defined functions.
DEF FNhead$(title) sets the screen header to comprise a string of asterisks on either side of the screen title. Line 2220 shows an example of its use.
DEF FNscreen$(x,y,text) locates a named string at a specific screen position defined in terms of the column number x and the line number y. Line 280 includes an example of its use where a message is asked to be printed at a position commencing from column 19 on line 15.

Lines 190 - 220 search the keyboard for a response to a program choice offered in various parts of the program. Lines 280 & 290 offer such a choice and will accept a response in the form of any "G", "g", "B" or "b" which is the match shown in lines 300.

Lines 240 - 260 will selectively clear a portion of the screen from right to left starting at a nominated column position on a range of lines specified. Line 1600 contains such an instruction to clear lines 7 to 29 inclusive commencing at column 0 on each line. Column 0 is at the extreme left hand side.

Lines 280 - 330 contain the opening message and controls to set the screen background colour.

Lines 350 - 400 offer the choice of drives to be used for file storage.

Lines 420 - 500 take an entered string called "nme" and convert it to upper case and then search the converted string to find if it needs a lower case "c" for names such as "McLAREN". This conversion is performed if required.

Lines 520 - 640 produce the Jetsam alphabetical key based upon the name used (nme). The routine removes all spaces, stops, "&", commas and apostrophes from the name and converts "Mc" to "MAC". The key used is often the first 10 characters in the converted name.

McLAREN L.K. & T.J. will be converted to MACLARENLKTJ. The key used will be MACLARENLK which is the first 10 characters.

Lines 660 - 740 takes the input phone no. and produces both the converted phone number for the file record and for the numeric key. All spaces are removed to provide the Jetsam key and a standard space is added to provide the file record phone number.

A phone number entered as say 772 318 would be converted to 772318 for the Jetsam key and to 77 2318 for the file record.

Lines 760 - 930 are the program portion which searches for and creates, if necessary, the Jetsam data file "PLIST.DAT" and the Jetsam index file "PLIST.IDX".

Lines 950 -970 opens the Jetsam files for all purposes after the initial creation.

Lines 990 - 1080 provides the screen format used during the "ADD NEW ENTRIES" portion of the program.

Lines 1100 - 1150 simply provide a shutdown reminder at the program end. It also re-establishes the cursor "blob" if it had been inhibited at the time. "PRINT con" is the statement which does this.

Lines 1170 - 1190 remove any spaces from the front of the area code entered.

Lines 1210 - 1330 & 1350 - 1450 provide the screen & entry details for the "ADD ENTRIES" portion of the program.

Lines 1470 - 1550 provide the routine for writing the records and keys to the Jetsam files. The ADDREC function writes the record and the phone number key to the file while the ADDKEY function is used to write any extra keys required, in this case it is the key extracted from the subscriber's name.

Lines 1570 - 1950 provide the routine for searching, altering and printing the entries.

Lines 1970 - 2020 delete entries from the record. Entries are not deleted from the record file itself but by deleting all keys associated with the particular record. The record itself stays on file, but cannot be accessed, until the next record is written. Jetsam automatically adds the new record into this "useless" area of the data file.

Lines 2040 - 2160 are the main menu.

Lines 2170 - 2200 provide the opening controls for "SEARCH PHONE BOOK".

Lines 2220 - 2530 provide the opening and intermediate controls for "ADD NEW ENTRIES".

Lines 2550 - 2760 provide the opening and intermediate controls for "DELETE PHONE BOOK ENTRIES".

Lines 2780 - 2820 provide the opening and closing controls for "PRINT PHONE BOOK".

3. Jetsam files are ideal for use whenever the recorded information has to be accessed quickly or whenever multiple means of access are required. Jetsam does most of the hard work including automatic sorting of the keys into alphabetical and numeric order. It does not matter in what order the entries are made. There is no need to set the maximum size of the file at the time of creation. Jetsam automatically expands as extra entries are made.
The END OF FILE (EOF) function used in straight random access files is not used since all the Jetsam functions return a number code which shows the result of all operations from unqualified success to qualified success to failure.

4. All program inputs use the "LINE INPUT" function and take a string variable. This allows the use of separators such as the comma to be used without having BASIC interrupt with its "Redo from start" function. When the entry is in fact numeric data, such as a phone number, then the program automatically converts the entered string to a number and determines its validity.

Lines 2350 - 2380 show this. Line 2350 asks for a line number to be entered as a string called "chn". Line 2360 converts the entry to an integer called xchn and converts the original "chn" to null.

Line 2370 compares the number obtained with a range of known acceptable numbers and either accepts the entry or causes the monitor to beep and returns to line 2350 for another go.

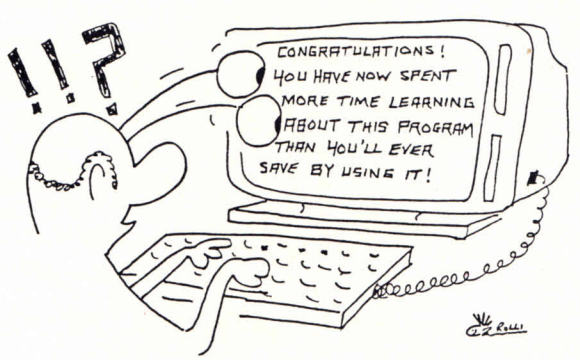
5. Extensive use is made of selective screen clearing through sub-routine 240 to make sure that the basic screen display is not affected. A number of text lines to be printed at various positions on the screen also include an esc+"K" or an esc+"o" statement. The former erases to the end of the line from the cursor position while the latter erases the line up to and including the cursor.
These functions and those used in lines 70 -110 are shown at the rear of Book 1 of the Amstrad Manual on pages 139, 140 and 141.

6. Side 1 of the program disc needs the following files:
J14CPM3.EMS, SETDEF.COM, SUBMIT.COM, PAPER.COM
BASIC.COM, PROFILE.SUB and PHONE.BAS

```
10 CLOSE 1:GOSUB 60:GOSUB 150:GOSUB 280:GOSUB 350
20 ON xanswer GOTO 30,30,40,40
30 disc="[A]":ad="A:plist.dat":ai="A:plist.idx":ax
="A:plist.*":GOSUB 760:GOTO 2040
40 disc="[B]":ad="B:plist.dat":ai="B:plist.idx":ax
="B:plist.*":GOSUB 760:GOTO 2040
50 :
60 DEFINT x:DEFSNG y:DEFDBL z:DEFSTR a-w
70 esc=CHR$(27):cls=esc+"E"+esc+"H":bell=CHR$(7)
80 green=esc+"b"+CHR$(63)+esc+"c"+CHR$(10):grey=es
c+"b"+CHR$(0)+esc+"c"+CHR$(63)
90 crlf=CHR$(13)+CHR$(10)
100 formfeed=CHR$(12)
110 ron=esc+CHR$(112):rof=esc+CHR$(113):cof=esc+CH
R$(102):con=esc+CHR$(101)
120 DIM nme(20),ka(20),acd(20),phn(20),phnky(20)
130 RETURN
140 :
150 DEF FNhead$(title)=STRING$((87-LEN(title))/2,"
*")+" "+title+" "+STRING$((87-LEN(title))/2,"*")+c
rlf
160 DEF FNscreen$(x,y,text)=esc+"Y"+CHR$(32+y)+CHR
$(32+x)+text
170 RETURN
180 :
190 answer=INKEY$:WHILE answer="":answer=INKEY$:WE
ND
200 xanswer=INSTR(match,answer):IF xanswer=0 THEN
GOTO 220 ELSE GOTO 210
210 PRINT FNscreen(0,27,con+rof):RETURN
220 PRINT FNscreen(0,27,bell): GOTO 190
230 :
240 FOR xa=xlnes TO xlnef
250 PRINT FNscreen(xcol,xa,esc+"K")
260 NEXT:RETURN
270 :
280 PRINT cof;cls;FNscreen(19,15,"TYPE [G] IF YOU
WANT SCREEN TO HAVE GREEN BACKGROUND")
290 PRINT FNscreen(19,17,"TYPE [B] IF YOU WANT SCR
EEN TO HAVE BLACK BACKGROUND")
300 match="GgBb":GOSUB 190
310 ON xanswer GOTO 320,320,330,330
320 PRINT FNscreen(0,29,green):RETURN
330 PRINT FNscreen(0,29,grey):RETURN
340 :
350 PRINT cof;cls;FNscreen(16,9,"TYPE [A] IF FILES
 ARE TO BE STORED ON A DISC IN DRIVE [A]")
360 PRINT FNscreen(19,11,"Drive [A] disc will stor
e approximately 2000 entries")
370 PRINT FNscreen(16,17,"TYPE [B] IF FILES ARE TO
 BE STORED ON A DISC IN DRIVE [B]")
380 PRINT FNscreen(19,19,"Drive [B] disc will stor
e approximately 8000 entries")
390 match="AaBb":GOSUB 190
400 RETURN
410 :
420 nme=UPPER$(nme):xnme=LEN(nme)
430 FOR xtest=1 TO xnme
440 test=MID$(nme,xtest,1)
450 IF test="M" THEN GOTO 460 ELSE GOTO 490
460 test=MID$(nme,xtest+1,1)
470 IF test="C" THEN GOTO 480 ELSE GOTO 490
480 MID$(nme,xtest+1)="c"
490 NEXT
500 RETURN
510 :
520 nme=nme(x)
530 IF LEFT$(nme,1)=" " THEN GOTO 540 ELSE GOTO 55
0
540 nme=MID$(nme,2):GOTO 530
550 xsk=1:fd(1)=" ":fd(2)=".":fd(3)="&":fd(4)=",":
fd(5)="'"
560 xtest=INSTR(nme,fd(xsk))
570 IF xtest=0 THEN GOTO 600
580 nmea=LEFT$(nme,xtest-1):nmeb=MID$(nme,xtest+1)
:nme=nmea+nmeb
590 GOTO 560
600 xsk=xsk+1:IF xsk=6 THEN GOTO 610 ELSE GOTO 560
610 IF LEFT$(nme,2)="Mc" THEN GOTO 620 ELSE GOTO 6
30
620 nmea="MAC":nmeb=MID$(nme,3):nme=nmea+nmeb
630 ka=LEFT$(nme,10)
640 RETURN
650 :
660 IF LEFT$(phn,1)=" " THEN GOTO 670 ELSE GOTO 68
0
670 phn=RIGHT$(phn,2):GOTO 660
680 xtest=INSTR(phn," "):IF xtest=0 THEN GOTO 700
ELSE GOTO 690
690 pc=LEFT$(phn,xtest-1):pd=MID$(phn,xtest+1):phn
=pc+pd:GOTO 680
700 phnky=phn:xtest=LEN(phn):IF xtest<=4 THEN GOTO
 740 ELSE GOTO 710
710 xtest=xtest-4:ON xtest GOTO 720,720,730,730
720 pc=LEFT$(phn,2):pd=MID$(phn,3):phn=pc+" "+pd:G
OTO 740
730 pc=LEFT$(phn,3):pd=MID$(phn,4):phn=pc+" "+pd
740 RETURN
750 :
760 PRINT cof;cls;FNscreen(18,15,"LOAD DISC INTO D
RIVE "+disc+" AND PRESS ANY KEY TO CONTINUE")
770 WHILE INKEY$="":WEND
780 x=0:xd=0:xi=0
790 IF FIND$(ad)="" THEN xd=2 ELSE xd=1
800 IF FIND$(ai)="" THEN xi=4 ELSE xi=3
810 x=xd+xi:IF x=4 THEN GOTO 930
820 PRINT cls;FNscreen(25,15,"THERE ARE NO SUITABL
E FILES ON THIS DISC")
830 PRINT FNscreen(21,17,"ENTER [C] IF YOU WANT TO
 CHANGE DISC IN DRIVE "+disc)
840 PRINT FNscreen(13,19,"ENTER [F] IF YOU WANT TO
 START NEW FILES ON THE DISC IN DRIVE "+disc)
850 match="CcFf":GOSUB 190
860 PRINT cof
870 ON xanswer GOTO 760,760,880,880
880 PRINT cls;FNscreen(31,15,"OPENING FILES - PLEA
SE WAIT")
890 IF x=6 THEN GOTO 910
900 KILL ax
910 BUFFERS 6:CREATE 1,ad,ai,2,60
920 CLOSE 1
930 PRINT con:RETURN
940 :
950 BUFFERS 50:OPEN "K",1,ad,ai,2
960 FIELD 1,47 AS rec.nme,3 AS rec.acd,8 AS rec.ph
n
970 RETURN
980 :
990 PRINT FNscreen(0,12,"LINE")
1000 PRINT FNscreen(6,12,"NAME")
1010 PRINT FNscreen(77,12,"PHONE NO")
1020 PRINT FNscreen(0,13,STRING$(90,CHR$(138)))
```

```
1030 FOR xa=14 TO 28
1040 PRINT FNscreen(0,xa,"  *");SPC(3);"*";SPC(70)
;"*"
1050 NEXT
1060 PRINT FNscreen(71,3,"LIMIT")
1070 PRINT FNscreen(71,4,CHR$(149))
1080 RETURN
1090 :
1100 PRINT cof;cls;FNscreen(32,6,"PLEASE CLOSE DOW
N AS FOLLOWS")
1110 PRINT FNscreen(30,8,"1 - REMOVE DISCS FROM BO
TH DRIVES")
1120 PRINT FNscreen(30,10,"2 - SWITCH OFF AT MONIT
OR")
1130 PRINT FNscreen(30,12,"3 - SWITCH OFF AT POWER
 POINT")
1140 CLOSE 1
1150 PRINT con:END
1160 :
1170 IF LEFT$(acd,1)=" " THEN GOTO 1180 ELSE GOTO
1190
1180 acd=RIGHT$(acd,2):GOTO 1170
1190 RETURN
1200 :
1210 PRINT ron;FNscreen(0,3," HIT [RETURN] TO FINI
SH OR ["+CHR$(35)+"] TO ALTER ENTRY ");rof
1220 PRINT FNscreen(0,5,"ENTER SUBSCRIBER'S NAME
    "+esc+"K");:LINE INPUT "",nme
1230 xlnes=6:xlnef=11:xcol=0:GOSUB 240
1240 IF LEN(nme)<44 THEN GOTO 1270
1250 PRINT FNscreen(29,7,nme)
1260 PRINT bell;ron;FNscreen(29,9," NAME TOO LONG
BY ");LEN(nme)-43;" LETTERS AND SPACES ";rof:GOTO
1220
1270 IF nme="" THEN GOTO 1310
1280 IF nme=CHR$(35) THEN GOTO 1290 ELSE GOTO 1330
1290 IF nme=CHR$(35) AND xn<1 THEN GOTO 1300 ELSE
GOTO 1320
1300 PRINT bell:GOTO 1220
1310 xfin=1:RETURN
1320 xfin=2:RETURN
1330 xfin=3:GOSUB 420:RETURN
1340 :
1350 PRINT FNscreen(0,6,"ENTER AREA CODE IF REQUIR
ED  "+esc+"K");:LINE INPUT "",acd
1360 IF acd="" THEN GOTO 1410
1370 IF LEN(acd)>4 THEN GOTO 1400
1380 IF VAL(acd)=0 OR VAL(acd)>999 THEN GOTO 1400
ELSE GOSUB 1170
1390 GOTO 1410
1400 PRINT bell:GOTO 1350
1410 PRINT FNscreen(0,7,"ENTER PHONE NUMBER
    "+esc+"K");:LINE INPUT "",phn
1420 IF LEN(phn)>8 THEN GOTO 1440 ELSE GOTO 1430
1430 IF VAL(phn)=0 THEN GOTO 1440 ELSE GOTO 1450
1440 PRINT bell:GOTO 1410
1450 GOSUB 660:RETURN
1460 :
1470 FOR x=1 TO xn
1480 LSET rec.nme=nme(x)
1490 LSET rec.acd=acd(x)
1500 LSET rec.phn=phn(x)
1510 xres=ADDREC(1,2,0,phnky(x))
1520 xnky=FETCHREC(1)
1530 xres=ADDKEY(1,0,1,ka(x),xnky)
1540 NEXT
1550 RETURN
1560 :
1570 PRINT ron;FNscreen(0,3," HIT [RETURN] TO FINI
SH ");rof
1580 PRINT ron;FNscreen(30,3," ENTER [1] FOR NUMER
ICAL LIST OR [?] FOR ALPHABETICAL LIST ");rof
1590 xtot=0:xprt=0:xpnt=0:PRINT con;FNscreen(0,5,"
ENTER NAME, PHONE NUMBER OR PART OF EITHER"+esc+"K
");:LINE INPUT "  ",nme:GOSUB 530:search=ka
1600 xlnes=7:xlnef=29:xcol=0:GOSUB 240
1610 PRINT FNscreen(55,29,message)
1620 search=UPPER$(search):xlen=LEN(search):IF sea
rch="" THEN RETURN ELSE GOTO 1630
1630 IF VAL(search)=0 THEN xrnk=1 ELSE xrnk=0
1640 xres=SEEKKEY(1,0,xrnk,search)
1650 IF xres=0 OR xres=105 THEN GOTO 1670
1660 PRINT ron;FNscreen(0,7," NO ENTRY FOUND ");ro
f:GOTO 1590
1670 GET 1:ch=FETCHKEY$(1):IF search="1" OR search
="?" THEN GOTO 1690
1680 IF LEFT$(ch,xlen)=search THEN GOTO 1690 ELSE
GOTO 1660
1690 xtot=xtot+1:xprt=xprt+1:xpnt=xpnt+1:PRINT FNs
creen(0,7+xpnt,"");rec.nme;SPC(1);rec.acd;
1700 IF VAL(rec.phn)>999999! THEN xs=1 ELSE xs=2
1710 PRINT SPC(xs);rec.phn
1720 PRINT cof;ron;FNscreen(80,29," ");xtot;" ";ro
f
1730 IF xprint=0 THEN GOTO 1780
1740 LPRINT rec.nme;SPC(1);rec.acd;
1750 LPRINT SPC(xs);rec.phn
1760 IF xprt=55 THEN GOTO 1770 ELSE GOTO 1780
1770 xpage=xpage+1:LPRINT formfeed;CHR$(14);"PHONE
 BOOK";SPC(20);"PAGE";SPC(1);xpage:LPRINT:xprt=0
1780 IF xpnt=20 THEN GOTO 1900
1790 xres=SEEKNEXT(1,0)
1800 IF xres>101 THEN GOTO 1810 ELSE GOTO 1820
1810 IF xalt=1 THEN RETURN ELSE GOTO 1590
1820 GET 1:ch=FETCHKEY$(1):IF search="1" OR search
="?" THEN GOTO 1690
1830 IF LEFT$(ch,xlen)=search THEN GOTO 1690
1840 IF xprint=1 THEN GOTO 1850 ELSE GOTO 1890
1850 PRINT cof;ron;FNscreen(0,29," DO YOU WANT TO
PRINT MORE ENTRIES - Y/N ")
1860 match="YyNn":GOSUB 190
1870 ON xanswer GOTO 1880,1880,1950,1950
1880 xpage=xpage+1:LPRINT formfeed;CHR$(14);"PHONE
 BOOK";SPC(20);"PAGE";SPC(1);xpage:LPRINT
1890 IF xalt=1 THEN RETURN ELSE GOTO 1590
1900 PRINT cof;ron;FNscreen(0,29," HIT [C] TO CONT
INUE OR [F] TO FINISH ")
1910 match="CcFf":GOSUB 190
1920 xlnes=7:xlnef=29:xcol=0:GOSUB 240:PRINT FNscr
een(55,29,message):xpnt=0
1930 ON xanswer GOTO 1790,1790,1940,1940
1940 IF xprint=1 THEN GOTO 1880 ELSE GOTO 1590
1950 RETURN
1960 :
1970 xde=FETCHREC(1):xdel=DELKEY(1,0,0,alter,xde):
PRINT xdel:nme=rec.nme:GOSUB 530
1980 xres=SEEKKEY(1,0,1,ka):xdf=FETCHREC(1)
1990 IF xde=xdf THEN GOTO 2010
2000 xres=SEEKNEXT(1,0):xdf=FETCHREC(1):GOTO 1990
2010 xdel=DELKEY(1,0,1,ka,xdf):PRINT xdel
2020 RETURN
2030 :
```

```
2040 PRINT cof;cls;FNscreen(34,6,"JOBS YOU CAN DO
ARE")
2050 PRINT FNscreen(33,8,"1 - SEARCH PHONE BOOK")
2060 PRINT FNscreen(33,9,"2 - ADD NEW ENTRIES")
2070 PRINT FNscreen(33,10,"3 - DELETE ENTRIES")
2080 PRINT FNscreen(33,11,"4 - PRINT PHONE BOOK")
2090 PRINT FNscreen(33,12,"5 - FINISH")
2100 PRINT:PRINT:PRINT:PRINT
2110 PRINT ron;STRING$(90,CHR$(154))
2120 PRINT SPC(31);"TO SELECT THE JOB TO BE DONE";
SPC(31);
2130 PRINT SPC(36);"TYPE GROUP NUMBER";SPC(37);
2140 PRINT STRING$(90,CHR$(154));rof
2150 match="12345":GOSUB 190
2160 ON xanswer GOTO 2170,2220,2550,2780,1100
2170 xprint=0:xalt=0:PRINT cls;FNhead("SEARCH PHON
E BOOK")
2180 message=" TOTAL ENTRIES FOUND = "
2190 GOSUB 950
2200 GOSUB 1570:CLOSE 1:GOTO 2040
2210 :
2220 xalt=0:PRINT cls;FNhead("ADD NEW PHONE BOOK' E
NTRIES")
2230 GOSUB 990:xn=0
2240 IF xn=15 THEN GOTO 2470
2250 GOSUB 1210:IF xfin=1 THEN GOTO 2260 ELSE GOTO
 2270
2260 IF xn=0 THEN GOTO 2040 ELSE GOTO 2470
2270 IF xfin=2 THEN GOTO 2350
2280 xn=xn+1
2290 nme(xn)=nme:GOSUB 530:ka(xn)=ka:GOSUB 1350:ac
d(xn)=acd:phn(xn)=phn:phnky(xn)=phnky
2300 PRINT FNscreen(0,14,esc+"M")
2310 PRINT FNscreen(0,28," ");xn:PRINT FNscreen(6,
28,nme(xn));SPC(1);STRING$(69-LEN(nme(xn)),"-");SP
C(1):
2320 IF acd="" THEN acd="-----" ELSE acd="("+acd+"
)"
2330 PRINT FNscreen(70,28,esc+"K"+acd):PRINT FNscr
een(77,28,phn(xn))
2340 xlnes=5:xlnef=11:xcol=0:GOSUB 240:GOTO 2240
2350 PRINT ron;FNscreen(0,10,esc+"K"+" ENTER LINE
NO. OF ENTRY TO BE ALTERED ");rof;:LINE INPUT " ",
chn
2360 xchn=VAL(chn):chn=""
2370 IF xchn<1 OR xchn>xn THEN GOTO 2380 ELSE GOTO
 2390
2380 PRINT bell:GOTO 2350
2390 PRINT ron;FNscreen(45,3,esc+"o"):PRINT FNscre
en(0,3," ALTERING LINE NO. ");xchn;" ";rof:GOSUB 1
220
2400 IF xfin=1 THEN GOTO 2340 ELSE GOTO 2410
2410 nme(xchn)=nme:GOSUB 530:ka(xchn)=ka:GOSUB 135
0:acd(xchn)=acd:phn(xchn)=phn:phnky(xchn)=phnky
2420 xln=28-xn+xchn
2430 PRINT FNscreen(0,xln,esc+"K"+" ");xchn:PRINT
FNscreen(6,xln,nme(xchn));SPC(1);STRING$(69-LEN(nm
e(xchn)),"-");SPC(1)
2440 IF acd="" THEN acd="-----" ELSE acd="("+acd+"
)"
2450 PRINT FNscreen(70,xln,esc+"K"+acd):PRINT FNsc
reen(77,xln,phn(xchn))
2460 GOTO 2340
2470 PRINT cof;ron;FNscreen(0,10," DO YOU WANT TO
ALTER ANY ENTRY - Y/N "+esc+"K"):match="YyNn":GOSU
B 190
2480 ON xanswer GOTO 2350,2350,2490,2490
2490 PRINT cof;ron;FNscreen(0,10," WRITING TO FILE
 - PLEASE WAIT "+esc+"K");rof
2500 GOSUB 950:GOSUB 1470:CLOSE 1:xlnes=5:xlnef=29
:xcol=0:GOSUB 240
2510 IF xn=15 THEN GOTO 2530
2520 xn=0:GOTO 2040
2530 xn=0:GOSUB 990:PRINT con:GOTO 2240
2540 :
2550 xalt=1:PRINT cls;FNhead("DELETE PHONE BOOK EN
TRIES")
2560 message=""
2570 GOSUB 950
2580 GOSUB 1570:IF nme="" THEN GOTO 2590 ELSE GOTO
 2600
2590 CLOSE 1:GOTO 2040
2600 PRINT cof;ron;FNscreen(0,29," DO YOU WANT TO
DELETE AN ENTRY - Y/N "+esc+"K"):match$="YyNn":GOS
UB 190
2610 PRINT FNscreen(0,29,esc+"K")
2620 ON xanswer GOTO 2630,2630,2760,2760
2630 PRINT FNscreen(0,5,esc+"K"+"ENTER PHONE NUMBE
R OF ENTRY TO BE DELETED");:LINE INPUT " ",nme:GOS
UB 530:alter=nme
2640 xlnes=7:xlnef=29:xcol=0:GOSUB 240
2650 xres=SEEKKEY(1,0,0,alter)
2660 IF xres=0 THEN GOTO 2680 ELSE GOTO 2670
2670 PRINT ron;FNscreen(0,7,esc+"K"+" NO ENTRY FOU
ND ");rof:GOTO 2580
2680 GET 1
2690 PRINT FNscreen(0,7,esc+"K"+rec.nme+" "+rec.ac
d+" "+rec.phn)
2700 PRINT cof;ron;FNscreen(0,5,esc+"K"+" IS THIS
THE ENTRY WANTED - Y/N ");rof:match="YyNn":GOSUB 1
90
2710 ON xanswer GOTO 2720,2720,2740,2740
2720 PRINT cof;ron;FNscreen(0,11," DELETING ENTRY
"):GOSUB 1970
2730 FOR x=1 TO 1000:NEXT:PRINT con:GOTO 2760
2740 xres=SEEKNEXT(1,0)
2750 IF xres=0 THEN GOTO 2680
2760 xlnes=7:xlnef=29:xcol=0:GOSUB 240:GOTO 2580
2770 :
2780 PRINT cls;FNhead("PRINT PHONE BOOK")
2790 message="TOTAL ENTRIES PRINTED = "
2800 xprint=1:GOSUB 950:xpage=1
2810 LPRINT CHR$(14);"PHONE BOOK";SPC(20);"PAGE";S
PC(1);xpage:LPRINT:GOSUB 1570:CLOSE 1
2820 LPRINT formfeed:GOTO 2040
```



From Laurie Whitehead, PNG

In Good Voice

Ben Taylor uses a few devious tricks to get to the bottom of LocoMail.

Over the last few months these pages have explored the outer limits of LocoMail. It is a package capable of everything from simple bulk mailshots through to an integrated business system. In this last article of the series, LocoMail's various facilities for arithmetic and selecting appropriate paragraphs of text will be used to build a simple but effective system for order processing, invoicing and credit chasing. All this, and you can write letters too!

Last month's article covered doing arithmetic inside documents. While this is potentially handy for nuclear physicists needing to run off a quick analysis, by far the most common use of arithmetic is adding up bills and working out tax.

Suppose you give a certain type of customer a 1/3 discount on whatever they order. If you have a variable called 'total' which holds the gross figure, then the amount you actually want to put on the invoice is 2/3 of this. Therefore you might use a LocoMail command something like this

```
(+Mail)[total*2/3](-Mail)
```

However, being a computer LocoMail likes to be accurate, and if you have a basic bill for $100 you will end up with an invoice for $66.66666666. What you need is some way of truncating this after the first two decimal places, so that figures are only given to the nearest cent. Luckily LocoMail allows you to do just this, by specifying the format of the number to be printed.

To specify what format a number should be printed in you need to add an extra instruction to LocoMail while it is doing its arithmetic. Just before the final square bracket which ends the calculation, put a vertical bar, | (typed [EXTRA]+1/2). Now you can type the number of decimal places that LocoMail is to use. So

```
(+Mail)[total*2/3 | 2](-Mail)
```

would produce a bill for $66.67 from a 'total' of $100. The other effect of this is that if you print out a bill for $12, the fact that you have demanded two decimal places means that you will get 12.00 printed instead of just 12. This all serves to make your column of figures look plausibly regular.

Storing up the fun

LocoMail can store blocks of regularly used commands for use at later moments. Suppose for example that when you write LocoMail documents you regularly like to ask the user if the current document is OK. On a reply of "n" for no, you abandon the current data and try the next lot, otherwise you press on.

The commands to do this are as follows:

```
(+Mail)OK=? ; Is this right?
# OK="n" : < : * : >(-Mail)
```

You will recall that the asterisk is the LocoMail command to give up and try the next data. You might find yourself using this at several places in a document, and the retyping is tedious.

The solution comes in two stages: first you must tell LocoMail to store these commands under some short name for future use, and then you must tell it when to use the commands. The way to store the commands is

```
(+Mail)check="..."(-Mail)
```

The '...' stands for all the text in the previous two-line command including the (+Mail)/(-Mail) commands. Effectively this says to LocoMail, 'store all the keystrokes between the quote marks under the name "check". Whenever you see "check", replace it by these commands'. Think of it just like storing a phrase of text for re-use in ordinary LocoScript. 'Check' is just an arbitrary variable name, like the letter you choose to store a phrase by, so you could use anything you like.

It is important to realise that you must put all the (+Mail) and (-Mail) commands that you would need inside the quotes too. Unfortunately it can make the document very hard to read, since the on-screen reverse video to tell you when you are inside a Mail command goes wrong when it encounters a (-Mail) inside the quotes.

This merely sets the loop up but doesn't actually run it. You can put these commands anywhere in a document, and LocoMail will read them and inwardly digest them for later use - apparently ignoring the whole lot. When you actually want to use the commands, you type at the point in the document where you want to do the asking,

```
(+Mail)%check(-Mail)
```

The percent sign just means 'do the commands stored in "check" '.

Going loopy

Probably the most complicated feature of LocoMail is its capability to process blocks of instructions over and over again. It's a bit like programming in BASIC, so if you have ever got to grips with that you will find LocoMail easy.

Once you have got the hang of storing blocks of instructions as just explained, it may not surprise you to learn that you can automatically repeat these stored blocks in a 'loop'. A loop is a way of repeating blocks of commands again and again until some ending condition comes into force. This can be very useful if, for example, you want to type in a list of items into a form letter where you don't know how many there will be. You can get LocoMail to prompt you for each item, insert it in the letter, and go on doing this until you say you've finished.

The key command is done with an @. To LocoMail,

```
(+Mail)%spend@money(-Mail)
```

means 'repeat the set of instructions stored under the name "spend" until the value of the variable "money" is zero'. This is a common situation in real life, known technically as 'not being paid enough'.

To see how it works, here is how to write a simple adding-up calculator in LocoMail. Type the following into a document:

```
(+Mail)total=0
loop="(+Mail)next_amount=?
total=[total+next_amount](-
Mail)"(-Mail)
(+Mail)%loop@next_amount(-Mail)
The total is (+Mail)total(-
Mail)
```

What is happening is that you have set up some instructions called 'loop' (you could call them anything, 'loop' is an example) which asks the user to type in a number. From a starting total of zero, every time 'loop' is run it will add the number in, so creating a running total. The idea is that if the user types zero as the next amount to be added, this is taken to mean you have finished and should show what the final total was.

So, '%loop@next_amount' says, 'repeat the commands in "loop" until next_amount" is zero'. After that, normal LocoMail commands are used to insert the total in the text. try it out by using the document with the 'Fill' option. If you get stuck in the loop, pressing [STOP] a few times usually works wonders.

Accounting for taste

The LocoMail manual goes through a fairly comprehensive example of how to use the loop facility to write a simple invoice letter. It asks you to type in each item to appear on the invoice, how much it costs, and then prints everything out and adds it up. The only snag is that there really doesn't seem much advantage in doing this over typing the details into a letter in the ordinary way.

It would be much better if you could store the invoicing information in a data file and merge the data into form invoices automatically. This means that after the invoices have been printed you still have a record on computer - you could do a repeat run, or re-use the data later on for a credit chasing letter.

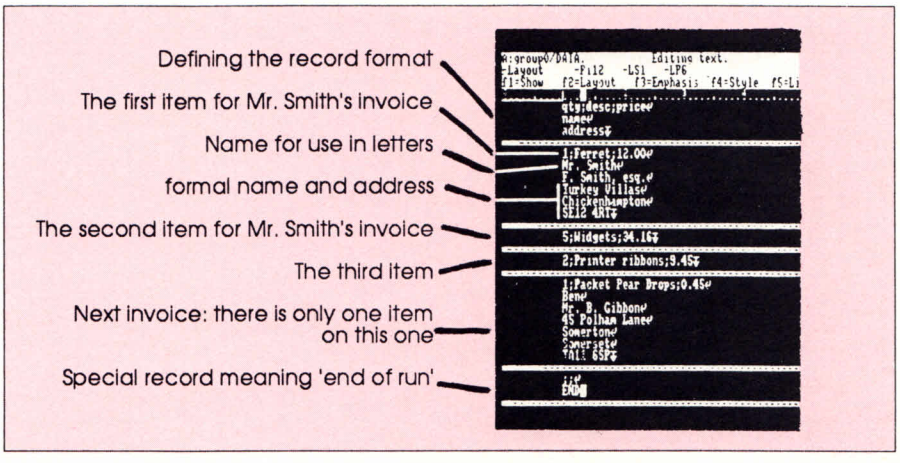
The snag - and presumably the reason the manual doesn't tackle this - is that if you don't know how many items are going to appear on the invoice it is very difficult to define a data record layout to suit.

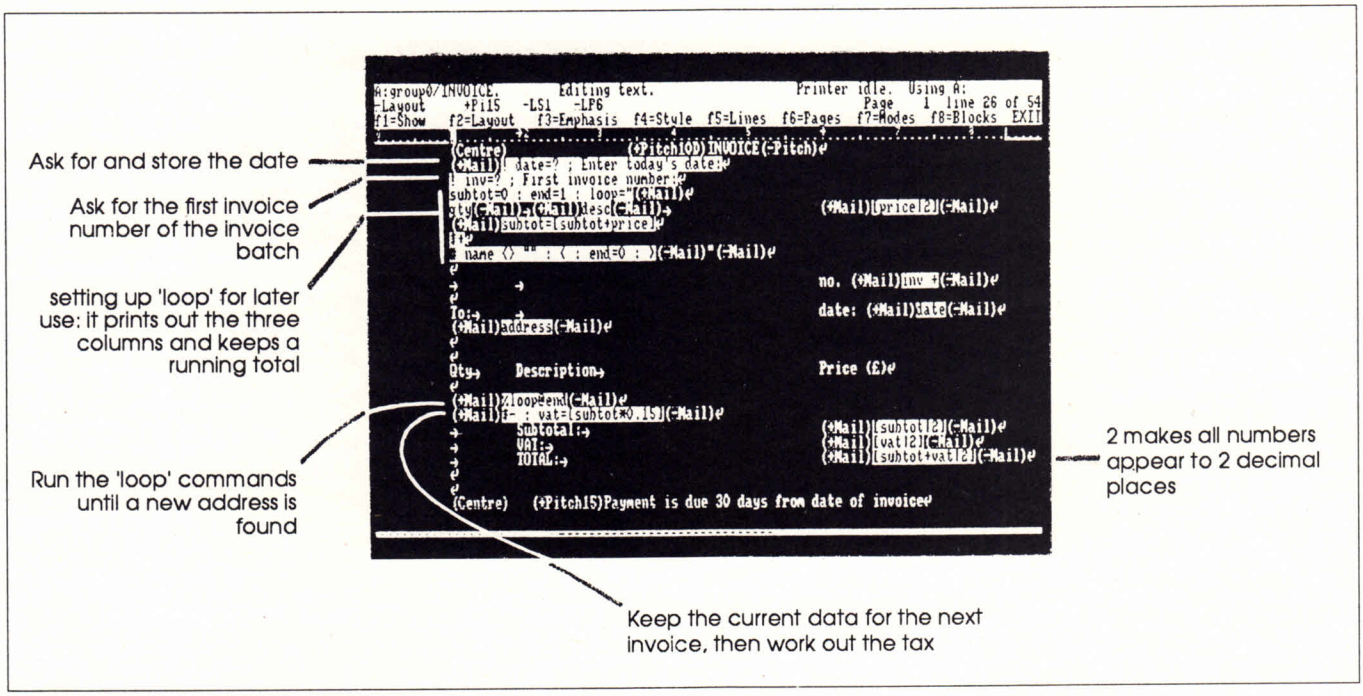
The trick here is to put each invoice item in a separate record, and force LocoMail to go from record to record adding in each new item in each record, until it reaches something saying that the current invoice is finished.

Throwing it all away

Think back to the really basic LocoMail operation of taking a list of names and addresses from a data file and merging them in with a form letter. There might be an occasion where you want to refer to the next person on the list in a letter. Normally you couldn't do this because you can only 'see' one set of data at a time. However, if you put $+ anywhere in a LocoMail command, all the data variables (like name and address) will be updated to hold the next person's values even though the same letter is still being processed. Conversely, a $- means 'when you get to the end of this letter, don't go on to the next person's details but keep the current ones and re-use them.' This is most likely used if you discover that a $+ was wrongly used.

Generally, these two commands are pretty obscure, but being able to directly control which data record LocoMail draws its variables from can be very useful for advanced applications... as the invoice example on the next page shows.





Looking at the data file, you can see that each record has one invoice item followed by the name and address of the person to be invoiced.

The 'name' is the informal name you would use in the 'Dear...' part of a letter, and the formal name is included in the 'address' part. If there is no name and address in a record, LocoMail assumes the item is another one on the same invoice. If there is a name, LocoMail takes this to mean that a new invoice should be started.

Notice how the $+ command is used to look ahead and see if the next record has a name in it or not (ie. whether the current invoice is complete and should be totalled and printed). The $- command is used to preserve the new name for the next invoice. Because of this to-ing and fro-ing, the very last record of the data must be

```
;; [RETURN]
END
```

Each invoice is finished when a non-blank address is found - but LocoMail insists that the end-of-loop condition is for a specific variable to be blank. This is the reason for having a special variable called 'end', which is set to I initially, and set to zero when a non-blank address is found. This way 'end' can be used for the end-of-loop test.

When you start the merge process, you are asked for the current date, and a number for the invoice to start at. This date is stored and re-used each time, and the invoices are numbered sequentially from the number you give to start at.

The screen shot shows the entire invoice-producer document. You should be able to spot the various commands looked at over these three LocoMail articles, and see how they mesh together. Be careful not to confuse ! and , which have not come out very clearly.

Finally, you could use the same data file to produce a credit chasing letter.

```
                    I N V O I C E

                                  no. 150

To:                               date:15th October 1987
F. Smith esq.
Turkey Villas
Chickenhampton

Qty         Description           Price ($)
1           Ferret                12.00
5           Widgets               34.16
2           Printer Ribbons       9.45

Subtotal:                         55.61
Tax:                              8.34
TOTAL:                            63.95

     Payment is due 30 days from date of invoice
```

This article completes the series on Locomail.

Data Basics

Everybody needs a database, but the choice can be bewildering. Rob Ainsley cuts through the jungle and reveals which is the right one for you.

Any survey of PCW owners shows that a database is the single piece of software most in demand after word processing. Properly used, databases can make producing catalogues and lists consummately easy, but some databases are only suitable for certain types of application. Pick the wrong one and you could end up tearing your hair and junking your PCW. Before you jump in the deep end you need to learn to ask the right questions and plan out very carefully what you intend to do.

Almost anyone who owns a PCW could use a database to organise the information in their life. In addition to businesspeople who would find computerised details of customers, suppliers, stocks and so on invaluable, there must be thousands of innocents cajoled into club secretary positions solely because they've "got a computer". If you've bought your machine for writing your first novel or your thesis you may well require detailed character lists or bibliographies, and even casual letter-LocoScripting hobbyists may have collections of books or records to catalogue.

There are various types of database software available, from simple 'user-friendly' card index systems, through 'free text' databases which index wordprocessed files for you, to specialised database programming languages which let you manipulate your data in any way you can think up. If you're au fait with BASIC you could have a go at writing your own filing system using the JETSAM facilities supplied free, and devise a package tailored to your own particular needs.

With the prices of a database varying it's wise to have a good hard think about why you want one and what you want to use it for - is the only output you require a simple list onto a sheet of paper, or will you be wanting to produce labels and other exotic layouts on weird paper sizes? Do you need to sort the information by several different criteria, or in alphabetical order? Do you want calculations done for you? How expensive a package will the amount of use justify? How much time and effort could you put in to learn the workings of a powerful but complicated system?

Database basics

The essentials of every database package, from the beginner-oriented cardboxes to the programming languages, are the same. On your disc you have the program files and, hopefully, copious examples for you to play with to get a feel for the workings of the thing.

Creating a new database of your own is both the first and the hardest thing to do. It's easy to get carried away with the euphoria of your new toy right up to this point of setting up a new database, only for your optimism to vanish when faced with the terse questions like 'How many fields do you want?', 'How many letters in this field?', and 'How many records altogether are there going to be?'

Databases are the ultimate bureaucrats; they can only handle information when it's presented to them in a constant layout, exactly like those accursed forms you have to fill in every time you have teeth or money extracted. Consequently they can be amazingly thick at times and must have everything told them in triplicate before they do anything rash like actually storing your information. Advance planning is essential, and you have to work out with pencil and paper exactly what details you are going to store and how they are to be laid out on the screen before tearing into your package.

Setting it up

Let's say you are looking after the records for a book club. You want a list of people who've bought books from you, together with their addresses, the titles they have bought, and the balance due on their books. You might use this information to, for example, send money-chasing letters to non-remitters, to send catalogues of new books to big spending customers and tailor the subject areas of the catalogues to their interests, based on the books they've bought up to now, or to see which books are selling best.

You would probably settle on the following categories:

Name:	Slobodan Wszczkwycz
Street:	16 Sandgate Crs.
Suburb:	Heathmont
State:	Victoria
Postcode:	3135
Orders:	The Computer Yearbook, The Joy of Computing, 50 Great Computer Games
Total Order:	$120. 53
Received:	$82.79

Balance due: $37.74
Last payment: 4 Sept 87

The proper way to describe this layout necessitates a bit of jargon-busting. The analogy usually given to explain database terminology is that of a box of cards, each containing items of information about something or someone - a name, address, club membership number, interests, and subs paid for example. All these details are stored on disc as a 'file', equivalent if you like to a file or drawerful of cards. Each 'record' would correspond to one card in the file, and a 'field' to one item on the card - name, membership number or whatever. Databases with just this setup are called cardboxes.

Before you can enter any data into the database you have to give the details of the intended layout. Specifically, for example above, this means telling it the number of fields (here 10), the length of each field (the maximum number of characters you'd need to use, say 25 for the name, 12 for the suburb and so on) and the type of field. Most packages distinguish between 'character' fields (the name, suburb, and orders fields in the example above), 'numeric' fields (for the money items etc) and 'dates' (as in the last payment field). More advanced ones can do arithmetical calculations on numeric items, so here you could have the balance updated automatically for you by the computer every time the record was amended, eg. every time a payment was received. Naturally, much more complex calculations than this are often possible, credit and interest payments for example.

At some point you'll be asked which field you want to be the 'key' field. This is the one used for identifying each record, often the name - 'Mr Wszczkwycz's record'. To make life easier only the first few letters usually need to be typed ('Wszczk' is enough to identify the name).

Having set up and saved this structure on to disc you can then start entering the data for each member of your club. Changing, deleting and editing the entries once recorded is easy, though you can't usually change the basic layout (number of fields, etc) without setting up a whole new file.

Report forms

Eight hours, twenty-four cups of coffee and three inadvertently erased discs later, your data is all safely stored. You make your back-up disc (of course, how could you do otherwise) and set about displaying and printing out some of these records. Many databases call this procedure producing a 'report'.

To do all this you must tell the machine how you want the various fields to be arranged on the paper. You usually have a number of formats you can define, so that one might contain all the above information with suitable headings, another just the name and address for label printing. Again, advance planning is vital.

Then the hard work's done, in theory. First you might try printing out every record in our example in alphabetical order of name. Then you could resort the file in order of balance due, or amount of orders received, or alphabetically by the name of the first book in the list; some programs will do this almost instantly (perhaps not very instantly for long files), some won't do it at all. Having done that you could print out a simple list of clients, money spent, and books, one entry to a line, in descending order of money, to see your top fifty big spenders, and perhaps tot up all the balances due over all clients.

'Selection' is common to virtually all databases: as well as picking out single records to print, you can select groups - just those records with a Victorian address, and/or those showing a balance due of more than $40 and no payments for two months, for example.

Importance of exports

Having selected your miscreant non-paying Victorians, you can mail them all at a stroke by 'exporting' the data to a word processor's mail merge facility. By setting up a suitable letter framework all the names and amounts owed will be inserted automatically at the right places and you can print out the address labels at the same time.

Most databases have the facility to 'import' and 'export' data - to send or receive data from or to other files. In this way you can send those names and addresses to your mailmerger, add data from one file to another, and so on. Alternatively you could use a word processor to tidy up a database's output by adding underlines, bold and so on before printing the report out. Perhaps most importantly, when your database program (or, gulp, your PCW) is superseded by some superior package or machine in the future, you can simply transfer all your precious data to a new package (or new machine) instead of having to flush it down the lavatory and start again from scratch.

Happy to relate

Advanced filing systems can handle 'relational files' - the information from one file can be related to another file automatically. So suppose you run a book acquisition service. You have a list of books stored on a database, each title being listed with the publisher and brief description of its subject matter. On another database you simply list each publisher with their address.

Customers come in to you and say "What books do you have about marsupials?" You then use your first database to list out all appropriate titles. If you want to actually order some of the books, you will need to know the address of the publisher for each title, and this is where the relational powers come in: you can instruct the program to produce a report with the book title as found in your first database, and then it can automatically look up the address of the correct publisher in the second database and print that out alongside the book title. The benefit of this is that in a conventional (non-relational) database you would have to retype and store the address for the publisher into every individual book, so the relational approach saves you wasting storage space and typing time.

Bottom line

It should be clear that, if you're handling a lot of data, the time, effort and tedium saved by using a database to organise it all will be enormous.

Once you've spent a few hours getting to know the package and channelling in the data, then printing out and manipulating the lists can be done breathtakingly quickly and easily.

If you're so inspired by all this that you want to know which database is for you then take a look at our quick decision chart on the next page.

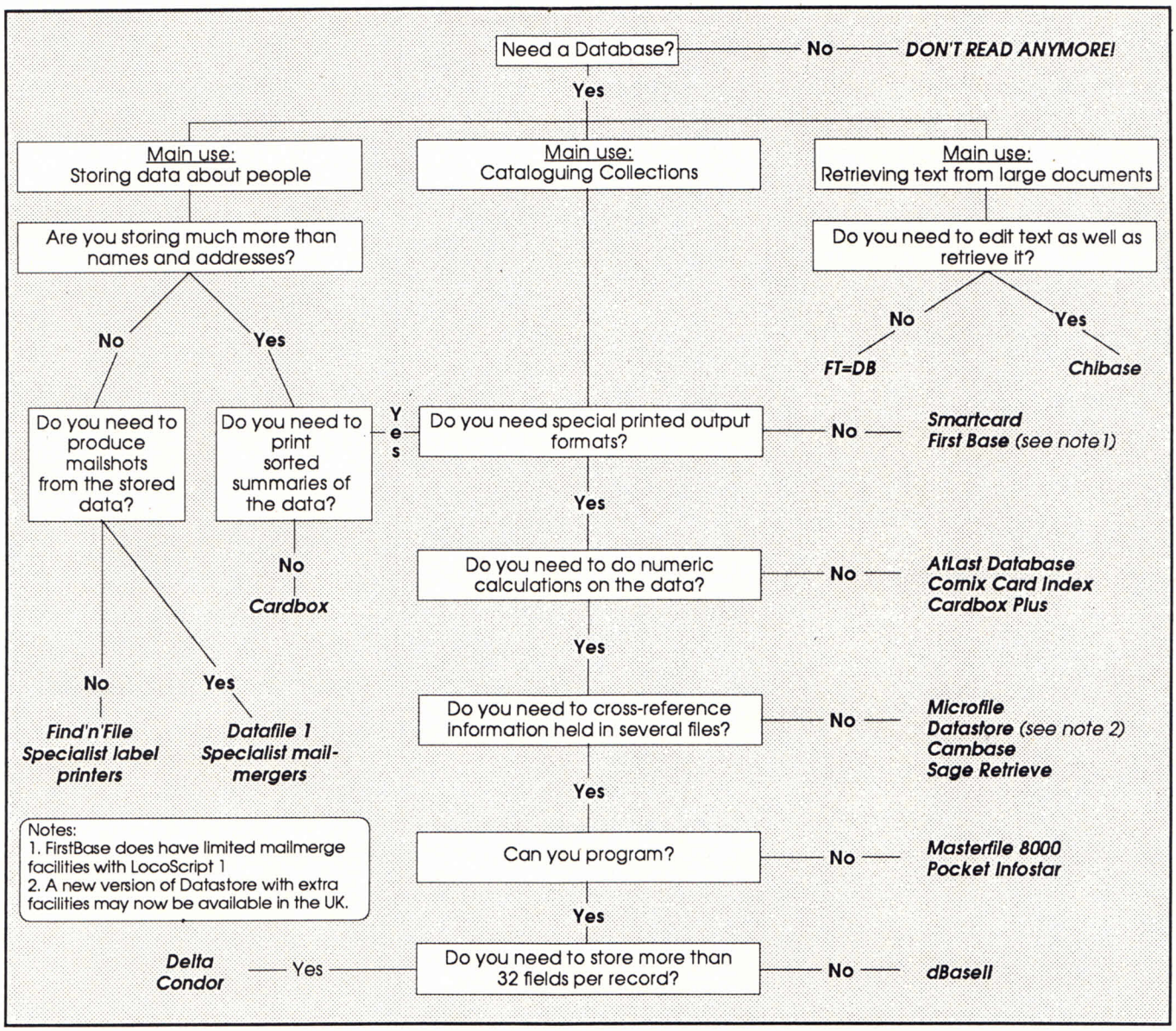
So you've decided to buy a database

But which one is the best for you? Avoid an expensive mistake by following our quick decision chart. Picking the right database is very important. There is no such thing as the 'best' database, because which particular one is the best for you depends on what you are going to use it for. We've set out to make it easier for you with this chart which takes you through the decision process - it's fairly self-explanatory, so read down the tree from top to bottom, and at every question follow the 'Yes' or 'No' branch appropriate to your answer. You should end up refining your choice to two or three different packages suitable for the job in hand.

When using the chart remember two things: first, the more powerful databases (towards the bottom of the chart) can of course do all the simple jobs too, so you might want to get a package which does more than the minimum you think you need so that you have 'room to breathe' if you find yourself using your database for other things later on (conversely, the more features a database has the more involved it is to use). Second,it is not possible to include ratings for ease of use and effectiveness with each package - the fact that it appears on the chart doesn't mean it is a perfect program.

A final word of warning: make sure that it really is a database you want to buy. If all you want to do is send out mailshots to a customer list, you would be better off with a specialist word processor/mailmerger/label printing program. If you are going to try to collate payment records on the database and calculate your cash flow for the year, you may be better off with a spreadsheet. Think before you leap, and happy databasing!

NEXT MONTH: We run through First Base, Cardbox,, Masterfile 8000 and dBaseII.



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AMSCOM (26)	3K	RESRAM2 (28)	1K
BATSHIPS (28)	11K	RESRAM3 (28)	2K
DOUBLEHT (26)	1K	SHUFFLE (26)	2K
GROWWORM (27)	12K	SNOW (25)	1K
HYPNOTIC (25)	1K	SPACE (26)	2K
KALEIDO (26)	2K	SPEEDCHK (28)	4K
KEYEXPND (25)	2K	STAINGLS (25)	1K
LIGHTHO (26)	29K	TEXTDEM1 (27)	1K
PATTERNS (26)	1K	TEXTDEM2 (27)	2K

**Figures in Brackets denote Issue Number*

Side 2 (89k Free)

FREE PUBLIC DOMAIN SOFTWARE:

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BITMAP.DOC	2K	FIND.DOC	2K	SWITCH.COM	1K
COMPARE.COM	2K	FINDBAD.COM	2K	SWITCH.DOC	2K
COMPARE.DOC	1K	FINDBAD.DOC	3K	TRANSLAT.COM	3K
CRC.COM	3K	FMAP.COM	2K	TRANSLAT.DOC	1K
CRC.DOC	1K	FMAP.DOC	2K	UKM7.COM	8K
DIRCHK.COM	2K	HELP.COM	3K	UKM7.DOC	10K
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DUMPX.COM	3K	HELP.HLP	7K	UNERASE.DOC	2K

6 Issues 29 to 32 $25.00

Side 1 (36k free)

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ADPROG1	(32)	2K	CURVE	(30)	1K	SCROLL	(30) 2K
ADPROG2	(32)	1K	CWSU	(31)	1K	SERPENT	(31) 1K
ADPROG3	(32)	1K	DAZZLE	(30)	1K	SIDEWAY2	(31) 4K
ADPROG4	(32)	1K	DOTTY	(29)	1K	SIDEWAYS	(29) 6K
ADPROG5	(32)	1K	DOUBLE	(29)	2K	STROBE	(30) 2K
ADPROG6	(32)	1K	DRUMKIT	(30)	4K	TDUMPBAS	(31) 1K
BLITTER	(30)	2K	GEN1.TXT	(29)	1K	TDUMPBIN.BIN	(31) 1K
BORDER	(29)	1K	GEN2.TXT	(29)	4K	TILES	(29) 3K
BOX	(29)	1K	HANOI-A	(32)	4K	TRACKS	(30) 2K
CHEAPWP	(31)	3K	HANOI-B	(32)	5K	TRAIN	(30) 3K
CIRC1	(32)	1K	MODE210	(30)	1K	TRAINDEM	(30) 4K
CIRC2	(32)	1K	POKE1	(29)	1K	TRIANGL	(31) 1K
CIRC3	(32)	1K	POKE2	(29)	1K	TRIANGLE	(30) 2K
CIRC4	(32)	1K	POKE3	(29)	1K	**Figures in brackets denote Issue Number*	
CODECONV	(30)	2K	POSTFIX	(30)	3K		

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Logo Quizmaster

by Richard Parkes

Would you like to set up a set of revision questions and answers for yourself or the kids? Tables, geography tests, music theory etc? This menu-driven user-friendly program written in LOGO, will handle this with a minimum of fuss, while demonstrating some of the powerful but little-used features of the language. Answering questions in this manner can reinforce your knowledge, provided you or someone else enters the questions and answers first, using the user-friendly prompts.

The Logo language

LOGO is generally perceived to be a language which draws pictures and moves turtles around. It is also a powerful procedural language, with simple data structures, which allow fast coding and quick interactive debugging. It has strong list-processing capabilities, which will be used extensively in this program.

It can also be used as a prototyping language to test the appearance of a program before writing it in BASIC or other language. A LOGO procedure can be recursive ie. it can call itself.

QUIZMASTER is menu-driven. The saving, loading, entering and correcting of questions is done via routines called from the main menu. Once written and debugged it can be used by people with no knowledge of LOGO.

One of the features of saving LOGO programs is that all of the variables in the "work space" are saved along with the program itself. Even variables that you have entered interactively are saved.

A note (and incentive) for 464 owners

The program was written and tested on a 6128. It will require modification to run on your 464 as it contains a few "words" which are not supported under CP/M 2.2. For example: 'memberp' and 'quit'. To the reader who offers the neatest and simplest amendments which allows it to run successfully on the 464, will be sent a free copy of "Using DR Logo on the Amstrad" valued at $37.95. (We don't need the whole listing again - just the amendments). Of course, the winner's amendments will be published at the next possible opportunity.

Entering the Program

Procedures may be typed in one at a time and then tested before continuing. This is more rewarding then entering hundreds of lines of code before starting to debug.

In the following description the left and right carets < > are not typed in; they are there to delineate exactly what you need to type.

If you haven't already done so, make a copy of your DR LOGO master disc package, then type in <|CPM> followed by : <submit LOGO3>; the disc must not be write-protected.

Take care not to use upper case: <TYPE> is an unknown command to LOGO, while <type> is recognised. Also, take care to leave spaces between commands and variables: <load"quest> is gibberish to LOGO, <load "quest> is the correct syntax.

Before typing in the program, be sure to enter <erall> at the question mark prompt. This will clear any previous variables from your work space, otherwise your saved program will always carry these unwanted variables along with it, thus reducing the space for questions.

Start off by typing in the MENU procedure. Just enter <ed> to call LOGO's editor. Type in the lines for "menu" exactly as shown in the listing, except for the exclamation marks, since if a line reaches 39 characters LOGO will display one for you! You can use the cursor keys to move around in the full-screen editor. Editor is always in INSERT mode, and the CLR and DEL keys work the same as BASIC.

Note that each procedure starts with <to xx> where xx is the procedure name, and finishes with <end> on a line by itself. To exit the editor, make sure the last line is an <end> instruction, then press the <COPY> key. This copies the contents of the editor's buffer into the work space, thus making your procedure part of LOGO's vocabulary. If you change the name of the procedure, say to <to yy> before pressing the COPY key, you will create a new procedure <yy>; the old one will be left intact.

To correct the procedure called menu re-enter editor with <ed "menu> and menu will be copied into editor's buffer and displayed.

To abort the edit without changes, press the <ESC> key otherwise press <COPY> to save them. When making corrections in editor don't press RETURN to terminate, or you may break up a single instruction within the procedure: press COPY as explained above. If you do this by accident move the cursor one character past the last item on the line and press CLR, this will bring the next line back onto the current line. You may also need to insert a space.

Be careful about terminating "if" statements and print commands with the right square bracket in the correct place. If you omit this DR LOGO will kindly insert one for you, usually in the wrong place, causing spurious errors that can be difficult to detect. Your screen should appear identical to the listing shown.

Before testing <menu> type in the small procedure called <tab>. Also type in : <make "tt [Test 1]> and now you can test menu by merely typing: <menu>.

You can proceed in this manner with all the procedures as shown in the listing.

Before starting, make sure to save the program by entering <save "filename> or you could run the system by typing <menu> and taking the "save" option. If you wish to save and load onto drive B you should enter: <setd "b:>.

HOW IT WORKS

MENU - This clears the screen and displays the list of options. The response is read directly from the keyboard with: <make "a rc>, where rc is the read character instruction. The <memberp> instruction tests if the response is between 1 and 8. If not, control loops back to the label "r. Otherwise, control passes to one of the eight procedures.

TAB - This prints spaces to improve the appearance of displays on the screen.

QUESTION - Calls MIXIT (see below). Prints each question in turn and calls ANSWER to verify it.

PLOT - A small plot routine, which sets up a split screen with the graphic screen on the top of a text screen. Gives the user an idea of how many questions remain. The variable "pl sets the pen colour.

MIXIT - Sets up a list of numbers and "shuffles" it into random sequence. Puts the result in <"mix">. Used by <question> to ask questions in a random sequence.

ANSWER - Reads an answer from the keyboard, checks it against the answer list and selects appropriate random response.

SUMMARY - Displays a summary of correct answers after a test.

SAVLOAD - If parameter "pl is "s then it SAVES a program, otherwise loads one to or from disc. Also prints disc directories of LOGO files before and after the save.

SETUP - Prompts for questions and answers. Adds chr$(1) to each question and answer forcing them to alphabetic mode so that the upper case instruction will not fail on answers of digits only. This is invisible to the user since CHR$(1) does not display on the screen.

GETQUES - Reads a question from keyboard and calls <getans> to read the answer. Stops when question has value "zz". Saves questions in <"qlist>. Calls <sum> to add and display number of characters in <"qlist>.

SUM - Accumulates or displays the number of characters in <"qlist>.

GETANS - Reads the answer and adds it to <"alist>.

TITLE - Reads a title for the menu and saves it in <"tt>.

CHECKIT - Calls <verify> to display each question and answer for possible correction or deletion. Prompts user to save the quiz to disc.

VERIFY - Clears screen and displays question and answer with menu offering replacement or deletion. Then runs the chosen option. A response of space exits the procedure immediately. Calls <sum> to accumulate the number of characters in <qlist> for reasons to be described later. The command structures called by responses 1, 2 and 3 are unusual. For example, response 1 executes the following: <make "qlist newqa :qlist>

A description in prose might be: "Send <:qlist> to the procedure <newqa> and execute <newqa>, then store the value outputted from <newqa> back into variable <"qlist>." Thus the <make> instruction executes a procedure before using the value outputted by that procedure.

NEWQA - This operates on either <:qlist> or <:alist>, as chosen by options 1 and 2 from procedure <verify> above. It prompts for the new question or answer and stores the response in variable <"a>. It adds chr(1) ie. hex 01 to force the variable alphabetic. Then if the question/answer is first or last in its list it deletes the old one with the simple <bf> or <bl> respectively. If elsewhere, it uses the <piece> instruction to recreate the list. In each of the three cases the <op> instruction ensures the value is sent to output and that execution of the procedure stops at that point. The output instruction is a powerful feature of LOGO and helps to produce more compact code.

DEL - Deletes a question or answer from its respective list. Programmers will note the similarity between the <piece> command and Basic's <MID$>. Uses <op> in the same way as <newqa> to send the result back to the calling procedure (<verify> in this case).

WAITFOR - Awaits a one key response from keyboard before continuing.

Number of Questions

DR LOGO uses a lot of memory for its "primitives". Therefore there is not a lot of memory left after the program has been entered. I have entered sets containing 15 questions, this seems to be about the limit. This is why it's a good idea to save the working program before entering in questions in case you get the dreaded memory full message. If this does occur, enter <recycle> and you should be able to continue. Another approach, which I have not tried is the deletion of some of the unused "primitives" or original LOGO instructions.

Fortunately the completed question sets only take up 5K on the disc, so you can enter and save as many separate sets of questions as you like.

Logo Features

Note the recursive call in the first procedure, where "menu" calls itself. Also in "menu": the <run item :a> phase chooses one of seven procedures. This is the LOGO equivalent of the case instruction - similar to <ON VARIABLES GOSUB> in BASIC.

There is a GOTO instruction in LOGO. See "menu" for the loop where the user fails to enter 1 through 7, control transfers back to <label :r>. Note that every word not preceded by <"> or <:> is an instruction or a new procedure entered by the user. Words in square brackets are literal

constants.

Note the "if then else" construction in "menu" and other procedures. Good programming practise is to eliminate entirely the use of GOTO instructions, replacing them with "if then else", "gosub" and "case" instructions. The gosub is achieved in LOGO by merely entering the name of a procedure. This executes it and returns to the following instruction.

Sometimes when loading back files of questions that you have saved, you get the unwelcome message <word too long>. The procedures remain intact, but some of the variables, including <"qlist> will have been dropped. I have been unable to repeat this with any degree of consistency, it seems like a LOGO "bug". If you strike this problem, enter the three procedures listed below ie. <split> <drop> and <join>.

```
to split ; Splits up large variable.
make "x int ((count :qlist) / 4)
if :x < 1 [stop]
drop "z1 drop "z2 drop "z3
make "z4 :qlist
ern "qlist
end

to drop :p
make :p piece 1 :x :qlist
repeat :x [make "qlist bf :qlist
end

to join
make "qlist (se :z1 :z2)
ern "z1 ern "z2
make "qlist (se :qlist :z3 :z4)
ern "z3 ern "z4
end
```

To interface the procedures, make the following 2 minor changes:

1. In procedure <menu>,
After the line:
<pr " make "f char !>,
Add: <if namep "z1 [join]>.

2. In procedure <savload>,
Add the word <split> to the first instruction line, so that it becomes:

```
<if "p1 = "s [split make "q "saved] [ma!
ke "q "loaded]>
```

** Richard Parkes is a computer analyst with the SA Government. He has been in computing since 1967 when he completed his training in New York, USA. He has programmed on the IBM-360, IBM-370, IBM 1401, Honeywell, Cyber 720, IBM PC, Microbee and AMSTRAD, in assembler, Basic, Query Update, FOCUS and COBOL, in New York, Argentina, Venezuela, Mexico, Puerto Rico and Australia. He is a member of the Australian Computer Society.*

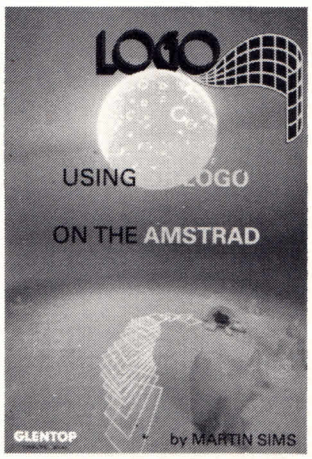
```
to question
ts mixit make "q2 0 make "tc 0 plot 1
repeat :q9 [make "q2 :q2 + 1 make "q it!
em :q2 :mix pr item :q :qlist answer]
summary
end

to tab :z
repeat :z [type char 32]
end

to summary
pr "
pr [End of Test] pr "
tab 6 pr [R E S U L T S] pr "
tab 3 type (se [Correct:] :tc
tab 3 pr (se round (:tc * 100 / :q9) [%!
])
tab 4 pr (se [Errors:] :q9 - :tc)
tab 1 pr (se [Questions:] :q9)
if :tc = :q9 [tab 15 pr [EXCELLENT!]] p!
r "
end

to menu ; RV Parkes June 87.
ts if nodes < 300 [pr [Clearing workspa!
ce, please wait] recycle ts]
pr " make "f char 1
if namep "z1 [join]
tab 10 pr [Q U I Z M A S T E R] pr " pr!
 "
if count :tt < 38 [tab (40 - count :tt)!
 / 2]
 pr :tt pr " pr "
tab 12 type [MENU] if namep "f1 [tab 7 !
pr (se [File:] :f1)] [pr "]
pr "
tab 3 pr [1 Pupil..: Take a test] pr "
tab 3 pr [2 Pupil..: LOAD quiz from dis!
k]
tab 3 pr [3 Teacher: Set up a new quiz]
tab 3 pr [4 Teacher: Change the title]
tab 3 pr [5 Teacher: Make corrections]
tab 3 pr [6 Teacher: Add more questions!
]
tab 3 pr [7 Teacher: SAVE quiz to disk]
pr "
tab 3 pr [8 Finish. Exit to LOGO]
tab 3 pr " pr " pr "
tab 6 pr [Press (1 to 8) ..]
label "r
make "a 0 make "a rc
if not memberp :a "1234567 [go "r]
run item :a [[question] [savload "l] [s!
etup 0] [title] [checkit] [setup 1] [sa!
vload "s] [ts stop]]
waitfor
menu
end

to waitfor
pr " pr [Press ANY KEY to continue]
make "a rc
end

to setup :b
```

```
ts
tab 4 pr [You will be prompted for each!
]
pr [question, and then for its answer.]
pr "
pr [Then the whole set will be displaye!
d]
pr [back for you to verify and correct.!
] pr "
if :b = 1 [pr [Adding questions to curr!
ent set] pr " make "q :q9] [title make !
"x 0 make "qlist [.] make "q 0 make "al!
ist [.]]
getques
if :b = 0 [make "qlist bf :qlist make "!
alist bf :alist]
make "q9 :q - 1
end

to getans
tab 4 pr [Enter correct answer -]
make "a word :f rq
make "alist se :alist :a
end

to checkit
ts pr "
pr [Each question and answer will]
pr [be displayed for you to verify]
waitfor make "q 1
repeat :q9 [verify make "q :q + 1]
pr " make "a "
type [Save lesson to disk? (y or n)] ta!
b 1 make "a rc if :a = "y [savload "s]
end

to getques
make "q :q + 1
pr (se [Enter question no.] :q [(zz to !
finish)])
make "a word :f rq
if not (lc :a = word :f "zz) [make "qli!
st se :qlist :a getans sum "a sum "p ge!
tques]
end

to verify
ts pr "
pr (se "Question: :q) pr item :q :qlist
pr (se [Answer:] item :q :alist)
pr " sum "p
pr [1 : Replace the question]
pr [2 : Replace the answer]
pr [3 : Delete both question and answer!
]
pr [Space Bar: Go to next question]
label "L make "r 0 make "r rc
if :r = char 32 [stop]
if not memberp :r "123 [go "L]
run item :r [[sum "s make "qlist newqa !
:qlist sum "a verify] [make "alist newq!
a :alist verify] [sum "s make "qlist de!
l :qlist make "alist del :alist make "q!
 :q - 1 make "q9 :q9 - 1]]
end

to newqa :p1
pr :r
if :p1 = :alist [pr [Re - enter the ans!
wer -]] [pr [Re - enter the question]]
make "a word :f rq
if :q = 1 [op (se :a bf :p1)]
if :q = :q9 [op (se bl :p1 :a)]
op (se piece 1 :q - 1 :p1 :a piece :q +!
 1 :q9 :p1)
end

to savload :p1
if :p1 = "s [split make "q "saved] [mak!
e "q "loaded]
ts
if namep "f1 [pr (se [Current file] :f1!
) pr "]
 pr (se [LOGO files on] defaultd)
pr "
pr dir
pr "
type (se [Enter filename to be] :q [-])!
 make "f1 rq pr "
pr (se uc :f1 [is now being] :q) recycl!
e pr "
if :p1 = "s [save :f1] [load :f1]
pr (se [File] :f1 :q) pr "
pr dir
end

to sum :as
make "y count item :q :qlist
if :as = "a [make "x :x + :y] [if :as =!
 "s [make "x :x - :y]]
if :as = "p [tab 35 pr :x]
end

to del :p1
if :q = 1 [op bf :p1]
if :q = :q9 [op bl :p1]
op (se piece 1 :q - 1 :p1 piece :q + 1 !
:q9 :p1)
end

to answer
make "a word :f rq tab 4
if lc :a = lc item :q :alist [pr item 1!
 + random 8 [[Yes, that's right.] [Very!
 good.] [Right.] [Correct.] [Correct.] !
[Correct.] [Very good] [Excellent.]] ma!
ke "tc :tc + 1 plot 2 stop]
plot 3 ; (plot 0 for green screens)
pr item 1 + random 5 [[No, that's wrong!
.] [Not right.] [Incorrect.] [That is i!
ncorrect.] [That's wrong I'm afraid]]
pr (se [Correct answer:] item :q :alist!
)
end

to plot :p1
setpc :p1
if not :p1 = 1 [fd 600 / :q9 stop]
ts setsplit 21 cs ht pu
setpos [-300 185] pd
repeat :q9 [seth 90 fd 600 / :q9 rt 90 !
fd 10 bk 10]
```

```
pu setpos [-300 175] pd setpc 2 seth 90
end

to mixit
if :q9 = 1 [make "mix 1 stop]
make "a 2 make "q 1
repeat (:q9 - 1) [make "q se :q :a make!
 "a :a + 1]
make "mix shuffle :q
end

to title
pr [Enter new title] make "tt rq
end

to split ; Splits up large variable
; due to possible LOGO bug.
make "x int ((count :qlist) / 4)
if :x < 1 [stop]
drop "z1 drop "z2 drop "z3
make "z4 :qlist
ern "qlist
end

to drop :p
make :p piece 1 :x :qlist
repeat :x [make "qlist bf :qlist]
end

to join
make "qlist (se :z1 :z2)
ern "z1 ern "z2
make "qlist (se :qlist :z3 :z4)
ern "z3 ern "z4
end
make "y 2
make "x 2
make "t "
make "r "\
make "q "saved
make "p "p1
make "xx " What\ is\ the\ next\ number\!
 in\ the\ series..4\ 7\ 13\ 25\ _\ ?
make "tt "General\ knowledge
make "f "
make "c 9
make "b 4
make "a "7
make "cw 0
make "tc 8
make "cr 0
make "mix [3 1 5 4 7 2 8 6]
make "z4 [ How\ many\ loaves\ in\ a\ ba!
ker's\ dozen?  1\ Supercede,2\ supersed!
e,3\ superceed,\ Which\ is\ correct,\ 1!
,\ 2\ or\ 3?]
make "z3 [ What\ is\ the\ fastest\ land!
\ animal?  Who\ is\ the\ father\ of\ py!
schology?]
make "z2 [ How\ many\ nano\-seconds\ in!
\ a\ milli\-second\ \(1\ 1,000\)\ \(2\ !
a\ million\)\ \(3\ 10\ million\)\ \(ans!
wer\ 1,2\ or\ 3\)  Perth,\ WA\ lies\ on!
\ the\ _\ _\ _\ _\ River.]
make "z1 [ Basic\ is\ a\ high\ level\ l!
anguage\ \(T\ or\ F\)?  What\ is\ the\ !
square\ root\ of\ 169]
make "q9 8
make "p6 4
make "q2 8
make "p2 [ How\ many\ nano\-seconds\ in!
\ a\ milli\-second\ \(1\ 1,000\)\ \(2\ !
a\ million\)\ \(3\ 10\ million\)\ \(ans!
wer\ 1,2\ or\ 3\)  Perth,\ WA\ lies\ on!
\ the\ _\ _\ _\ _\ River.]
make "p1 [ Basic\ is\ a\ high\ level\ l!
anguage\ \(T\ or\ F\)?  What\ is\ the\ !
square\ root\ of\ 169]
make "alist [ T  13  2  Swan  Cheetah  !
Freud  13  2]
```

PCW owners should not have too much trouble adapting this program for their machines. For a start, remove the "setpc" (set the pen colour) command and see what happens!

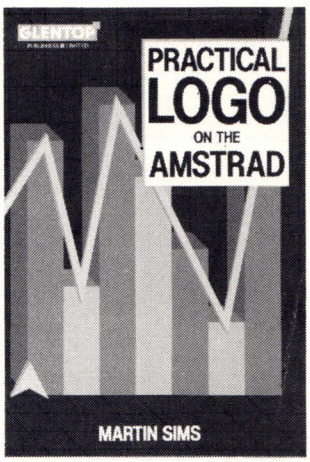
Using DR Logo on the Amstrad



By Martin Sims

Suitable for CPC machines with CP/M 2.2, this book makes learning LOGO fun, delving into sound, colour, text and graphics. Applications range from interactive games, simple arithmetic tests to random poetry generation

Practical Logo on the Amstrad



By Martin Sims

Suitable for CPC6128s and PCWs running under CP/M Plus. It shows how Logo can be used to write serious programs - including simple investment analysis, sales forecasting and stock control

See Page 64 for ordering details

Build a Desk

Give Arnold a custom designed home of his own

Amstrads are rather too attached to their monitors, most computer desks on the market don't allow for the short leads. A number of readers have come to the rescue with plans for do-it-yourself desks. Here's one of them from George Farnham.

George Farnham, had bought his 464 "to help keep the old brainbox active" on retiring from work as occupational-therapy instructor in a psychiatric hospital.

His design took in several considerations: the centre of the monitor should be at eye level; his teletext adaptor stands 60mm higher than the keyboard; and the leads are short. Materials were obtained from his d-i-y warehouse. He chose imitation-oak boards that needed no finishing (wood veneer would need at least three coats of varnish) and also bought screws, screw covers and iron-on edging.

How-to in his own words:

"First I marked out the panels ready for cutting. I marked out from each end of the boards, as this gave me one straight square edge on each panel. I then scored each of the cutting lines with a sharp knife, which makes sure that when cutting you do not splinter the veneer, leaving a nasty-looking surface. For the actual cutting I used a jigsaw with a medium blade, and I clamped a straight piece of wood across the board at a distance that would let me butt the sole-plate of the jigsaw against the straight edge while the blade was in position of the actual cut. This gives a straight cut, which is essential for nice-butting joints.

"I also cut a slot in the plinth top to allow the printer's cable and socket to pass through, but I have not put this on the drawing as some might like the cable to pass through the rear of the desk.

"The next step was drilling the screw holes - I used $1^3/_{64}$" No. 8 chipboard screws with brown cover caps.

"Now for assembly. To ensure a good fit, I clamped a piece of wood along the back edge of the side panels at a distance in from the edge equal to the thickness of the material. The side panels were then laid on their sides, and the back panel laid onto the two pieces of clamped wood. I then used a bradawl to make pilot holes (through the holes in the side panel) into the edge of the back panel, then put in the screws and tightened. The stabilising panel was fitted by the same method. Stand the unit right way up and again clamp two pieces of wood across the side panels for fitting the table top, and screw it into place. The plinth lies on top of the unit and can be screwed into place, making a nice rigid desk. All that remains is for some edging to be ironed on in the appropriate places.

"Another method of construction, perhaps easier than drilling and screwing the panels, is with rigid corner-joints, available from any d-i-y.

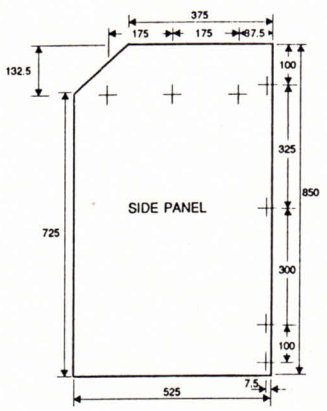
"A number of extras can be added to the desk if you wish, such as a cupboard to store the printer paper and a feed route to front or back of the printer. Electric sockets can be fitted on the table top at the rear, but you would have to drill extra holes for the main leads. A pull-out table is also a useful item, but that's another story."

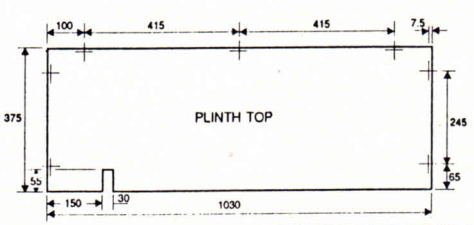
George's Desk

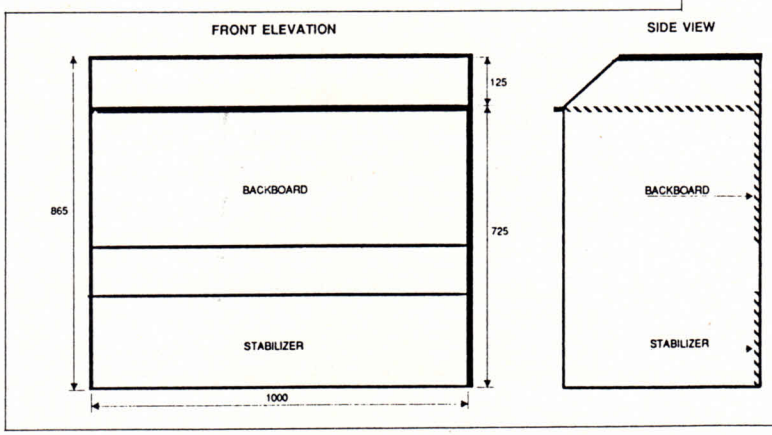
Parts Required:

2	side panels	525 x 850mm
1	backboard	525 x 1000mm
1	stabiliser	150 x 1000mm
1	table top	525 x 1000mm
1	plinth top	375 x 1030mm

All measurments in mm
Not drawn to scale







Rampak

A machine code sub-routine package for the Amstrad CPC range.

No matter what the initial reason for buying your CPC, sooner or later you'll probably attempt writing your own programs. Most of us start with simple Basic programs. These are sufficient for a while until one day you ask yourself "Why can't I write programs that use all the snazzy effects achieved by most of the commercially written software?"

Well, the answer is . . . you can! The newly released machine code sub-routine package, RAMPAK, will enable beginner CPC programmers to create fast, compact and more impressive programs. In fact, many experienced programmers may find some of the routines in RAMPAK very useful too.

"Just another collection of RSX commands loosely tied together with a few menus . . " I hear you say. On the contrary, RAMPAK is definitely not another RSX package - it's an integrated collection of very useful machine language sub-routines which may be easily incorporated into your own programs, either individually or as a whole unit.

Advantages

The routines are loaded into memory as binary files and activated by using Basic's CALL statement. There are two advantages of this method over RSX (Bar commands). The first is that the overall package is shorter since extra memory is required for the RSX name and jump address tables as well as that used up by the actual routines themselves. This leaves more room for your programs. The second and probably the most important advantage is that if you only want to use a few of the routines in RAMPAK, any number can be individually saved and added to your own programs.

The package consists of nearly 50 sub-routines which perform tasks that most Basic programmers would not have thought possible. For ease of explanation, I have broken the routines up into groups based on their area of influence.

Screen

The screen section is by far the largest and contains routines which allow you to:

generate different sized texts;
draw boxes and triangles of any size;
scroll either the whole screen or any predefined window in any direction;
scrolled text may also be made to 'wrap around', ie. re-appear on the other side of the window;
write sideways up or down the screen;
display either a vertical or horizontal mirror image of any character;
cause the screen contents to fade out gradually (very impressive);
store the current screen contents in another memory location;
swap the stored screen with the active screen and vice-versa;
change the screen base address so that screens appear instantaneously.

For 464 owners there are also two routines available only on the later models. One allows for writing text at the graphics cursor and the other reads characters at predefined screen locations and stores the resulting ASCII code in a program variable.

Printer

There are two printer routines, the first generates a text screen dump in any mode and the second allows text printed on the screen to be echoed to the printer.

Keyboard

In the keyboard section there are routines that:

disable the ESC and CTRL-SHIFT-ESC keys so that a program may not be interrupted (or the computer rest) while running;
input a preset number of characters from the keyboard and store the resulting string in a program variable;
report on the status of the SHIFT, CTRL, SHIFT LOCK and CAPS LOCK keys;
force all characters to upper case irrespective of the status of CAPS LOCK;
wait for a key press and if that character is part of a predefined string then its position in the string is passed to a program integer variable;
clear the keyboard buffer so that so that unwanted key presses are removed in a running program;
wait for a key press and store the ASCII code of the character whose key was pressed in a program variable;
pause a program for a preset length of time or until a key is pressed.

Disc Drive

There is only one routine which apples to disc operation. This allows any disc sector to be read from disc or any 512 byte block of memory to be written onto any disc sector. This type of routine is used extensively by all the commercial copying and formatting packages. An interesting tip for the more experienced programmers is that this routine can be used to format a specified track (write your own disc copy program perhaps?). However, you need to be familiar with the AMSDOS BIOS commands as outlined in the CPC Firmware Guide (Soft 968).

Cassette

The cassette routines are somewhat more plentiful and include the following:

a routine to select six different cassette speeds;
two routines which save and load headerless files;
another two routines which save and load binary files in a unique fashion so that they may be catalogued by the CAT command but not loaded using

the LOAD command. (Files saved in this way also load much faster than normal 'blocked' files).

Memory

The final group of routines apply to the computer memory and consist of:

a routine which moves a block of memory from one address to another;
a routine which prints the length of any Basic program currently in memory;
another routine that protects Basic files from being listed. The protection can be switched on or off, even from within a running program;
a routine which resets the Basic system variable TIME;
two routines which peek and poke at consecutive memory pairs.

Operation

When the program is first loaded and run, a quick demonstration of some of the capabilities of RAMPAK are shown, after which the message "Rampak installed at address 39112" is displayed.

At this point the Basic part of the program has erased itself from memory and the sub-routines are installed starting at memory address 39112 (&98C8). You can now select which routines you wish to use and either try them directly from the keyboard or save them to disc or tape for later use in your own programs.

To save a sub-routine, use the information given on the last page of the manual. This is an alphabetical listing of all the routines available. Use this list to determine the starting address and length of the routine you wish to save. Once you have these, it's a simple matter to save the routine of your choice. Here is an example:

```
SAVE "IMAGEV",B,39264,50
```

It is important to note here that nearly half of the routines in RAMPAK are relocatable and may be reloaded at any convenient location in the memory pool.

To use the file saved above in your own program, simply include the following lines at the start (without the REMs):

```
5 MEMORY 39263 : REM One less
than the loading address
10 LOAD "IMAGEV",39264 : REM Or
load at any convenient address
if relocatable
15 REM The rest of your program
goes here
```

Now you can call the IMAGEV routine at any time from your own program using the command

```
CALL 39264,A
```

where A, in this example, is a variable which contains the ASCII code of the character you wish to print as a vertical mirror image.

Australian Made

Apart from the fact that RAMPAK is an excellent Australian product, its other main feature is that it fills the gap for Basic programmers. Its unique approach will allow many to get the most out of their computers without getting too deeply into machine code.

RAMPAK is available post free through The Amstrad User at a cost of $44.95 for the disc version or $37.95 for the tape. Enquiries from dealers are welcome.

Graphic Operating System

Move up to the pull-downs

You are all familiar with the resident operating system within your CPC - AMSDOS. It's automatically there, along with Basic, when you first switch on your machine. Most, I am sure, are also familiar with CP/M. Like AMSDOS, it's another kind of operating system which looks after the "house-keeping" duties but extends into many other areas as well.

The problem with both of these systems is that they are not what one could call "user-friendly" when compared with those on other larger and more expensive machines (for example GEM on the PC1512, and doesn't a Macintosh make you drool!).

Well, drool no more. An all Australian product has just been released for the CPC range of machines which almost puts them in the big league.

The Package

The Graphic Operating System (or GOS for short) provides the now popular windows, icons and pull-down menus environment (WIMP) with the just the pull on a joystick or sweep of a mouse. No more worrying about the format of a particular command - just point the arrow and click. This is what being "user-friendly" is all about.

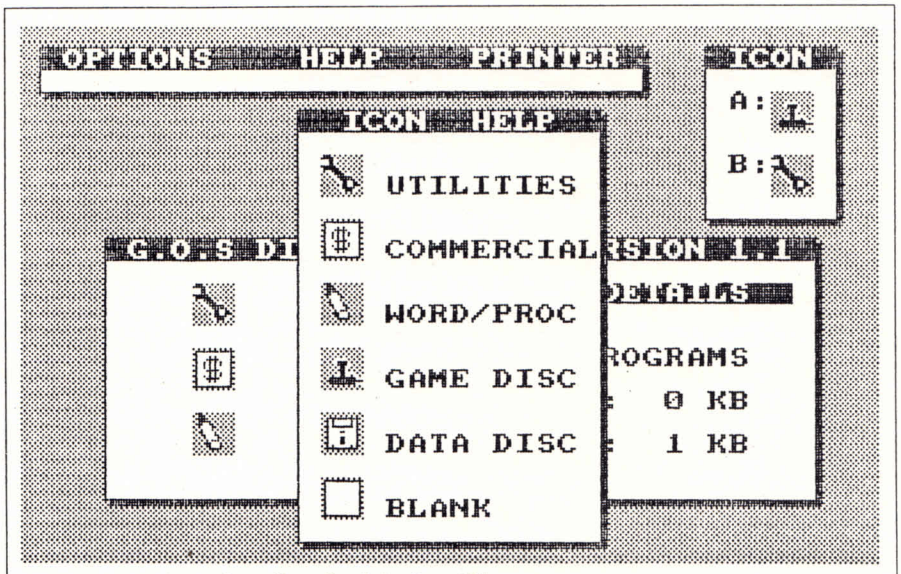
The package comes on one disc, the system disc, which also contains a couple of applications. More about those later. All you need to supply is a 464 with disc drive, a 664 or 6128, a joystick or an AMX mouse, and optionally a printer (Epson compatible). You'll not notice it, but once loaded the operating system pushes the Amstrad to its limits. What you will notice is how fast it runs - quite exceptional considering the amount of work it has to do. Naturally, the disc is protected. Even doing a CAT will fail to show the twenty or so files held on the disc.

So, RUN"DISC and we are away. An introductory wall is displayed followed by the desktop itself. This is presented in two sections. The first, at the top of the screen holds four folders: EXIT, APPLICATIONS, OPTIONS and FILES. The lower section is the working area.

EXIT

Selecting this option produces a pull-down menu from which to select your exit point. Choosing 'Basic' will reset the

machine. Choosing 'DDB' will take you into a Disc Database in which you can hold details on your library of discs. 'Label' is a sophisticated disc label printer (with icons) and 'Control' takes you into an enormous set of facilities. Some of these relate to file maintenance such as renaming or deleting files, others concern the environment in which you are working, such as pen and paper colours, whether you will be using a mouse or joystick and so on. There are also a number of conversion utilities including Decimal to Hex, Decimal to Binary and Character to ASCII.



▲ A screen dump from the disc labeller utility

OPTIONS

This holds the desktop utilities Calculator, Calendar, Clock and Screen dump. The calendar could be particularly useful as it also has an option to print the month you have chosen to display. Two small annoyances I found with the Calculator was that the "fire button' on the joystick had to be pressed quite quickly to avoid a 'speed-key' effect - you know, when a key depression can cause more than one character to be displayed. The other concerns finishing with the calculator (selecting "OFF"). This causes an execute/cancel window to appear with a 'Reload Software' question and the Y/N buttons. If you decide to recall the calculator, you would normally expect to select Y. But in doing so you merely go back to the options window. Maybe I'm splitting hairs.

FILES

This contains two desktop utilities - a Notepad and Phone List. You can clear, write to, read, print, load or save the

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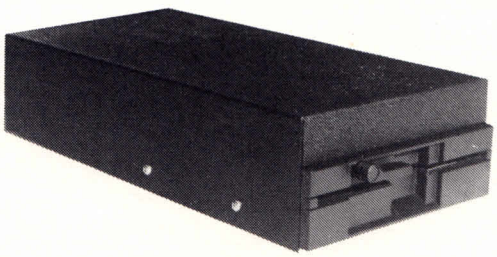

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Empire!

The new release from Firebird reviewed by Andre Urankar

The new Firebird game "Empire!" joins the steadily growing list of "good idea - too bad about the implementation" group of computer games.

Essentially the aim is to "build a great Galactic Empire spanning many Solar Systems", by both trading and zapping those ever obnoxious aliens.

Assignments are carried out initially in a simply-armed scout ship. Sophisticated solar-jumping capabilities can be obtained later in the game by normal trading procedures.

Controls are simple: using the joystick for clockwise and anti-clockwise rolls, acceleration and deceleration, and the "photon cannon" fire button.

Other features of the game include:

* Galaxy Map - which indicates all the Solar Systems that can be visited. In this mode, the joystick is used to position the cursor over any particular System to get a complete report of data for that System. This information can be used as a means of deciding which System offers the materials required to complete an assigned task.

* System map - giving a pictorial representation of the current System. Planet positions, Starbase locations, aliens, etc are displayed. A special feature of this mode is the ability to set a cursor to a desired destination, which (in the main game) can be activated and act as a beacon. This mode also features a "zoom-in" capability to provide more detail of the ships immediate vicinity.

* Planets - the source of the ore/minerals/ personal that are needed by the starbases. To reach the surface of the planet, a "warp-hole" has to be located. Once this warp-hole has been entered, the game-play changes into a form of "follow the tunnel".

The game screen displays your ship and its immediate area. Around the peripheral are vertical bar indicators for Energy, Temperature, Radiation and Shield Effectiveness. Fuel level is displayed at the top left hand corner, and at the right hand corner (when a mission is accepted from a Starbase) remaining time left to complete the assigned mission.

During the "System Map" mode, the number of aliens occupying the System is indicated. However this number does not correlate to the actual number of attacking aliens. In fact even when a System has been cleared of these aliens, and a message to that effect displayed on the ship's terminal, there are still more. Most disconcerting!.

Should the mission not be completed within the allocated time, the Starbase issues a "mission cancelled" message. There is no point in remaining within that System since no further missions will be assigned from that area. Re-docking at the Starbase (which is itself a most frustrating exercise) and requesting another mission rewards you with the message "no missions available". The only alternative is to brave the voids between Systems and travel to a System that requires your services.

Space-trading type games are not a new concept, actually going back to such games as "Starfighter" and up to more recently "Elite", but this current presentation does not encourage the player to continue for very long. To those that have played "Elite" before: if you thought docking was difficult, just wait till you experience this! This one is ridiculous. Trying to line up a triangular wire-frame ship between two sets of concentric circles vertically, with pixel perfection, is enough to discourage all but the most ardent players.

"Empire!" promises (threatens or warns would be perhaps a more appropriate word) a different game on the surface of the planet. However reaching this goal has as yet not been achieved, since it requires the navigation through the "warp-hole" (developed by someone with a warped idea of what is attainable). Crashing into the sides of the warp-hole reduces the Energy level very rapidly and the game is over. No additional "lives" in this one! So back to the start. Press 'j' again to tell the "##$%&%$#" game that I still have the joystick. Couldn't it remember this from the previous attempt?

Graphics and screen layout are adequate, and the concept still retains interest. However, "Empire!" could only be recommended to those players with a lot of patience and a lot of time. There is a "Save" and "Reload" game facility, but this can only be activated by the tedious procedure of first having to dock at a Starbase.

Overall this is not my idea of a "fun" game, but no doubt there will be some people who will take up the challenge "to build a great Galactic Empire".

Graphic Operating System (cont)

Notepad. With the Phone list you can edit, display, enquire, print, save or load.

APPLICATIONS

Two applications are provided with this GOS System disc, with more to come in the future. Selecting either of them takes you into a new screen. The first is a name and address database. This provides all the standard insert, delete, amend functions you would expect along with a powerful sort, search and display feature. All the time this is running you are advised of the free space available.

The other application is a Mailing Label database. The options allow you to format the label, and run a test print before you start the actual printing. Again, the sort, search and display feature is provided.

Of course, what you must realise is that these applications are for small databases, in other words for about 100 records as far as I can work out.

Summary

There's no doubt about it - GOS is an extremely clever piece of programming which has used the many facilities of the Amstrad to its fullest. As future applications are produced, they should butt neatly into the present system. Don't make the mistake of thinking that you can run any outside application under GOS - this cannot be done. But as a user-friendly package, it already has a lot of facilities and utilities found separately in other packaged software.

GOS is distributed exclusively by Rellsoft and retails at $59.95. It is available from Giltronic Australia on (03) 773 1244 or (03) 580 9839

Adventurer's Attic

Where Philip Riley ties up a few odds and ends and unwraps some more questions and answers.

This month we will not be covering any particular subject but will look at a few odds and ends.

First cab off the rank is a letter from Boaz Kogon. He has written an adventure but has encountered some problems due to (dare I say it) unstructured programming. Yes I know people hate the term 'structured programming' but really it does help in the long run.

Anyway back to Boaz; he wants to pull his proggy to pieces and then join it together again. He wants to know if there is an un-merge feature that can be used. Simple answer NO, not so simple answer, load the program, and decide the sections into which you wish to divide the program.

Start with the first section, delete all the other lines in the proggy, save it under a different filename. Load the whole program again, delete all lines except those in the second section, save it under a different filename. Do this with all of the sections. Now you have got all of your sections on tape or disc, you can start renumbering them and merging them together in their new order.

Next Boaz asks - How do you basically interact the location descriptions, status and the player input routines from a main handling routine without jumping from one to the other?

The August 87 article on adventure bases should help on this one. If you need to keep a check on things all the time then you can alter listing 1 slightly. Take out :IF a$=""THEN 110 from line 110 and put it onto a new line at 119. You can now use any of the lines in between for checking up and altering data as the program will loop around them each time you go to this routine.

If you only want to go to the various routines occasionally and don't need to keep a check on events in the game constantly then just use the routine as it is and everything will be sorted for you.

Lastly Boaz would like to know more about using encode/decode that appeared some months ago in this column. Well, I might hold back on that one because early next year I will have a machine code version for you which will be quicker and use less room then the basic version. So anyone wishing to use encode/decode might be advised to wait until then.

Now a few odds and ends for you. First some tips for saving memory. I have just completed a little project that involved cutting down a large program to allow it to run in disc and so while all of those late nights at the computer are still fresh in my memory here goes.

When using the NEXT command it is not necessary to use the variable after it (eg. NEXT z can be just NEXT). This, if I remember rightly saves five bytes. Also using the ELSE command rather than a new line saves one byte so cut them out wherever possible.

Next, I would like to make mention of the four adventure games that The Amstrad User has on offer this month on the next page. They have never before been seen together on one tape or disc and certainly the version of Colossal Cave Adventure has never been on disc before. So you are getting a real first here and really if you have not played Colossal Cave Adventure you cannot call yourself a real adventurer.

These games have been around for a while on the Amstrad and were written when the capabilities of the machine were still being explored but they have got everything that any adventure could want and are well worth the money. So why not treat yourself for Christmas, after all where else could you get a compilation of four adventures for around $8 each.

Finally for those of you who think it is about time that another adventure appeared in the magazine, if all you masochists who like typing in long proggys are suffering with withdrawal symptoms, then never fear Therapy is on its way. What am I talking about, buy next months mag. and find out.

This month's end to the column comes from S.A. Mah of Willetton, WA (did anyone read his letter in the August 87 issue, if not do so now). He finished his letter, thank you and may you forever dwell in the goodness of light.

Questions & Answers

Questions

The first lot of questions are from Tim Basham concerning King Solomon's Mines. How do you get and use the mud from the swamp? He has heard that you need the spade but has not been able to find it. How do you get to the ledge in the ravine and how do you get into the temple? (He thinks you need a torch for this one but again has not been able to find it). Lastly how do you get rid of or around the Zulu and over the bridge?

We have another vague one this month, this time from Adam Durant who would like information on Classic Adventure and Mordens Quest. Perhaps you can give us a little more information on your problems.

Staying with Mordens Quest, Dean Bailey would like to know how you open the door in the house.

Here's a few questions from one of our regulars Karla Slack. First question - How can you move around the rooms without using up your limited amount of matches in Lord of the Rings. In Never Ending Story of what use is the stone and where are the knife, iron key, golden key, the dungeon inside the well and the spider's web? So many questions, Karla. Back to Lord of the Rings, Michelle Wood would like to know how to survive the first attack of the black riders.

Next we have two people who are stuck in Aftershock. They are Jamie Kalusevicius and Anthony Healy who are both having trouble getting out of the office block. I have up until now refrained from answering questions but as I reviewed this game a little while ago I will answer this question later on.

Bit of a coincidence this one, in the same

batch of letters we got a question from Jamie K (I'm not typing that long name again) who wants to know how to complete the first section of Short Circuit and a hint from William Christensen who says type O-C-E-A-N simultaneously.

Michelle Wood has reached the stage where she has all of the numbers in the start room of 2112 A.D. but does not know how to get past the alien in Gems of Stradus and what three objects do you have to give to the statue in Warlock (I have played this game but cannot remember the objects, I will give it another look sometime).

I herby award Ross Gibbons the title of *"SENDER OF THE MOST UNUSUAL QUESTION SENT TO THIS COLUMN"*. He does not want to know how to solve Lords of Midnight, he just wants to know if it is possible to finish. Anyone out there who has completed this game let us know so that we can reassure Ross.

Heavy on the Majick is proving to be heavy on the going for L. Kelley. He has got past the first door where the password was "WOLF" but is stuck at the next door where the clue is "THE WORD IS NO WORD", what is the password for this door?

Dean Stibbe has some problems with Dracula, how do you get past the three female vampires in part 2 and does the labyrinth serve any purpose or hide anything other than rats?

Lastly, two more questions from Dean concerning two of the classics. The first is in Arnold Goes Somewhere Else, how do you get past the mulberry tree and in the Wise and Fool of Arnold Blackwood he is stuck at the low exit to the range, the dense shrubbery and an electrified fence.

Answers

We have an answer to an old question concerning Jewels of Babylon. To get past the door after the pirate and stone door you will need to unlock it with the key. Thanks to Scott Weaver's hint sheet the question is answered at last.

Dean Stibbe has some answers for Seabase Delta. To make the pancake you will need the egg from the hen, flour, milk and mixing bowl. Go to the kitchen and type "MAKE PANCAKE" and then "COOK PANCAKE". You can then use the pancake to get past the T.V. camera by typing "DROP PANCAKE". To get the disc from the bottom of the lift shaft you will need the magnet and washing line (the magnet can be found in the loudspeaker). Attach the washing line to the magnet and go to the lift shaft, type in "DROP WASHING LINE" and then "PULL WASHING LINE" and you should now have the disc in your hot little hands. Finally, how do you get up onto the platform. You will need to make a seesaw using the hammer, plank and barrel. You will also need the rusty ball from the cannon. Type "WALK PLANK" and then "DROP BALL" and you will be shot up to the platform.

Danny Liebke says that you must get Marvin to open the hatch when on Magrathea in Hitch-hikers.

For those of you who are having trouble operating the teleport device in Message from Andromeda then this answer taken from Scott Weaver's hint sheet should help. Just do the following "ENTER DEVICE", "PRESS BUTTON", "EXIT", go n n n "ENTER GALAXY", "CLOSE AIRLOCK" and finally "TAKE OFF".

By the way, thanks for those hint sheets. Some of them give too much away, others are too short. You'll get an idea of what we are looking for in last month's mag. and on the opposite page in this month's.

Now last of all, my answer for those two lost souls in Aftershock. To get out of the office take the chair to the lift. If you look at the lift you will find a hatch, stand on the chair and remove the hatch. Now type "CLIMB OUT OF THE LIFT". That should help you for a while but don't expect me to answer too many questions, that is up to you people out there.

See you next month.

Sensational Adventure 4-Pack on one disc or tape

(Assembled exclusively under licence for The Amstrad User)

1 - Colossal Cave Adventure

This is the original Crowther and Woods mainframe adventure. The game follows the original layout, complete with all the infuriating traps and bewildering mazes. You will need all your powers of concentration to outwit the Troll, the Dragon and the Pirate, and to overcome the many other problems that will be waiting for you. You can't call yourself an adventurer until you have conquered this mammoth quest. Not so much a game, more a way of death!
The game has a large vocabulary and as a concession to the faint-hearted, and provided you don't waste too much time, you will be given the opportunity to resurrect yourself twice.

2 - Mountain Palace Adventure

This devious adventure is set in a long-lost palace in a distant mythical land. The game starts on a mountain ledge close to the entrance of the palace. You have heard rumours of the vast wealth to be gained by anyone brave enough to enter the mysterious palace and have decided that it might as well be you. Unfortunately, this turns out to be a little more difficult than you imagined. The palace has some rather strange and sinister inhabitants, and even seems to have a mind of its own! There is an option to save your progress at any time.

3 - Time Search

There are time machines and there are time machines! Here at last is your chance to own one that works. If you can find it, that is. This traditional text-based adventure will take you from the safety and comfort of your own home and transport you to a weird and mysterious land where anything is possible. Can you survive the hazards and perils of a long trek through this world to achieve your aim? Danger and excitement await you, and in this land where almost anything can happen you may rest assured that it probably will! Dare you accept the challenge of the search? Remember, there is no present like the time! The game includes an option to resurrect yourself, but only a limited number of times, so take care!

4 - Castle Dracula

Are you courageous? Do you have nerves of steel? Has your TV broken down? If the answer to any of these questions is 'Yes', then this adventure is for you! It starts in a deserted village which is overshadowed by the sinister castle inhabited by the Transylvanian Terror, Dracula, and other assorted nasties. Your mission (should you choose to accept it) is to enter the castle and serve His Putrescence a well prepared stake. Unfortunately, as you might expect, your progress depends on how well you cope with the various traps and obstacles you come across. However, there are many useful (and some not so useful) objects to be found along the way, and from time to time the program can be persuaded to give you hints, but you will have to rely mainly on your ingenuity. There are 100 locations to explore and you have the option to save your progress at any time.

This compilation of adventures is only available through The Amstrad User.

All four on Disc - $32.95
All four on Tape - $27.95

Ring (03) 233 9661 for credit card orders or mail to:

The Amstrad User,
1/245 Springvale Road,
Glen Waverley, Victoria 3150.

Hint Sheet

HEROES OF KARN

Hint sheet from Bart Dorlandt

General Tip: Type in all the commands and objects using the first four letters only. This will be accepted and saves time with a reduction in mistakes.
In any room with a star on the floor type "ORION' to move magically to a new location useful for storing items.

To use this sheet, all the hints are listed in alphabetical order. For each problem associated with an object, location etc. pick out a key word and check down the list to find a tip (but not a straightforward answer!). If the first word can't be found, choose another as there is a hint for nearly every problem, especially the harder ones.

ASHES - Need to be cooled down
BALROG - Will fall to an untimely death if a musical force is used.
BARROWRIGHT - Is highly allergic to holy and religious objects.
BAT - Hunted by a large winged creature of prey.
BEAR - Has a very sweet tooth.
BLACK KNIGHT - Can be 'melted' by a dangerous liquid.
BLACK POTION - Death !!
BOTTLE - Most essential for carrying many liquids, so do not break.
CAGE - For use by another to hold a bird.
CHASM - Needs to be bridged by magic.
CHEST - Lubricate to open and remove treasure.
CROWBAR - To lever open a sea creature.
DRAGON - Killed by a sharp yard of steel.
FALCON - After being fed will obey someone who is good with animals.
FLUTE - beware, it shatters glass, crystal, jade etc.
FROG - Copy what the princess did in many fairy tales.
GAS - Is highly flammable and dangerous to selected animals.
HALL OF INFINITY - Music is important and can clear a person's mind.
HALL OF SMOKE - Cleared by a strong breeze from a large container.
HYDRA - Kill with a long pointed weapon.
JADE FLOWER - Musical notes will cause it to fall but padding is needed to protect it.
LIZARD - can be easily burnt.
MAP - Written in a magical hand so needs to be translated.
PIRATE - Is killed by a small person with a small weapon.
QUARD - Is easily corrupted.
SCROLL - Written in a magical hand and needs to be translated.
SERPENT - Hunted by a bird which seems quite harmless.
SPIDER - Is soothed by music played on an instrument by a musician
SPIRIT - Easily destroyed by magic.
TINY PLANT - It must be watered twice.
VAMPIRE - This can be destroyed with a stake, sunlight and a _____?
WAND - Waved by one of magic, will produce bridges and destroy ghosts.
WITCH - Cleanliness is her great enemy.
WHITE POTION - Will protect people from an agonizing death of burning.
WOODEN BOX - Disperses any unwanted air.

This is our second Hint Sheet and earns Bart a cheque for $25. Now that you have seen the format the sheets should take, why not cash in on your experience and send your solutions (don't give the whole game away though) to:

The Editor (Hint Sheets),
The Amstrad User,
1/245 Springvale Road,
Glen Waverley, Victoria 3150.

A BRIEF RUN-DOWN ON OUR SOFTWARE

ACTIVATOR

". . . must help us . . . power fading . . . unknown force . . . please help . . ." This was the final message from Federation Space Port Antari. Deep space probes have located a power source of unknown origin which can render life-forms and their associated equipment inactive. Your mission is to locate Antari and, using your remote Activator pod, enter and re-activate her. After years of neglect many strange and dangerous life-forms have infested Antari. You must avoid these beings and locate the fuel rods which are now scattered throughout the ship and return them to their correct location for re-activation.

AIR COMBAT EMULATOR

Your AWAT (All Weather - All Terrain) jet stands fully fuelled and fully armed. A vast invasion fleet is anchored just off your shores. Ground forces have come ashore and are advancing on your positions protected by massive air cover. You are the last fighter pilot. Your country turns to you and asks "Are you good enough to be called ACE". Features tanks, helicopters, hills, trees,, ships and a totally unique refuelling sequence. Also has optional twin flying mode where you can fly and fight with your friend as weapons man.

ANIMATOR

A utility to transform simple lines into animated sequences. Create impressive animation without having to load the main program - this means you can incorporate your own demos into your Basic programs. Hours of fun for all, but also many opportunities for the serious minded programmer.

BOMBSCARE

The planet is Neptune, the year is sometime in the future. An alien enemy has planted a huge time bomb at the centre of the planet's space station. The Base, as a result, has been evacuated and a bomb disposal robot (code named Arnold) has been sent in. You must control this robot and defuse the bomb. Certain tools will be required, which together with other useful objects are scattered around the deserted space station. The enemy alien will attempt to sabotage your mission with enemy absorbing devices which Arnold can destroy.

BOOTY

Jim the Cabin Boy must make his way below decks to collect various items of booty (automatically picked up when he walks past them) strewn around the ship. When you have collected all the items from the Black Galleon's 20 holds, you are given 45 seconds to locate the bronze key to the next pile of booty. Clearing all the booty a second and third (impossible) time causes a search for the silver and gold keys, each increasing the game's speed and hazards.

BRIAN BLOODAXE

A platform type strategy/arcade game with 127 screens. As Brian Bloodaxe, you are required to locate the Crown Jewels and finish the game on the Throne. It is not as easy as it sounds with many teasers thoughout the game and, of course, heaps of 'nasties'.

CORE

This is a problem solver's game which took over five years to develop. The theme is simple enough - recover all elements of a bio-memory unit and return these to the mothership for analysis - but to achieve this aim is a different ball-game altogether. For a start some of the tools required are hidden, even buried! Core requires a great deal of thinking and strategy to be successful.

CONTRAPTION

An attractive, sophisticated and very tough platform game, in which a crazy Professor feverishly searches for the golden apples to feed his zany Contraption. Encounter bouncing bombs, swooping spiders, diving dodos, jiving jellyfish in your quest to complete the game.

DR WHO and the Mines of Terror

The Master is planning to use the Doctors brain in a modified TIRU (Time Instant Replay Unit) to produce a chaos weapon to control the future as well as the past. Heatonite, a time-warping mineral, is a critical component and is being manufactured on the 2nd Moon of the planet Rijar. As Dr. Who, you must halt the Heatonite production, disable TIRU and regain the plans contained in a 'memory capsule'.

DRUID

Until now, the balance of power has been held and peace maintained throughout Belorn. But now, four demon princes have appeared though an inter-dimensional gateway in the dungeons of the evil Acamantor. The Task of destroying the princes and closing the gateway has fallen on you, last of the Great Druids. Survive the constant onslaught of the hell-spawned dimensional monsters and destroy the princes with your spells of formidable power. Succeed, and you may attain the ultimate level of light Master, greatest Druid of them all.

DYNAMITE DAN II

The world is being mesmerised by subliminal, mind-destroying sound waves hidden on innocuous pop records. As Agent Dan, you must find seven records on different islands, play them in the juke box then search for the last island (the pressing plant), play the last record and plant a bomb in the lab. You've then got just three minutes to get out.

ELECTRIC MUSIC UTILITY

EMU is a Music and Sound Effects generator, the results of which can be saved to use in your own Basic or Machine code programs independently of the main EMU program. It lets you experiment and hear the results immediately. You can generate music in 3-part harmony with different voices or with percussive effects and with a screen display in correct musical notation.

ELITE

Not much can be said about this, now classic, Rainbird title - it's won so many awards. To the uninitiated, it's a space voyage of discovery and adventure, testing your combat, navigational and entrepreneurial skills. Elite has just about everything - strategy, shoot 'em up, trading, adventure.

FAMILY FUN PACK 1

This is our own software package and has proved very popular over the last twelve months. It consists of two games for younger children - Spelling Bee (based on Hangman) where you have to guess one of 1500 words at three levels of difficulty and Copy Cat (based on Simon) which tests reactions and memory. It has an arcade style game called Laser Blast and a tricky text adventure entitled House of Dracula. Finally, there are eight brain-teasers to keep you puzzled.

FUTURE KNIGHT

You are Randolph (a hero). Your quest is to rescue your beloved maiden from the evil clutches of Spegbott the Terrible. You receive an inter-dimensional distress call from the S.S. Rustbucket in which she is held captive, following its crash on the Planet 2749 of the Zragg system. After teleporting to the space ship you progress through 20 gruelling levels, fighting your way through the wreckage, defending yourself against the Berzerka Security Droids to finally reach the planets surface. Here you must do battle against mystical creatures to ultimately reach Spegbott's castle and defeat him in mortal combat.

GLASS

A ground-level alien strike simulator which takes you through a series of screens with 14 levels of excellence. Destroy the outer radar defences, smash the psuedo-conscious Metalliks, but keep your shields up. Fly the plains of Glass and reach the cities. Can you make Game Lord status?

HIVE

As Agent Brabham, you are provided with a robot craft called Grasshopper to penetrate an enormous hive and destroy the queen. Hive is a very active game with a super-fast control system to avoid the continuous attacks from electronic insects and other equally fatal obstacles as you travel along the tunnels of the hive. It's a sophisticated game for the dedicated gamester.

LORD OF THE RINGS

Now becoming a classic in adventure games, Lord of the Rings Part 1 can recognise intelligent sentences up to 128 characters long using its 'Inglish Input' system. It is based on the book The Fellowship of the Rings - one of the trilogy from J.R.R. Tolkein. Travel across the mysterious and enchanted world of Middle Earth but beware the Black Riders. (The tape version also contain a copy of the book "The Fellowship of the Rings").

MAX HEADROOM

A 3-D arcade adventure featuring the irrepressible M-M-Max Headroom. You hunt through various floors to recover the Max Personality Module with the aid of the Maxhunter, and aim to get to the basement by 6.00. There are lots of codes to remember and break and a few robots to avoid.

MINI OFFICE II

Turns your Amstrad Computer into a versatile business machine. In this package are six different modules including a word processor, a database, a spreadsheet, a graphics pack and a label printer. With these you can write letters, prepare reports, create computerised files, compile mailing lists, set up financial records, carry out complicated calculations, draw graphs, print out labels and much more. Can also be used with the AMX Mouse.

NECRIS DOME

Necris Dome is a floating cemetery in space run by the Mandroids led by the Archmandroid. Over the years the Archmandroid has become a renegade and thinks for himself. He has become a threat to human life. As a member of the secret force, you have been assigned to investigate the situation aboard the Dome and destroy the Archmandroid at all costs, even if it means the destruction of the satellite to do it.

NEVER ENDING STORY

Based on the film of the same name, NES is a graphic text adventure with illustrations of some locations, events and all objects. The game is in three parts (over 100k of code and data) and must be completed in the correct order. You take the part of Atreyu in your quest to find the saviour of "Fantasia" but beware the other characters - not all will help you.

NEXUS

An arcade/adventure (joystick only) in which your mission is to locate your kidnapped friend and release him then gather 128 pieces of scattered information and transmit the assembled messages to your newspaper. Alternatively, you can cause as much mayhem in the complex as possible in the hope that you put the drug ring out of action.

QUESTOR

A fully animated arcade adventure which will test your mind as well as your reflexes. You are placed in a world which you must explore and map if you are to stand any chance of success. New dangers are waiting around every corner.

SABOTEUR

You are a highly skilled mercenary trained in martial arts. You are employed to infiltrate a central security building and steal a disc that contains names of all the rebel leaders before its information is sent out to the outlying security stations. You enter the building from the sea and leave by helicopter from the roof - all the time working against the clock.

SENTINEL

Beyond your wildest dreams, in a world where the only force is pure energy, stands the Sentinel. Battle against him through 10,000 lands, in the most original, compelling and addictive computer game ever devised. Yes, it really is different.

SHADOW FIRE

Shadow Fire is an icon driven adventure. You have just one hour and forty minutes to complete a mission to a) locate and rescue Ambassador Kryxix, b) apprehend and capture General Zoff and c) capture or destroy the starship Zoff V. These tasks can be accomplished in any order.

STAR WATCHER

A multi-program package which provides the amateur star watcher with an explanation of the principles of astronomical navigation and calculation along with self-assessment tests. In addition, it displays the sky at any given time with a unique "real time" update mode to set the program to update the changes every minute.

STORM

Corrine, beloved wife of Storm the warrior, is a helpless prisoner in Una Cum's laboratory lair. Una Cum has left his castle to search for a box called The Fear. Meanwhile Storm and his comrade the powerful wizard Agravian Undead must pit their wits against the foul traps Una Cum has left behind. A thrilling and highly addictive arcade adventure for 1 or 2 players.

SUPER PIPELINE II

As Foreman Fred, you are responsible for maintaining the pipelines supplying water to fill a number of barrels. There is plenty of water at the start, but as leaks develop, the supply reduces. Your job is to get the leaks fixed by other workmen and at the same time defend the pipes from all sorts of evil insects and terrible "live" tools.

TERRA COGNITA

Far into the future, on Krion, a remote barren planet orbiting a dying sun, three mining engineers discover the remains of a Warrior Robot, just its head. One curious engineer kicked the head, it began to

speak and told a terrible tale of mankind's destruction of Krion . . . and then the ground beneath began to vibrate, the dust parted, revealing a smooth artificial surface. They saw that the robot's head was attached by thick cables to what they were standing on. Suddenly the head spoke again, this time of revenge!

TORNADO LOW LEVEL

A classic game with very smooth scrolling. Seek and destroy enemy targets in the latest swing-wing fighter with 360° control. TTL provides review maps and status reports as required, plenty of practice at landing, refuelling, flying at low altitude or at supersonic speed at maximum altitude.

TRAILBLAZERS

Thunder into the unknown at a breakneck speed, pushing your reflexes to their limits in this definitely exhilarating journey that's not for the faint hearted. Roll left, roll right avoiding endless chasms of doom that lay in and around the squares of mystery. Squares that will sometimes slow your progress, on occasion with fatal consequences and sometimes speed up unexpectedly or make you jump automatically. Keep a keen eye on the clock as the quicker you complete your task the higher will be your bonus. (This game proclaimed "Beaut fun" by Ed's children).

TOMAHAWK

This is a real-time flight simulation based upon the US Army AH-64A Apache Advanced Attack Helicopter - the meanest, deadliest combat helicopter ever to rule the skies! Its specialised job is to hunt tanks and destroy anything in its way. Flying a real helicopter is a demanding task requiring training and practice - particularly ground attack. Tomahawk gives you this challenge.

TURBO ESPRIT

An armoured supply car is carrying drugs to the centre of the city (the game has a choice of four cities). Four delivery cars meet it and then drive off to their hide-aways. You mission is to stop the delivery cars before they reach their hide-aways and the armoured car from leaving the city in your armed Lotus Turbo Esprit car. Road rules must be obeyed (eg. stopping at red traffic signals). You must also avoid pedestrians and road works in your chase against time.

VERA CRUZ AFFAIR

If you feel you can match the skills of Hercule Poirot, the famous fictional Belgian detective, then you can do no better than start at this game. As a Detective Sergeant in the French Crime Squad your task is to solve a murder (or is it suicide?) by collecting evidence from the scene of the crime (zooming on the screen to a point of interest). Then by communicating with other establishments (Headquarters, Prisons, Judicial Research etc.) compare evidence, interviews and alibis to finally solve the crime.

WORKING BACKWARDS

Four games on one disc in this compilation from Design Design. Dark Star - the instructions say if it moves shoot it, if it doesn't move shoot it anyway; Tank Busters - search and destroy enemy tanks; The Hall of Things - drop, pick-up, shoot and generally find in this maze game; On the Run - locate six flasks destroying nasties on the way.

ZOIDS

With the ability to merge minds with the Zoid robots, you can become a metallic warrior. Issuing commands through the keyboard and/or joystick, your mission is to seek and destroy Redhorn the Terrible - the most dangerous of all the Zoids. But you cannot "see" in the normal sense, only through the images projected on the screen by the Zoid you have temporarily become. You can direct the Zoid but only along places he does not feel threatened. Beware - he has a mind of his own as well as yours!

WHAT'S AVAILABLE (at 7/10/87)

DISCS for CPCs

Title	Usual $	Our $
Activator	49.50	39.95
Aftershock	SOLD OUT	
Air Combat Emulator	SOLD OUT	
Biggles	SOLD OUT	
Brian Bloodaxe	44.95	22.95
Contraption	49.95	29.95
Druid	49.95	39.95
Dr. Who - Terror in Mines	54.95	44.95
Dun Darach	SOLD OUT	
Elevator Action	SOLD OUT	
Electric Music Utility	54.99	32.95
Elite	SOLD OUT	
Family Fun Pack 1		29.95
Future Knight	49.95	39.95
Glass	49.95	29.95
Graphic Adventure Creator	SOLD OUT	
Heartland	SOLD OUT	
Hive	49.99	29.95
Jewels of Darkness	SOLD OUT	
Lord of the Rings	44.95	39.95
Mandragore	SOLD OUT	
Mini Office II	79.95	79.95
Nexus	49.95	29.95
Nodes of Yesod	57.50	29.95
The Pawn (6128)	SOLD OUT	
Saboteur	57.50	29.95
Sentinel	SOLD OUT	
Shadow Fire	54.95	29.95
Star Watche	54.90	29.95
Super Pipeline II	49.95	29.95
Trailblazers	49.95	39.95
Turbo Esprit	57.50	29.95
Vera Cruz Affair	SOLD OUT	
Working Back Compilation: *Dark Star, Tank Busters, On the Run and Hall of the Things*	57.50	29.95
Zoids	54.95	29.95
Entreprepeur (464)	SOLD OUT	
Family Fun Pack 1		19.95
Formula One Simulator	11.98	10.95
Future Knight	34.95	29.95
Graphic Adventure Creator	SOLD OUT	
Heavy on the Magick	SOLD OUT	
Hyperbowl	11.98	10.95
Jewels of Darkness	59.95	29.95
Lord of the Rings	SOLD OUT	
Masterfile 464	SOLD OUT	
Max Headroom	39.95	19.95
Necris Dome	9.98	8.95
Never Ending Story	39.95	19.95
Sentinel	34.95	29.95
Sport of Kings	11.98	10.95
Star Watcher	49.95	22.95
Storm	9.98	8.95
Terra Cognita	9.98	8.95
Tornado Low Level	34.95	19.95
Trailblazers	34.95	29.95
Questor	37.50	19.95
Way of the Tiger	SOLD OUT	

THE THINGI - Document Holder 24.95

DISCS for PCWs

Title	Usual $	Our $
Aftershock	57.50	47.50
Jewels of Darkness	SOLD OUT	
Lord of the Rings	44.95	39.95
Masterfile 8000	109.00	109.00

EXPANSIONS

dk'Tronics 256k Silicon Disc (464/664 only)	309.95	94.95
dk'Tronics 256k Memory Expansion (6128 only)	329.95	94.95

TAPES for CPCs

Title	Usual $	Our $
Activator	37.50	29.95
Aftershock	39.95	29.95
Air Combat Emulator	39.95	29.95
The Animator	54.99	32.95
Biggles	SOLD OUT	
Bomb Scare	9.98	8.95
Booty	9.98	8.95
Core	39.95	19.95
Dr. Who - Terror in Mines	34.95	29.95
Druid	29.95	25.95
Dynamite Dan II	39.95	29.95
Elevator Action	SOLD OUT	
Elite	59.95	29.95

DISC DRIVES

Amstrad DDI-1 plus interface to suit a CPC464	499.00	399.00
Amstrad FD-1 plus cable to suit CPC 664 0r 6128	449.00	349.00

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Glen Waverley, Vic 3150

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WHAT'S NEW

For CPCs

JUNIOR WORDPRO - a simple, no frills yet colourful Word processing package for children in the "easy reading" to 12 year old range. Double line spacing and single function key operation make it an easy introduction for youngsters. Available on tape at **$29.95** or Disc at **$34.95.**

TOMAHAWK is back. If you missed out last time, don't delay now. Disc only at **$49.95.**

GENNY - the genealogical database (see page 32). Disc only at **$119.00**

ADVENTURE 4-Pack - four great adventures on one disc at $32.95 ot tape at $27.95

For PCWs

DISTRACTIONS - 3-game compilation on one disc. **$59.95**

TOMAHAWK - the famous helicopter flight/fight simulator returns. **$57.95**

COLOSSUS BRIDGE - **$49.95**

STEVE DAVIS SNOOKER - **$49.95**

GENNY - genealogical database - **$119.00**

LOCOSCRIPT2 - **$65.95**

SEE PAGE 32 FOR MORE DETAILS

For PCs

GENNY - genealogical database - **$119.00**

SEE PAGE 32 FOR MORE DETAILS

NOTES

1. The items listed on this page are available until our stocks run out. When ordering, please provide an alternative choice, just in case.

2. We cannot reserve items - only firm orders will be supplied and on a first come - first served basis.

3. The special prices shown for DISC DRIVES have been extended to 31st December 1987.

4. All prices include postage and packing within Australia.

The Amstrad User
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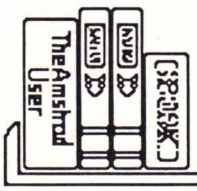

BOOKS

CPC TITLES

	Subscriber Price	Normal Price
Advanced Amstrad Programming Techniques	$22.95	$24.95
Advanced User Guide	$19.75	$21.95
Adventure Games for the Amstrad CPC464	$25.15	$27.95
Amstrad Compendium	$20.65	$22.95
Amstrad Games Book (Melb. House)	Out of Print	
Amstrad Pentacle Adventure Creator	$ 8.05	$ 8.95
Basic BASIC - *New Ed.*	$14.95	$15.95
Childs' Guide to the Amstrad Micro	$11.65	$12.95
Disc System, The Amstrad CPC 464	$25.15	$27.95
Dynamic Games for the Amstrad	$17.95	$19.95
Filing Systems and Data Bases for the CPC464	$27.95	$29.95
Graphics Programming Techniques	$22.45	$24.95
High Energy Programs for the Amstrad (Post Free)	$ 9.95	$ 9.95
Ins and Outs of the Amstrad	$20.65	$22.95
Machine Code for Beginners	$17.95	$19.95
Machine Lang. for the Absolute Beginner	$20.65	$22.95
Making Music on the 464/664 (OK for 6128 too)	$19.75	$21.95
Master Machine Code on your 464/664	$19.75	$21.95
Pitman's First Book of Amstrad Games	$11.65	$12.95
Powerful Programming for Amstrad 464/664/6128	$22.55	$25.05
Practical "C"	$25.80	$28.65
Practical Programs for the 464	$21.55	$23.95
Ready made Machine Language routines	$20.65	$22.95
Structured Programming on 464/664/6128	$26.95	$29.95
Whole Memory Guide - 464	$26.95	$29.95
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Writing Adventure Games on 464/664	$20.65	$22.95

PCW TITLES

Amstrad Companion	$25.95	$27.95
LocoScript Pocketbook	$16.95	$17.95
Mastering the Amstrad PCW 8256/8512	$29.50	$32.25
Program your PCW	$29.95	$32.95

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CP/M - The Software Bus: a programmer's companion: with CP/M+	$29.95	$32.25

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LOGO Pocketbook	$16.95	$17.95
Practical Logo on the Amstrad (under CP/M+)	$25.95	$27.95
Using DR Logo on the Amstrad (under CP/M 2.2)	$35.95	$37.95

PC1512 TITLES

Basic2 - Bk. 2 (Soft 50012)	$37.50	$39.95
Business Presentation Graphics on the PC1512	$50.00	$55.00
Using DOS Plus on the Amstrad PC1512	$37.95	$39.95
Using GEM on the Amstrad PC1512	$50.00	$55.00

*All book orders **under $20 are sent free** of any postage or packing charges. For all book orders **over $20 please add $5.00** for postage and packing (regardless of quantity ordered).*

As most of the above books are imported, the price and availability may change without notice.

BINDERS

In white vinyl with silver logos of "THE AMSTRAD USER" on the front and the spine. Protect your collection of The Amstrad User. Each binder holds 12 issues. Will also take the English "Amstrad Computer User" but sometimes not so many issues. Price, including postage, is $12.95.

SOFTWARE

See previous pages for great savings and new titles

PCW OWNERS

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We also have just ONE Video Digitiser. All you need is a [SOLD] ormally priced at $349 [SOLD] t **$244.95** including postage.

Please confirm availability before ordering.

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Tapes or Discs not suitable for PCWs or PCs

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Note: Jul '85 to Oct '85, Jul '86 and Jun '87 are not available.

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The Amstrad User is the only Australian magazine which supports the Amstrad range of computers exclusively and has grown to become the leading national magazine for your computer.

It makes sense to keep up to date with what's happening on your doorstep, to learn with advice from other users and our regular articles, to have fun with the many published games or to have assistance in your business software decisions through our independent software reviews.

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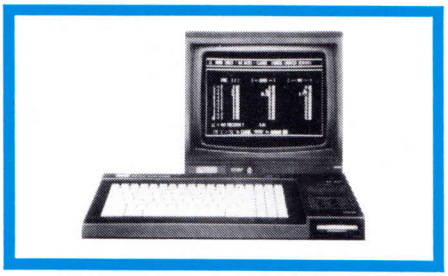

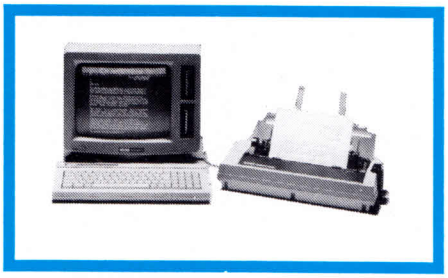

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MASTERFILE 8000

FOR ALL AMSTRAD PCW COMPUTERS

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

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

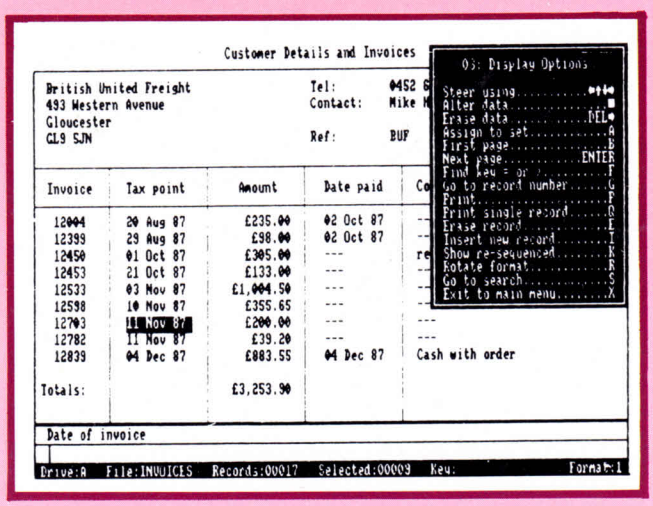
Other products offer a choice between fast but limited capacity RAM files, and large capacity but cumbersome fixed-length, direct access disc files. **MASTERFILE 8000** and the PCW RAM disc combine to offer high capacity with fast access to variable-length data. File capacity is limited only by the size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

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

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

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

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

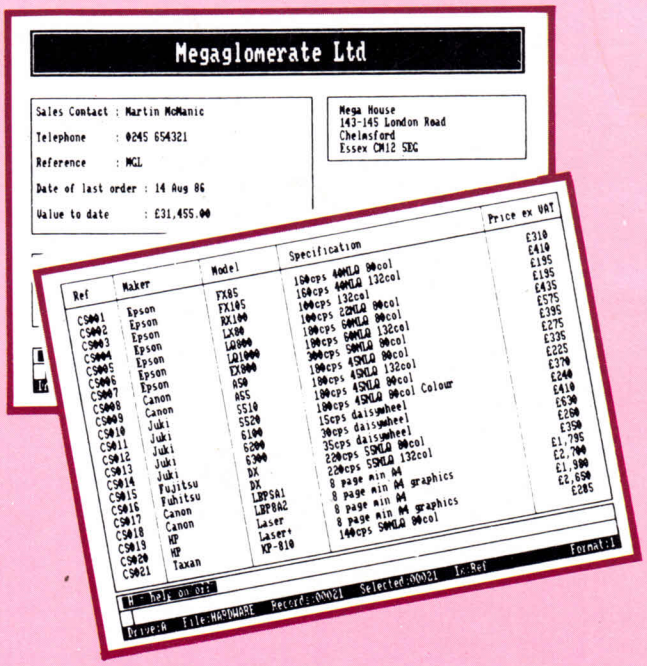


Keyed files are maintained automatically in key sequence, with never any need to sort. You can have unkeyed files too, where records can be inserted at any point in the file.

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

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

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



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

MASTERFILE 8000 costs $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 orders are welcome, written or telephoned, quoting the card expiry date.

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