NATGUG NEWS

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OFFICIAL JOURNAL OF THE

National TRS-80 & Genie Users Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers, and compatible systems such as the Video Genie.

Details of the Group accounts, and the constitution of the Group, are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are obtainable from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the Secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Secretary and Newsletter Publisher:-

Brian Pain,
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU.
Tel: (0908) 564271

CONTENTS

1. Information on the Group

3. Editorial

4. Members' letters

6. Poking characters to the screen on Model 4

8. Hope for conversion

10. "Allwrite" and all that

11. File encryption in C

12. CP/M - a new user tutorial Part 4

18. Model 4 notes

19. Micro-80 magazine

19. Wanted - Visicalc EPROM

20. PENRAM for Model 4

22. Oggy Oggy Oggy

24. FHEX

25. FMOVE

26. FCOMPARE

Swindon Workshop 25/26/27 October for details of the lectures etc. please ring Bob Sparling on 0793-740762

EDITORIAL

I'm sorry about the delay in getting this issue and the last one out. We'll try to catch up over the next couple of months, provided I get some contributions.

I was clearing out some old magazines recently and came across the issue of Practical Computing in which my original letter volunteering to form a TRS-80 Users Group was published, back in January 1979. I mentioned in the letter that I had just upgraded my original 4K machine to 16K, by installing the RAMs myself. I think the chips cost me just over £100!

I've just been beta-testing Lattice C for the QL. The availability of this compiler for the QL is interesting, in that it is 100% compatible with the MSDOS Lattice C implementation, so I could, if I wished, develop progams that could be compiled and run on the Model 1000 and 2000, and the IBM PC, come to that. Lattice C is very close to Unix/Xenix C, so programs developed on the QL could also be ported to the Model 16, or is it called the 6000 now? C will be the main development language on both the new Atari ST and Commodore Amiga machines, by the way.

QUANTA (formerly IQLUG, we've changed the name) will be having a stand at the PCW show in September. I'll be on the stand most of the time, and any NATGUG members will be very welcome.

C afficionados will be interested to hear that Richard Hudson, an aquaintance of mine, is forming a UK C Users' Group. I'll keep you posted on developments.

My Z8 system described a couple of issues ago now has the capability of programming 2764 and 27128 EPROMs, and with a few changes, 27256 and 27512 devices, although I haven't tried the latter two types (they are rather expensive). The addition of two 30p CMOS chips is all that is needed, and some software. It connects to any computer with an RS-232 port. A state-of-the-art EPROM programmer for about £20 isn't bad!

A new lap-held machine, the Model 200, is available in the States. Like the Model 100, the 200 appears to be made by Kyocera. It has more memory than the 100, and a flip-up 40 X 16 screen. It also has Multiplan in ROM, making it very useful for businessmen on the move. It's a bit expensive at $999, in my opinion, for the UK market.

I've ported my intelligent terminal program written in C onto the QL. I got it going with a couple of hours work, which emphasises the portability you get with the C language.

Leon Heller

MEMBERS' LETTERS

The other month a member told me that he had been hunting for the supplier of Zen and only discovered my name following an article on assemblers in 80-Micro, so to put the record straight here's a summary of whats gone into Zen over the last few years, where to get Zen from and what the cost is.

Editor: This acts as a word-processor type of editor but restricted to single line editing. Commands include line-at-a-time and page-at-a-time single key forward and backward scrolling, block move, global search and replace, duplication of code, extraction of code from library files, read and write to disk in both ZEN and Edtasm format. The assembler accepts any mixture of upper and lower case for opcodes, operands, registers, etc but distinguishes between upper and lower for labels.

Monitor: A disassembler has been added to the existing dozen commands for Hex and Ascii display/modify, port I/O, byte and word search. The disassembler can accept 64 seperately identified data areas and outputs labelled source to the video, printer or internal text buffer.

Debugger: This has been equipped with single stepping of both ROM and RAM with full register display and disassembly of the current instruction. Any subroutines that do not require to be single-stepped can be set to be executed in real time thus allowing programs that contain disk I/O to be debugged with complete control.

Assembler: Early in 84 conditional assembly was added, a Basic program included to pre-process Macro statements and included was the ability to direct listing output to an Ascii disk file. Subsequently the following have been added:

BASE	Sets the Assembler's default number base.
DEFD or DD	For Define Data Bytes, eg DD 32," "=STRINGS(32," ")
DEFW or DW	Now takes multiple operands.
#	For .XOR. in arithmetic.
IFNOT	For conditional assembly.
IFNOTEQ	For conditional assembly.
PAGE	For new page in listing.
LONG	Allows full listing of data from DEFM, DEFD etc.
SHORT	Limits data listing to first four bytes.
GET filespec	Includes the code from another disk file.
CHAIN filespec	Chains another disk source file to the current one.
FILE filespec	Re-directs listing file from current to new filespec.

Finally if I could add that as well as the Model 1/3/4 package ZEN is also available for Z80 CP/M operating system and has been tested with both Montezuma and Tandy's CP/M Plus. Included with the CP/M version is a Basic program that converts 8080 code to Z80; some editing of the final file is necessary but 99% of the work is done.

The Model 1/3/4 package costs S44.50 and the CP/M one S44.50, but for any registered owner with one version wanting the other then the price is S24.50. Upgrades are available at S9.50 for owners of earlier releases. All from:
Laurie Shields Software, 151 Longedge Lane, Wingerworth,
Chesterfield. S42 6PR. Tel 0246 75568

When I'm not adding new things to Zen I seem to spend a lot of time finding out which of many copies is the latest version of whatever Basic program it was that I was working on before it had to be put to one side for another more important one. As an aid I now use the following program to identify difference. To use it save the programs under question in Ascii and then run "Compare/Bas". In case you've never save d in Ascii then the command syntax is:
SAVE "PROGNAME/BAS",A

```
100 ' Compare/Bas
110 CLEAR 10000: DEFINT A-Z
120 CLS
130 LINE INPUT"Filespec of 1st Ascii saved Basic program : ";F1$
140 LINE INPUT"Filespec of 2nd Ascii saved Basic program : ";F2$
150 OPEN"I",1,F1$: OPEN"I",2,F2$
160 GOSUB 1000: IF E1 THEN 500
170 GOSUB 2000: IF E2 THEN 510
180 IF B1S=B2S THEN 160
190 IF L1<L2 THEN LPRINT "(1) ";B1$: GOSUB 1000: GOTO 180
200 IF L1=L2 THEN LPRINT "(1) ";B1$: LPRINT"(2) ";B2$: GOTO 160
210 IF L1>L2 THEN LPRINT "(2) ";B2$: GOSUB 2000: GOTO 180
220 LPRINT"**  Problems  **":LPRINT "(1) "B1$: LPRINT"(2) ";B2$:GOTO160
500 LPRINT"End of ";F1$:GOTO520
510 LPRINT"End of ";F2$
520 CLOSE
530 END
1000 E1=EOF(1):IF E1 THEN RETURN
1010 LINEINPUT #1,B1$:L1=VAL(B1$):PRINT@384,CHRS(30);B1$
1020 RETURN
2000 E2=EOF(2):IF E2 THEN RETURN
2010 LINE INPUT #2,B2$:L2=VAL(B2$):PRINT@640,CHRS(30);B2$
2020 RETURN
```

Now for some problems from last month's newsletter (dated June but arrived in August)

Dosplus 4 & TRSdos 6.0 Memdisks. Bearing in mind that TRS6 is no more than a re-hash of LDOS one should not be surprised to find that if there's two ways of implementing something then you can guess who will adopt the slow, inefficient and illogical method. This is typified in their implementation of JCL handling. For reasons best known to themselves their JCL system only accepts line-input from disk and ignores single character input such as inkeyS. So the JCL file can be used to power up Scripsit but once there the JCL ignores all the keystrokes as they are requested by the machine code equivalent of inkeyS, and now we get the illogical part, except for the Break key, this is accepted and recognised as the abort JCL command so on exiting Scripsit then it gives job aborted. I'm afraid there's no solution except by patching Scripsit so that on exit it automatically executes a backup routine, but that would involve disassembling the whole of it to find a suitable patch area and thats no small job.

Marcus Rowland cannot have read Geoff's documentation thoroughly enough as I'm sure in there somewhere if a " PC=nn" command that allows control codes to be send to the printer without upsetting Scripsit's characters, lines and page counts. All that he needs to do is determine the Ascii values of the control codes and then use the " PC". Typically "*END" has the values 42 69 78 68 and so his contol line would be " PC=42,69,78,68", for anyone using my beefed up Scripsit it would be a bit more longwinded with " PC=42 PC=69 PC=78 PC=68"

The Alternate Source, 704 North Pennsylvannia Ave,
Lansing, MI 48906, USA, publish a book by Jack Decker on the Model 1

Rom routines fully explained and indexed, with a Model 3/4 supplement detailing the differences from the Model 1. An extremely useful book if you use Rom routines and costing about $25.

Also worth getting is a two-monthly or thereabouts publication by Jack Decker called Northern Bytes. Mostly machine code but containing a fair amount of general interest, the last one I received was 22 pages of closely typed information all of very useful and not obtainable elsewhere. (See Molimerx's last mailshot offering to photocopy and distribute copies of N.Byte's listing of 3/4 differences. I wonder if he got Jack's permission?). To enrol simply send your address and Access number to
Northern Bytes, c/o Jack Decker, 1804 West 18th Street,
Lot 155, Sault Ste Marie, Michigan 49783, USA.
Each issue costs $2.

Newdos 80 Version 2.0 does work on the Model 4 but naturally it has to be the Model 3 version not the Model 1. Unfortunately for Jon Silver the only legitimate way of getting a copy is to buy it and I believe Blandford Computers carry a stock. If he then gets Video4 from TAS he can have Newdos80 with an 80 x 24 video as well.

Laurie Shields

POKING CHARACTERS TO THE SCREEN ON MODEL 4

My first disappointment on converting from my Model 1 to a Model 4 was to find that I could not poke characters to the screen as I did on the Model 1.

Most of the programs I have written for use in my Hotel involve inputing Names and Addresses together with other relevant data in some form or other. My early attempts at programming used simple INPUT statements for this action. Naturally if it was realised that an error existed in a previous input line (ie the Name was spelt wrong when you were in the process of entering the address) you had to go back and retype entire entry again.

As my programming skills increased I was able to develop a type of "mini word processor" where the cursor could be moved to any entry line on the screen and characters inserted or overtyped in the previously typed line. This worked perfectly on the Model 1 and was used in many of my programms.

When I started to convert these programs to run on the Model 4 I was horrified to find that all the literature from TANDY for the Model 4 stated that you could not PEEK or POKE to the screen memory. It was only after I found an article in September 1984's 80 MICRO by Seth Monger on this very subject that I discovered that you can switch the Video memory into main memory - where you can PEEK & POKE to your hearts content - then switch it back to where it came from before you do anything else.

The following program is a demonstration of the Model 4 version of my input subroutine using the above technique. It involves POKEing a value of 134 into address 120 (port 132) to switch Video into Main Memory and a value of 135 to switch it back again. When debugging this program - if you press BREAK when Video switched to Main Memory, then type POKE 120,135 immediately afterwards - otherwise "funny things" happen. I find this subroutine ideal for my applications. Other members may be able to make use of it or adapt it to their own programs.

```
5 CLS:'          **** Model 4 Screen POKE Demo ****

6 CLEAR,-3073
8 GOTO 10
9 PG$="scnput13/bas":CLS:PRINT@400,"Saving Program":PRINT,PG$:SAVE PG$:
  PRINT,,"DONE":END:'
  NOTE:-
            CURSOR STAYS PUT WHEN SHIFTING TO RIGHT
            SHIFT LEFT DELETES AND MOVES UP TO CLOSE GAP

10 LC(1)=425:LN(1)=30:LC$(1)=" Name :- ":LT$(1)="ALPHA"
11 LC(2)=585:LN(2)=38:LC$(2)=" Address :- ":LT$(2)="ALPHA"
12 LC(3)=745:LN(3)=30:LC$(3)=" Town :- ":LT$(3)="ALPHA"
13 ' Put more print@ positions,  lengths  & labels here
14 LC(4)=905:LN(4)=2:LC$(4)=" Age :-":LT$(4)="NUM"
19 LC(5)=1260:'   this is position of instruction line
20 JJ=4:'   Set this to total No. of lines to Input
40 FOR J=1 TO JJ :LM(J)=63488!+LC(J)+LN(J):LS(J)=63488!+LC(J):NEXT
45 '
            ****   Enter data routine  ****

50 GOSUB 200:FOR J=1 TO JJ:GOSUB 100:NEXT:GOSUB 100:GOSUB 130
55 '
             ****  Rest of program here  ****

60 CLS:PRINT:PRINT"For use in rest of program:-":PRINT:PRINT:
   FOR J=1 TO JJ :PRINT"IP$("J") = "IP$(J):NEXT
70 PRINT:INPUT" press <ENTER> to edit the above strings
   or <Q> to Quit & Return to Disk Menu ";X$
72 IF X$="q"OR X$="Q" THEN RUN"direct0x/bas"
75 '
        ****  Routine to modify existing data ***

80 CLS:GOSUB 200:FOR J=1 TO JJ:PRINT@LC(J),IP$(J);:NEXT:
   FOR J=1 TO JJ:GOSUB 100:NEXT:GOSUB 130
81 '
             ***   Back to rest of program again  ***

82 CLS:PRINT"  Strings now changed to :- ":PRINT:PRINT
85 FOR J =1 TO JJ:PRINT" IP$("J")  = "IP$(J):NEXT
90 GOTO 70

100 REM   ::::::   INKEY INPUT ROUTINE :::::::
           :::::::::::::: For ::::::::::::::
             TRS-80 MODEL 4 (in MOD 4 MODE)
101 '          ***  With EDIT Facilities ****
102 '  ***   Modified from page 119  in 80 MICRO 5/1980  ***
     ** Plus Modifications from page 96 in 80 MICRO 10/1984 **
103 '                 By :-  Ted Gladstone
                        031 661 4558
104 POKE 120,134:PRINT CHR$(15);:PRINT@LC(J),"";
105 X1=ROW(Y):X2=POS(Y2):Z1=63488!+80*X1+X2-1:LI(J)=0:Z=0
106 IF LT$(J)="ALPHA" THEN T2=127 ELSE IF LT$(J)="NUM" THEN T2=58
107 IF LT$(J)="ALPHA" THEN T1=31 ELSE IF LT$(J)="NUM" THEN T1=47
110 D=PEEK(Z1):POKE Z1,140:AL=A:SW=1
112 A$=INKEY$:IF A$="" THEN  POKE Z1,32:FOR I=1 TO 1:NEXT:POKE Z1,D:
    GOTO 110
114 A=ASC(A$):IF A=AL THEN SW=0:IF A = 13 AND J < JJ THEN POKE Z1,D:
    POKE 120,135:SW=1:RETURN
117 IF A = 13 THEN POKE Z1,D:POKE 120,135:RETURN
118 IF A > T1 AND A < T2 THEN POKE Z1,A:Z1 = Z1 + 1:LI(J)=LI(J)+1:
    IF LI(J)<LW(J) THEN LW(J)=LW(J) ELSE LW(J)=LW(J)+1:
    IF Z1 > LM(J) THEN Z1 = LM(J):POKE Z1,191
119 IF A = 25 AND LW(J)>LN(J)-1 THEN POKE Z1,D:GOTO 106
```

```
120 IF SW=1 AND  A = 25 OR A = 24  THEN  POKE Z1,D :LV(J)=LC(J)+LI(J)+63488!:
    R$="":R=VARPTR(R$):POKE R,LW(J)-LI(J):POKE R+1,LV(J)-INT(LV(J)/256)*256:
    POKE R+2,INT(LV(J)/256):IR$(J)=R$:SW=0:Z=0
121 IF A = 25  THEN Z=Z+1:LI(J)=LI(J):LW(J)=LW(J)+1:
    PRINT@Z1-63489!+Z," "+IR$(J);:GOTO 106
122 IF A=24 AND LI(J)<1 THEN POKE Z1,D:GOTO 106
123 IF A = 24  THEN Z1=Z1-1:LI(J)=LI(J)-1:LW(J)=LW(J)-1:
    PRINT@Z1-63489!+1,""+IR$(J)+" ";:GOTO 106
124 IF A = 9 THEN  POKE Z1,D:Z1=Z1+1:LI(J)=LI(J)+1:
    IF Z1 > LM(J) THEN Z1 = LM(J):POKE Z1,191
125 IF A = 8 THEN  POKE Z1,D:Z1=Z1-1:LI(J)=LI(J)-1:
    IF Z1<LS(J) THEN Z1=LS(J):LI(J)=0
126 IF A = 10 THEN  POKE Z1,D:Z1=63488!+LC(J+1):J=J+1:LI(J)=0:
    IF J > JJ THEN J = JJ :Z1=LS(J)
127 IF A = 11 THEN POKE Z1,D:Z1=63488!+LC(J-1):J=J-1:LI(J)=0:
    IF J<1 THEN J=1:Z1=LS(J)
128 GOTO 106
130 POKE 120,134:FOR J=1 TO JJ
132 POKE Z1,D: LV(J)=LC(J)+63488!:A=VARPTR(A$):POKE A,LN(J):
    POKE A+1,LV(J)-INT(LV(J)/256)*256:POKE A+2,INT(LV(J)/256):IP$(J)=A$
134 NEXT
136 POKE 120,135:RETURN

199 '              *** Screen    Layout   ***

200 FOR X% = 169 TO 1112 STEP 80:PRINT@X%,STRING$(58,191):NEXT
210 PRINT@263," Please answer the following :- ";
220 FOR J=1 TO JJ:PRINT @ LC(J)-(LEN(LC$(J))+3),LC$(J);:
    PRINT @ LC(J)-1,STRING$(LN(J)+1," ");:NEXT
230 PRINT@LC(J)-50,"  Press <ENTER> if OK else use arrow keys to fix  ";
235 PRINT:PRINT:PRINT TAB(15)"To Delete & Move up Press <SHIFT><LEFT ARROW>":
    PRINT TAB(15)"To Open Up for Insert Press <SHIFT><RIGHT ARROW>"
240 RETURN
```

The technique looks as if it could be useful for other purposes as port 132 also controls which memory bank is active - perhaps we could have another basic program running at the same time in the other bank. I do not have the time or experience to experiment with this at the moment but it looks interesting - perhaps some of our more knowledgeable members could comment.

Ted Gladstone.
Mansion House Hotel.
EDINBURGH
031 661 4558

HOPE FOR CONVERSION

In reply to Mr Rowland's article in last month's NATGUG NEWS I would like to give my experiences on converting from my faithful old TRS-80 Model 1 to a Model 4 in the hope that it may give any other members contemplating such a move, a little more reassurance than that which was obtained from Mr Rowland's article.

About a year ago I too bought a secondhand Model 4, my main objective in doing so was that I wanted an 80 column screen, all the bits in one box, and the ability to use all the existing software that I already had for the Model 1. This, I am pleased to report, I have achieved with very few exceptions. This is mainly due to the fact that I have used LDOS exclusively on the Model 1 and by using LDOS in the Model 3 mode, all my programs

run with no modification or conversion whatsoever (except for slight changes in commands to the printer). Even in the Model 4 mode I can read and write to all my Model 1 data disks. TRSDOS 6 is LDOS anyway so all the commands are familiar - although "SYSTEM" instead of "CMD" took a bit of finding - serve me right for not bothering to read the manual. (I may hasten to add that I am not interested in games programs so cannot comment on their compatability - all the above have been business programs and programs I have written myself in Basic.)

As to the use of external drives with the Model 4 I, naturally, wanted to use my old drives from the Model 1 and I too was advised by TANDY that these drives would not work on the Model 4. I was about to give up when I started experimenting and found that all that was required was to alter the stepping rate for the external drives with the "SYSTEM" command (Model 1 drives step at 40 ms whereas the Model 4 expects drives to step at 6 ms - therefore configure drives 2 and 3 to step at 40 ms).

ie :- SYSTEM(DRIVE=2,STEP=3)

This command works in Model 3 and Model 4 mode even if it's not in the Model 4 TRSDOS Manual. There is no need to alter any dip switches or anything within the external drives (contrary to the installation instructions for setting switches for disk drive number) or change the cable - merely plug into the Model 4 - configure the system as above - and hey presto you have 4 disk drives all active.

The problem Mr Rowland had with the printer cable is more baffling. I used an Epsom MX-100 with my Model 1 and this works perfectly, simply by plugging the same cable into the Model 4. It's also been hooked up to a DMP 120, a MX-80 and a TANDY Daisy wheel all belonging to friends who normally use them on their Model 1, so I guess it's Mr Rowland's cable that's at fault. The only incompatability, as stated above, is that certain line feed commands used on the Model 1 give unexpected results when used with the Model 3 but it is a simple matter to change these when running in the Model 3 mode.

The screen does give a very slight waver when the disk drives start up but, at the moment, nothing serious and barely noticeable. Up till now i've never had any I/O errors and it has never hung up - unlike the Model 1 that was forever hanging up until I fitted gold plugs to the expansion interface cable.

One final point, and one that I hope is exclusive to my machine, is that I have discovered that there is a fault in the printer driver routine within the ROM. This manifests itself by displaying "SYNTAX ERROR" or rebooting whenever an LPRINT or LLIST command is given when using the TRSDOS operating system in Model 3 mode or even when using it as a cassette based machine with no disk operating system. This only came to light recently when I tried to configure one of my LDOS disks in a certain way and I discovered all programs on that disk that contained any LPRINT statements caused a reboot. Up until that time the only program that would not work properly on the Model 3 was VIDEO4 - which should have given me an 80 column screen in the Model 3 mode. I put this down to incompatability with LDOS but at the recent Edinburgh Workshop I was told that it should work OK. Lawrie Shields and I burnt a lot of midnight oil after the Workshop and he eventually traced it down to a fault in the "C" ROM or possibly a wrong version of the "C" ROM in my machine. After many telephone calls to TANDY and elsewhere trying to find someone who could supply me with new ROMs - all to no avail - I have in the meantime given up trying to fix it. I don't want to

be without my machine while TANDY take it away to sort it out - they want to charge me double anyway because i've been inside to fit extra memory. It works perfectly with all the programs I am currently using (LDOS having its own printer driver routines) and when I eventually transfer all my programs to the Model 4 mode, these ROMS will be obsolete anyway.

Don't let the above problem put you off the Model 4 - nobody I spoke to at TANDY etc had ever heard of it before - it must be unique to my machine, otherwise I am delighted with it.

ps. I'm still keeping the Model 1 as a spare - just in case.

Ted Gladstone
Mansion House Hotel.
Edinburgh
031 661 4558

"ALLWRITE" and All That.

Both Dave Washford in the January News and John Miller in the May issue discussed "Allwrite" and indicated that there was some special U.S. legislation which prevented Prosoft from marketing this product in the UK. I also had this impression after my enquiries to Chuck Tesler had elicited a rather terse note saying that legislation prevented the sale of the product and I have even heard members saying that the export is banned by the US Government in case this excellent word processer falls into Russian hands!

The implications to TRS-80 users of having all the American supplies of software disappear overnight was shattering and I turned for advice to *"80 Alert"* the readers agony column run by the last of the TRS-80 magazines. The following is a verbatim quote from their reply.

> "There is no new US legislation preventing Prosoft from selling software internationally. Mr. Tesler chooses not to do so in many instances (there is no overseas shipping charge in the Allwrite ad) due to the fact that US software is not protected in most foreign countries including the United Kingdom. Mr. Tesler has proof of foreign companies selling copies of his programs and legally, there is nothing that he can do about it. As far as he is therefore concerned, as long as foreign laws protect the pirate, he will decide what he will and will not sell in these countries."

It appears, therefore, that the decision is very much a personal one on the part of Chuck Tesler. Whilst this restriction is very much operative for "Allwrite" which, to date, has not been available from any source other than Prosoft, it is not really true for other products marketed by Prosoft. I have recently purchased "Dotwriter 4.0" from an American discount house and would presume that fonts are also available from this source although I have not yet had written confirmation of this fact. Perhaps "Allwrite" will eventually find it's way into the distributive network and we will all be able to benefit from this, by far the best word processor available for the TRS-80 range.

"Allwrite" has been advertised with the Radio Shack catalogue number of 90-0242 for the Model 4 version. Is it possible that Tandy (UK) may actually market this product in the near future ?

Ken Arntsen,
3 Home Pastures,
Hatfield Heath,
Bishops Stortford,
CM22 7ES.

FILE ENCRYPTION IN C

The following program (for the C/80 compiler) encrypts a file by exclusive-ORing each byte with successive bytes from a key string. The file may be decrypted by running the program on the encrypted file using the same key, because of the symmetrical nature of the exclusive-OR operation. It won't stop the US National Security Agency or GCHQ looking at your files, or even a determined hacker, but it might be useful for business purposes.

```
/* crypt - encrypt and decrypt a text file */

£include <fprintf.h>

£define EOF -1

main(){

        int c, *in_chan, *out_chan, i, keylen;
        char source[12], dest[12], key[64];

        cls();
/* get source file name and open file */
        printf("Source file: ");
        gets(source);
        in_chan = fopen(source, "rb");
        if (in_chan == 0)
                error("File open error");
/* get destination file name and open file */
        printf("Destination file: ");
        gets(dest);
        out_chan = fopen(dest, "wb");
        if (out_chan == 0)
                error("File open error");
/* get key */
        printf("Key: ");
        gets(key);
        keylen = strlen(key);
/* get characters, encrypt them, and output them */
        for (i = 0; (c = getc(in_chan)) != EOF; i++)
                putc(c ^ *(key + (i % keylen)), out_chan);
/* close files */
        fclose(in_chan);
        fclose(out_chan);
}

error(s)
char *s;{

        puts(s);
        exit();
}
```

Leon Heller

CPM - A NEW USERS TUTORIAL PART 4

In part 4 of my tutorial is I will discuss the transient commands DUMP, LOAD, ASM and DDT. I must emphasize at this point that my knowledge of these commands is very limited as I am not deeply into Machine Code, however, I will do my best. I am also going to take them in a slightly illogical sequence as I shall deal with DUMP and LOAD before ASM, those of you already in the know will be aware that LOAD is used after a program has been assembled with ASM.

DUMP.COM

DUMP is very self explanatory, and simply dumps the contents of a file to the screen in Hexadecimal format. The command is simple to use and takes the form:

```
A>DUMP CHESS.COM
A>DUMP B:CHECKERS.COM
```

A listing of the file in HEX is sent to the screen, if a printout is required, then you should press CTRL P before executing DUMP. Here is an example of the printout from DUMP, in fact it is the first few lines of the DUMP.COM program

```
0000 21 00 00 39 22 15 02 31 57 02 CD C1 01 FE FF C2
0010 1B 01 11 F3 01 CD 9C 01 C3 51 01 3E 80 32 03 02
0020 21 00 00 E5 CD A2 01 E1 DA 51 01 47 7D E6 0F C2
```

That's all there is to DUMP. There is scope here for the machine code programmers amongst you to modify this so that it is a little more helpful by displaying/printing the name of the file being dumped etc.

LOAD.COM

LOAD is a program which takes a program in Hexadecimal format and converts it into a .COM file. Initially I saw no reason for it, until I discovered that the ASM.COM program assembles an .ASM file and turns it into a HEX file. Therefore to assemble a file and make it into an executable .COM file requires firstly and .ASM file to be assembled, which creates a .HEX file, which is in turn LOADed to create a .COM file. It is run by simply typing

```
A>LOAD INVADERS
A>LOAD B:STARTREK
```

The first example LOADs a program called INVADERS.HEX from drive A and creates a program called INVADERS.COM also on drive A. The second example LOADs a program called STARTREK.HEX from drive B and creates a file called STARTREK.COM on drive A. Note that the extension .HEX is the default for this command. The only programs that can be LOADed are those that execute in the TPA (Transient Program Area) ie at 0100H. Again a very simple little command, I don't know why I didn't discuss it earlier!!!

ASM.COM

This is the Assembler which comes standard with CPM. Note that it is not like EDTASM, which EDiTs and ASseMbles programs. ASM will assemble any standard INTEL 8080 format (whatever that is). When it is executed a two files are created. Firstly a HEX file which is ready to be LOADed and secondly a PRN file which contains the listing of the ASM file together with any error messages and also the Machine Code values. Confused? Well if you don't understand Machine Code then you will be, if you do understand M/C then it's my fault as I don't really know enough about M/C. All will I hope become clear so don't give up. Press on.

To demonstrate the use of ASM I will create a small file to be assembled, god knows what this file will do when executed, but that's not what I am trying to show you.

```
; USELESS.ASM
; A USELESS DEMO PROGRAM
        ORG     100H
FIRST:  EQU     0005H
```

```
BLANK:  EQU     32
        CALL    FIRST
        LXI     H,60H
        INX     H
        CPI     60H
        JMP     FIRST
        END
```

The first thing to note is that the assembler pseudo-ops, (I thought they only existed in Private Eye), are not the usual Z80 ones seen in EDTASM etc. So don't think you can transfer all your wonderful Model 3 and 4 stuff across; in fact the different codes is only the first of your problems. These codes are 8080, remember what I said about Intel etc above, however all is not despair there is a Z80 assembler called ZASM on the market and it is much the same as ASM. However, I digress, what I am going to do is talk you through assembling the file above, I suggest that you follow the steps on your own machine.

First create the file USELESS.ASM, either using a word processor or if you have followed my series carefully then try using ED. I did and it worked!!!!! Next you must call up the assembler by typing

```
A>ASM USELESS
```

The computer will reply

```
CP/M ASSEMBLER - VER 2.0
010C
000H USE FACTOR
END OF ASSEMBLY
```

(I don't know what all the values and words actually mean but still it works!

It has assembled your program and created a file called USELESS.PRN and another called USELESS.HEX. USELESS.PRN will contain the following

```
                        ; USELESS.ASM
                        ; A USELESS DEMO PROGRAM
                                ORG     100H
0100 =                  FIRST:  EQU     0005H
0020 =                  BLANK:  EQU     32
0100 CD0500                     CALL    FIRST
0103 216000                     LXI     H,60H
0106 23                         INX     H
0107 FE60                       CPI     60H
0109 C30500                     JMP     FIRST
010C                            END
```

This is the listing of the file plus the HEX bytes that are actually going to be loaded into memory, note that if there were any errors on assembling then they would also show up in the PRN file. The HEX file is much smaller, and simpler to understand now you have listed the PRN file. Just type

```
A>TYPE USELESS.HEX
```

The result is

(* The hex code for a colon is 3A, hence the 3A in the hex dump, LFH *)

```
:0C010000CD0500216000234FE60C30500067
:00000000000
```

It is in fact the code from the PRN file packed together and ready for LOADing. A DUMP of the HEX file reveals a first line which shows

```
0000 3A 30 43 30 31 30 30 30 30 43 44 30 35 30 30 32
```

This bears no resemblance to the TYPE of the HEX file, and a little thought shows you why, the DUMP is the HEX values of 0C010000 etc from the TYPE of the HEX file, I don't know why the initial 3A is there. Lets now LOAD USELESS.HEX with the result

```
FIRST ADDRESS 0100
LAST  ADDRESS 010B
BYTES READ    000C
RECORDS WRITTEN 01
```

That should explain itself although the last line seems superfluous to me. DON'T try to run USELESS.COM that has now been created as it is useless, at this point you have to dream up your own assembly code or copy it from a book.

Well that's what ASM does, but now for some details on the options available and the errors that might occur. In the example you just typed in the name of the file to assemble, but there are some parameters that can be used, eg typing

```
A>ASM USELESS.AAA
```

will in fact tell the computer that the source and destinations for all the files (ASM,PRN,HEX) are on drive A. Yes I know it looks odd but the parameters are added instead of the file extension. This system relies on the fact that the file you are assembling has the extension .ASM. To break it down into parts, the first letter after the full stop is the letter of the drive that the source (ASM) file is on, above it is drive A. The second letter is the drive letter for the HEX file to be created on, and the last is the drive letter for the PRN file to be sent to. There are two more letters that can be used in the second and third positions and they are X and Z. A Z in the second position will prevent the HEX file being generated; a Z in the third position will prevent the PRN file being generated. Finally an X in the third position will cause the PRN file to be sent to the screen, something that I would have thought happened by default. Try these on your own machine and see if you can predict what they should and should not do

```
A>ASM USELESS.AAA
A>ASM USELESS.ABB
A>ASM USELESS.AAB
A>ASM USELESS.AZA
A>ASM USELESS.AZB
A>ASM USELESS.AZZ
A>ASM USELESS.AZX
A>ASM USELESS.ABZ
```

If you couldn't predict correctly what was going to happen then read the above section again, if still no go then either I have boobed badly or else you have a problem!!!!!

that's all there is to running ASM.COM, but now let's look at the Error Messages that you will almost definitely see, in fact you have probably already seen some of them. The first messages are those that occur when trying to run ASM.

```
NO SOURCE FILE PRESENT
NO DIRECTORY SPACE
SOURCE FILE NAME ERROR
SOURCE FILE READ ERROR
OUTPUT FILE WRITE ERROR
CANNOT CLOSE FILE
```

All of the above are fairly self explanatory, the last two normally caused by a write protected disk, note that no message to tell you that a disk is write protected exists, you have to guess that yourself!!!!

The next series of error messages are those that occur during assembly, and will be found in the PRN file.

D Data error, an element in a data statement cannot be placed in the specified data area.
E Expression error, normally incorrect syntax.
L Label error, possibly duplicated.
N Not implemented error, feature will be incorporated in future versions.
O Overflow, expression is too complicated to compute.
P Phase error, a label does not have the same value on 2 separate passes.
R Register error, often in incompatible or illegal opcode.

V Value error, probably a value outside the acceptable range.

That really concludes the bit on ASM, I have not intended to show how to write assembly language programs, but simply having written or copied one, I hope to show how to get a working .COM file from it.

DDT.COM

I have dreaded this moment because as I write this sentence I haven't even used DDT. So I will now have to take a break from typing and play with the Dynamic Debugging Tool. BAck soon.

Well that wasn't too painful and I found out an amazing fact.

I CAN TRANSFER ASCII TEXT AND BASIC FILES FROM TRSDOS TO CPM ! ! ! ! ! ! ! !

Yes who needs expensive transfer programs for only about 30 minutes hard slog and experimentation you can transfer ASCII files to CPM using DDT. Then all you need to do is make any changes to the file, such as different BASIC commands, and Abracadabra, it's done.

Anyway to get back to DDT, I will first explain how to run the program from scratch.

```
A>DDT
A>DDT WORDSTAR.COM
A>DDT DUMP.HEX
```

Usually only HEX and COM files are changed with DDT although as you will see later TXT files can be SAVEd after using DDT to operate on them. If DDT is called up with a filename then the following display will appear.

```
DDT VERSION 2.0
NEXT PC
1E00 0100
```

This tells you where the program ends, in this case it ends at 1400-1 ie 13FF, and also you are told where the Program Counter (PC) is currently pointing. The PC is of no real use to me but others will find the info useful. The NEXT value, that is to say the location where the next program in memory (if there is one) will lie, is useful when working out the length of a file for use in a SAVE command. To work out the value used in a save command the following method may be used. First if the figure under NEXT ends in 00 then subtract 100H from the value, in the above example making it 1D00H. Then ignore the 00 at the end and you have the hex value to use in the SAVE. The only thing left to do is to convert 1EH to decimal as SAVE uses decimal values. For those unsure how to do this, try looking at the table in your TRSDOS Manual, 1EH is in fact 30 decimal. If the last two figures of the NEXT value are not 00 then simply ignore them and convert the first two figures directly into decimal. So to save the program currently in DDT simply exit DDT by typing GØ, and then type

```
A>SAVE 30 FILENAME.COM
```

To recap that section, simply load a program by using the format DDT filename, then modify it and having worked out the amount of space used, save the program with the SAVE command.

Somewhere above I used a GØ command to exit DDT, well that is one of the commands found in DDT, it means Goto address 0000H and execute (not a nice word) what you find there. Other forms of the G command are

```
G       Start execution at the current PC value
Ga      Start execution at address a
Ga,b    Start execution at a and set a breakpoint at b
Ga,b,c  Start execution at a and set breakpoints at b and c
G,b     Start execution at the PC with a breakpoint at b
G,b,c   Work this out for yourself
```

Another command is to display memory.

D Display memory from the current address for 16 display lines
Da Display memory from address a for 16 display lines
Da,e Display memory from a to e

Also memory can be filled from point to point

Fa,e,b Fill memory from a to e with byte b

Blocks of memory may be moved from point to point.

Ma,e,d Move block of memory from a to e to a destination location at d

The final display series are those which disassemble memory.

L List 12 lines of disassembled memory
La It doesn't take an archbishop to work these two out!!!!
La,e

There are a number of other commands which manipulate the area of memory that you currently have in view. Note here that you are not actually changing the file on disk but modifying memory only. In fact DDT calls the program into memory at 0100H and that is where the mods are done. Remember that after leaving DDT the program MUST be SAVEd if the changes are to be made permanent. I will now list the remaining commands, some of which I still do not fully understand as all my references only say what they do and don't actually give examples of how and why they do it.

Aa Perform an in-line assembly at starting at address a ? ? ? ?
T Trace the next instructions ? ? ? ?
Tn Trace the next n instructions ? ? ? ?
U Untrace - similar to above but intermediate steps are not shown ? ? ?
If Insert a filename into a File Control Block (FCB)
R Read the filename contained in the FCB into memory starting at 0100H
Ro Read the filename in the FCB into memory offset o bytes from 0100H
Sa Set, ie examine and modify memory at address a
X Examine registers and flags
Xr Examine a specific register or flag, where r is
C Carry flag
Z Zero flag
M Minus or sign flag
I Intermediate Carry flag
A Accumulator
B BC register pair
D DE register pair
H HL register pair
S Stack pointer
P Program counter

Those of the above that I have put a series of ? after, mean little to me and I couldn't get them to work for me. The FCB lies in the first page of memory, doing a DØ will show it. It enables you to read new files in from disk, but be careful with drive letters before the filename. Offsetting a file when loading it enables you to read in an ASCII file to a position in high memory, then exit DDT and CPM and run a monitor program under TRSDOS to read the file back and then save it to a TRSDOS disk. This is the reverse of loading programs into CPM from TRSDOS, and to do that you should first use a monitor or debugger in TRSDOS to read a file into memory. The file should be offset to at least 2900H, in fact to be safe I use locations around 7000H or 8000H. Then boot up CPM, it does not damage memory unless you switch off the machine. Display the area of memory and note its start and end point. Move it down to location 0100H, calculate the size of file in bytes, divide that answer by 128 to arrive at the size for SAVE. Exit DDT and SAVE the program. That's it you can now transfer ASCII text from

one to the other. Note that you have to manually work out the SAVE size for this operation.

The normal CPM CTRL characters apply within DDT eg CTRL Z to abort a command such as S.

That is all for this part of the tutorial. It is a part that I have left till late to allow me a little time to research the subject matter, however I would like to have done some more research into them, in fact a whole book exists for DDT. At this stage some of you may like me think well that's it for now I know all that I need to know. Well in the next issue I will discuss MBASIC and converting from one BASIC to another, also some words on other utilities and perhaps a little on the way that CPM actually works. Finally this time before I leave I will give you the address of the CPM User Group UK and do a small plug for them.

The CPMUGUK is in fact now called CPMSDOSUGUK! ! ! Try that after a few on a Saturday night! ! ! ! It has an excellent set of public domain (free) software on about 300 + 8" disks, some of these are from UK and Europe, most are of US origin. The only problem at this stage is that it is difficult to transfer these from 8" to 5" disks, although I believe at the last AGM someone volunteered to take on this mammoth task (come on who are you?) The programs on these disks are many and varied from business to games and numerous utilities and patches. Their newsletter is a very professional job, and sometimes contain the down to earth articles that we have come to expect from NATGUG. Membership is fairly cheap and I will certainly stay in for a couple of years. Their membership secretary is

D Fordred
72 Mill Road
Hawley
Dartford
Kent

DA2 7RZ

I hope you find them of some use to you.

Dave Holman
160 London Road West
Bath
Avon

BA1 7QU

Model 4 Notes

I wrote in the February News of problems with getting the clock to keep accurate time under TRSDOS 6.2. I have subsequently had a reply from Tandy in the form of a new system disk. After using SYSTEM (HERTZ5) the clock now keeps pretty accurate time. Unfortunately, I have no idea what patches they have applied but if anyone needs a more accurate clock Tandy now have the answer.

E.C.Kilpatrick had some harsh words in April on the inability of the Bishopsgate Tandy shop to produce a copy of TRSDOS 6.2 which makes me wonder a little. I actually purchased my copy whilst on holiday in Cape Town in December but it apparently suffered some x-ray damage in transit and I took it back to Bishopsgate on January 2nd and they kindly made a fresh backup for me on the spot. The Bishopsgate shop is my 'local' since I travel in to Liverpool Street station and I have always found them to be most helpful in the past. I hope the merger with ACT has not changed the situation.

Incidentally, whilst in Cape Town I also obtained a copy of the **1985 Tandy Computer Catalogue** which I discarded whilst packing for the return flight since I knew I would be able to pick up another copy in London! Alas, my optimism was unwarranted and here we are six months in to the year and despite letters to Tandy UK and US I am still without this year's catalogue. What is most annoying is that Tandy have now taking the plunge and started offering non-Radio Shack software and I would dearly love to look over this list.

In the May issue Keith Taylor complained about the clock with TRSDOS 6.2 - perhaps he could contact Tandy for an update. As far as his problems with the **type-ahead** feature are concerned I suspect he may have some sort of bug since I have had no problems in this department. In fact I pride myself on being something of a typist but I have not been able to fluster the system. The problem may well be one of the application program rather than the computer. A good time to change to a real word processor and throw away the Scripsit ?

I thought I collected software but John Miller (May News) seems to have acquired everything of note plus some! Being in the scientific field myself I wonder what data base he uses for his references ? I am unable to comment fully on the comparison between **DOSPLUS 4** and TRSDOS 6.2 since I do not have a full set of the former. However, I purchased the **"6.X Plus"** package some time back which adds most of the DOSPLUS utilities to TRSDOS and can fully recommend them to anyone wanting a bit more from his OS. Being another owner of **Allwrite** by proxy I must admit that DOSPLUS seems to have a bit of an edge over TRSDOS in speed of saving and loading but since I spend most of my time writing rather than saving or loading I would not purchase it on this point alone. It is interesting to note that the Allwrite manual states that the keyboard driver of TRSDOS 6.2 is superior to that provided by Allwrite, presumably to supplement the driver that is deficient in DOSPLUS so it seems that what one gains on the swings one loses on the roundabouts. (This is written with regard to word processing - there may well be other applications where the edge provided by DOSPLUS may be the deciding factor.)

I must concur with John in his disappointment with **"LeScript"**. I also tried it but found that although it promised so much it's scrolling was chronically slow, some of the commands were difficult to interpret and it kept falling down on simple functions and I soon managed to lose or corrupt several files - something I have never managed to do under "NewScript" or "Allwrite". There is never a perfect program to satisfy all users but the products of the Prosoft stables have a rock-solid safety factor built into every step. If there is anyone who read the review of "LeScript" in 80-Micro and thought this was the ultimate WP then I can only advise them to take that over-optimistic review with the proverbial pinch of salt. (There has not been a peep from anyone yet about the other Model 4 contender **"Lazywriter"** - does this mean that the program is utterly worthless or just that the owners are lazy writers? (Asking for forgiveness somehow seems inadequate to escape from that dreadful pun!))

I have been keeping an index of Model 4 software for nearly 2 years yet I seem to have missed the window program **"Pronto"** from Misosys. I wonder where it was advertised ? Hi-resolution graphics is one of the few things that the Model 4 really lacks (I have never been sure about the real value of colour) and I would welcome any more comments on this adaptation - particularly the ability to do screen dumps since fancy screen graphics is marvellous for the individual viewer but it is the printout that one has to tote around to impress other people.

Has anyone out there experience of **"Datagraph"** which seems to promise so much ? It now prints out from Visicalc and Multiplan files and does log scaling of graphs but apparently still lacks the ability to utilise home-grown files. It's biggest disadvantage seems to be that one has to buy a different program for every printer unlike some WP packages which include all the necessary printer drivers in the same package.

My software list presently contains 196 titles for the Model 4 and, as indicated above, it seems that some programs still escape my vigil. How can anyone say that the TRS-80 is dead?

Ken Arntsen (0279)-730354.

MICRO-80 MAGAZINE

If like me as a subscriber you have been wondering about the continued non appearance of this Tandy/Genie orientated Australian magazine, you might like to know that I have finally managed to make contact by telephone today with the English distributor, Mr Atkinson of Tunbridge Wells.

He tells me that there have been many problems in continuing production because of a fall off in sales of Tandy equipement in general and the magazine in particular. However it is intended to honour all outstanding subscriptions by the expedient of producing bumper size bimonthly issues, but then production will cease once and for all. Under the circumstances no new subscriptions are being taken.

The first of the bimonthly issues should be here in a couple of weeks for distribution in England, that would be about the end of July. The magazine is now air freighted in from Australia and is no longer printed in England. The distributor told me that he hoped that there would be an editorial statement about the non-appearance of the magazine in the next issue.

I suggested to him it would have been better for all if subscribers had been informed of the situation, and enquired why he had not at least answered my letters of enquiry to him, to which he had no answer but to apologise.

Sic transit gloria mundi!

Peter Roberts,
11 Spring Gardens,
Parkstone,
Poole,
Dorset.

WANTED - Visicalc EPROM

It's hard to resist the pressure to buy new hardware. And when anybody asks me what I use, I'm ashamed to say it's an old, high mileage, unwashed, Model I.

Then I think of its virtues: its BASIC doesn't mind whether you put spaces between words or not, its DOS will hunt through the drives without needing to be told, NEWDOS BASIC has a fast sort, MULTIDOS will read almost any disk, GEAP provides dozens of print fonts, SUPERZAP cures all ills, SCRIPSIT earns me a good living ... why should I buy an IBM PC ?

The only time I hit the Model I's limitations is with Visicalc's massive memory demands. 23K working space after the program is loaded in, just isn't enough.

There are a couple of remedies, but I'm not smart enough to do them.

Is there anybody in NATGUG who has put Visicalc into ROM? If we could switch out the redundant resident BASIC, because this isn't needed when programming in Visicalc, we

should have almost the full 48K RAM to play with. Not that this would be simple: a Visicalc EPROM would have to carry disk, printer and other routines.

Improvement Two, would be a modification so that blank cells didn't use memory. Psion did this with Abacus. If you make an entry in ZZ999, or whatever Abacus' bottom right limit is, only a miniscule amount of memory is taken up. But do that in Visicalc - even if the rest of the sheet is blank - and a huge, memory gobbling, array is set up.

So: has anybody done a patch to improve this ?

In the meantime, I'd like to hear of two other enhancements:- is there a version for the Model I that understands IF and AND? And is there a version in which you can alter a single column width without that being a global alteration?

Phone me on 0206 241725 or 0202 230337

Arnold Handley
Stanton House
West Bergholt, Colchester CO6 3JS

PENRAM for model 4

Those who have used Roxton Bakers Penram will appreciate the value of a full screen editor; not to be confused with a text editor. The majority of currently available utilities which have ram editing facilties only provide the means of editing character or line at a time. Ones that do provide page editing take up considerable space. Penram is just over 1K and allows editing, scrolling backwards and forwards in hex or ascii. I have modified this public domain program to run on the model 4. Because of the length of a source listing I have only enclosed a hex dump. For a disc and return postage I am prepare to supply the assembler listing.

Command summary:

On entry a start address is prompted for.
Arrow keys control the cursor movement.
Shift clear toggels between hex and ascii.
Shift left arrow prompts for new start address.
Shift left followed by return exits.
CTRL 'R'set ref address to current cursor address.

In ascii, any valid ascii character entered will overwrite character at cursor.
In hex, any valid hex character will overwrite the first nybble at the cursor, two nybbles must be entred before the cursor will continue. Break will restore the original first nybble, move the cursor back to in front of the byte, allowing reentry of a correct character.

```
7000    C3 AD 70 FF    FF FF FF FF    FF FF FF FF    FF FF FF FF
7010    FF FF FF FF    FF FF FF FF    FF FF FF FF    FF FF FF FF
7020    FF FF FF FF    FF FF FF FF    FF FF FF FF    FF FF FF FF
7030    FF FF FF FF    FF FF FF FF    FF FF FF FF    FF FF FF FF
7040    FF FF FF FF    FF FF FF FF    FF FF FF FF    FF FF FF FF
7050    FF FF FF FF    FF FF FF FF    FF FF FF FF    FF FF FF FF
7060    FF FF FF FF    FF FF FF FF    FF FF FF FF    FF FF FF FF
7070    FF FF FF FF    FF FF FF FF    FF FF FF FF    FF FF FF FF
7080    FF FF FF FF    FF FF FF FF    FF FF FF FF    FF FF FF FF
7090    FF FF FF FF    FF FF FF FF    FF FF FF FF    FF FF FF FF
70A0    FF FF FF FF    FF FF FF FF    FF FF FF FF    FF 3E 69 EF
```

```
70B0  21 18 01 CD  A5 74 21 F5  74 3E 0A EF  21 17 03 CD
70C0  A5 74 21 FE  74 3E 0A EF  CD AF 74 21  07 05 CD A5
70D0  74 21 C9 74  3E 0A EF 21  07 06 CD A5  74 3E 1E CD
70E0  9E 74 06 04  21 03 70 3E  09 EF 78 A7  C8 00 00 FE
70F0  04 20 E4 21  06 70 CD 39  73 38 DC 32  45 70 CD 39

7100  73 38 D4 32  46 70 AF 32  4D 70 32 4C  70 32 4B 70
7110  2A 45 70 22  51 70 06 02  21 0F 06 0E  3E 3E 0F EF
7120  06 02 2E 14  0E 3C 3E 0F  EF 06 02 21  19 06 0E 30
7130  3E 0F EF 2A  45 70 22 43  70 06 10 21  00 08 25 CD
7140  A5 74 D9 C5  06 04 3E 0F  EF C1 24 2E  00 CD A5 74
7150  2A 43 70 CD  0F 74 21 03  70 3E 0A EF  01 10 00 CD
7160  7A 74 D9 10  DD 3E 01 32  50 70 2A 47  70 CD A5 74
7170  3E 80 CD 9E  74 3A 4C 70  3C 47 21 03  07 11 00 01
7180  D9 2A 45 70  01 11 00 AF  ED 42 11 10  00 D9 19 D9
7190  19 D9 10 FA  3A 4B 70 3C  47 11 03 00  19 D9 23 D9
71A0  10 FA 22 47  70 0E 8A 06  02 3E 0F EF  D9 22 49 70
71B0  D9 21 10 06  CD A5 74 21  07 70 36 03  2B ED 4B 49
71C0  70 CD 52 74  3E 0A EF 21  2D 05 CD A5  74 21 06 70
71D0  ED 4B 51 70  CD 52 74 3E  0A EF 21 1E  06 CD A5 74
71E0  3E 1E CD 9E  74 2A 49 70  ED 5B 51 70  AF ED 52 38
71F0  09 11 53 70  3E 2B 12 13  18 11 ED 5B  49 70 2A 51

7200  70 AF ED 52  11 53 70 3E  2D 12 13 3E  61 EF 3E 44
7210  12 13 3E 0D  12 21 53 70  3E 0A EF 2A  47 70 CD A5
7220  74 3E 01 EF  FE 18 CA D7  70 FE 14 28  32 FE 12 20
7230  08 2A 49 70  22 51 70 18  5E 32 4E 70  FE 1F 20 0B
7240  3A 4D 70 EE  01 32 4D 70  C3 33 71 3A  4E 70 FE 0B
7250  28 02 18 05  CD 54 73 18  3E FE 0A 28  02 18 05 CD
7260  AB 73 18 33  FE 08 28 02  18 15 3A 4B  70 3D FE FF
7270  32 4B 70 20  22 3E 0F 32  4B 70 CD 54  73 18 18 FE
7280  09 28 02 18  15 3A 4B 70  3C FE 10 32  4B 70 20 07
7290  AF 32 4B 70  CD AB 73 C3  6A 71 3A 4D  70 A7 20 4B
72A0  3A 4E 70 CD  08 73 DA 6A  71 07 07 07  07 32 4F 70
72B0  2A 47 70 3E  8A CD 9E 74  3A 4E 70 CD  4C 73 CD 9E
72C0  74 3E 01 EF  FE 80 CA 33  71 CD 08 73  38 F3 4F 3A
72D0  4F 70 B1 2A  49 70 77 7E  CD 4C 73 4F  CD 61 74 EB
72E0  7C CD 9E 74  7D CD 9E 74  C3 85 72 3A  4E 70 4F CD
72F0  2B 73 30 A3  2A 49 70 77  7E 4F CD 2B  73 30 06 CD

7300  4C 73 CD 9E  74 C3 85 72  32 4E 70 4F  3E 46 B9 38
7310  0F 3E 2F B9  30 0A 3E 40  B9 38 0A 79  FE 3A 38 02
7320  37 C9 D6 30  C9 3A 4E 70  D6 37 C9 3E  7F B9 38 05
7330  3E 1F B9 79  D8 3E 5F A7  C9 7E CD 08  73 D8 5F 2B
7340  7E CD 08 73  D8 07 07 07  07 B3 2B C9  2A 47 70 23
7350  CD A5 74 C9  3A 4C 70 A7  28 05 3D 32  4C 70 C9 3A
7360  50 70 A7 28  06 01 10 01  CD 8A 74 2A  47 70 CD A5
7370  74 3E 80 CD  9E 74 2A 43  70 CD 0F 74  26 18 06 0F
7380  C5 25 25 0E  01 CD 04 74  24 0E 00 CD  04 74 C1 10
7390  EF 21 00 08  CD A5 74 21  03 70 3E 0A  EF 01 10 00
73A0  CD 8A 74 CD  94 74 AF 32  50 70 C9 3A  4C 70 FE 0F
73B0  28 05 3C 32  4C 70 C9 3A  50 70 A7 20  06 01 10 01
73C0  CD 7A 74 2A  47 70 CD A5  74 3E 80 CD  9E 74 2A 43
73D0  70 CD 0F 74  26 07 06 0F  C5 24 24 0E  01 CD 04 74
73E0  25 0E 00 CD  04 74 C1 10  EF 21 00 17  CD A5 74 21
73F0  03 70 3E 0A  EF 01 10 00  CD 7A 74 CD  82 74 3E 01

7400  32 50 70 C9  06 09 11 59  70 E5 3E 0F  EF E1 C9 E5
7410  E5 DD E1 C1  21 06 70 CD  52 74 21 07  70 36 3A 23
7420  36 20 23 06  10 36 20 23  DD 4E 00 3A  4D 70 A7 20
7430  08 CD 61 74  72 23 73 18  07 CD 2B 73  77 23 36 20
7440  DD 23 23 10  E0 36 AA 23  06 08 36 19  23 10 FB 36
7450  03 C9 CD 61  74 73 2B 72  2B 48 CD 61  74 73 2B 72
```

```
7460    C9 79 CD 70    74 5F 79 0F    0F 0F 0F CD    70 74 57 C9
7470    E6 0F F6 30    FE 3A D8 C6    07 C9 2A 43    70 09 22 43
7480    70 C9 2A 45    70 09 22 45    70 C9 2A 43    70 AF ED 42
7490    22 43 70 C9    2A 45 70 AF    ED 42 22 45    70 C9 D5 4F
74A0    3E 02 EF D1    C9 C5 F5 06    03 3E 0F EF    F1 C1 C9 11
74B0    01 70 1B 21    53 70 3E 63    EF 3E 0D 77    21 2D 03 CD
74C0    A5 74 21 53    70 3E 0A EF    C9 53 54 41    52 54 20 20
74D0    20 43 55 52    52 45 4E 54    20 20 4D 45    4D 20 20 20
74E0    4F 46 46 53    45 54 20 20    20 52 45 46    20 3D 20 20
74F0    20 20 20 48    03 2D 45 44    49 54 4F 52    2D 03 41 44

7500    44 52 45 53    53 45 53 20    20 20 20 20    20 20 4C 4F
7510    43 40 3A 20    20 20 20 20    48 03 00 00    00 00 00 00
7520    00 00
```

NOTE.
It was intended to allow alternate memory bank editing, and mem 0 is displayed on the header, it has in fact not been implemented.

John Coyne
7 Woodside Cres.
Bordon
Hants.
GU35 0EZ

OGGY OGGY OGGY

'Tis proper awful being down 'ere in the sticks, one is so far behind with the news and the gossip, and trying to keep up with changing print deadlines. First there was the Autumn NATGUG meeting, and then there was the changing story of 80-Micro; I don't really expect that anyone at WHS reads my letters (does anybody?), but in the middle of July 80-Micro magazines appeared in Smiths branches up and down the country. Take heed, Leon, it looks as though we might have a revival on our hands at last!

I believe that there has been renewed interest in the Group concerning Spreadsheets lately - anyone who has missed the last couple of issues might not know that 80-Micro now has a regular ss article intending to feature template usage. Also on ss, I hope to be doing a review soon on 'LONGVIEW', a Visicalc utility from Prosoft that allows you to print a very wide Visicalc report on an ordinary 80-column printer - you just turn a DIF file sideways and then print it out using DotWriter. Such a simple solution, why didn't I think of it first!

I had two surprises last week, one pleasant and one very nasty. The nasty one came first, with the postman knocking on the door and demanding £6.80 for customs duty on a package from the States! The pleasant surprise came when I opened the package and started to play with my copy of D.O.T.S. Read on....

D.O.T.S. is another printing utility for use with an Epson compatible dot matrix printer; it is available for the Model III, something called an IBM PC, and also in 8" format for CP/M 2.2. and its main purpose is to facilitate the use of the dot-addressability of these printers. Many people take one look, maybe two, at the printer manual and then decide to forget all about dot-addressing, and it is largely for them that this package is intended - no programming or knowledge of printer operation is needed. One merely lays a transparent grid over the

picture or design to be digitised, and tells the computer whether a dot is to be printed or not. A data file is created and the information stored until printing time. As an alternative, the package does include printed grids that one may draw a design upon, and the grid has been proportionalised so that the printed masterpiece will resemble the screen picture - no more circles turned into ellipses!

Three different grid sizes are provided, 7.5-fold, 10 fold, and 15 fold, and these will affect the size of the finished article, the largest print size being approximately 15/16" tall by 1 1/4" wide. This was my only disappointment - I had harboured hopes of a $29.95 package deputising for a $1000 digitiser! However, an enlarging photocopier or joining up multiple works will provide a larger picture if really needed.

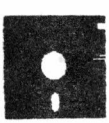
D.O.T.S. comes as a 22-page manual with 6 printed grids and three overlay sheets, and a disk containing 10 files. 4 of these are demonstration files, with 2 sample programs. Of those remaining, DOTS/CMD is the main Dot Graphic Editor, DOTSUB is a Dot Print Subroutine which can be included in your own Basic programs, and DOTEXT and DOTSHOW are Dot Printer files - the latter being used with DOTSUB in your own work. The programs are all in Basic, the Editor being compiled, and where necessary the line numbers and variables are given to help in merging routines in your own programming. When you look at the examples shown below, remember that they have been reduced to half-size by the Newsletter production.

D.O.T.S. is produced by MicroSmith Computer Technology, of PO Box 1473, Elkhart, IN46515, U.S.A. It is priced at $29.95 plus $10 p&p - and watch the customs duty!

Regular readers will know that I have no reason to give Moliserx any good publicity, but I note that their latest Special Offer includes LABELMAKER and NAMETAGR at around half-price. NAMETAGR is similar to D.O.T.S. in that you can design and print your own logo, but relies purely on cursor movements to draw the design on the screen - however it you have a symmetrical design then you need draw only one quarter of the frame and allow 'inverse' and 'reverse' commands to complete the desired pattern. D.O.T.S. allows the inclusion of normal-size text above, below, before, and after, the printed graphic whereas NAMETAGR allows the inclusion of both Jumbo and double-width text. For larger pictures than either of these programs will allow, then Powerdot II is the best that I have seen so far. To the best of my knowledge, none of this software runs in Model 4 mode - but what's wrong with dropping back to Model III now and again? At least one can appreciate a fast DOS!

Finally, on the subject of Epson-type dot graphics, I would like to hear from anyone who has used the 'Graphic Solution' software - for printer, not the hi-res screen package.

D.O.T.S. Sample prints:









David Washford, 6 Houston Way, Frome, Somerset BA11 3EU. Tel (0373) 72739

```
================================================================
REV 1.1      : UTILITY                    TITLE   : FHEX
================================================================
SUMMARY      : Convert a file to hexadecimal digits

----------------------------------------------------------------
DESCRIPTION :

Converts an input file to a hexadecimal output file.

----------------------------------------------------------------
SYNTAX    :

FHEX infile outfile

    where : infile  : file to be converted (ASCII)
            outfile : hexadecimal conversion

----------------------------------------------------------------
NOTES     : None
----------------------------------------------------------------
EXAMPLES :

(1) FHEX infile outfile
          converts input file to hexadecimal output

(2) FHEX infile *PR
          lists input file onto printer in hexadecimal

----------------------------------------------------------------
COMPONENTS : FHEX/CCC
----------------------------------------------------------------
AUTHOR       : LC User Group                    : xx xxx xx
REVISED      : Edward Rashbrooke                : 10 Apr 84
================================================================
```

```
/*-------------------------------------------------------*/
/* FHEX : list a file in hexadecimal                     */
/*                                                       */
/*                                                       */
/* Created : Edward Rashbrooke : 19 Mar 84               */
/* Revised : Edward Rashbrooke : 09 Apr 84               */
/*-------------------------------------------------------*/
#include stdio/csh
#option KBECHO OFF
FILE *fp1, *fp2;
main(argc, argv)
        int argc, *argv[];
{
        int c,d;
        if (argc != 3)
                {
                        puts("Usage: FHEX infile outfile\n");
                        exit();
                }
        fp1 = getfile(*++argv,"r");
        fp2 = getfile(*++argv,"w");
        while ((c=getc(fp1)) != eof)
                {
                        d = (fprintf(fp2,"%02.2x ",c));
                        if (d != NULL)
                                abort("Output file write ERROR !\n");
                }
        fclose(fp1);
        fclose(fp2);
}
```

```
============================================================
REV 1.1      : UTILITY                    TITLE   : FMOVE
============================================================
SUMMARY      : Move input file to output file

------------------------------------------------------------
DESCRIPTION :

Copies a file to another file. The original file is
deleted. This utility uses LDOS commands from within
the utility.
------------------------------------------------------------
SYNTAX    :

FMOVE file1 file2

    where : file1 : file being moved (ie copied/killed)
            file2 : target file being created

------------------------------------------------------------
NOTES     : None
------------------------------------------------------------
EXAMPLES :

1) FMOVE file1 file2
         simple move of file 1 to file2


------------------------------------------------------------
COMPONENTS : FMOVE/CCC
------------------------------------------------------------
AUTHOR       : Edward Rashbrooke              : 19 Feb 84
REVISED      : Edward Rashbrooke              : 09 Apr 84
============================================================
```

```
/*-------------------------------------------------*/
/* FMOVE : file moving utility                     */
/*                                                 */
/* Created : Edward Rashbrooke : 19 Feb 84         */
/* Revised : Edward Rashbrooke : 09 Apr 84         */
/*-------------------------------------------------*/
#include stdio/csh
#option INLIB
#define CLEAR (0x01C9) ()
FILE *fp1, *fp2;
main(argc, argv)
     int argc, *argv[];
{
 int c;
 char buf[100];
 CLEAR;
 puts("FMOVE : File move utility : ER 19 Feb 84\n");
 if (argc != 3)
     {
       puts("Usage : FMOVE oldfile newfile\n");
       exit();
     }
 buf[0] = 0x00;
 fp1 = getfile(*++argv,"r");
 printf("%s will be moved to ",*argv);
 fp2 = getfile(*++argv,"w");
 printf("%s\n",*argv);
```

```
 while ((c=getc(fp1)) != eof)
  {
   if (c != putc(c,fp2))
   abort("Output file write ERROR !\n");
  }
 fclose(fp1);
 fclose(fp2);
 --argv;
 strcat(buf,"KILL ");
 strcat(buf,*argv);
 puts("\nFile moved\n");
 puts(buf\n);
 cmdi(buf);
}
```

```
================================================================
REV 1.1      : UTILITY                    TITLE   : FCOMPARE
================================================================
SUMMARY      : Compare two files for differences

----------------------------------------------------------------
DESCRIPTION :

Compares two ASCII files. All differences are listed.
This allows two slightly different versions of an
ASCII file to be compared.
----------------------------------------------------------------
SYNTAX    :

FCOMPARE file1 file2

    where : file1 : first file being compared
            file2 : second file being compared

----------------------------------------------------------------
NOTES     : None
----------------------------------------------------------------
EXAMPLES :

(1) FCOMPARE file1 file2
        compares two ASCII files

----------------------------------------------------------------
COMPONENTS : FCOMPARE/CCC
----------------------------------------------------------------
AUTHOR       : Edward Rashbrooke              : 11 Nov 83
REVISED      : Edward Rashbrooke              : 27 Feb 84
================================================================
```

```
/*-------------------------------------------------------------*/
/* FCOMPARE/CCC                                                */
/*                                                             */
/* File compare utility                                        */
/*                                                             */
/* Created : 11 Nov 83 : ERCL                                  */
/* Revised : 07 Apr 84 : Edward Rashbrooke                     */
/*-------------------------------------------------------------*/
#include stdio/csh
#define cls (0x01c9) ()
FILE *fp1, *fp2;
main(argc, argv)
    int argc,*argv;
{
    int c, d, cbytes, dbytes, nbytes, sbytes;
    cls;
```

```
puts("FCOMPARE : file compare utility : ER 11 Nov 83\n");
if (argc != 3)
       {
        puts("usage : FCOMPARE infile outfile \n");
        exit();
       }
fp1 = getfile(*++argv,"r");
fp2 = getfile(*++argv,"r");
c = d = nbytes = cbytes = dbytes = sbytes = 0;
while ((c = getc(fp1)) != eof)
      {
       ++cbytes;
       if (d == eof) ++nbytes;
       if (d == eof) continue;
       if ((d = getc(fp2)) != eof)
         {
          ++dbytes;
          if (c != d)
           {
            ++nbytes;
            printf("Inequality at byte - %d\n",cbytes);
            while ((d = getc(fp2)) != eof)
             {
              ++dbytes;
              ++sbytes;
              if (c == d) break;
              ++nbytes;
             }
            printf("Skipping bytes     - %d\n",sbytes);
            sbytes = 0;
           }
         }
      }
while (d != eof)
      {
       if ((d = getc(fp2)) != eof)
        {
         ++dbytes;
         ++nbytes;
        }
      }
printf("Total bytes file 1  = %d\n",cbytes);
printf("Total bytes file 2  = %d\n",dbytes);
printf("Total unequal bytes = %d\n",nbytes);
```


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MARCUS L. ROWLAND, 22 WESTBOURNE PARK VILLAS, LONDON W2 5EA

NATGUG NEWS

Volume 7 Issue 2 August 1985

OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers, and compatible systems such as the Video Genie.

Details of the Group accounts, and the constitution of the Group, are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are obtainable from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the Secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Secretary and Newsletter Publisher:-

Brian Pain,
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU.
Tel: (0908) 564271

CONTENTS

2. Information on the Group

4. Editorial

4. Problem section

5. Model 4P boot ROM

5. Model 4p etc.

7. Oggy, Oggy, Oggy!

8. Teac drives and Model III

8. Thoughts from 1984

14. Intel hex format

15. BASIC overlays

16. Another rat deserts the sinking ship

17. CP/M - A new user's guide Part 5

21. Only one drive?

24. Menus

30. For sale and wanted

EDITORIAL

You should shortly be receiving booking forms and programme details for the Swindon workshop, on the 25/26/27 October. The emphasis will be on CP/M and sessions on Dbase 2, BDOS assembly language programming and the C language will be included.

"Anon.", in this issue, didn't get very much out of the one workshop he attended (I think he is referring to the MK weekend last summer). I feel that our workshops are extremely good value for money: two nights full board in a good hotel, and all the lectures and other activities, for around £60. A commercial organisation running this sort of thing would charge very much more. As for questions at the end of the sessions, most lecturers prefer to keep things informal, and answer questions as they arise, during the lecture. Many members get a lot more out of informal discussions in the systems room, or during the meal times, than they do during the lecture sessions, as "Anon." points out. As for sessions on the various accounting packages, this is very difficult to do, as no one member is likely to have all the packages available, and be familiar with them all. The best we could do would be to get different members to do a short session each on one package, and then have a general discussion. Perhaps "Anon." could do a session on the Sage package. This is now available on the QL, by the way, for under £100! I believe it was written in C.

The recent Blandford workshop was excellent, as always, in spite of the weather. I would like to thank Os House and his staff on behalf of those attending for making it a very pleasant meeting. It was at Blandford that I asked David Washford to explain the meaning of "Oggy, Oggy, Oggy", given in this issue. I suppose it's something to do with "Tiddy Oggy", which is the cornish vernacular for a cornish pasty.

Leon Heller

PROBLEM SECTION

Has anyone out there converted the Model III program "Trader" to work on a Model I. The program looks as though it would suit my needs well, and is discounted at Tandy stores right now. But Tandy say it won't work on a Model I (presumably it's in basic but with peeks and pokes that crash it). A patch or modified listing would be much appreciated.

Also, does anyone have a patch to Newdos 80 v2 that enables JKL to work with graphics characters on an Epson FX 80 - I really miss my Microline 80 for its ability to do proper screen dumps, but couldn't stand the lack of true descenders, so got rid of it.

Paul Godier
83 Trinity Road
Wimbledon
London SW19 8QZ
(01) 542 9972 (eves,
or leave message)

Model 4P BOOT ROM

After rummaging around inside the 4P's lower RAM I have managed, by a round about route, to get the Boot ROM to reveal itself. This was achieved by tracing the BOOT command which, after switching the display to 64 x 16, does a RST 0 to get the system initialised.
I used the following inelegant little program segment to look at the Boot ROM:

```
XOR  A
OUT  (84H),A        ;this switches display to 64 x 16
DI
LD   A,1
OUT  (9CH),A        ;this switches in the Boot ROM.
LD   HL,0           ;source pointer
LD   DE,5000H       ;destination pointer
LD   BC,1000H       ;there's 4k of code to move
LDIR                ;move Boot ROM code to RAM
RST  0              ;reboot system
```

After rebooting I had a look at the code in RAM addresses 5000H-6000H and came across some interesting messages. For instance one which says "Dynamic RAM Test Press <Enter> to Begin And RESET To Exit" Curious at this I looked further and found out how to test the RAM. It turns out that you only have to press "." (full stop) and RESET, in that order, and then follow the prompts. The Boot ROM also has a version number which can be displayed by resetting with the "V" key down.

Regarding TRSDOS 6.2 I got fed up with the way the HELP facility works. It tells you what you want to know and then wipes it away before giving you back the DOS prompt. Annoyed at having either a) to write down what it was showing me, or b) to get the manual out anyway I patched it so that when I exit HELP it now leaves the display for me to copy. Anybody who feels the same way can do this with the following patch:

```
PATCH HELP/CMD (X'2B39'=18 4A)
```

Keith Taylor
Weston Super Mare
(0934) 813262

MODEL 4P ETC

In January we bought Model 4P and DWII for one of our units to prepare a a program for visit by the Colonel-in-Chief. I will not mention the fact that the unit concerned ordered another twenty Dysan diskettes on top of the twenty I got for them in the first place - well not to a great length apart from saying that they thought that once a disk is written to that is it. At least that was what they must have thought because forty S/S D/D 40 track diskettes is about enough for 1,000,000 words.

With the M 4P I got them Superscripsit and I must say that the temp they hired for the job (for some ten or so weeks) experienced no trouble with it. The problem with the visit programs is that there are many cooks - many too many to my mind. The CO is responsible for the program but he gets his directives from us and then everybody along the chain of command wants something added, altered etc till the thing finally reaches the Colonel -in-Chief's secretariat.

The visit successfully over the equipment came to me to hold and look after until required by another unit for the next visit. Only I have decided that no unit is going to get it and that I am going to use it for budgeting and odd letters I wish to write myself instead of using the typist. She cannot read my writing which does not surprise me at all as I cannot read my writing either.

After playing with Model 4P for about a week or ten days I must say that I definitely prefer Model 4. To give credit where due 4P's screen though small has excellent resolution so there is no problem in reading the screen. I find the keyboard a bit soft though after using mainly VT102 and Model 4. VT102 has a very positive hard keyboard and Model 4 keyboard is more springy than Model 4P's.

The screen is a bit lopsided and really shakes on disk access and the drive 0 plays about a bit. I don't like switching on with the disks in the drives and so I get a three language message about no disks. I load the disks, reboot and pronto a message on drive 0 'Disk error'. So I re-boot again and normally it works. I wonder whether the machine has been shaken up whilst it was being brought up from Scotland as I have not heard anything about disk errors from there.

I found a couple of funnies with Multiplan too. At present I use my own copy and, as I don't like carrying disks about, I have made a copy (good old SU). The copy boots and works perfectly on my Model 4 but, if I try to boot on 4P, the silly box tries to load the ROM image. So I boot from VC and then swap the disks. Also I find that I cannot get '@' in text on Multiplan whilst I get it on Model 4.

Of course the Multiplan runs even slower on 4P than it does on 4 but this probably is due to the fact that my 4P has not got the extra RAM. I will remedy that shortly or at least it will be remedied shortly - I hope. Anyway as I will be retiring next year (my successor has already arrived) and cannot leave my programs I am buying CP/M version of Multiplan for 4P. I wonder how that will perform.

I must say that WS, VC and dBASEII run reasonably and, I would say, faster than the TRSDOS programs.

Whilst I have some reservations about the Model 4P and, in retrospect, I am glad that I did not swap over I really like DWII. It is a noisy devil but in comparison with LQP02 (which I bought in 1982 for over £3,000 including sheet feeder) it is a demon for speed. I am using pitch 12 wheel and the print is very nice too - but does anyone know of a wheel with "£" on it? I am really tempted by it myself though I would not like to get rid of my FX100 and my study just does not have enough place for two printers. DWII has gone down in price to some £500 and it is an excellent bargain. One can get cheaper daisy wheel printers but they are not capable of working for hours on end non-stop, nor can they take 6 copies.

DWII has two switches on the front panel Off/On Line, and pitches (10,12 and proportional). As the cleaner flicks the duster round the place and I have not got a cover for DWII yet I find sometimes that the printer suddenly double spaces (not having done so the night before). This happens when the 10 pitch is selected on the switch and pitch 12 wheel is used (the cleaner has been at it again).

So whilst I would not change my Model 4 for 4P and I would not recommend 4P for any work other than short use I must say that I do like DWII and I would say 'hurry chaps - whilst the stocks last.'

Anon.

OGGY OGGY OGGY

First things first this month. THANK YOU HELEN for a first class lunch and first class hospitality - if and when you see Os, please also thank him for another marvellous Blandford weekend! For the benefit of those who missed it, the 1985 Blandford Workshop was attended by close on75 - and I doubt if many of them had time to notice that the weather wasn't at it's sunniest (they were too busy trying to work out the re-named rooms!). A full day of talks was accompanied by the usual Systems room, where Ariela, Colin, Dave, and Laurie were as besieged as ever, and where also young Carl was upsetting people with LDOS not only in high res but also in full colour as well.

On behalf of NATGUG, a warm thanks also to Mr Matthews of Dorchester who is contributing another volume of BYTE mags to our library. Mr Matthews is distressed at having missed two issues of 80-Micro, and if anyone can spare their copies for Dec 84 or March 85 then he would be delighted to receive them - Brian or I can supply the address.

Now it is time to take a **LONGVIEW** of things - remember how I have previously enthused about DotWriter? Well, the next best thing arrived last night - a Prosoft program called Longview which in one fell swoop overcomes my only problem with VisiCalc. My major use for a spreadsheet is for projecting sales and profits, so my usual VC file is for 26 columns by 40 lines! whilst it is wonderful to watch re-calculations rippling down the screen, it is a right pain having to break the spreadsheet up for printing out on my Epson MX80. Even a 132cpl printer couldn't cope with it, so you can imagine how overjoyed I am today to be able to print out all 26 columns - on the MX80 and in full size too - thanks to LONGVIEW.

LONGVIEW provides the means to take a VisiCalc file, turn it sideways, and then print it out using DotWriter. Three fonts are provided, each in a standard and a Wide style, and my 26 columns printed out on 2 1/3 72-line pages! Perhaps my biggest surprise was in just how quickly it all happened. I should think that we've all had utilities that perform miracles - if you can afford the electric to keep the computer switched on long enough! Well, Longview took exactly 55 seconds to prepare an 8-granule Visicalc file - on my Model 1. To say that I'm impressed is pure understatement !

LONGVIEW comes on a 35-track SD disk containing all the programs for operation on either a Model IV, or Models I & III. At $29.95 (dollars, not pounds) it obviously doesn't include either VisiCalc or DotWriter, but is definitely the most Value For Money software that I've ever purchased. As a matter of interest, it was authored by the same Mr Mason who wrote DotWriter - hence the link between the two programs.

The last time I mentioned Prosoft and The Tesler Software Corporation it wasn't in any form of admiration! in fact I am still pretty sore that they won't upgrade my Version 3.0 Dotwriter. However one must respect the fact that as a software house they are still supporting the Tandy community and therefore

I feel that the Tandy community might care to support them (subject to assurances on upgrade policy!). Send them your Access or Barclaycard number (airmail) and you'll receive your copy in a little over ten days : Prosoft, Box 560, No Hollywood, CA91603, USA.

Finally, an explanation of Oggy: This page started as Notes from the Westcountry, where I've been brought up to shout OGGY OGGY OGGY at every possible opportunity - in my other career. Sorry, but that's all there is to it !
David Washford

TEAC Drives and Model III:

Having experienced considerable trouble with one of my Shugart Drives SA400 in my Model I TRS80, I decided to buy two TEAC Drives (EG400 FD50A) from Lowe's in Matlock at the modest price of £75 each. One was for myself and one for my son, Roy, who has both a Model I and a Model III. The new TEAC drives worked excellently on both our Model I's (they were tested thoroughly at Lowe's whilst I waited.)

However, it proved impossible to make the TEAC work on the Model III. Leon Heller when consulted suggested that it was probably due to the slower speed of the TEAC compared with the in-built Model III drives. My son re-set the speed using SYSTEM (Drive=2,Step=3,Delay=ON). Again it did not work. He then played about with the settings of the dip switch block in the TEAC, and by very persistent trial and error, found he could make it work by setting the switches as follows:

6. (DS3) --- OFF
5. (MX) --- ON
4. (DS2) --- ON
3. (DS1) --- OFF
2. (DS0) --- ON **
1. (HS) --- ON

The switch setting of 2 - (DS0) differs from that shown on the leaflet supplied with the TEAC drive and implies that it is necessary to set the switch to ON for drive 0 as well as for drive 2 in order to get drive 2 to operate on Model III. Fairly comprehensive tests show that all three drives, 0 and 1 (in-built in the Model III) and the external new drive 2, work quite normally and happily together with this dip switch setting. All's well that ends well, but why should this be so? Incidentally, if one uses this switch setting with the normal (faster) configuration, the disk drive will not work - so slowing down the drive is essential.

Bill Cowhig, 21 Priory Road, SALE M33 2BS. Tel 061-973-3604.

THOUGHTS FROM 1984
(Written in 1984 and not submitted)

It is encouraging to see that someone somewhere does read my contributions and also to get a reaction or a comment sometimes. But I don't think that the comment on ProPascal in the July issue was absolutely fair to the authors (two very charming gentlemen at 37 Gwendolen Avenue). The manual, though not intended for a novice, does say how to print. In fact of my collection of books on Pascal (which includes N Wirth 'Algorithms + Data Structures = Programs', IR Wilson/AM Addyman 'A Practical Introduction to Pascal - with BS 6192', S Leestma/L Nyhoff 'Pascal Programming and Problem Solving', S Eisenbach/C Sadler 'Pascal

for Programmers', K Jensen/N Wirth ' Pascal User Manual and Report', P Grogono 'Programming in Pascal', N Graham 'Introduction to Pascal' and BS 6192: 1982) only, and only, the ProPascal manual shows on page II - 60 (para 9.1.5.1 assign) how to do it. One simply assigns the file to 'LST:' and then carries out a normal 'write' procedure. Mind you, it took me several days before I managed to send a few characters to the printer but this was entirely my own fault. I just didn't think of looking in the manual (I hardly ever do) and it was only in sheer desperation that I started reading it.

I think that this 'assign' business is a very clever trick. The standard ProPascal procedure for displaying on screen is 'output' which one does not have to specify. One just says write() or writeln() - this latter just does sound silly to me and it was putting me off Pascal for a long time. Nevertheless writeln or no writeln, one can use tricks like "Display or Print D/P?" (the variable logically being DP:char). Then If DP ="P" THEN WhatYouCallIt (being a procedure) which assigns output to LST:. One has only to remember to assign output back to CON: after finishing the printing (another procedure).

I agree that string manipulation is not as easy as in Basic but then my RM Cobol (Model III version) has none at all and I managed to program happily with it until I got bored with all those long winded instructions. As far as the string array is concerned ProPascal permits setting up of these but all the elements in the array must be of the same type. Below is source listing which has been compiled and works:

```
PROGRAM Test;
{ Creates array of 10 strings and then displays them.}
{ Each entry is terminated by CR but only first ten  char
  are accepted.}

TYPE Name = String[10];

VAR  Names: Array [1..10] OF Name;
     Count: INTEGER;

Begin

   For Count := 1 to 10 DO
     Begin
        Writeln ('Enter your text', Count);
        Readln  (Names[Count]);
    End;

Write (CHR(1AH));
  For Count := 1 to 10 DO
     Begin
        Write (Names[Count]:16);
     End

End.
```

A very simple program but I was trying to see whether I could create and display a string array. When it comes to mixing the types of variables one has to create records. The record thing, which Cobol also uses in Data Division but in much more precise manner and with plenty of scope for compilation errors, is a good thing altogether. It permits creating arrays and files of non-compatible types of variables. Lets assume that we want a file of employees and the details we want to record are Works No., Name, Date of Birth, Type of Employment and finally Salary. The variables involved are strings, integers and real numbers (single precision). In Basic, if I still can remember it, one can tackle this in two ways ie either by converting numbers to strings and

placing the information in one multi-dimensional array or having two arrays (one for strings and the other for numbers) linked by the index variable. In Cobol one would define a record in the Data Division which would look something like that:

```
     01  Employee.
         05 Worksno                    PIC 9(5).
         05 Name.
            10 Firstname               PIC  A(10).
            10 Secondname              PIC  A(15).
         05 Birthdate.
            10 Day                     PIC  9(2).
            10 Month                   PIC  X(3).
            10 Year                    PIC  9(4).
         05 Employment                 PIC  X(12).
         05 Salary                     PIC  99999V99.
```

Furthermore such a record has to be edited before being displayed or printed. The editing is done by either insertion or suppression as Salary-edited PIC ZZ,ZZZ.99. Decimal point replaces V (which marked the decimal point position), ',' will divide nicely thousands from hundreds etc and Z means - replace with blanks if zero. There are many more editing symbols and one has to move the values from non-edited to edited variables before print or display. Here one has to be careful in deciding the names of variables. If using different variable-names for the same item one has to make sure that one does not perform calculations on the edited items. One can use the same variable names within different levels 1 (01) records as 01 employee and 01 employee-edited. The moves are much easier due to MOVE CORRESPONDING function but on the other hand when referencing a variable name used in two records one must specify to which record one wants to refer. In other words the variable must be made unique by qualification such as Salary OF Employee or Salary OF Employee-edited.

In Pascal (God forgive me for talking about the things I know nothing about) we would do a similar thing by using TYPE and RECORD by specifying:

```
TYPE First = String[10];
     Second = String[15];
     Employ = String[12];
     Date = Record
               Day: 1..31;
               Month: (Jan, Feb, Mar, Apr etc.etc);
               Year: Integer;
            End
     Employee = Record
                   Worksno: Integer;
                   Firstname: First;
                   Secondname: Second;
                   Birthdate: Date;
                   Employment; Employ;
                   Salary: Real;
                End
```

and then we would have to have a variable (VAR) say

```
VAR       Clerk: Employee;
```

Neither the manual nor any of my books are very clear on the method of creating string arrays. But this is the story with most of the text books and manuals.

I must admit that comparing with Basic learning Pascal is heavy going. I have yet to come across a book which does explain the language in a simple manner. I would not recommend to anyone without a doctorate in abstract maths 'Algorithms + Data Structures=Programs'. To start with a normal person would fail to

understand the notations which vary between Greek and Chinese characters. No doubt they have their standardised meanings known to those who are in this particular kind of magic circle. But on the other hand, one can do much more in Pascal than in Basic, or at least do it with less program writing. The compilation is a pain in the 'neck' but then most of them are. RM Cobol one is vicious apart from being even slower than ProPascal. One error in an identifier in the Data Division does create a compilation error every time this same identifier is referenced in Procedure Division. And, depending on your luck and the state of your eyes, one correction can clear several compilation errors or, if you don't see the original mistake, you wear out the nails scratching your head. The difference between RMCobol and ProPascal compilers is that RMCobol is one-pass compiler and normally carries on from the beginning to the bitter end marking warnings and errors. On the other hand ProPascal is a three-pass compiler and generally bombs out on finding the first error. Compilation can be a very long process for those who cannot type or don't know Pascal well. (Count me in on both counts).

Pascal also permits creation of the libraries (in Pascal) which can be linked to the programs and make life easier and two obvious candidates are procedures for assigning output to LST: or CON:. Procedures from the library when called by the main program are referred to as External.

Having acquired CP/M, which I consider was the best thing I have done with my Model 4, I now have quite a choice of good software. As basically I have always been a user of a computer and programs, having treated this combination as a tremendous help in the tasks which otherwise I would have had to perform with pen and paper, calculator or typewriter, I feel that with this acquisition I have burnt my 'metaphorical' bra. I am now out of the shackles of Tandy and suchlike program suppliers. In the August issue of 80Micro I saw a letter which probably defines best the division in the computing community. The author of this letter claims that the users of programs run CP/M whilst the programmers opt for machine specific DOS. I expect that the programmers in this context are those who program as a hobby or with the intention of selling their programs through the vendors of machine specific programs.

Few more words about customisation of SAGE Accounts. If any of you read my bits on SAGE you may remember that I said that the program must be on drive A: and data on drive B:. Well I was quite wrong. The accounts program does not have to reside on drive 0 or A:. It can sit happily on any drive. The data disk can also sit on any drive and this is where the program control comes in. In the program control module there is a bit about disk designation. This tells the program where the data disk is located. Better arrangement than that of the WS which likes to sit on drive A: and, if you put it on any other drive then you must have the overlays on the disk containing the text being worked upon. I have done the monthly update of my accounts now. This consisted of printing the trial balance, the nominals and the final accounts. Bank account cannot be included in the run from (Number) to (Number) and must be printed separately using the Bank/VAT reconciliation module. The same applies to sales and purchases accounts. Then I run configuration which clears me the data disk ready for the next month's postings. I was surprised to see that the transaction file, though empty, did remain at the same size as it was before reconfiguration. I did not print out the audit trial, as I print weekly (after shopping on Saturday) all the transactions, and these prints would be a sufficient audit trial. One must remember however to retain one disk

containing end of last month's trial balance. This disk is placed in the drive housing the accounts program (the program asks you to do so) and the last month's trial balance is used to calculate this month's totals which are printed as well as the total to date. I am still amazed at the way the program leads one by hand all the way. You just don't have to know what to do next. Just choose an item from the menu and follow the instructions on the screen. Even when it comes to printing, the program reminds one to switch on the printer and press <enter>. And every function can be terminated at any point by ESC.

I just received the August journal and I see that one of the workshops came in for quite a criticism. I tend to agree with the author (though I did not attend the workshop in question) especially as far as the money question is concerned. Though £60 should not mean much to me (having spent this year to the end of August £1888.24 on the bits and programs for my Model 4) I do want to feel that however little or much I spend I get value for my money. From my only appearance at one of the workshops I feel that there is one very important element missing and that is a good argument after any case studies or lectures. One is shepherded in and then out after a call for questions (whilst the supervisor is meaningfully looking at his watch) and there is never any discussion - or at least there wasn't any when I attended. And yet there is nothing more instructive than a discussion, or a good argument for clearing one's mind. It was just so very much as I imagine a day in a big comprehensive to be. I am probably being unfair again trying to judge on two days experience at one workshop. I must say however that I have learnt more at the fireplace in the 'digs' (thanks to Laurie) than I did during the two days of official instruction. I am trying hard to think what I really wanted to find at the workshop and I find it rather difficult to formulate my motives for attending. Obviously I was interested in use of computers in accounting and industry but, I think, my main motive was to meet other members of the Group. And what kind of workshop would I attend in future? Subject to there being less lectures and more time for discussion any workshop on accounts, Model 4 adds on or modems. In general I would expect more than one product to be available, these products to be demonstrated in use, details of suppliers and prices to be provided, and the session to be finished with a full discussion of pros and cons of each product. I would certainly not attend any workshops which combine NATGUG with QLUG. After all what have I in common with this wonder which appears to be full of bugs. I read a lovely review of the 'Quill'. Apparently you can type a full line before it appears on the screen and the thing, having been written in C, does not not know how long the string is and has to count the number of characters before doing anything. Just imagine a block move!!! Give me WordStar at any time. It may be antiquated but it is still the best wordprocessor I have come across (I own the Scripsit, Superscripsit and also DECTYPE in the office - deadly slow - and I thought the Superscripsit was cat's whiskers until I got WordStar).

Month later - would you believe it, I found what I thought was a bug in SAGE accounts? On the update - they call it re-configuration - I got BDOS error on drive A: (that is where the blank disk goes in) then error on drive B: (that's where the data disk goes). This condition was caused on a supplier account in debit. Pressing enter continued the configuration but on completion the supplier's account had the character 'e' in the column where the type of transaction and the transaction description are shown. Furthermore the beginning of the accounts' file was either distorted or lost altogether. I tried to simulate this condition on an account consisting of three nominals and one supplier with a DR balance and the same thing happened every

time. Of course, as you would expect, I rang the very much publicised 'hot line'. Actually the name should be a 'cold shoulder line'. After you state your name a lady with a strong Yankee accent asks you which company do you represent and, if you don't represent a company the hot line is engaged. Finally I was quite rude (which generally, as those who know me would say, does not require any effort on my part) and I told her that I was a registered user No so and so and that my company had nothing to do with her and that I was not going to 'bl....' well tell her. I got through and a very polite young man told me that this one was new to them and would I ring them in a couple of days' time when they were going to tell me the answer. I have not followed this however as I did find the cure myself. The disk used for temp file on re-configuration must be sysgened.

I have now dBASE II and I must say it is a powerful program. I had a difficulty with installation to start with. The installation which my supplier provided was shifting the line with cursor one character to the right and any consecutive fields of one character only were not visible. The funniest thing was happening in 'BROWSE' or 'EDIT'. The first insertion or deletion was taking place two characters to the right of the cursor after which the thing settled down and everything worked normally. It took me eight hours until 4 am until I hit by trial and error the correct installation. Anyway the thing works now and I am delighted with it. I know there are many more relational data bases on the market now but dBASE II will do me just fine. All I want now is a spreadsheet under CP/M and then I can forget all the TRSDOS, NEWDOS80v2, LDOS, DOSPLUS etc. I have them all and I don't want them. The simplicity. power and reliability of CP/M is just overwhelming. And they say it is a 'user un-friendly' system. Whatever 'user friendly' may mean CP/M is easy to use!! None of this 'copy 0 1,,nftm' etc. Just pip c:=a:*.* and you get copied all from drive a: to drive c:. In fact Tandy has a very good product in the Model 4 as far as the 8 bit machines go and they have failed miserably to capitalise on it. They just did not provide any support for the thing. Still the CP/M road is opened to us and so Good Bye Tandy specific DOS and Tandy programs. All the CP/M programs I wanted are easily installed on Model 4. I have my àccounts, data base, word processor, Propascal and the spreadsheet will make full house.

If you take 80MICRO you should have seen the description of MicroMerlin which will transform the Models 1, 3 or 4 into 16 bit machine. It runs 8088 chip at 5 MHz and comes with 128K RAM etc. etc. It runs CP/M-86 or MS-DOS and so what. What has IBM to offer which we cannot do on our Model 4s? The 16 bit software is very expensive whilst the 8 bit software is going down in price. I bought my dBASE II for £315 (plus VAT of course) and this is over £100 less than I would have had to pay for it before the IBM PC appeared on the scene. And anyway what the hell matters the windowing and concurrency. Who in their senses does want to run more than one program at the time? All the new gimmicks - first the mouse, then windows, then concurrency, then touch sensitive screen and lately speech input - to get the money out of the suckers who want to be up to date. And whilst 16 bit may be a flash in the pan - I have seen a supermicro (32 bits) advertised which can take 2,000 peripherals - the 8 bit and CP/M will do very well for a small firm or single user with the well proven programs going cheaper for quite a long time yet.

Couple of nights ago, after about half a bottle of whisky, I have complained about no NATGUG. Well it arrived today and I see that there is yet another Anon, the person who was rung up about Model 100. Well I liked that, I liked it very much and this just about defines the Tandy personnel these days. There is

nothing wrong with the makers not making computers - couple of days ago I inspected 256KB memory board from Nat Semi before it was put into my 11/23. There are about twenty chips or maybe more on that board and they were made all over the world - mainly in the Far East. So no blame to Tandy for not making computers, they are only doing what the rest of the business does - designing them and getting them done on the cheap in the Far East. The only trouble with Tandy is that they would do much better had they decided to stick to making computers and hiving off the merchandise part to other people (maybe Japanese?). Tandy just cannot sell computers!

I have just treated myself to 30 double density, double sided Dysan diskettes. Not really that I needed them as I have about three hundred of them by now (most of them purchased from Tandy though I also have some Datalife) but I thought I would get some just in case. In fact since I started using diskettes some 3-4 years ago I have never discarded one yet. Many of them were re-formatted over and over again and they still behave well. Only in one case I had a bit of trouble with the disk so I slid the jacket open, reversed the disk, re-sealed the jacket and the diskette works like new. Nevertheless I bought them and whilst I cannot comment on the disk quality the jackets are the most miserable pieces of paper that I have ever seen. Why I ask? Why put a disk which is considered to be the best of the kind into something which is no better than the paper used for Sunday magazines? Talking about quality though, I have formatted some of my three or so years old, single sided, 40 track double density disks as 80 tracks double sided and they read and write with no problem at all. I use them on my Cumana slim-line, double drive - the new addition to my bits and pieces of equipment. This unit gives 720K per drive so my Tandy has now almost 2MB disk storage. No manual came with my drive but I have discovered that depending on the configuration this drive will read either 40 or 80 track disks. And not that expensive - just over £400.

Anon.

INTEL HEX FORMAT

In last month's instalment of his CP/M series, Dave Holman mentions the hex file produced by the CP/M assembler, ASM.COM. ASM generates an Intel hex file, as, optionally, does Macro-80, and a number of other assemblers. A description of the Intel hex format might be useful to some members.

A file consists of a number of data records, commencing with a colon, and terminated by a carriage return, line feed pair. The file is terminated by an end of file record.

Data record

byte

1 : delimiter/start of record
2-3 no. of bytes in record (max. 64)
4-5 MSB of start address
6-7 LSB of start adress
8-9 00 - data "record type"
10 data bytes
last two bytes - checksum of all bytes except delimiter, CR and LF
CR,LF record terminator

End of file record

byte
1 : delimiter
2-3 00 - no. of bytes in record
4-5 MSB of transfer address
6-7 LSB of transfer address
8-9 01 - record type
10-11 checksum
CR, LF record terminator

Intel hex format files allow different parts of the file to be loaded at different addresses. It's a pity Tandy didn't adopt this format for TRS-DOS machine-code files, as it's much easier to use, if less efficient in terms of storage, due to the use of ASCII hex, rather than binary. Motorola have a somewhat similar format for use with their processors, called S-format.

Leon Heller

BASIC OVERLAYS

I am very interested in the question of Basic overlays, having a number of accounting programs which, because of their size, need them. I was, therefore very interested in Tony Endersby's programs in the April issue. Up to now, however, I have not been able to make them work, mainly because my model 4 seems to have the relevant addresses in different places and doesn't like having them changed!

I have written to Mr.Endersby direct, but I would be glad to know whether Tandy have been up to their tricks again. I am led to think that they have, because like another of your correspondents, whose name I have mislaid, I tried to patch Superscripsit with Tony Cottingham's patch to eliminate the double space problem. It refused to patch SCR64, for the simple reason that it does not exist in my version. Eventually about an hour's work with Superzap and I found the relevant piece of code. I can't tell you where because it was in an extent, and since Superzap cannot read a TRSDOS directory I was reduced to hunting sector by sector. I suppose I should be able to work it out, but my ability to read the directory only amounts to being able to find the sector on which a file starts!.

Returning for a moment to overlays, the answer to Jon Silver's letter in the June issue is, if I understand Mr.Endersby correctly, that CHAIN will only chain ASCII programs, whereas his will, or should, chain binary ones. This speeds up the whole process enormously, or perhaps I should put it the other way round - after Newdos with its ability to merge anything, TRSDOS is painfully slow.

On the subject of CHAIN, the handbook shows the syntax as follows:

CHAIN (MERGE)filespec (,line)(ALL)(,DELETE line-line)

Further down it refers to the "MERGE" option. So far I have been quite unable to make it DELETE without merging something, even if only a one line rem put in specially. Can it be done? (Oh for the happy days of Newdos and CMD"F"!)

On balance, however, I am very pleased with my Model 4. It has not, so far, broken down, rebooted, or any of the naughty things my Model I used to do, and it is much quicker.

One final point. Is there a patch to allow the use of the spooler with Superscripsit? I put a spooler in the spare bank and Superscripsit ignored it completely.

M.C. Matthews,
13 Princes St.,
Dorchester,
Dorset.

Another Rat Deserts the Sinking Ship!

When I wrote about my struggles with the model 4 in the May Natgug news, I really thought that I'd be sticking with my model 1 for at least another year. However, a funny thing happened to me last week; I found a second-hand IBM PC at a price I could actually afford, and am now the proud owner of a 512k CPU with twin 360k floppies and a colour monitor. The outfit does have a few odd features; the keyboard was made in Taiwan, and has all the function keys in a row along the top of the board, and the monitor has a fairly large hole in its casing, where someone put down a cigarette. It all runs on 110v, and I've got a big transformer humming under my desk.

While this may sound a little bizzarre, it all works perfectly. Accordingly, I'll gradually be transferring my files and basic programs from the TRS-80 to the IBM, and selling off software and hardware as I replace stuff with IBM equivalents. A first advertisment should be somewhere in this issue.

The only serious problem I've had was setting up the RS-232 link between the two computers. I first tried this using the Tandy communications package, and was unable to pick up any signals at the IBM end. I next tried the Scripsit P,S command. Again, nothing. A quick trip to my local Tandy shop got me a null modem, which I believed to be the answer. Zilch. Finally I realised that I hadn't checked out the IBM end, and tried a different communications program there. This worked the first time I tried it. I've now found that the easiest way to transfer data (especially Scripsit files) is to use the Scripsit P,S command at 1200 baud. The only flaw is that this mode doesn't seem to support Geoff Smith's Scripsit enhancements; the escape sequence characters are sent as they appear on the screen. The moral to draw from this is that it's usually cheaper to try software solutions before blaming the hardware. If anyone else has this problem, the trick is to avoid using the communications program on the IBM DOS samples disk; it's only designed for use with modems, and won't handle direct communications! I now use a program called PC-DIAL, a public domain program distributed by Spectronics Ltd. Hypercross, the Molimerx direct transfer package, will only work with double-density disks, and is useless with SD model 1 disks.

I'm still using the TRS-80, and will continue to do so for a while longer, and intend to let readers know of any problems and interesting developments I encounter. I suspect that MS-DOS hardware will soon become much more common, and a lot cheaper; software prices should then fall, making 16-bit machines a much better proposition for home use, and a possible alternative to QL's, Amstrads, and BBC's as Tandy replacements. Readers may need to be told about pitfalls and bad programs before they take the plunge.

Finally, a note of apology. After the May issue I received three letters commenting on my Model 4 experiences. Unfortunately one of these letters seems to have gone missing before I could reply, and I have no idea who sent it. Sorry about that, whoever you are.

Marcus L. Rowland, 22, Westbourne Park Villas, London W2 5EA

CPM - A NEW USERS TUTORIAL PART 5

Part 5 already, in fact I am typing this only minutes after finishing part 4. In this part I will be discussing MBASIC and some other BASICs, changes from LBASIC or TRSDOS BASIC. Also I will take a little look at the BIOS and BDOS of CPM. Firstly though I want to look at some Public Domain (free) utilities that can be found on the disks of the CPM User Group.

These utilities are the result of a number of people around the world wanting to improve on the CPM Operating System. They are similar in origin to some of the utilities that I found that I needed when using TRSDOS on the Model I. The first that I will mention is SD.COM. This is the SuperDirectory program and is the latest in a line of improvements to the DIR command. Some of these are still around, for example XDIR.COM and MDIR.COM. SD is an excellent utility, and will produce a directory which is sorted and shows the size of files and free space on the disk. An example of the display is shown below.

```
  Directory for Drive A, user Ø
-CATALOG.ØØ2    2k : CRC      .COM    4k : MDDEM7   .COM  1Øk : MDDEM7  .DOC
SD       .COM    4k : SW       .COM   12k : TEXTFILE.TXT  1Øk : VERIFY  .COM
VERIFY   .COM    8k : WS       .COM   2Øk
  Drive A, user Ø containe 78k in 1Ø files with 88k free.
```

If you are lucky enough to already own a copy of this program then try typing

```
A>SD //
```

This will display a list of options available within SD. They include, all users, all disks, making a file out of the directory, sending the directory to the printer, sorting by extension and wildcard characters * and ?. I have found this utility so useful that I now have a copy on all my disks.

The next major utility is SW.COM, this is SWEEP, and it is a file transfer and display utility. There is no real equivalent in TRSDOS and again I have put a copy of this program on all my disks. That is in fact a little extravagant but as you will see, you may never need to type PIP again. An example of the SW display is below.

```
NSWEEP   -  Version 2.ØS      Ø4/11/1984
        (c) Dave Rand, 1983, 1984
            Edmonton, Alberta

Drive AØ:    158K in   1Ø files.      8k free.
   1. AØ: -CATALOG.ØØ3    2K:


A - Retag files          : Q - Squeeze/Unsqueeze tagged files
B - Back one file        : R - Rename file(s)
C - Copy file            : S - Check remaining space
D - Delete file          : T - Tag file for transfer
E - Erase T/U files      : U - Untag file
F - Find file            : V - View file
L - Log new disk/user    : W - Wildcard tag of files
M - Mass file copy       : Y - Set file status
P - Print file           : ? - display this help
X - Exit to CP/M         : cr, sp - Forward one file
```

The first part of the above display is what you see when you run SW. The display is fairly simple to understand, and the line beginning with "1. AØ:" is the prompt line and shows the first file in alphabetical order on the disk. The replies to this prompt are displayed in the next section which is displayed after replying ? to the prompt. You can move forward and backward within the directory. Single files can be copied or deleted. In fact multiple files may be copied by first Tagging individual files and then

using the mass transfer option. Individual files can be found without having to page through the directory. If a new disk is to be examined then the L option is used. The Squeeze utility is often used by the CPM users group to compress text files and thus save disk space. These files can only be viewed when squeezed by the view option, which will also view ASCII files, but not COM files. The remaining options are obvious and the whole program replaces a number of built in commands of CPM

There a many, many more utilities, too numerous to mention including one to display COM files, LOOKWS.COM; a CRC checker, CRC.COM; a disk file utility, DUU.COM; a file recover program, UNERASE.COM.

All of these and many more are available from the CPM Users Group Library, the address and details of which were in a previous article. In addition to utilities the library contains full blown adventure games, modem programs, business programs and languages such as C and Fortran, all of these for the price of membership and a disk copying charge!!!!!

Enough of a plug, lets get back to the BASIC's. The most common BASIC is MBASIC and it is the one that I shall be discussing here. Others that exist are OBASIC, XYBASIC, XBASIC and CBAS2, which is a compiler BASIC. MBASIC is a standard Microsoft BASIC and for those readers who have used the TRS 80 this means there is very little new to learn, for example the editor is exactly the same as the annoying but powerful line editor found in all versions of TRSDOS. Therefore I shall confine my comments to the differences between Tandy's BASICs and MBASIC.

MBASIC is entered with four options, firstly a filename, default .BAS, which is to be run; the number of files to use, F, default 3; the highest address to be used; M, default FFFF; maximum record length for random files, S, default 128. As I have said the commands are much the same as TRSDOS BASIC, the first exception is that the only shorthand recognized are ? for PRINT and ' for REM, and this can make the editing of lines difficult without the use of arrows to page through the program. The command, FILES, will display a directory of files on the drive, wildcards can be used. Files are RUN, LOADed and SAVEd in the usual way and can be saved in ASCII or a protected format. To leave BASIC and exit to CPM, the old TRSDOS CMD"S", you simply type SYSTEM, exactly the same as in TRSDOS 6 for the Model 4, no parameters, such as STAT, can be passed using SYSTEM, it will only take you back to CPM. OPTION BASE will allow you to set the base value for arrays, 0 or 1. For random numbers the command RANDOMIZE will initialize the seed value, however it doesn't appear to be truly random!!!! CHAIN will chain another program after the current one and COMMON will pass variables between them. SWAP exchanges the values of two variables of the same type, making sorting an easy thing to program. WHILE and WEND included and provide, an as yet unused by me, method of looping. WIDTH will set the maximum width of the screen WIDTH LPRINT does the same for the printer. Finally there is a WAIT command that waits until a specified port is not zero, any suggestions for use?

There is no PRINT @ or PRINT TAB nor is there a CLS command, these can be got round by various devious means

PRINT CHR$(26) is the way to clear the screen.

To print at a location on the screen is a little more difficult and requires the use of a Subroutine to achieve it. Firstly the values of the line that the cursor is on an it's position across the screen are loaded into variables. Then the cursor is placed at known position on the screen and offset by the values in the two variables. Complicated? ? ? Don't worry here is a short example for you to try.

```
10 PRINT CHR$(26)              REM Clears the screen
20 PRINT "This is now on the top line"
30 L=3: C=4: GOSUB 80          REM Note that there is also line/column 0
40 PRINT "This is on the 2nd line 5 places in"
50 L=11: C=29: GOSUB 80
60 PRINT "This is on the 12th line and 30 places in"
```

```
70 END
80 PRINT CHR$(27);"=";CHR$(L+32);CHR$(C+32);
90 RETURN
```

Make sure that all Keywords are separated by blanks as they are mandatory in MBASIC. It may take a little bit of work converting your programs across from the old TRSDOS version. Note that peeks and pokes are nowhere near the same and any program using them almost certainly will NOT run.

I am certain that the list of differences and changes above are not exhaustive and I would appreciate any comments about other differences and solutions are addressed to this newsletter so that all may benefit.

The final part of my Tutorial on CPM is about the operating system itself, a subject I am not well qualified to talk about, and so I shall confine myself to the listing of absolute locations and not enter a discussion on how to use them. The operating system is broken down into three main parts the Console Command Processor (CCP), the Basic Input/Output System (BIOS) and the Basic Disk Operating System (BDOS). The CCP is the part of the system which communicates with the user and interprets the commands typed at the keyboard. It also does some processing and is the "heart" of the system. The BIOS is the part which sends information to peripherals and communicates with them. The BDOS communicates with the disks and like the other two parts is totally transparent to the user. These parts reside in the top of memory and can be overwritten by a program, providing they are reloaded from disk afterwards. Low memory is below 0100H is used for certain File Control Blocks (FCB's) and buffers, it should not be overwritten. The lowest point at which the CCP, BIOS and BDOS resides is called CBASE and for a 16K system is at 2900H, this address is incremented by 4000H for each additional 16K, therefore for a 64K system CBASE is at D900H, I think! ! ! The area in between is called the Transient Program Area (TPA) and is where all of your programs will run, including things like PIP, SD, MOVCPM and DDT.

At this point I could describe the use of the FCB's however I personally let the system control the names and locations of my files and try not to meddle, those of you who know what you are doing and wish to meddle should try reading Rodney Zak's excellent book "The CP/M Handbook with MP/M". However I will explain how to access the operating system from your own programs. To call the operating system you should first execute a JMP to 05H. However as always this in itself is not enough and there are 36 services provided by CPM 2.2, these service calls are numbered, oddly enough 1 to 36. The number of the service call that you require should be loaded into the C register before executing the jump.

The first 11 calls are for the BIOS and are:

1 Read Console
2 Write Console
3 Read device RDR:
4 Write device PUN:
5 Write LST:
6 Direct Console or status of console
7 Get I/O status
8 Set I/O status
9 Print buffer
10 Read buffer
11 Interrogate Console ready

The remaining calls are for the BDOS and are:

12 Return Version Number
13 Reset disk system
14 Select drive number
15 Open file
16 Close file

17 Search for file
18 Search for occurrence of number 17
19 Delete file
20 Read file sequentially
21 Write file sequentially
22 Open a new file
23 Rename file
24 Return logged in drives vector
25 Return current logged in drive
26 Set DMA address ? ? ?
27 Get allocation of free space vector
28 Write protect disk (software only)
29 Get write protected drives vector
30 Set file attributes
31 Get disk parameter block address ? ? ?
32 Get or set user status
33 Read random file
34 Write random file
35 Compute file size
36 Set random record position

The above are only a guide to the use of the call and are presented for you to get some insight as to how the system works, those of you planning to write an M/C program to catalogue all your disks, will not be able to do so from the bare facts I have given him/her. However these calls are well documented elsewhere and perhaps someone could expand on their use in another article. Incidentally there isn't as far as I know a good directory catalogue program for CPM, and I wish I was able to write one as there is a need for it. I am in fact tempted to as the use of service calls makes M/C programming much easier and very transportable throughout different systems.

Well it's over at last. I have come to the end of my series and I am looking forward to a rest from typing. I hope that all of you who are still here at the end have learnt something, if not then either you knew it already, or else I should be out of my job as an instructor. You probably will not have assimilated (there's a big word for 10 at night) all of the points that I have made but if you only learnt the one trick of PIPing files in UPPER case to the same in lower case, then my efforts will have been worthwhile.

I will say again now, as I believe I said in the first article, that I am not a CPM expert, just someone who felt the need for a series of articles, and sat down to write them with the aid of the HELP files and a few books. Any one of you could have done the same, and I hope that some of you will put finger to keyboard and do something, however small and unqualified, for the newsletter. Finally, there is always a finally, I wish you all a Merry Christmas, even though I am writing this in July, and I hope that I will meet some of you at future Workshops where we can swap experiences with this universal operating system, CPM.

Dave Holman
160 London Road West
Bath
Avon

BA1 7QU

```
;*********************************************************
;          DIRECTORY PROGRAM      Model 1 + LDOS
;
;    Vernon Blackmore                          August 1985
;*********************************************************
;
;
;DIRECT is a simple directory program, mainly for use on
;single drive systems.  It enables the user to swop disks
;just before the directory is read.  If the inserted disk
;is a non-system disk then SYS10/SYS and SYS12/SYS must
;either be resident or be present on the data disk.
;On systems with more than one drive the drive number
;may be entered. DIRECT uses LDOS error codes for errors.
;
;If the available space (in K) is less than KMIN defined
;below then a warning message is displayed on the screen.
;
KMIN    EQU 05H          ;minimum space before warning'
;                         *** define before assembling ***
;
;
@DSP    EQU 0033H        ;ROM display routine
@EXIT   EQU 402DH        ;LDOS Exit point
@DSPLY  EQU 4467H        ;LDOS message display routine
@KEYIN  EQU 0040H        ;LDOS keyboard input routine
@DODIR  EQU 4463H        ;LDOS directory routine
@CKDRV  EQU 44B8H        ;LDOS drive check routine
@ERROR  EQU 4409H        ;LDOS error code display routine
;
        ORG 0A000H       ;somewhere out of the way!
;
        COM '<Directory program - Vernon Blackmore 1985>'
;
START   LD HL,MES1       ;point to introductory message
        CALL @DSPLY      ;display it
MENU    CALL LINE        ;move down a line
        LD HL,MES2       ;load pointer to menu message
        CALL @DSPLY      ;display the menu
        LD HL,MES1       ;use MES1 as an input buffer
        LD B,01H         ;only accept one character
        CALL @KEYIN      ;wait for keyboard input
        JP C,@EXIT       ;<BREAK> pressed so exit
        LD A,(HL)        ;look at the character in MES1
        CP 0DH           ;is it <ENTER> ?
        JR Z,M1          ;yes - set drive to 0
        LD B,30H         ;load ASCII '0'
        CP B             ;is A < '0' ?
        JP C,M1          ;yes - set drive to 0
        LD B,39H         ;load ASCII '9'
        CP B             ;is A > or = to '9' ?
        JP NC,M1         ;yes, invalid drive no. so set=0
        SUB 30H          ;convert drive no. from ASCII
        LD (DRIVE),A     ;store it away
        LD C,A           ;set C to logical drive no.
        CALL @CKDRV      ;check drive is OK
        CALL Z,M4        ;drive is OK - continue
        LD A,0E0H        ;load error "Illegal drive no."
        CALL @ERROR      ;error if drive not available
        JR MENU          ;go back and try again'
```

Only One Drive?

With talk in the last NATGUG News of 80 track double-sided drives I decided to submit a contrasting article. It could be sub-titled: "How to survive with just one single density drive!".

I do boast a twin-drive, double density setup, but with the cost of secondhand Model 1's I invested in a second system for the office. The problem was how to run LDOS + Superscripsit on one drive, and still have room for files! In the end I ended up with about 30K spare storage, which is adequate for a day's typing. In the evenings I transfer the files on to backup data-only disks or print and erase.

I needed to do two things:
(a) Reduce LDOS to its bare minimum
(b) Develop a directory program which would allow me to read the directory of non-system disks.
The first was relatively easy, and the second is shown as the program opposite. Let me describe DIRECT first:

On a 2-drive LDOS system obtaining a directory of a data disk is easy. DIR is called from LDOS ready, and the necessary routines are read from your system disk in drive 0. If you only have one drive, however, you need to be able to swop your data disk for the system disk. Some LDOS programs (eg COPY allow this; DIR does not. So rather than modify DIR I chose to write my own routine. It's not as fancy (there is no alphabetical sorting of file names), but it is shorter, and in my position brevity is a virtue.

It works on Model 1 with LDOS. It certainly won't work with NEWDOS, but I've not tried TRSDOS. When called it waits for you to insert the disk required: <ENTER> reads and displays the directory (in 4-across format) + the free space available; <BREAK> will return you to LDOS Ready - assuming you have inserted the system disk! On multidrive systems you can type in

```
14      LD A,0CFH       ;load error "write protected"
        CALL C.@ERROR   ;disk is write protected!
;
M2      CALL LINE       ;skip a line
        LD A,(DRIVE)    ;get back the drive no.
        LD C,A          ;set C to logical drive no.
        LD B,4H         ;set B to obtain free space
        LD HL,BUFF      ;set pointer to buffer
        CALL @DODIR     ;get directory information
        LD HL,BUFF+10H  ;point to end of message
        LD A,03H        ;load a terminator
        LD (HL),A       ;put into into the buffer
        LD HL,BUFF      ;put HL back to buffer start
        CALL @DSPLY     ;display disk name + date
        LD HL,MES3      ;load message 3
        CALL @DSPLY
        XOR A           ;clear A
        LD H,A          ;clear H
        LD A,(BUFF+12H) ;load binary value of ?K
        LD (KVAL),A     ;store it away for later
        LD L,A          ;transfer to L
        LD A,20H        ;load an ASCII space
        LD (BTEST),A    ;store it in the test byte
        LD IX,BSPACE    ;point to ASCII buffer
        CALL BINDEC     ;convert binary in HL to ASCII
        LD HL,BSPACE    ;put pointer to start of ASCII
        CALL @DSPLY     ;display it on the screen
        CALL LINE       ;CR
        LD A,(DRIVE)    ;get logical drive no.
        LD C,A          ;transfer to C
        LD B,0H         ;request directory on screen
        CALL @DODIR     ;display the directory
        LD B,KMIN       ;load minimum space for safety
        LD A,(KVAL)     ;get the actual space available
        CP B            ;compare:  Warning if A < B
        JP NC,MENU      ;phew! A > or = B so no problem
        LD HL,MES4      ;point to warning message
        CALL @DSPLY     ;display it
        JP MENU         ;now return for another directory
;
M1      XOR A           ;clear A to select drive 0
        LD (DRIVE),A    ;store in drive select
        JR M2           ;jump straight back
DRIVE   DB 00H          ;store for drive number
KVAL    DB 00H          ;store for available K
;
MES4    DB '******* WARNING *******  Available space left is only '
BSPACE  DB '   K'
        DB 0DH          ;CR terminator
;
LINE    PUSH AF         ;save current value of A
        LD A,0DH        ;load a CR
        CALL @DSP       ;send it to display
        POP AF          ;get back original A
        RET
;
;
;
;
;
```

the drive number required. DIRECT will check if this is a valid drive, display the directory and tell you if the disk accessed is write protected or not. I've also added one extra facility. With only 30K of data space it is easy to clog up the disk leaving insufficient room for a new file. A warning message is therefore displayed if the available free storage drops below a value defined by KMIN at the start of the program. In my version it is 5K.

DIRECT needs to access SYS10 and SYS12 to work. These must either be resident (using the SYSRES commands) or be on your data disk. I've chosen to make them resident, but putting these two SYS routines on a data disk will only take 3K or so of space.

The program was assembled with EDAS. If you would like to use the program but don't have an assembler then I'll gladly copy the program across for you if you send me an LDOS formatted disk + postage.

Reducing LDOS

My second task was to reduce LDOS. I deleted SYS 4,5,7,9,11. SYS6 (the main library) contained far too many functions for my needs. On a day-to-day basis I only needed DIRECT (as opposite), KILL and COPY. Using CMDFILE/CMD I therefore set about removing KILL and COPY from SYS6 so that I could run them as 'stand alone' programs. The CMDFILE blurb (3-13 in my manual) tells me that it recognises library-type files and the individual modules may be loaded by typing in the ISAM overlay number. It then fails to tell you what the ISAM numbers are for SYS6 and SYS7! I've typed them out below, as given in "Notes from Misosys" (May, '83). However, you can get the information direct by looking at SYS1 using FED. Records 0 and 1 contain the program name (eg COPY) padded by blanks to 6 characters, followed by two bytes. The first is the ISAM number you may use for

```
;****************** BINDEC Subroutine *****************
;Modified from 'More TRS-80 Assembly Language Programming
;by Bill Barden      see pp155f
;******************************************************
BINDEC  EQU $               ;> binary in HL, IX at buffer
        LD IY,PTABLE        ;point to power of 10 table
BIN010  XOR A               ;digit count set to 0
        LD D,(IY+1)         ;get MS byte
        LD E,(IY+0)         ;get LS byte
BIN020  OR A                ;clear carry
        SBC HL,DE           ;subtract power of 10
        JR C,BIN030         ;go if negative
        INC A               ;bump digit count
        JR BIN020           ;continue round
;
BIN030  ADD HL,DE           ;restore to positive
        OR A                ;check A for 0
        JR Z,BLANK          ;yes - output a space or a 0 ?
        ADD A,30H           ;no - so convert to ASCII
M3      LD (IX+0),A         ;store it in the buffer
        LD (BTEST),A        ;store away for future tests
        INC IX              ;move buffer pointer
        INC IY              ;bump power of 10 pointer
        INC IY
        LD A,E              ;get LS byte
        CP 1                ;test for 3 digits
        JR NZ,BIN010        ;go if not 3
        RET                 ;finished!
;
BLANK   LD A,(BTEST)        ;have we already had a digit?
        CP 20H              ;or has it just been blanks?
        LD A,30H            ;set A to ASCII '0'
        JR NZ,M3            ;digit - so output a 0
        LD A,20H            ;no digits yet - so output blank
        JR M3
BTEST   DB ' '              ;check byte for leading spaces
;
;
PTABLE  DW 100
        DW 10
        DW 1
;
MES1    DB 'Directory Program for system and data disks'
        DB 0DH              ;terminating character
MES2    DB 'INSERT DISK, <BREAK> to exit to LDOS, <ENTER> for directory: '
        DB 03H
MES3    DB '   Free space available: '
        DB 03H
;
BUFF    DS 14H              :20 character buffer
        END START
```

CMDFILE, the second represents the library: 80 = SYS6, C0 = SYS7. Incidentally, you can readily change the name of the function by altering these names in SYS1. So, for example, I have renamed the PURGE utility as ERASE.

SYS6 - LIB A

31	APPEND	18	KILL	53	RENAME
32	COPY	19	LIB	63	RESET
61	DEVICE	62	LINK	64	ROUTE
21	DIR	41	LIST	82	RUN
91	DO	81	LOAD	65	SET
66	FILTER	1E	MEMORY	A2	SPOOL

SYS7 - LIB B

51	ATTRIB	15	DATE	A1	SYSTEM
11	AUTO	14	DEBUG	16	TIME
33	BUILD	71	DUMP	1A	TRACE
17	CLOCK	22	FREE	1B	VERIFY
13	CREATE	72	PURGE		

Vernon Blackmore
11 Mylor Road
Sheffield S11 7PF
Tel: (0742) 662313

```
==========================================================
REV 1.1      : MENU SYSTEM              TITLE  : MENU
==========================================================
SUMMARY      : Provides a menu system for use with LDOS.
----------------------------------------------------------
DESCRIPTION :

BASIC program reads input files containing menu layouts.
Allows branching to multiple levels of menus, calls to
system commands (memory permitting) and chaining to other
BASIC programs.

Facility requires 3 input files which are created by
another program,"MENUFAST".

These files are as follows :
MENU/COM     : (Random)  : Communication file between
                           runs of Menu
MENU/LKP     : (Random)  : Lookup table of Menus
MENU/MEN     : (Random)  : Text of menus

Note that the files are created by MENUFAST/BAS from
MASTER/MEN.
----------------------------------------------------------
SYNTAX   : lbasic run"menu/bas"

SYNONYM  : menu
----------------------------------------------------------
NOTES    : Details of MASTER/MEN separately specified
           The procedure for creating MASTER/MEN is
           extremely straightforward.
----------------------------------------------------------
EXAMPLES :

run lbasic "menu"

Displays a menu, and allows further menus, commands and
BASIC programs to be selected.
----------------------------------------------------------
COMPONENTS : MENU/BAS See also MENUFAST/BAS,MASTER/MEN
----------------------------------------------------------
AUTHOR     : Edward Rashbrooke          : 16 Mar 85
==========================================================
```

```
  20 'MENU : Menu Manager
 40 'Created : Edward Rashbrooke 30 Jan 85
 60 '-------------------------------------
 80 ' Manages various functions through a menu hierarchy
100 '
120 CLEAR 2000:DEFINTA-Z: DIM MX$,LC,TI$
130 ON ERROR GOTO 1580
140 '
160 OPEN"r",1,"menu/com",10
180 FIELD 1,10 AS MB$
200 '
220 OPEN"r",2,"menu/lkp",12
240 FIELD 2,10 AS MX$,2 AS OF$
260 '
280 OPEN"r",3,"menu/men"
300 FIELD 3,64 AS ML$
320 '
340 GET 1,1
360 LC=1
380 IF LC>LOF(2) THEN 1320
400 GET 2,LC
```

```
420 LC=LC+1:PRINT@58,LC;
440 IF MK$<>MB$ THEN 380
460 OF=CVI(OF$)+1
480 GET3,OF:OF=OF+1:TI$=ML$
500 FOR I=1 TO 9
520 GET3,OF:OF=OF+1:A$(I)=ML$
540 IFLEFT$(A$(I),3)="END" THEN U$=MID$(A$(I),5):GOTO 600
560 GET3,OF:OF=OF+1:B$(I)=ML$
580 NEXT
600 CLS
620 B$(0)="s":'exit command
640 PRINT@0,"MENU : ";TI$
660 PRINTSTRING$(64,95);
680 PRINT" "
700 FORI=1TO9
720 IF LEFT$(A$(I),3)="END" THEN GOTO 780
740 PRINTUSING"# %                                                                    %";I;A$(I)
760 NEXT
780 PRINT@832,STRING$(64,95);
800 PRINT@15*64,"h=hlp,r=rst,u=up,m=menu,l=lst,0=exit";
820 PRINT@896,"Enter Selection =>";:PRINTCHR$(14);
840 A$=INKEY$:IFA$=""THENGOTO 840
860 PRINTCHR$(15);
880 PRINTA$;:A=INSTR("0123456789rhumla",A$)-1
890 IF A<0 THEN 800
900 IF A>9 THEN 1240
920 IF LEFT$(B$(A),1)="*" THEN GOTO 1040
940 IF LEFT$(B$(A),1)="+" THEN GOTO 1960
960 CLS:PRINT"MENU : Selection : ";A$
980 PRINTB$(A)
1000 IFB$(A)<>""THENCMDLEFT$(B$(A),63)
1010 PRINT@15*64,"Press ENTER to Continue ";:LINEINPUTQX$
1020 GOTO 600
1040 'Menu switching
1060 M$=MID$(B$(A),2)
1080 GOSUB1120
1100 GOTO 340
1120 'Set up common file
1140 LSET MB$=">>"+M$
1160 PUT1,1
1180 IF BP$<>""THEN LSET MB$=BP$:ELSE LSET MB$=" "
1200 PUT 1,2
1220 RETURN
1240 'Special commands
1260 A=A-9
1280 ON A GOSUB 1320,1360,1480,1500,1660,1700
1300 GOTO 600
1320 'R-Reset
1340 M$="menu001":GOSUB1120:GOTO 340
1360 'H-Help
1380 CLS
1400 PRINT"Menu Manager R1.0  HELP Information"
1420 PRINTSTRING$(64,95);
1430 RESTORE
1440 FOR I=1TO10:READI$:PRINTI$:NEXT
1460 GOTO 780
1480 M$=U$:GOSUB1120:GOTO 340
1500 'M-Menu Specification
1520 GOSUB1560:INPUT"Enter Menu Name :";U$
1540 M$=U$:GOSUB1120:GOTO 340
1560 PRINT@896,STRING$(63," ");:PRINT@896,"";:RETURN
1580 'Error processing
1585 GOSUB 1560
1600 PRINT@15*64,"a=redisplay,r=restart from master ";
1620 PRINT@14*64,"Error processing : Select restart :";
```

```
1640 RESUME 840
1660 'l-not supported
1680 RETURN
1700 'a=again
1720 RUN
1740 DATA"This facility supports extra options as follows:"
1760 DATA" "
1780 DATA"a = again    : redisplay current menu (after error)"
1800 DATA"h = help     : display general help info"
1820 DATA"l = list     : list current menus (not supported)"
1840 DATA"m = menu     : select specific menu by name"
1860 DATA"r = restart  : restart from master menu (menu001)"
1880 DATA"u = up       : move up one level in menu hierarchy"
1900 DATA"0 = exit     : leave menu system"
1920 DATA" "
1940 DATA" "
1960 'Run another BASIC program
1980 Z$=MID$(B$(A),2)
2000 Z=INSTR(Z$,"+")
2020 IF Z<1 THEN BP$=MID$(Z$,1):M$=MID$(MB$,3) ELSE BP$=MID$(Z$,1,Z-1):M$=MID$(Z$,Z+1)
2040 GOSUB1120
2060 RUN LEFT$(BP$,21)
2080 END
```

```
============================================================
REV 1.1      : MENU SYSTEM                TITLE  : MENUFAST
============================================================
SUMMARY      : Creates files used with MENU system.
------------------------------------------------------------
DESCRIPTION :

BASIC program reads input ASCII text file containing
menu formats. These are then converted into an optimised
form for use with MENU/BAS, the menu generating program.

Facility reads "MASTER/MEN" and creates MENU/COM, MENU/LKP
and MENU/MEN.

These files are as follows :
MENU/COM     : (Random)  : Communication file between
                           runs of MENU
MENU/LKP     : (Random)  : Lookup table of Menus
MENU/MEN     : (Random)  : Text of menus

------------------------------------------------------------
SYNTAX    : lbasic run"menufast/bas"

SYNONYM   : menufast
------------------------------------------------------------
NOTES     : Details of MASTER/MEN separately specified
            The procedure for creating MASTER/MEN is
            extremely straightforward and can use any ASCII
            text editor.
------------------------------------------------------------
EXAMPLES :

run lbasic "menufast"

Displays a screen showing MASTER/MEN records being read.
Displays each menu identified.
------------------------------------------------------------
COMPONENTS : MENUFAST/BAS also MENU/BAS, MASTER/MEN
------------------------------------------------------------
AUTHOR       : Edward Rashbrooke            : 16 Mar 85
============================================================
```

```
10 'MENUFAST : Menu system optimiser
20 'Created  : Edward Rashbrooke 15 Mar 85
30 '
40 '-------------------------------------------
50 '
60 CLEAR 2000: DEFINT A-Z
70 OPEN"i",1,"master/men"
80 OPEN"r",2,"menu/lkp",12
90 OPEN"r",3,"menu/men"
95 FIELD 2,10 AS MN$,2 AS OF$
100 FIELD 3,64 AS A$
110 '
115 CLS:PRINT"MENUFAST : Menu system optimiser"
116 PRINTSTRING$(64,95)
120 'main line
130 GOSUB 2000
140 FOR I=1 TO 30000
150 GOSUB 3000
160 GOSUB 2000
170 NEXT I
180 CLOSE
999 GOSUB 10000
2000 LINEINPUT#1,L$
2010 IF EOF(1) THEN I=30000
2020 RETURN
3000 ' processing
3010 REC=REC+1:PRINT@5*64,"Record number : ";REC;
3020 IFLEFT$(L$,2)=">>" THEN GOSUB 4000
3030 LSET A$=L$
3040 PUT 3,REC
3050 RETURN
4000 LSET MN$=L$
4010 LSET OF$=MKI$(REC)
4020 LK=LK+1:PUT 2,LK
4025 PRINT@6*64,L$,REC,LK;
4030 RETURN
10000 'MENUCTL : Check whether facility called from menu
10010 CLOSE
10020 OPEN"r",1,"menu/com",10
10030 FIELD 1,10 AS A$
10040 GET 1,2
10050 IF A$<>STRING$(10," ") THEN RUN"menu"ELSECMD"s"
```

```
============================================================
REV 1.1      : MENU SYSTEM                TITLE   : MASTER/MEN
============================================================
SUMMARY      : Input data file used with menu system.
------------------------------------------------------------
DESCRIPTION :

This is the input file used to define the menu formats to
be used with the menu system. It is read by MENUFAST/BAS,
and converted into 3 output files. These three optimised
output files are used with the main MENU program, which
produces the menus to be output.

These files are as follows :
MENU/COM     : (Random)  : Communication file between
                           runs of Menu
MENU/LKP     : (Random)  : Lookup table of Menus
MENU/MEN     : (Random)  : Text of menus
```

FILE FORMAT :
The file should be created as an ASCII text file, using any suitable editor (e.g. led, lscript, wp, scripsit etc).

As many Menus as required should be stored in the file.

LINE	FORMAT (cols shown)	COMMENT
	1.....1.....2.....etc 0 0	
1	>>menuname	name of menu
2	menu title	title of menu to be displayed
3	first selection	Text for first selection
4	first command	Command to be executed for first selection

(Lines 3,4 can be repeated for a total of 9 Selections)

5	END upmenu	END of menu, upmenu is the name of a higher level menu

---

SPECIAL KEYWORDS :
A command can be any LDOS command (subject to available memory). It can also be :
*menuname - to switch to another menu
+program - to "RUN" a BASIC program

EXAMPLES : See separate sheet

Created : Edward Rashbrooke 12 Apr 84
Revised : Edward Rashbrooke 16 Mar 85

==========

```
>>wp/men
WP : Word Processing Menu Selection
Newscript Menu
*ns
Scripsit Menu
*scr
Superscripsit Menu
*sscr
WP Word Processor
wp
LSCRIPT Word Processor
LSCRIPT
END menu001
```

```
>>lang/men
LANG : Language subsystems
Assembler Development System
*asm
C Compiler Development System
*lc
Pascal Development System
*pascal
COBOL Development System
*cobol
END menu001
```

```
>>prof1/men
PROF1 : Profile databases
Account database
dd 2 aldos078
Customer database
dd 2 aldos098
Diskfile database
dd 2 aldos096
Invoices database
dd 2 aldos096
Inventory Control
dd 2 aldos068
Inventory Control Demo
dd 2 aldos078
Portfolio Management
dd 2 aldos078
Next list of databases
*PROF2
END prof
```

```
MENU : WP : Word Processing Menu Selection
_____________________________________________________________

 1 Newscript Menu
 2 Scripsit Menu
 3 Superscripsit Menu
 4 WP Word Processor
 5 LSCRIPT Word Processor




_____________________________________________________________
Enter Selection =>
h=hlp,r=rst,u=up,m=menu,l=lst,0=exit
```

```
MENU : PROF1 : Profile databases
_____________________________________________________________

 1 Account database
 2 Customer database
 3 Diskfile database
 4 Invoices database
 5 Inventory Control
 6 Inventory Control Demo
 7 Portfolio Management
 8 Next list of databases



_____________________________________________________________
Enter Selection =>
h=hlp,r=rst,u=up,m=menu,l=lst,0=exit
```

```
MENU : LANG : Language subsystems
_____________________________________________________________

 1 Assembler Development System
 2 C Compiler Development System
 3 Pascal Development System
 4 COBOL Development System




_____________________________________________________________
Enter Selection =>
h=hlp,r=rst,u=up,m=menu,l=lst,0=exit
```

FOR SALE AND WANTED

Model 1 Software for Sale

Utilities

PROFILE database (disks for both Model I and III)	Tandy	£12
MICROFILES database - flexible disk-based filing system	Tandy	£15
Data Management System - database written in BASIC (tape*)	CCA	£ 8
Budget Management - home budget/accounts (2 tapes*)	Tandy	£ 7
SUPERSCRIPSIT Proofread progam + Dictionary (2 disks)	Tandy	£30
Upper/Lower Case Driver programs (tape)	Tandy	£ 1

Games

Interdictor Pilot (disk)	Molimerx	£ 6
Sargon II Chess (disk)	Hayden	£ 7
Invaders from Space (disk)	Acorn	£ 3
Microchess 1.5 (tape)	Tandy	£ 1
Adventure 4 "Voodoo Castle" (tape)	Adams	£ 1

Books

Encyclopedia for the TRS-80 (vol 1)	274 pages	W Green	£ 1
TRS-80 Assembly Language Programming	224 pages	Tandy	£ 1
57 Practical Programs & Games in BASIC	204 pages	Tandy	£ 1

* Tape progams marked with an * are also available on disk for an extra £ 2
All prices are negotiable!

Vernon Blackmore 11 Mylor Road, Sheffield S11 7PF.
Since we're moving house try 0742-584685 first, then 0742-662313. Or send a postcard!

Grand clearance sale!

Having reached a small financial crisis, I am having a clear out of my surplus hardware. Members may be interested in some or all of these items:-

TRS-80 Model 1
Complete with expansion interface, 1 disk drive, Percom doubler, Tandy RS-232, speed-up kit, monitor, wooden case with fan to hold keyboard, EI and two disk drives.
Also available:
CP/M board (Omikron Mapper with WordStar, MBASIC, CBASIC, spelling checker)
Newclock-80 hardware clock.

I'm looking for around £300-£350 for the lot, might split last two items off, but not the basic Model 1.

Cetronics P1 printer
80 cols electrostatic (silver paper). Fast (100 cps) and very quiet. Quite good print, photocopies well.
Around £45
Also cassette Model III - offers?

Commodore 64 system
Including 1541 disk drive, MPS-801 printer, real RS-232 interface, and some software.
Around £350

If you think the prices are too low (or too high) give me a ring, I will haggle.
Peter Tootill (051) 428 2733

Model 1 Software, Books, etc. For Sale

All software is in good used condition on original manufacturers disks or tapes. Exact condition (eg documentation or lack of it, any faults) is as listed below. Some discs have been labelled for indexing, usually in felt tip on the manufacturers labels.

PROGRAMMING, UTILITIES, ETC

LDOS operating system; Tandy package, 2 disks and manual	I	£15
VISICALC spreadsheet; Tandy package; disk, manual, card	I	£10
ADVANCED STATISTICAL ANALYSIS; 7 tapes, disk, manual	I	£ 3
MICROFILES data base; disk, manual	I	£ 5
TIME MANAGER business diary program; 4 disks, manual	I/III	£20
QUICK QUIZ teachers utility; 2 disks, manual	I/III	£ 6
ADVANCED GRAPHICS algebraic plotting; disk, tape, manual	I	£ 4
ALPHAKEY teaches letter recognition	I	£ 4

All the above are in ring binders; please add £1.50 per order for P&P. (eg., only pay £1.50 regardless of the number of packages ordered)

SMALL FORTH language (Molimerx); Disk, documentation	I/III	£ 3
ANIMATION package (Molimerx); Disk, documentation	I	£ 3
EDIT basic screen editor (Molimerx); Disk, documentation	I	£ 5
COLPLOT CGP-115 driver (Molimerx); Disk, documentation	I	£ 5
GRBASIC adds sound, graphics. Disk, documentation	I	£ 5
ACCEL 4 compiler (Molimerx); Disk, documentation	I	£ 5
PILOT PLUS language (Tandy); Disk, card, no documentation	I	£ 2
THE DOCUMENTER flowchart program; Disk, documentation	I/III	£ 3
POWERMAIL mailing list (Molimerx); Disk, documentation	I	£ 5
11 CLOAD 80 DISKS Oct 82-Jan 83, Mar 83, Apr 83, JnJl 83 Aug 83, Sept 83, Feb 84, Mar 84 AS ONE LOT ONLY	I/III	£15
DISK INSTRUCTION COURSE (Tandy); 4 disks, leaflet	I	£ 5
TYPING COURSE (Molimerx); 2 disks, no documentation	I	£ 3

Please add 50p P&P per order from the above list

GAMES

ULTRA TREK (Molimerx); Disk, documentation	I	£ 3
FURY (Computer Shack); Disk, instructions	I	£ 3
STRONGHOLD (Computer Shack); Disk, instructions	I	£ 3
DIGOUT (Computer Shack); Disk, instructions	I	£ 3
MICROSOFT ADVENTURE; the original; Disk, documentation	I	£ 3
SARGON II chess (Heydon); Disk, instructions	I	£ 3
ZORK I (Infocom); Disk, no instructions	I	£ 3
VAULTS OF CYMARON; Graphic adventure, disk, no instructions	I	£ 2
CRUSH, CRUMBLE, & STOMP (Epyx) Boxed SF/War graphic game with instructions, character cards, flippy disk (also for Apple)		£ 6
SORCERER OF SIVA (Epyx) Boxed fantasy graphics adventure with instructions, flippy disk (also for Apple)		£ 5

Please add 50p P&P per order for games

TAPES

All model I. Note that some software runs on other machines;
@ = Pet, + = Commodore 64, $ = Atari, ' = Apple, % = Vic, * = CoCo

COSMIC GUERILLAS (Kansas arcade game) no instructions		£ 1
DESTROY (Kansas arcade game) no instructions		£ 1
NORTH ATLANTIC CONVOY RAIDER (Avalon Hill) no instructions	!@	50p
VALLEY OF THE KINGS (Ogre) adventure - no instructions		50p
PANIK (Fantastic Software) arcade game - no instructions		£ 1
AIR TRAFFIC CONTROLLER (Creative Computing) - no instructions		50p
TIGERS IN THE SNOW (Avalon Hill) - Wargame with instructions		£ 1
D-DAY (Computer Simulations Company) - no instructions. wargame		50p

GOLDEN BATON (Molimerx) - adventure. no instructions		£ 1
GSF (Racet) utility with documentation		£ 1
ACCEL 2 (Southern) - no instructions. compiler		50p
BASICODE 2 - no instructions		50p
LEVEL II COURSE (Tandy) 8 tapes in two folders, one tape is a copy of original, with instructions.		£ 2
INVASION ORION (Epyx) strategy/space game, complete & boxed	$	£ 3
B1 NUCLEAR BOMBER (Avalon Hill) wargame, complete & boxed	!@	£ 2
TELENGARD (Avalon Hill) graphics adventure, complete & boxed	$@+	£ 3
MIDWAY CAMPAIGN (Avalon Hill) wargame, complete & boxed	$!@	£ 2
CONFLICT 2500 (Avalon Hill) strategy/space, complete & boxed	$!@	£ 2
VOYAGER I (Avalon Hill) graphics adventure, complete & boxed	@*!$	£ 2
TANK ARCADE (Avalon Hill) arcade game, complete & boxed	@$%	£ 2
ACQUIRE (Avalon Hill) business game, complete & boxed	!@	£ 2

Tape prices include P&P.

BOOKS

TRS-80 Assembly Language Routines	W. Barden Jnr	£ 5
TRS-80 Disk and other mysteries	H.C. Pennington	£ 5
Basic Faster & Better and other Mysteries	L. Rosenfelder	£ 5
TRS-80 Microcomputer technical handbook	Radio Shack	£ 4
Microsoft Basic Decoded and other Mysteries	J. Farvour	£ 5
TRS-80 Basic self-teaching guide (2 volumes)	Albrecht etc.	£ 4
TRS-80 Graphics for the model I and III	Kater & Thomas	£ 5
Fast Basic beyond TRS-80 basic	Gratzer & Gratzer	£ 2
TRS-80 Assembly Language Programming	W. Barden Jnr	£ 1
Programming Techniques for Level II	W. Barden Jnr	£ 1

Please add 50p P&P per book, to maximum £1.50

HARDWARE

Microdeal light pen (one tape, no documentation)	£ 2
Joystick, modified Microdeal model (repaired) no documentation	£ 3
Amplifier, modified Tandy model (socket for 9V added)	£ 2

Hardware prices include P&P

To order from this list work out the total price, including postage. Send me an itemised list (if possible with alternate choices) and a cheque. DO NOT make out the cheque for a fixed amount. Leave the amount spaces blank, but write NOT TO EXCEED £xxx, with your initials, under the space for the amount in words. If I can't supply everything you want I'll make the cheque out for a smaller amount, or return it if I can't supply anything. Please don't send cash or postal orders; it's very difficult to make refunds if I don't have what you want. Make sure that your name and address are CLEARLY written or printed. If possible I'll reply by return of post, though larger items will be sent parcel post. Thanks;
MARCUS L. ROWLAND, 22 WESTBOURNE PARK VILLAS, LONDON W2 5EA

****
*
* WANTED
* Dotwriter 4 & Letterset manupulation
* Bare Shugart SA400 w/out PSU
*
* Both for MODEL ONE. Contact
* Paul Godier, 83 Trinity Road,
* Wimbledon, London SW19 8QZ
* Tel (01) 542 9972 (home, ansafone)
*   or (01) 227 3680 (work)
*
****

NATGUG NEWS

Volume 7 Issue 3 September 1985

OFFICIAL JOURNAL OF THE

National TRS-80 & Genie Users Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers, and compatible systems such as the Video Genie.

Details of the Group accounts, and the constitution of the Group, are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are obtainable from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the Secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Secretary and Newsletter Publisher:-

Brian Pain,
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU.
Tel: (0908) 564271

CONTENTS

2. Information on the Group
3. Editorial
3. Printing labels
6. Problem section
6. More double, double and no trouble
7. For sale and wanted
8. Prosoft software

EDITORIAL

The small size of this issue is due to no-one sending me anything. At the AGM it was decided to keep to a monthly newsletter, even though some of them might be a bit thin. The remedy is in your hands.

A lot of information was missed off the Swindon workshop programme that you received with the last newsletter. The date of the meeting is the 25/26/27 October, and early booking is advisable. Bob Sparling is the organiser, and he can be reached on (0793) 740762. The meeting will also be attended by the Memotech MTX Users' Group, and the sessions on BASIC and machine code will be of interest to members of both groups. I am running the sessions on CP/M assembler and C, and those of you who have CP/M, and wish to get some hands-on experience, should bring your machines, and get copies of the Z80 assembler and Small C compiler from the CP/M Users' Group library. If you don't belong to the CP/M Users Group, membership details are available from Diane Fordred on (0322) 226699.

Bob Sparling tells me that he has received several complaints about NATGUG from members. This was news to Brian and me. The service we provide hasn't changed in any way over the years: you still get a newsletter every month, assistance with problems over the 'phone, and a comprehensive free software library. I don't know of any other group (apart from the QL users' group) that does so much for members. Would any members who are disatisfied with NATGUG please get in touch with US, and let us know where we are going wrong. We will then try to do something about it.

Tandy gave the PCW show a miss this year. Their profits are still dropping, according to an article I saw recently. They are now selling the Amstrad systems, which won't do much for sales of the Model 4 (the spec. is similar, and the Amstrad is about half the price). Their partner in Computerworld, Apricot (formerly ACT), seems to be having problems - they've written off over £3 million worth of portable computers, and their US operation is still in a mess.

Some time ago I described the sort of machine that I thought Tandy should be making. Unfortunately, my dream machine has been produced by Commodore. For about what I spent on my old Model I a few years ago, you will soon be able to get an Amiga with a 68000 processor, 256K RAM, very high-speed colour graphics, stereo sound synthesis, speech synthesis, multi-tasking operating system and loads of excellent low-cost software.

Leon Heller

PRINTING LABELS

The following C/80 program takes a name and address file and prints the names and addresses in three columns across the width of the paper, which can then be cut up to make the labels. Six lines have been allowed for each name and address. An option to view the output on the display is provided.

```
/*
** labels
**
** C/80 program to print name and address labels from
** a text file with three labels across the width
** of the paper
```

```
** Written by Leon Heller
** Version 1.0 - 27/8/85
**
*/

£include <fprintf.h>

£define EOF -1
£define MAXLEN 1000

extern char Cmode;

int  *fchan,                /* file channel */
     *pchan;                /* printer channel */

main(){

   char   fname[12],        /* file name */
          option,           /* user option: P - print V - view */
          line[50],         /* line buffer */
          *lineptr[18],     /* pointers to lines */
          *p,               /* buffer pointer */
          *alloc();         /* memory allocation function */

   int    i,                /* loop counter */
          len,              /* line length */
          n;                /* label count */

   n = 0;
   Cmode = 0;               /* char. at a time I/O */
   cls();
   printf("\t\t* * * LABEL PRINTING PROGRAM * * *");
   printf("\n\n\n");
   printf("File name: ");
   gets(fname);
   fchan = fopen(fname, "r");
   if (fchan == 0)
      error("Cannot open file");
   printf("\n<V>iew/<P>rint labels: ");
   option = toupper(getchar());
   if (option == 'P') {
      pchan = fopen("lst:", "w");
      if (pchan == 0)
         error("Cannot open printer channel");
   }
   printf("\n\n");
   len = 0;
   while (len >= 0){
      for (i = 0; i < 18; i++){
         len = getline(line, MAXLEN);
         p = alloc(len);
         strcpy(p, line);
         *(lineptr + i) = p;
      }
      do_labels(lineptr, option);
      n++;
      if (n % 8 == 0 && option == 'P')
         putc('\f', pchan);
   }
   fclose(fchan);
   if (option == 'P')
      fclose(pchan);
}
```

```
/*
** getline(s, lim) - get line from file
** modified version of function from K & R
*/

getline(s, lim)
char s[];
int lim; {

   int   c,          /* input character */
      i;             /* loop counter */

   i = 0;
   while (--lim > 0 && (c = getc(fchan)) != EOF && c != '\n')
      s[i++] = c;
   if (c == '\n')
      s[i++] = '\0';
   s[i] = '\0';
   if (c == EOF)
      i = -1;
   return(i);
}

/*
** do_labels(lineptr, option) - display labels on screen
** and print them if option 'P' selected
*/

do_labels(lineptr, option)
char option;
char **lineptr; {

   int i, j;

   for (i = 0; i < 6; i++){
      for (j = 0; j <= 12; j += 6){
         printf("%-26s", *(lineptr + i + j));
         if (option == 'P')
            fprintf(pchan, "%-26s", *(lineptr + i + j));
      }
      putchar('\n');
      if (option == 'P')
         putc('\n', pchan);
   }
   putchar('\n');
   if (option == 'P')
      putc('\n', pchan);
}

/*
** error(s) - print error message and abort
*/

error(s)
char *s;{

   puts(s);
   exit();
}
```

Leon Heller

PROBLEM SECTION

I seem to be getting a lot of disk problems lately. A disk written to only a day ago will fail to read giving a "Directory read error". I have the PCheck utility, but this only indicates a series of unknown errors. PFix parameter F also stops for unknown errors, but S to Skip takes it to the end and the disk then reads OK.

Has anyone found similar problems? I am using LDOS 5.13, a Video Genie I with 48K internal upgrade, and a DP2000 system drive and controller.

I have tape Scripsit now set up for disk by using a move routine. I would like to be able to hold text files on disk. Has anyone got zaps to modify tape to disk?

Allan Fowke,
28 Queensway,
Sawston,
Cambs. CB2 4DJ.
Tel: (0223) 832308

I am trying to convert Scripsit or Newscript to Hebrew. This language is written right to left, so that considerable cursor control mods. are necessary. Can anyone help? I am also seeking a character generator chip for Hebrew. Any suggestions?

Ralph Katzenell,
Mevo Ha'asera 1/12,
French Hill,
Jerusalem,
Israel.

(* The best way to get an alternative character set would be to use the Applegate hi-res mod. This gives a programmable character generator, and might be available second-hand form someone in the group. LFH *)

Has anyone got any of the following for sale:-

Omicron Mapper 1 or 2
Aerocomp/Genie double-density adaptor

R. Bains,
452 Leagrave Road,
Luton,
Beds. LU3 1RH.

MORE DOUBLE, DOUBLE AND NO TROUBLE

I quite agree with Ken Arntsen's remarks in his article in the June issue about the Model 4. I am even still running my 1978 Model I because there is so much useful software for it. Thanks very much, Ken, for your information about transferring software over to 80-track drives. Without it I would still have been struggling.

I was fortunate enough to acquire a couple of new Mitsubishi 80/40-track switchable drives for a very low price (sorry, Os). I had to do some trimming of both the drives as well as my 4P to get them to fit, but with the aid of Ken's instructions TRSDOS transfer was a doddle. Montezuma's CP/M, of course, was simplicity itself. DOSPLUS4 was another thing altogether; partly the same as TRSDOS but part CP/M style. The only way system files can be transferred is with the command SYSGEN which does not perform the same function as in TRSDOS, but is similar to CP/M SYSGEN, then just a straight 'BACKUP' for the rest.

While I was in London for the PCW show I called in on System Science in Smithfield, the firm quoted by Anon. in the same issue. I only wish I could find the money to buy an HSC16 board: it's a very good way to get the best of both worlds. One thing that surprised me was the small size of the board and the large size of the box complete with PSU that could be bought if required. The board is nearly small enough to go inside a 4P.

I spent an interesting day at the PCW show. I met John Harding but missed seeing Leon. Not to worry, I expect he will be at Swindon. The show is getting too big to be able to get round in one day unless one has been in training: I was shattered long before I had seen all I wanted to. Many firms were missing; they will probably be at Compec in October.

E.C Kilpatrick,
3a Gainsborough St.,
Sudbury,
Suffolk CO10 6ET.

FOR SALE AND WANTED

Free to good home: IBM golfball printer, no interface.

Details from Leon Heller on (0908) 613004.

Does anyone have a copy of "Fast BASIC - beyond TRS-80 BASIC" by Gratzer and Gratzer, which is in fair condition, and which they wish to sell?

Les Tebb,
102 Keldregate,
Bradley,
Huddersfield HD2 1TB.

For Sale

Seikosha GP-100A Mark II
Dot matrix printer

Simple, but fast and robust tractor feed printer for A4 paper. Dot addressable graphics. Sold with cable and EG3016 interface, and tape Scripsit. £75.00

Phone Allan Fowke on (0223) 832308.

For Sale

Cassette-based Model III. Offers???
Also speech synthesiser and Vox box for Model I, and Model I monitor.

Ian Farmer 061-736 0863

or ring MOBB (24 hrs) on 061-736 84449 (300/300 or 1200/75, auto-detect)

STOP PRESS

The daily rates were also omitted from the Swindon workshop booking form. They are as follows:-

	Including lectures	System room only
Fri.	£3.00	£2.00
Sat.	£5.00	£2.00
Sun.	£4.00	£2.00

Paul Godier
83 Trinity Road
Wimbledon
LONDON SW19 8QZ

Leon Heller

↓

PROSOFT software

The saga of obtaining Prosoft software rumbles on (Ken Arntsen, July). Like previous correspondents I have encountered weird problems ordering Prosoft stuff from the States. Last year I ordered Dotwriter from AMI in Colorado on my credit card, via an ad. in 80 Micro. I waited and waited, and eventually phoned them. They said Prosoft had told them not to sell the program abroad. They muttered something about copyright law in Australia. (All this despite their quoting overseas rates in their ad; and a letter of explanation would have been nice!)

So I phoned Prosoft to place an order by phone. They said the problem was that they could not be sure that their software would work on Tandy machines sold outside the US, but that they would send a copy if I wrote to them exempting them from any liability if the program should fail to operate when I received it. There would be no question of a refund. Much as I would like a copy of Dotwriter, I made an anatomical suggestion about where their program could go.

Just the odd comment or two.

This was going to a very short newsletter when ANON sent in Pages 9 to 16. Thank you very much.
Has anybody got the sort working from the recent 80-MICRO article Page.112. 9/85
Laurie Shields rang to say he had Payroll working which incorporated the recent legal requirements. Well done.
Should I help Past members on a business Problem when they ring on a SUNDAY afternoon ? In view of the complaints said to be floating around I should!
The dropout rate of members renewing is quite worrying and a list will be sent to the following :- Dave Washford, Leo Knaggs, John Kilpatrick and Leighton Davies. The last three were at the first workshop. The list is really to advise the more senior members of our group.
Sorry I have not put anything recently but my planes, family and house seemed to have absorbed ALL the time. Mind you I have been helping a local business person learn how to Program the BBC ! We have this paying in book Program as a result. It is basically MICROSOFT with some BEEB in it.

Brian Pain.
*PS for the record I am going to the local rep on the 25/10/85 - our w/anniversary

MORE OF HSC16

The board is now truly working though one does discover some quirks. The RAMDISK does not always behave on return from MSDOS. Another quirk is that although re-booting the computer does disable the RAMDISK, it does not clear it's memory. If initialised by a subsequent RAMDSK command all the files, which were present prior to re-booting, still are there. One just has to switch off. Otherwise there are no problems apart from the fact that one cannot run SYSGEN with RAMDISK installed, or that saving CONFIG does display a spurious character - mostly L or T.

I have bought my first bit of software to run under 16bit and this is SuperCalc 2. Similar in many aspects to VisiCalc and very fast though not as powerful as MultiPlan - or at least it does not seem to be as powerful on the first impression. What I do miss is the linked spreadsheets and the ability to move the cursor more than one step at a time. Still this is the trade off. The Tandy MultiPlan is very slow and does not permit sending a string of codes to the printer or, at least the codes which one can send are limited in number from 01H to 31H (which is due to Model 4 keyboard under TRSDOS). SuperCalc 2 permits any string of codes, which is very useful with FX100 printer but beware - the string of codes as entered, does not appear on the screen. So one has to type very carefully.

As I said SuperCalc is very similar in some aspects to VisiCalc. The main similarity is the type of slash commands though not all of them work exactly as in VisiCalc. Furthermore SuperCalc is more 'user friendly' in so far as it lists the strings of options when a command is invoked. Also at any time a command is invoked one can type ? and this brings a Help screen on that command - very much as Multiplan.

I really like the installation module of this bit of software. The number of terminals is limited but there are options to install all sorts of data and the best is that in the Screen Installation option typing 'x' takes one into the dealer's installation module. When I received my copy from the dealer it was installed but there was no reverse video, the cursor was < > and the '>' sat on the last character of the cell thus making it invisible. I got into the dealer's installation program and noticed that the dealer tried to get reverse video using cursor attributes of 0F and 0E. Having played with the installation for a while I decided to change CRT attributes from 0 to 2 and ..... voila. The cursor has been changed from <> to a highlighted block and I also got a highlighted bar on top of the spreadsheet. Should anyone run SuperCalc 2 on Model 4 and have any problems with customising it they can contact me through Brian and I will provide the customisation data.

Another useful thing is the ability to configurate the keyboard under CP/M 2.2 CONFIG program for use with SuperCalc. SuperCalc uses the usual WordStar cursor movements (^s,d,e,x) but

the arrow keys also work apart from the right arrow. This is easily changed with CONFIG by defining it as ^L. I have also defined my F1 as =(goto), F2 as /E(edit cell) and F3 as "(start of any string). These three keys are frequently used.

This CP/M 2.2 ability to define the keyboard is a very useful feature. In the WordStar my arrow keys (unshifted) move the cursor one character or line, shifted word forward, word back, screen forward and screen back. Clear is DEL, shifted deletes word and Contr/Clear deletes the line. F1 moves the cursor to the beginning of the line and F2 to the end of the line. F1 shifted moves to the beginning of the text and F2 shifted to the end of the text. F3 I used as ^V (insert on and off). Very good operating system this Montezuma CP/M 2.2

Having got my 8086 running I really don't know what to do with it. As I already have wordprocessing, accounts and data base on CP/M 2.2 there seems to be very little sense in duplicating this software on MSDOS. I would much rather spend the money on adding another 512K RAM which would give 768K Ramdisk under CP/M 2.2. I have got used to using the Ramdisk provided with 128K Model 4 but 63K is not that much. Now having two of them I experience a real speed up especially with dBASE II and WordStar. With 768K I will be able to load the whole lot into Ramdisk and run everything without changing disks.

I have heard very good reports of TURBO Pascal (the new version 3), and I intend to get the MSDOS copy. My 8bit ProPascal is not upgradeable (and neither are WS, dBASEII or Sage Accounts) and TURBO Pascal is much cheaper. Anyway at present I have a box for the HSC board on order. This has a fan and power supply as I am not happy about the board sitting on a piece of paper. The 8086 gets hot too though this does not affect it's performance even though my board is switched on regardless of what I do.

HSC1686 board comes with MSDOS 2.11 and other software, both CP/M and MSDOS. Software visible to CP/M80 consists of: Install.Com, Ex16.Com, MSDOS.Sys, Ex16.Com, Ramdsk.Com, Rome.Sys, Inst.Dat, Deb86.Com, Fmtms.Com, Crck.Com, ASM86.Com, ASMZ80.Com and two MSDOS.Dsk.

Of these Install.Com, MSDOS.Sys and Ex16.Com are needed as minimum files to install MSDOS. Ramdsk.Com is used in 8bit operation to use the HSC16 RAM as Ramdisk - thus a 128K Model 4 can have two Ramdisks (63K and 250K). Rome.Sys and Inst.Dat are required for IBM PC emulator. Inst.Dat contains tables used by Install.Com on the console type. Debug86.Com is for all those clever types who wish to modify the operating system of C01686. There is quite a bit of gen on that in the manual but I don't understand any of that.

Fmtms.Com formats a disk for use by MSDOS. The following formats are available:

MSDOS logical disk, which is a CP/M formatted disk on which

a CP/M file called MSDOS.DSK is created for use by MSDOS. Disk space is allocated in 64K segments and the program asks how many segments to allocate. There can be only one MSDOS.DSK on a physical disk so any existing MSDOS.DSK is overwritten by this program.

8" in MS/PC DOS format.

8" disk with sector interlace to MSDOS format (whatever the sector interlacing may be!)

Physical MSDOS disk in which case the whole diskette, apart from CP/M reserved tracks is formatted for MSDOS. The whole diskette is divided into 128 byte sectors. This is not a standard format but it permits using any type of disk with MSDOS and, generally, also yields the best performance.

Crck.Com cherks the disk received from dealer for data integrity and ASM86.Com and ASMZ80.Com do things for people who know all about ASM programs - which I don't.

There are two MSDOS.DSK files (on separate diskettes). One is 128K and contains all MSDOS utilities. The other file (64K) contains utilities provided by HSC. These are Import.Com, Export.Com, CPM80.Com, Cdir.Com, Ansi.Sys and Fkey.Com. Import.Com provides the facility to import files from CP/M disk to MSDOS. When buying a program running under MSDOS this is supplied on CP/M 2.2 disk and the Import.Com is used to transfer it to MSDOS.DSK. Export.Com works the other way. CPM80.Com returns from MSDOS to CP/M. Cdir.Com permits reading CP/M directory from MSDOS. Ansi.Sys provides ANSI console output emulation when running in IBM PC mode and Fkey.Com provides a method to test the IBM PC function key emulators.

I went to the Business Computer show at the beginning of June. The show was divided in three sections ie hardware, software and office automation (communications). There was the usual run of IBMs, MACs etc and really nothing very interesting. But I had real fun in the software section. The demonstrator for SAGE-SOFT was showing off their products on IBM PC, colour, pulled down menus and all. There are no longer Sage Accounts, Sage Plus and Sage Executive. Now it is Bookkeeper, Accountant and what have you. But I had a real laugh when the program froze up. The demonstrator was very bitter about it! What I have discovered though is that, providing one has the later version of Sage Account, <Shift@> inserts the date whenever the program calls for it. There was a plethora of Macs but, somehow, I cannot imagine myself wanting to use MAC - the keyboard and VDU are too small. And may I add that I could not find Tandy anywhere?

SERENDIPITY?

The Australian football season over, (at least as far as the pools are concerned) it is time to see how we have performed - the computer, I and dBASEII. Top marks go to the computer, especially the HSCCO 1686 board which permitted speedy entry of data, displays and printing of forecasts. Close to the computer comes dBASEII with easy programming language, nice screen formats and powerful data manipulation. I, on the other hand, came a poor third.

Below for those interested are the statistics collected over 13 matches from 18 May to 10 Aug with my forecasts compared with those of Sunday Express, Sunday Telegraph, Tuesday Telegraph and Tuesday Mirror. Firstly the average of the total results forecast correctly:

1.	Sunday Express	46.84%
2.	Yours truly	45.57%
3	Tuesday Telegraph	44.06%
4	Sunday Telegraph	40.50%
5	Tuesday Mirror	39.58%

(At the risk of being called a snob I only was buying the Mirror on Tuesday because this gave the Australian league table required to maintain the data base).

Next a bit of statistics on ratio of draws/draws forecast because, for example, if one paper managed to be right in 5 instances out of 25 draws forecast this is nothing as good as 3 correct out of 10 forecast. So (come here - there is more) this is the way the cookie crumbled:

1.	Sunday Express	31.07%
2.	Yours truly again	25.98%
3.	Tuesday Telegraph	20.96%
4.	Tuesday Mirror	19.64%
5.	Sunday Telegraph	16.99%

And the final bit of statistics, which I intend to disclose is the average of draws forecast correctly - regardless of the total forecast and this goes like that:

1.	Sunday Express (boring)	27.22%
2.	Tuesday Mirror	20.79%
3.	Yours truly	19.44%
4.	Sunday Telegraph	17.49%
5.	Tuesday Telegraph	15.28%

(The good showing of Mirror in this section is due to the fact that they tend to forecast plenty of draws - but see their record in getting them right (19.64%)).

I have yet more statistics showing detailed analysis of

my Home, Away and Draw forecasts but I do not propose to bore the readers (if any) with that. Yet no statistical exercise can be without a conclusion. And what is the conclusion in this case ? IF YOU WANT TO MAKE MONEY USING A COMPUTER TEACH WORD PROCESSING OR KEEP OTHER PEOPLES' ACCOUNTS (OR WHAT HAVE YOU) BUT DON'T BASE YOUR HOPES ON WINNING THE POOLS. As simple as that but, if one realises that each week there were between ten and seventeen results which nobody got right, what's the price of logic?

There is a puzzler now - what is the future , if any, for Models 4/4P. According to 80Micro Tandy intends to support further these machines, improved version being a possibility, Deskmate being available 'real soon now' - whilst according to Tandy(UK) the machine is dead. No further computers are being assembled and the stocks of Model 4 will run out in December this year. So it looks like the demise of the most successful 8-bit computer that Tandy has produced. In a way we need not worry as Tandy does seem to support their products for some years after they discontinue the production. Apparently Model 4 was, and is, doing very well in the educational field in USA but it never took off in this country - probably for two reasons. The original price was too high and there was no promotion whatsoever.

Two more things noted recently with HSC1686. Firstly, if you switch the box on - my board has now own box, power supply and fan, whilst the computer is up and running you are likely to damage the disk in drive A:. Secondly, if having booted up, you want to switch on the box (after carefully removing the disks) you find the keyboard locked. I expect that these small things will be coming to light as one uses the box but for all that I think it a worthwhile purchase. No CP/M Users' Group magazine lately, so I have no idea how the other chap is getting on with his board. It would be nice to know though.

The little menace in my office (4P) has been seen to, has had extra 64K memory added and drive 0 replaced and it has been behaving spotlessly since. I use it for my (office) diary, word-processing and MultiPlan and the budgeting. There is plenty of that just now as we are having finance committees' meetings in October and the bids for next year's allocations arrive from all over the country and overseas. I have never in my life been any good at keeping the office diaries but I manage with the computer. Of course when we have the heads' of departments meetings the boss keeps asking 'where is your diary?' and I reply 'Hang on - I'll bring my micro' and that shuts him up.

I have decided to get rid of the ITT 3030 (including 7MB hard disk) and DEC LQP02 printer as we seem to have constant troubles either with booting or the sheetfeeder. The booting troubles are avoidable and really are due to our typist who works surrounded with dust, crumbs, hair pins and never dusts the computer or cleans the drives. Every so often there is a screech 'Mr L computer doesn't work!' and I have to go across with a cleaning diskette, boot the perishing thing till it manages to read Syslib and then in BOS take each drive in turn with VER and a cleaning

diskette for about five minutes and the thing works again. Those Philips drives are very easily affected and they are located very low - at the table level. Actually very nice drives for maintenance. One just takes off the lid (no screws), pulls out the drive and that's it. Never any trouble with the hard disk so far. Anyway I have decided to sell the lot and replace it with Tandy Model 4, dual 720K drive in addition to the internal two Tandy drives and daisy of sorts, CP/M 2.2, WordStar and dBASEII. I don't like BOS and I don't like AutoWriter or AutoIndex. At least I will know what I am up to and, as the drives are higher, maybe we won't be finding hairgrips in them. Another reason for reducing the number of types of computers is that my lady successor - (second successor as I got rid of the first one) will have only PDP11/23 and Tandy Model 4 to learn about. After all her main role will be that of an accountant and managing the computers comes only because I was instrumental in installing them.

By kind invitation from a group member I have been to Northern Ireland and I stayed there - very well looked after - for a week. We had a lovely time computering when I was not being taken round and shown the sights. And we made some discoveries too. Some time ago I stated somewhere that one can get only 31 control characters sent to the printer in Tandy Multiplan. This in fact is quite incorrect. The trouble is that the manuals, both Tandy and CP/M versions, are not very helpful on this subject. We have discovered that ^[E will put the Epson printer in an emphasised mode so, no doubt, many other strings can also be sent. We played with Multiplan and dBASEII. My friend has a data base of references to articles in computer magazines (some 740 records). We sat down playing with finding records by keywords and what has started as a bit of fun ended as a very useful program. My biggest regret is that here, where I live, there are no other computer maniacs and I am completely on my own. David, my host, invited a few computer friends for an evening (which lasted till after 1.30 am) and we had a go at Sage Accounts, Multiplan and dBASEII again. On another evening we had a go at communications. I had with me CP/M Users Group magazine which had a listing of an improved version of PIP - or at least a patch to PIP. The improved PIP permits swapping of disks and it remembers the last command (if, for example the last command was A:=B:*.DTA loading another disk in drive A: and pressing 'q' will repeat the function, whilst pressing 'r' does reset all drives to R/W). The only trouble was that the listing was full of errors. Well I am a moron as far as assembler is concerned whilst David knows a bit more about it even though he is no expert. Between us however we managed to find all the errors, compile the patch, patch PIP etc. David has improved this version still further by including clearing of screen and highlights. I wonder whether either of us would be able to achieve all that if working alone. David might have done - I couldn't. So thank you David and Jacqueline once more for the most enjoyable time.

I read somewhere in one of the American magazines about computer conferences - on computering subjects. I wonder why nothing like that has been started in this country yet. Of course

Americans are far before us in most things 'computer' but there is no reason why we could not have telephone workshops. It is a pity that the TRS80 bulletin board is just about non-existent these days. In the days when I had an acoustic coupler I tried once to link with our board but with no success. Now I am thinking of getting a decent modem which can offer a choice of speeds in operation and, of course, good communication. Maybe, when I shall retire next year and have a bit more time, I will start a restricted board for some of the TRS80 users. For the time being the search for a modem is on. Having been once disappointed with an acoustic coupler I am now looking for something which would give all possible speeds up to 1,200, have new BT sockets, auto dial/answer and would perform well. I have read somewhere a warning that good modems are difficult to put the hands on and the ones advertised are no good - which does not help much a fellow who does not know the difference between V21, V23, Bell, half-duplex and full duplex. I had the terms 'synchronous' and 'asynchronous' explained to me whilst I was in NI. Any hints from you communications experts? At one of the computer shows I saw Thorn EMI VX524 modem which seems to be capable of doing everything I want. There are however two questions : can this modem be physically linked to my computer and is the software available for my machine to drive it? Any hints from satisfied modem users would be greatly appreciated!

I have just run my Sage monthly configuration for August (this is when the nominals etc get updated, transaction file is cleared and the file transactions are re-written) and this brought to my mind a question which was asked whilst I was in NI. The storage problem. Well I have provided for 120 nominals, 50 purchase accounts and 10 sale accounts. Minimum configuration which Sage permits is 100 nominals, 10 purchase and 10 sale accounts. Accounts can be re-named at any time so there is no reason why a sale or purchase account once closed cannot be used for another customer. When I was buying Sage the dealer told me that I require larger capacity disks to run the program and, as a result, I have also purchased the dual 80 track, double sided, double density drive. A posteriori I can say that this was quite unnecessary expenditure. Looking at my 40 track disk (which I use as an extra backup) these were the volumes:

ACNTLIST.DTA	4K
BUDGET.DTA	2K
CODELIST.DTA	6K
COMPANY.DTA	4K
POSTINGS.DTA	48K

The postings file remains always at it's last largest size and, in the month when it became 48K, I had 545 transaction in it. Taking the above figures and allowing for more sales accounts one can still squeeze about 1,500 transactions on a 40 track disk. Surely a sufficient number for any small business.

Mind you I do not regret bying the big drive and it became very useful with other applications (especially data bases)

but what did hurt was that when my friend saw it and decided to buy it, his was about £100 less and his is hardware switchable between 40 and 80 tracks. Mine can be defined as 40 tracks under CP/M (double stepping) but it should only be used in this mode for reading but not for writing.

RPIP came very useful today before running the update. One is adviced to make at least two backup diskettes before re-configuration (which in my case means three backups - as I have one as current and keep two to the end of the month - one being required to produce the final accounts and the other just in case). It was so easy, having backed up the first disk, to load the others one by one and just press 'q'. RPIP does the reset and remembers the last PIP command - in my case A:=B:*.DTA. For those uninitiated into the mysteries of CP/M piping (copying) is done to destination from source (in the above from drive B: to drive A:). This can be quite confusing sometimes as using almost entirely CP/M I am used to defining the destination drive as first - until I go to MSDOS and then I am back to the TRSDOS/NEWDOS/LDOS/DOSPLUS/ETC way. If, as it said, MSDOS is a quick re-hash of CP/M why does the COPY command work the opposite way to PIP.

July NATGUG arrived today and I have noticed the remark about VC and the memory requirements. In the office I use CP/M version of Multiplan and this gives me only about 13K for the spreadsheet. Not much to play with but adequate when used with Multiplan ability to consolidate the spreadsheets (eXternal command). And on another subject - one can get out from DDT with <CTRL>C without losing any work done on the memory and one can then save the pages required. I enjoy the tutorials on CP/M. As the author is obviously a member of CP/MUG I wonder if he has tried RPIP from Vol 2 No 5 issue? Several typos in that one but once de-bugged it is really good. Sometime ago I was writing myself a little system in dBase II and one of the options was getting out to CP/M SUB file and backing up a data disk. SUB file cannot contain ^C and I could not find a way to re-set the disk from within .$$$ file. In the end I had to settle for DUP, which does not care whether you change the disk or not and so long as on getting out you replace the disk with .$$$ file everything is all right. But DUP formats a disk before copying and this is a bit lengthy process on an 80 track double sided disk. RPIP would have been handy then.

Just got August NATGUG and I am flattered by the invitation (provocation?) to do something about SAGE at the workshop. However, in view of my accent and the fact that my teeth are falling out rapidly (I have now only three molars left and am waiting for next year when I will be able to get 'choppers' for naught), I somehow don't think that the audience would benefit much, if at all, by my presentaion !

NATGUG NEWS

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OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers, and compatible systems such as the Video Genie.

Details of the Group accounts, and the constitution of the Group, are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are obtainable from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the Secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Secretary and Newsletter Publisher:-

Brian Pain,
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU.
Tel: (0908) 564271

CONTENTS

2. Information on the Group
3. Editorial
4. Members' letters
5. Oggy Oggy Oggy
6. Labelmaker
7. Disk novice notes
10. TRSDOS 1.3: more useful info.
13. Kiss me back!...
15. For sale and wanted
16. Keep - hard disk utility
17. Keepscan - hard disk utility

EDITORIAL

Tandy are now selling the Amstrad machines in their shops, and it looks as though the Model 4 is going to be dropped. The Model 1000 has been reduced in price, and is probably worth considering by members wanting to upgrade. Apricot (formerly ACT) have launched a new machine rejoicing in the name of Zen, and seem to be pulling out of the low-end of the market, so I don't know what will become of the Computerworld stores they set up with Tandy.

The Swindon workshop looks as though it will be a success. Bob Sparling told me that the hotel had received 30 or so bookings at the beginning of October.

Now that the C language is getting more popular, I feel there is a need for a UK C Users' Group. I've decided to organise such a group, along the same lines as NATGUG and QUANTA. Please send me an S.A.E. if you are interested. I envisage a bi-monthly newsletter initially, and a software library. The library will be quite comprehensive from the start, as we'll be able to get the entire library from the US C Users Group. One important group activity will be the translation of the US library, which is mostly written for the BDS C compiler, into something acceptable to the more Unix-compatible compilers (like C/80 and Lattice C) that are more popular in the UK.

Leon Heller

TRS-80 and a VAX.

At the college where I work we now have VAX. The old PDP has gone. Members are invited to log into my account and play. The 'phone number is 0582-411842 (24hrs), the protocol is 300 baud, disenable, 8 bit word and 1 stop bit. The prompts are USER, two returns, BPain and password 566660. Mailbox is available but called MAIL, BASIC is no problem and leaving BASIC use EXIT; leaving the system is LOGOFF. Can you try leaving a VISICALC file on BOSWORTH-password PLUMBING as one or two of us would like to transfer spreadsheet data over the 'phone. Another idea is to ring in your electricity and gas meter readings for comparision with others. BASIC programs are transferred using the ASCII format and are saveable on the VAX. Just type NEW and send the file across; this is then SAVEd. To prove the file exists EXIT, type DIR and then return to BASIC. Type OLD FRED and then LIST the program and that is how easy it is. Best of luck.

Brian Pain

MEMBERS' LETTERS

Another request for assistance from someone who finds his Model 1 still the ultimate in home and office technology. (A very minor windfall may allow me to look at secondhand Model 4s around Christmas time!) If any one could suggest a relatively simple method of transfering Visicalc files from double density Newdos80 disks to double or single density SmalLdos disks I would be most grateful. I should like to take advantage of the PRF facility on Visicalc if the word processor W4W + I have on SmalLdos can operate with such files.

If anyone has Ldos, Sole, any accounts packages or a print buffer for sale, please do give me a ring.

Chris Oldman
38 Clifton Gardens
LONDON W9 1AU
01-286 3755

Firstly I would lkie to thank the member who telephoned me about a month or so ago with the answer to my problem of changing SCRIPSIT's default for paragraph indent: great! Now I don't have to type "<BREAK>I=0<ENTER>" each time I start up.

I have just come up with a possible answer to a problem which he put to me at the same time, but unfortunately I cannot remember who it was, so I'll have to tell it here and hope he knows who he is!

The problem involves getting a sheet-feeder to operate from SCRIPSIT, the problem being that it required a "hard" formfeed charecter. My solution presupposes that he is using LDOS and one of the modified versions of SCRIPSIT which allow you to send printer codes directly.

Before going into SCRIPSIT, invoke the LDOS Printer Driver with the "FFHARD" Parameter. This will make sure that any formfeeds sent are sent to the printer as such and not as a string of linefeeds as is usual. Now, to make your document send a formfeed charecter at the end of each page, first set up a footer which begins with a number of blank lines equal to the difference between Bottom Margin and Page Length, and then follow this with the special command that sends a printer code, and send X'0C' (12 decimal). Now, change Bottom Margin to equal Page length (because the bottom margin is now being done by the footer), and everything should work. My printer (Microline 80) doesn't have a formfeed capability, so I can't test it.

Now a couple of points from the August issue. "Anon" mentions that when booting Multiplan on the 4P "...the silly box tries to load the ROM image". In the April 80Micro a letter under the heading "Fast Boot" gives the solution: "Boot up any working TRSDOS 6.X disk and copy the BOOT/SYS.LSIDOS file from your working system disk onto the Multiplan disk using the Copy command". I wonder why Multiplan does this? It would be interesting to find out if only copy-protected disks do it, and if so, is copy-protection removed when BOOT/SYS is copied? I don't possess Model 4 or 4P so I cannot say if the method actually works. If you have SU+ I strongly recommend you do as "Anon" did and copy the Multiplan disk first.

Vernan Blackmore may be interested to know that his directory program

will also work on Model-III LDOS if the EQUates are changed to suit, but it will not work with TRSDOS. Model I TRSDOS 2.3 doesn't possess a module for displaying the directory except for the library command itself, while Model-III TRSDOS 1.3 only has this module on system disks and it is a bit difficult to copy or remove system files due to their non-entry in the directory. However, I have done an investigation on TRSDOS 1.3 system modules and you should see an article, hopefully in this issue, which describes them. If you want to try and convert Vernan's routine for TRSDOS, you will need *10 on the disk, and also *4 because it will be called from the directory module if there's an error. You will also need *2 and *3 for opening, closing and killing files, you might get away without *1 (the command interpreter), and I'm not sure about *0 (the resident part of DOS, equivilent to SYS0) because it appears to include the BOOT sector as well, I suspect that some zapping and sector copying may be required to get rid of *0.

Finally, Vernan's program will run into problems if the disk being read is a write-protected disk and you are using it on a one-drive system, because it will try to use SYS4 to display the "Write Protected Disk" message. It will be necessary to have SYS4 resident or have it on each of the "abridged" disks.

R. P. Sainsbury.
Park Farm Nurseries,
Landford,
Salisbury,
Wilts. SP5 2BE.

OGGY OGGY OGGY

I write this month still reeling from the shock of finding that Tandy no longer list the Model 4 in their catalogue - better close ranks chaps, we are an endangered species after all! The main thing is not to panic - after all, how long ago did the good old Model I cease production, and how many are still working hard? As long as software continues to be available, and updated, then we've still got many years ahead yet. One thing I will say is that I would consider that NATGUG could have an even more important role to play now and I hope that those people in conflict can find ways to achieve unity. 'Divided we fall much quicker' etc, etc. Leon, don't you dare even hint at a 'told you so' !!!

The increased interest in CP/M has been questioned by many members recently, largely because in many eyes it is an obsolete system. Yes, compared to something like NEWDOS80 then CP/M is very slow - but you can't have true ND80 on a Model 4, and compared to Eldose then CP/M ain't so slow after all! The things that appeal to me as a Model 4 user about CP/M are that software seems to be pretty bomb-proof, and that there is plenty of it in quite good quality. Take time at Swindon (you ARE coming, aren't you?) to take a hard look at CP/M software in operation.

On the subject of CP/M, I picked up a book allegedly introducing the subject the other day. It was priced @ £10.95, applied to all machines, and I quickly put it down again; may I please propose a vote of GREAT THANKS to Dave Holman for his very excellent series which came to an end last month. Well done, Sir!

I see that Super-Utility is now sold fully UNPROTECTED - whatever are the copy-anything whizz-kids going to spend their energies on now ?

Well that's about it this month. Just think, last week I went to Shepton Mallet to see a 'Rare Breeds Show' - next month at Swindon I'll be one of a rare breed, a TRS-80 exhibitor!

See you there !

David Washford, 6 Houston Way, FROME, Somerset BA11 3EU. (0373) 72739

L A B E L M A K E R

I would agree with David Roberts (Natgug July 1984 p23) that the Labelmaker (available from Molimerx) is a very useful programme. Being American in origin, it short-sightedly does not have the £ sign. I have thus replaced the '&' symbol in the machine-code programme 'GRAFCHAR' by a reasonably acceptable £ and the change I made in the second sector is shown below. I should add that one has to choose a character which is sufficiently wide to enable one to design a £: I first chose '#' for replacement, but this was somewhat too narrow.

There must be a number of programs which enable one to enter lines of text of any chosen number of characters (not limited to the 13 as in the Labelmaker) in 'JUMBO' characters. I should be glad to hear from members who have a program of this kind.

Bill Cowhig 21 Priory Road SALE M33 2BS Manchester 061-973-3604

£41.63
NATGUG NEWS

```
£   G00£5555 5555 55FE FFFF C7C7 FFFF FE0D 550F£UUUUU£££££££.U.
HEX R10£1F3F 7F7F 7FFE FCF8 F8F8 FCFF FF7F 3F1F£??????£?.
DRV A20£0F55 5555 5555 550D FFFF FFFF FFFF FFFF£.UUUUUU.£££££££
 1  F30£7C7C 7C7C 7C55 5555 5555 5555 5555 5555£¦¦¦¦¦UUUUUUUUUU
TRK C40£550D FFFF FFFF FFFF FFFF 1F1F 1F1F 1F1F£U.£££££££.....
 12 H50£1F1F 1F1F 1F1F 1F3F 3F3E 3E0D 0103 06FE£.......??>>....£
TRU A60£FCF0 F00D 5555 5555 5555 550D 5555 5555£££££.UUUUUUU.UUUU
 12 R70£5555 550D 030F 1F3F 7F78 F0F0 E00D FFFF£UUU....x£££.££
SEC  80£FFFF FF55 5555 550D C0F0 F8FC FE1E 0F0F£££££UUUU.£££££...
 01  90£070D E0F0 F078 7F3F 1F0F 030D 5555 5555£..£££?....UUUU
STD  A0£FFFF FFFF FF0D 070F 0F1E FEFC F8F0 C00D££££££.....£££££.
ODD  B0£0303 C3C3 F3F3 3F3F 0F0F 0F0F 3F3F F3F3£..£££££??....??££
FPDE C0£C3C3 0303 0D55 550C 0C3C 3CF0 F0C0 C0C0£££...UU..<<£££££
RSEC D0£C0F0 F03C 3C0C 0C55 550D 5555 5555 5555£££££<<..UU.UUUUUU
0001 E0£5555 5555 5555 5555 5555 5555 5555 0D55£UUUUUUUUUUUUUU.U
+00 -F0£5555 5555 5555 0303 0303 0355 5555 5555£UUUUUU.....UUUUU
```

DISK NOVICE NOTES

Same novice, different novitiate. 2 years ago I had the cassette situation pretty well in hand, but I couldn't have told you which side of a disk was up. Today, by dint of rummaging in rubbish bins, I have accumulated some 2.5 Tandy systems, to wit:

- Mimi (Mighty Micro), my 4-year-old faithful, now rejoicing in twin drives and 48K;

- Bibi (Big Brother), a Model 4 with twin drives and 128K, faithful so far (just running SIR) except for one horrific screw-up (seemingly caused by a power spike) that set me back a week; and

- Sicki, a twin of Mimi which as far as disk operation is concerned has hitherto defied the best Tandy brains I know on this island north or south.

Once a year around this time I say to myself, "Where would I be without NATGUG?", and write to the *News* about it. This time I want to say a few words about some software horizons opened up for me by disk.

VISICALC

Not being a businessman, I needed a spreadsheet least. This one came as part of a package, and handles all the accounting I ever expect to do. I am also using it for purposes that have nothing to do with accounts or even with money. It's where most of my number-crunching gets done.

SCRIPSIT

In my word-processing I could hardly wait to get the printing versatility promised by the Scripsit enhancements Scripsit-Plus and Powerscript. From

what I have seen of the former, it is slick and speedy. However, I have so far really used only Powerscript -- firstly because I got it first, secondly because it runs with TRSDOS, and thirdly because its commonest format commands seem more streamlined. Of course, if I could put my mind to them, maybe GEOF SMITH's Scripsit-Plus macros could do even more for me. But in any case I can say that Powerscript and its upgrade have been more than worth to me what I had to shell out to Molimerx for them.

DOTWRITER

But of course it was Dotwriter that really fulfilled many of my printing dreams. For a start, if I see this piece in the Newsletter it will fulfil a dream -- of getting something in there that won't make anyone reach for a magnifying glass!

I am amazed that I haven't read more about Dotwriter, that magic wand that gives almost unlimited versatility to the humble Epson MX-80. Being put on the track of Dotwriter is among the several things for which I have to thank ARIELA TAYLOR and DON BANNISTER.

SIR

In database management my co-workers and I have done some heavy work with Selective Information Retrieval -- a periodical index, a library catalogue, various personnel files. I am grateful for what I have learned about this program from pieces in the Newsletter by DEREK TRAYLER and JOHN ARTHUR. I am still trying to figure out a lot of little quirks I find in it. Meanwhile I must mention here just one lesson I have learned from it for my own benefit that may be of benefit to others.

It is good to keep sortable columns short.

Any increase in the speed of sorting is the least of the benefits of this.

More important is the fact that, if you need a long column, by splitting it into a short sortable column and a non-sortable extension, you can use all the characters on the keyboard in the extension, not only alphanumerics, blanks, and full stops. That obviously matters with bibliographical references.

But more important still is the fact that, if you need to get as many records as possible (say, 2,000) into one file, you can get the whole of any sortable column from that file into the available 33K or so of RAM for sorting *only by keeping the longest sortable column as short as possible* (say, 10 bytes). You need room for those 10 bytes, plus 4 for the record number, all multiplied by 2,000, plus a bit of spare memory.

AND BEYOND TANDY?

I am now preparing to use PFS:File, which with hard disk and true Model 4 mode can handle 32,000 records and 4 megabytes. There is so much I can still do with my Model T machines. I am not yet ready to return them to the rubbish bin.

Moreover, before I do so, I must name names in connection with what I have described above as "the best Tandy brains I know on this island". I give you DON BANNISTER, who dazzled me with the cleverest bit of diagnosis-by-letter I have yet seen. I give you TREVOR HUTCHINSON, who has time to spare to help even on his wedding anniversary. Before the TRS-80 passes into history, let history record that there were giants in its days.

Parig Digan, Dalgan, Navan, Ireland

TRSDOS 1.3: MORE USEFUL INFO.

PAUSE FOR A PATCH.

Hypathetical situation: You've just typed in the command to DO a BUILD file which will patch a program, and it is displaying something like "PAUSE Modifies PROGRAM in drive 1", with the request to "Press (ENTER) to continue" below. Suddenly you realise that you don't know which disk it's on. Now, with LDOS, you could just hit BREAK, and abort back to LDOS Ready, and check your directories, but TRSDOS 1.3 will just ignore you - you'll have to reboot to abort. What's needed is a patch for the PAUSE routine that will respone to BREAK - and here it is!

```
PATCH *6 (ADD=60D7,FIND=FD4CB7200EC50601,CHG=4038CB572007CB47)
PATCH *6 (ADD=60DF,FIND=21,CHG=28)
PATCH *6 (ADD=60E0,FIND=0000CD400038F6,CHG=F5E1AFC93AFD4C)
PATCH *6 (ADD=60E7,FIND=C1E1C9CDEF60E1C9,CHG=B7CA30402A154422)
PATCH *6 (ADD=60EF,FIND=3A4038FE0120F9,CHG=1144213040E3E5)
PATCH *6 (ADD=60F6,FIND=AFC9,CHG=18C6)
```

Don't be tempted to combine the 2nd line with the 3rd despite the fact that it "looks" possible, because PATCH will not cross sector bounderies - I know, I tried and got "String NOT Found" and a half-patched program! For those inquisitive people who want to know how this works, execute "LIB", then execute your machine-code monitor (which must reside above 7000H - I use MON5), and start disassembling from 60CFH.

PAGING ALL FILES.....

If you have been following the two "Patch Work" articles in 80Micro, You will be aware that they include patches to change the scrolling DIRectory into a page-by-page display. The latter of these (Patch 20) uses the PAUSE routine to display the "Press (ENTER)...." message at the bottom of each page. there is a slight flaw in thsee routines in that, if the number of files to be displayed is one less than the number which forces a pause, the top filename gets pushed off the top of the listing by "...Free Granules" Etc. To fix this, change the "CHG" part of the line which patches address 616DH so that the "80" that follows "3A" is changed to "40". With this modification, you do not then need the line in Patch 20 which changes address 6111H, because this just stops the message from scrolling, which now doesn't matter. If you have added my patch for PAUSE, you also get the added benefit of being able to BREAK out of a long directory listing when you've found the file you want.

HELP WITH LIST.

One of the other patches supplied in "Patch Work II" is one to reverse the operation of LIST so that it defaults to an ASCII listing unless you use the new HEX perameter. Since one tends to forget it has been done and start head-scratching when you get ERROR 11, I added this patch to modify the HELP file. You could add this onto Patch 15 from 80Micro so that the whole shooting-match is done at one hit:-

```
PATCH *8 (ADD=57A1,FIND=4653504543205B,CHG=20465350454320)
PATCH *8 (ADD=57A8,FIND=285B4153434949,CHG=205B285B484558)
PATCH *8 (ADD=57EE,FIND=4153434949203D,CHG=484558203D2048)
PATCH *8 (ADD=57F5,FIND=204173636969205,CHG=657820CC697374)
PATCH *8 (ADD=57FC,FIND=546578742C,CHG=696E672020)
```

OH! NO SYSTEM!
Attempting to use TRSDOS to back up a data disk formatted with Super Utility is a bit of a disaster - after formatting the blank disk in drive 1 it just aborts with "Ø NS" at the top of the screen. "Ø NS" is TRSDOS's way of telling you that drive zero doesn't contain the system module it's looking for, which is pretty obvious because we are trying to backup a data disk from it! If you try a single-drive backup in drive 1, or from drive 1 onto a system disk in drive Ø, you'll then see that it aborted because it thinks that you are trying to backup an earlier version, which it cannot do.

The reason for this state of affairs is the BOOT sector. This sector is the same on system and data disks, and ALWAYS expects a program to load, starting at sector 2. On system disks it is of course the resident DOS system, on data disks it is a short program that ocupies a small part of sector 2, to tell you you've booted a non-system disk. When SU+ formats a date disk, the BOOT sector it puts on is just the short routine to print the message, leaving sector 2 blank.

Now is where the fun begins! On the TRSDOS BOOT sector, byte FEH holds a BCD representation of the DOS version number while byte FFH holds "28H", which equals 4Ø decimal, so is probably intended as the number of tracks. This is not contained on our disk's "short" BOOT, hence TRSDOS's reluctance to accept it! It would of course be possible to zap these two bytes, but that only gives us another problem. Byte 22H is a "limited backups counter" (see my article in NATGUG June '84), and this is slap-bang in the middle of the message on the "rogue" disk! So now, TRSDOS will copy the thing, but it treats it as a limited-copy disk which cannot be write-protected while being backed-up, and whose boot message (and those of it's copies) changes with every backup!

Of course, you can use Super Utility to make backups of the disk, but it is a bit silly to have to load SU+ just for this purpose. The solution is fortunately simpler than the explanation of the problem! All you have to do is to copy sectors 1 and 2 of track Ø from a data disk formatted by TRSDOS, (NOT a system disk!), and it's now copy just fine!

SERIAL NUMBER PLEASE.
During my investigations for the above, I also found out that bytes F4 thru' FB hold the serial numbr TRSDOS displays when booted. This is held as BCD, reading from left to right with leading zero's supressed in the bootup display. If you want to number your disks, zapping these bytes to form a suitable number is one way to do it, but there is one caveat - DON'T DO IT on disks which have had the SU+ "Repair BOOT" put on, because this doesn't support the serial number (which is why it displays a rubbish jumble after it has been used), and doing so with crash the boot process. You can always copy a good BOOT from another disk if you want to modify the serial number on such disks.

GIMME MORE SPACE, TRSDOS!
The directory entries for TRSDOS 1.3 system files are stored in the last 32 bytes of the HIT sector (track 17, sector 2). Each file is representated by 2 bytes, with the first pair corresponding to *Ø, the next pair to *1, and so forth up to *14, with the last pair containing FFFF to indicate a "non-allocated" file. Remembering that we are talking in HEX, each pair decodes as

follows: The leftmost digit, when divided by 2, indicates the starting granule of the file, ranging from Ø to 5. The starting sector is calculated as "Starting Sector=Starting Gran*3+1". The second digit holds the number of granules occupied by the file, so multiplying by 3 gives the number of sectors. All system files can only have one extent. The final pair of digits hold the track number where the file begins. Killed files (as on a data disk) are indicated by FFFF. It appears that it is quite easy to delete any unwanted system modules to get more space. The method to use is described below, but remember that it is a bit experimental, so try it out on backups first.

1. Using Super Utility, display Track 17 sector 2.
2. Do a screendump so you can put things right if you muck it up!
3. Go into modify mode, and move the cursor to byte E0H.
4. Now, counting the bytes in pairs from the cursor, (which represents the position for *Ø), move the cursor until you are over the one you want to kill.
5. Replace this pair with FFFF. CHECK IT! Press (ENTER) and U, to ubdate the sector.
6. Now go to one of the "Disk Directory" displays and check in the list of system file numbers that the one you wanted to delete is not there. If you've deleted the wrong one, you can use the screendump I know you did in step 2 (!) to get it back. (Don't for goodness' sake copy the HIT from another disk as a "shortcut", because you'll render other files inaccessable!).
7. If it's right, do a "Repair GAT" to recover the space.
8. BOOT the disk and check that the deleted module, when called, causes "Ø NS" to appear instead. For instance, if you deleted *12, then calling "NAME" from BASIC does this.

You can recover the killed system file(s) ONLY until you've done a write to the disk, using the screendump to zap the origonal numbers back into place and re-running "Repair GAT" to reallocate the space.

Ignoring *Ø - *4 (which should never be deleted!), the functions of the modules is as follows: (courtesy of a listing from SNAPPWare):

*5 Debug (3 Grans)
*6 Append, Attrib, Auto, Build, Clear, Clock, Create, Date, Dir, Do, Dump, Error, Free, Lib, Load, Pause, Prot, Rename, Time. (6 Grans)
*7 Backup and Format (6 Grans)
*8 Help (6 Grans)
*9 Copy, Dual, Forms, Kill, Master, Patch, Relo, Route, Setcom, WP. (5 Grans)
*10 BASIC's error messages and $DSPDIR routine (2 Grans)
*11 List, Purge, Tape. (4 Grans)
*12 BASIC's overlay for NAME and CMD"C" (2 Grans)
*13 BASIC's overlay for CMD"J", CMD"O", & CMD"X" (2 Grans)
*14 $FILPTR & $RAMDIR routines. (1 Gran)

If you try this you may notice that you appear to gain 2 more Grans than you should have! This is because all TRSDOS 1.3 system disks seem to have two "locked-out" granules which aren't allocated to a system file, and SU+ releases these whenever it does a "Repair GAT" operation, or any operation which adds or deletes files.

USEFUL ADDRESSES.

Here are some useful undocumented addresses within TRSDOS 1.3:

4203 Cassette Abort Vector: Jumps here if BREAK hit during tape read. Goes to 4030 in DOS, changed in BASIC.
4212 Cassette asterisk flash counter: useful bolthole for temporary storage if tape not being used.
42AE Break key enable: C9=on, C#=off.
42B1 Saves keyboard vector during DO.
42B3 Master drive: 0-3 (0 is default).
42B4 If 55H, causes memory from 5200-HIMEM to be wiped on return to TRSDOS Ready.
4413 Highest drive in system: 0-3, set during BOOT.
4415 Saves HIMEM during DO.
4454 Routine to scan parameters on command line.
4457 4-byte table of directory tracks for each drive.
4CFD Do Active Flag: FF=Active, 0=Normal.
4F58 Software Write-Protect drive: 0-3 or FF if none.

Roy P. Sainsbury, Park Farm Nurseries, Landford, Salisbury, Wilts, SP5 2BE. Telephone: Romsey (0794) 390319 after 6pm.

KISS ME BACK!.....

Having grown with Tandy from the original 4K model with bouncing keyboard and the amazing(!) upgrade to lowercase then on to 16 k Level 2 and even further by persuading them to exchange for the new keyboard, I never could afford the quantum leap to disks due to the cost of the interface. However 16k lasted me a long time aand I kept it,but always being in the spearhead of technology bought in succession a Dragon for the colour,then a Colour Genie ,a Newbrain because I thought it was portable. It was with a great battery pack that lasted an hour,then the Model 100. Finally after much debate I obtained the BBC a good machine and with 32K(until you start using it and as usual find this memory has shrunk.) Still I went mad at the time and bought a disk and found myself in a different world.

So the Tandy 1 went to a friend as a backup for him, which he uses in business. The Dragon and Genie went leaving me with the BBC and the 100 so I thought NATGUG no longer had an interest for me and my sub lapsed last December.

Suddenly out of the blue, another friend(??) persuaded me to buy a single disk Model 16 at a giveaway price and I could not resist it,so I am now back in the fold and renewed my sub from last January (having ditched my back issues of the newsletter.)

Three manuals,Scripsit 2,Visicalc and Profile Plus and Forms and I was overwhelmed.(I still am) and once again I am having the love hate relationship with Tandy renewed.

64K is a lot when you have been used to 16k or a funny 32k and the disk contents unbelievable.

However here we go again...the manual says that you cannot format or backup a double sided disk for TRSDOS,but you CAN although only one side. Something you cannot appear to do is format/backup a TRSDOS2 4.1 TRSDOS 16 4.1 . Now this seems incredible that a computer could be put out without being able to produce disks. Maybe I am missing something. The friend I bought it from has now a double disk Model 16 so in the event I can get him to make backups, but if I was on my own....

Scripsit I notice gets some stick over the years, but having come back to it from View on the BBC it seems wonderful.

I believe in doing things the easy way if possible that is the meaning behind the heading KISS Keep It Simple Stupid and in many ways computing can go over the top unnecessarily. The simpler things are, the less bugs. In this mood I offer the following short programme, Typist, which I find useful for a quick note or envelope instead of getting into Scripsit. A cheap and cheerful typing method. No sophistication but handy and newer members(and longer standing) may find it of use.

The line width is eighty characters ,but can be changed of course, corrections can be done as normal by backspacing and retyping within the line, but on pressing enter the line is sent to the printer so make sure that it is correct first.

Double etc line spacing by pressing enter and when finished type in END. You are then able to take as many copies as you like by answering the prompts.

You are able to also send printer codes for different lines by typing , STOP, and typing LPRINT CHR$(etc . The codes shown are for the EPSON MX 80.

Give it a try ,it is something a little bit low tech but will no doubt appeal to some members who like me are not into machine/assembler.

There seems to be a lot of comment ,some in NATGUG news and also in a number of recent mags , one Computer Age, the re-incarnated Electronics and Computing, extolling almost drooling over the virtues of the MC68000 processor, that it is the chip of the future. Once again, am I missing something or more to the point are Tandy as the Model 16/Model 6000 has a MC68000 and no one seems to even notice this although it has been about for some time now. Ah well, as we all know Tandy is like that. One of the dissapointing things that they did do was to cut out the Monthly Newsletter, even though they started to sell it,it was worth it for the corrections(!) to the bugs and other information which it is now so difficcult to get hold of. It may be fine for the States where they are serviced by several mags but here where the only one appears to be Micro80 and that has cut out the Model 100 and Model 16 articles now.

Scripsit allows you to dribble on a bit but I hope that these meanderings of a longtime Tandy fan(!) have not been too tedious. By the way, now that most of the Tandy Computer Centres have closed, are the ACT centres dealing with Tandy goods? Whenever I look through the window I see no evidence of this, and Tandy sources appears to have buttoned up.

As an aside I had to break off as the neighbour came to the door to say she had just arrived home from a ten mile drive and found a cat in the engine compartment!!! So I have just taken it back to the area none the worse for its hot ride.

Ray Cox, Leicester, 708097

```
100 '****** TYPIST ******  R.F.COX   1st SEPTEMBER 1985 ******
110 ' FOR USE ON MODEL 2 AND 16...WILL BE OF USE ON OTHERS IF
120 'PARAMETERS ARE CHANGED....IE PRINT @
130 '++++++++++++++++++++++INITIALISING++++++++++++++++++++++++
140 X=0
150 '
160 CLEAR 2000
170 DIM A$(40)
180 '++++++++++++++++++++++INPUT ROUTINE++++++++++++++++++++++
190 CLS
200 PRINT"THIS IS LINE  ";X+1;"  INCLUDING BLANK LINES."
210 PRINT
220 '
230 PRINT TAB(30), "TYPE IN LINE UP TO 80 CHARS.";
```

```
240 PRINT
250 PRINT"    TO END TYPE IN   END  "
260 PRINT "  TO SEND PRINTER CODES   STOP  "
270 'NEXT LINES MARK END OF PAPER(80 CHARS) AND TAB MARKS
280 PRINT @ 400, "<START":PRINT @ 440,"^";
290 PRINT @ 456,"^":PRINT @ 476, "END>"
300 PRINT
310 X=X+1'      LINE COUNT
320 '
330 LINE INPUT A$(X)
340 IF A$(X)="END" OR A$(X)="end" THEN 380  ELSE 350
350 IF A$(X)="STOP" OR A$(X)="stop" THEN GOSUB 480
360 LPRINT A$(X)'  PRINT OUT OF ORIGINAL DOCUMENT
370 GOTO 190
380 '+++++++++++++ADDITIONAL COPIES SUB-ROUTINE+++++++++++++
390 CLS:PRINT
400 PRINT"PRINT OUT OF COPIES"
410 PRINT
420 PRINT "IS PAPER SET IN PRINTER??? YES PRESS ENTER ":INPUT Z$
430 FOR Z=1 TO X-1
440 LPRINT A$(Z)
450 NEXT Z
460 PRINT"Do you want another copy??? ": INPUT Z$
470 IF LEFT$(Z$,1)="Y" OR LEFT$(Z$,1)="y" THEN      ELSE 140
480 '+++++++++++++PRINTER CODE SUB-ROUTINE++++++++++++++++++++
490 PRINT" THE DOUBLE QUOTES BELOW SHOULD BE TYPED IN AS DOUBLES"
500 PRINT" WHEN USING THE PROGRAMME"
510 A$(X)=""
520 PRINT"TYPE IN THE CODE REQUIRED AS ,"
530 PRINT" LPRINT CHR$(nn),  ENTER,  THEN    CONT  "
540 ' NOTE THAT SINGLE QUOTES BELOW SHOULD BE TYPED AS DOUBLE
550 PRINT:PRINT"ENLARGED  CHR$(27);'W';CHR$(1);"
560 PRINT "CANCEL WITH CHR$(27);CHR$'@';"
570 PRINT
580 PRINT"ITALIC    CHR$(27);'4';              CANCEL WITH  CHR$(27);'5'
590 PRINT
600 PRINT"ELITE CONDENSED   CHR$(27);'M';CHR$(15);"
610 PRINT " CANCEL WITH CHR$(27);'P';CHR$(18);"
620 STOP
630 RETURN
```

FOR SALE AND WANTED

* * W A N T E D * *

80-Micro, April 1984 issue. Will pay Equiv. cover price if good condish. Alternatively, photocopy of the article "Bugs from Outer Space" and the related program listing, or loan of mag. to copy article.

Contact Roy Sainsbury, Park Farm Nurseries, Landford, SALISBURY, Wilts. SP5 2BE. Phone (0794) 390319 after 6pm.

****WANTED ****

Model I monitor (hardware not software)

David Hedges
Leicester 884474

```
============================================================
REV 1.1      : UTILITY                      TITLE   : KEEP
============================================================
SUMMARY      : Create a keeplist file of individual files
               requiring backup.
------------------------------------------------------------
DESCRIPTION :

Program used to assist maintenance of hard disk.
Although LDOS provides a modify flag on directories, there
is difficulty scanning a large hard drive if it is
partitioned into pseudo drives. This facility allows a
list to be created of files requiring backup.

------------------------------------------------------------
SYNTAX    :

lbasic run"keep"

PROMPTS   :
   File to keep : ?    <- name of file to be kept
   Diskname     : ?    <- name of hard drive partition
------------------------------------------------------------
NOTES     : Advanced facility for Hard Disk users.
            The keeplist produced can be scanned using
            a further program, if required to create
            automatic JCL.
------------------------------------------------------------
EXAMPLES :

run lbasic "keep"

File to keep :? ANYFILE/CMD
Diskname     :? ALDOS162/DSK
------------------------------------------------------------
COMPONENTS : KEEP/BAS
------------------------------------------------------------
AUTHOR       : Edward Rashbrooke              : 12 Mar 85
============================================================
```

```
10 'keep : keep list of files to be backed up
20 'Created : Edward Rashbrooke 11 Mar 85
30 '
40 CLEAR 1000:DEFINTA-Z
50 OPEN"O",1,"keeplist/txt"
60 LINEINPUT"File to keep: ";A$
62 IF A$="" THEN GOTO100
65 LINEINPUT"Disk name   : ";B$
70 L$=LEFT$(A$+"              ",14)
75 L$=L$+LEFT$(B$+"          ",9)
76 L$=L$+MID$(TIME$,7,2)+ "/"+MID$(TIME$,1,5)+MID$(TIME$,9)
80 PRINTL$
81 PRINT#1,L$
90 GOTO 60
100 CLOSE
110 CMD"s
```

```
keep/bas      hard1    85/03/11 01:23:42
aldos005/dsk  hard1    85/03/11 02:08:39
move/asm      hard1    85/03/11 02:08:52
aldos024/dsk  hard1    85/03/11 02:14:14
```

```
aldos040/dsk  hard1     85/03/11 00:07:43
aldos062/dsk  hard1     85/03/11 00:07:35
hcat01/cat    aldos072  85/03/11 00:09:49
aldos061/dsk  hard1     85/03/11 00:27:51
aldos075      hard1     85/03/11 00:30:50
aldos082/dsk  hard1     85/03/11 00:34:09
mx80/bt       aldos083  85/03/11 00:35:40
aldos090/dsk  hard1     85/03/11 00:36:36
aldos096/dsk  hard1     85/03/11 00:40:00
```

```
============================================================
REV 1.1      : UTILITY                    TITLE  : KEEPSCAN
============================================================
SUMMARY      : Scan a keeplist file to identify files
               requiring backup.
------------------------------------------------------------
DESCRIPTION :

Program used to assist maintenance of hard disk.
This facility allows a list of files created by KEEP/BAS
to be scanned, so that appropriate BACKUP action can be
taken.
The file will have been created using KEEP/BAS.
For each file requiring backup, it is possible to execute
the required commands to perform the backup operation.
It is then necessary to confirm that the backup has been
successfully performed.
------------------------------------------------------------
SYNTAX    :

lbasic run"keepscan"

PROMPTS   :
   CMD> ?                  <- Any LDOS utility command
                              (Can perform as many as required)
   File backed up (Y/N)?   <- Asks whether required file
                              has been backed up.
------------------------------------------------------------
NOTES     : Advanced facility mainly for Hard Disk users.
            Once the file has been backed up, it will no
            longer appear on the KEEPSCAN listing, although
            it will still be stored in KEEPLIST/TXT.
------------------------------------------------------------
EXAMPLES :

run lbasic "keepscan"

Screen shows :
   ANYFILE/CMD     ALDOS162/DSK 85/03/12 17:42:16
   CMD>
Enter a command :
   Backup ANYFILE/CMD:2 :7
Next Prompt :
   CMD>
Specify <enter> to show no further commands required
   File Backed up (y/n) ?y
(Action for this file now completed, next file shown)
------------------------------------------------------------
COMPONENTS : KEEPSCAN/BAS KEEPLIST/TXT
------------------------------------------------------------
AUTHOR       : Edward Rashbrooke            : 12 Mar 85
============================================================
```

```
20 'keepscan : scan keeplist entries
30 'Created : Edward Rashbrooke 10 Jun 83
40 CLEAR 2000:DEFINT A-Z
60 OPEN"i",1,"keeplist/txt"
80 OPEN"o",2,"keeplist/new"
100 GOSUB 300
120 FOR I=1 TO 30000
140 GOSUB 400
160 GOSUB 300
180 NEXT
200 '
220 CLOSE
240 CMD"copy keeplist/txt keeplist/old"
260 CMD"copy keeplist/new keeplist/txt"
280 STOP
290 CMD"s
300 'read keeplist record
320 IF EOF(1) THEN I=30000:RETURN
340 LINEINPUT#1,A$
360 RETURN
380 '
400 IF LEFT$(A$,1)="*" THEN PRINT#2,A$:RETURN
420 CLS
440 PRINT"KEEPSCAN : Keep list scan utility "
460 PRINTSTRING$(64,95)
480 PRINT"Filename       Disk     Added to Keeplist"
500 PRINTA$
520 PRINT@13*64,STRING$(64,95);
540 PRINT@14*64,"CMD>";
560 LINEINPUTCD$
580 IF CD$="" THEN GOSUB 660:RETURN
600 ON ERROR GOTO 800
610 IF LEN(CD$)=1 THEN GOTO 400
620 CMDCD$
640 GOTO 400
660 'write new record away
680 PRINT@14*64,"Backed up (Y/N): ";
700 LINEINPUTAN$:IF AN$=""THEN680
720 AN=INSTR("yn",AN$):ON AN GOTO 740,760
740 A$="*"+MID$(A$,2)+" "+MID$(TIME$,7,2)+"/"+MID$(TIME$,1,5)
760 PRINT#2,A$
780 RETURN
800 RESUME 400
```

```
*keep/bas       hardl     85/03/11 01:23:42 85/03/15
*aldos005/dsk   hardl     85/03/11 02:08:39 85/03/15
*move/asm       hardl     85/03/11 02:08:52 85/03/15
*aldos024/dsk   hardl     85/03/11 02:14:14 85/03/15
*aldos040/dsk   hardl     85/03/11 00:07:43 85/03/15
*aldos062/dsk   hardl     85/03/11 00:07:35 85/03/15
*hcat01/cat     aldos072  85/03/11 00:09:49 85/03/15
*aldos061/dsk   hardl     85/03/11 00:27:51 85/03/15
*aldos075       hardl     85/03/11 00:30:50 85/03/15
*aldos082/dsk   hardl     85/03/11 00:34:09 85/03/15
*mx80/but       aldos083  85/03/11 00:35:40 85/03/15
*aldos090/dsk   hardl     85/03/11 00:36:36 85/03/15
*aldos096/dsk   hardl     85/03/11 00:40:00 85/03/15
 aldos026/dsk   hardl     85/03/15 00:25:11
 aldos005/dsk   hardl     85/03/15 00:35:40
 aldos040/dsk   hardl     85/03/15 00:46:10
```

NATGUG NEWS

Volume 7 Issue 5 November 1985

OFFICIAL JOURNAL OF THE

National TRS-80 & Genie Users Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers, and compatible systems such as the Video Genie.

Details of the Group accounts, and the constitution of the Group, are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are obtainable from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the Secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Secretary and Newsletter Publisher:-

Brian Pain,
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU.
Tel: (0908) 564271

CONTENTS

2. Information on the Group
4. Editorial
4. Members' letters
5. Problem section
6. Model 4 and CP/M chitchat
11. Montezuma windows
16. Varilist for Model 4
18. PUSH without a POP?! A heresy?
19. Hierarchical directories with TRSDOS?
21. In defence of the 4P
22. CGP-115 meets IBM
23. Oggy Oggy Oggy
24. Parity errors
25. Model 4 notes
27. For sale and wanted
28. A patch to debug in LDOS

EDITORIAL

Due to the reduction in size of the newsletter, we have decided to cut the subscription to £5 for six months.

For some reason I get a publication called Computer Trade Weekly, which publishes a survey of the home computer market every week. Tandy, I am sorry to say, doesn't even make it into the lists, which means that they have under 1% of the market. Of course, it could be argued that the machines owned by most of our members are business machines, but I doubt if Tandy penetration in that market is any better.

I am afraid I cannot share Ian Howard Wright's enthusiasm for the Model 4D that has just been announced. It doesn't appear to be much of an improvement on the original Model 4. How Tandy can hope to sell such a machine into the highly competitive market that now exists is beyond me.

Ian also makes an unfavourable comparison between NATGUG and BASUG, the Apple group. BASUG have the great advantage of a popular machine, and therefore have a much larger membership than us. We also have a number of experts in the group, who can assist other members with their problems: just give Brian a ring, and he'll put you in touch with someone who can probably help.

Leon Heller

MEMBERS' LETTERS

In the September NATGUG NEWS Brian Pain complains of the high drop-out rate of members. Are you really surprised? Often the editorial seems to take a delight in running down Tandy and its products. You say that Tandy's profits are falling. What you don't say is that most of their competitors' profits are falling far faster than Tandy's, and a lot are not in profit at all. You compare Tandy unfavourably with Commodore because they are bringing out the Amiga, but how long will there be an Amiga with Commodore's current level of losses?

In October you forecast the demise of the Model 4 when, in fact, they have upgraded it to the 4D by fitting double sided disc drives and bundling the Model 1000's Deskmate with it - no sign of death there. In fact, the Tandy scene is really good over a broad spectrum. I have just been reading reviews of three windowing programmes that run on the Model I! There still seem to plenty of software houses supporting Tandy computers, even the good old Model I.

You also say you don't know any other group which does as much for its members. Just before I bought the Model 4 I had a good look round the field, and examined several user groups in depth. Some are very good indeed, and what came over from most of them was enthusiasm for their own micros.

The Apple User Group, for one example, produces a very nice newsletter printed on glossy paper. It is full of useful information, and they have, if my memory is right, a panel of experts who answer questions on their own speciality. This is a lot more helpful than our way of printing a plea for help and then hoping someone will bother to answer it. Apart from anything

else, the answer can be published along with the question. Why can't we do that?

We can be justly proud of our telephone help line - it is superb, and all praise to Brian for the way he cheerfully deals with these interruptions to his family life - but I think some other user groups give this kind of help, too.

The quality of reproduction of NATGUG News is very much better than it used to be, but I could imagine newcomers being put off because it looks so crowded - there is too much on a page. Appearance really is important. It is all the more important, when the type is so small, that there is plenty of space round it. I think that bigger margins all round, and certainly at the bottom of pages would make it much more attractive to look at. Page 8 of the September issue is an extreme example of what I mean. I know that balancing pages is always difficult, but too little on a page is a better fault than too much.

I think, too, that sitting back and waiting for the articles to come in is no longer right. It was probably the right thing when the Users' Group was new, and everyone was learning together. Plenty of people were finding out new things and sending in notes about them, but today it is different, and the membership has probably changed in character, too.

Waiting for stuff to come in can lead to a badly balanced newsletter, full, not of what people want to read about, but what some people want to write about. I would think that, to get a well balanced newsletter, over the months, it is necessary to ask people with known skills and experience to contribute specific articles by specific deadlines.

Ian Howard Wright,
17 Greygoran,
Sauchie,
Clackmannanshire,
FK10 3ET.

PROBLEM SECTION

Is it possible to run Dosplus 3.5 Model I version on Model III by making any changes?

Dr. B.I. Pirzada
(0522) 20843 (day)
(0522) 24326 (after 7 pm)

Does anyone know of software for the Model I (with disks) that will enable me to produce graphs, histograms, pie charts etc.

Tom Galton,
1 Parsonage Close,
Boxted,
Colchester,
Essex CO4 5ST.
(0206) 36601

MODEL 4 and CP/M chitchat.

I have just received today, the September issue of NATGUG NEWS and spurred on by the thinness of the magazine and Leon's comments, I thought it timely that I should at least help fatten it up again, after all, poor Anon has spent many long hours writing his heart out and putting the rest of us to shame.

It's quite a while since I contributed to NATGUG so I intend to cover a number CP/M subjects.

MONTE'S WINDOW

I have had the privilege to see Monte's Window in action recently and was so impressed about it that I thought that other Model 4 owners should share my enthusiasm.

Monte' Window is a fabulous piece if software which is regularly advertised in 80-MICRO. This program can only be used by Model 4/4P users who have the extra 64k RAM installed and are using Montezuma Micro CP/M 2.2 version 2.2x. At $49, all I can say, how do they do it at that price? Usually a price of $49 can be a fair indicator that someone is trying to market junk software.

Monte's Window, before I examine it in detail, is a facility whereby one can, by simply pressing both shift keys simultaneously, activate a 2.5" x 3" window which will overlay your screen and interrupt the current program. Through this window, which is outlined with a reverse video border, is presented a menu which gives six choices:

[A] Notepad
[B] Calendar
[C] Calculator
[D] Index Cards
[E] CP/M System
[F] Set Up

Those of us used to Newdos/80's facility to screendump to a printer by pressing 'JKL' sorely miss this; but here we now can simulate JKL by pressing the two shift keys together (or left shift key and Control key together to open the Window and selecting the NOTEPAD which in itself has a menu.

One can Save the screen to note, Read a note from disk, Save note to disk, Edit the note or Print note on printer.

As if this was not enough, one can stop, say in the middle of a spreadsheet, database or Basic program and immediately write a one page letter on the notepad, print it and resume where one left off.

The **CALENDAR** facility might at first glance be just another way to avoid getting off the 'computing commode' to look up the wall calendar, but it works in conjunction with the Index Cards and checks for any appointments recorded. Days which have appointments are highlighted in reverse video. The Calendar menu permits moving to the next month or next year or previous month or year. If required a new date can be set, if for example you want to see what day of the week you were born (provided it was not before 1700). If a print of the calendar is required then it can be saved to the NOTEPAD and printed.

The **CALCULATOR** is the nearest thing that I have seen to the ICON based calculator on the Macintosh. It has a display window of its own and has the normal arithmetic functions AND memory! But the thing that really impresses is the Auto-Key which when set will put the result of the calculation right back into the main program you are running at the last cursor position —— think about the possibilities that holds when you are writing a report and need to calculate a figure to enter into it! 'nuf said.

The **INDEX CARDS** utility is a mini database which displays an index card just like the real thing. Cards are numbered automatically and the top line is used as the header for subject. Editing can be carried out just like on the notepad, and in fact if you wish, the index card can be saved to the notepad and printed. Subject headers can be searched on partial text pattern. If the '@' symbol precedes this header then any dates recorded on the lower part if the card are picked up by the calendar and displayed in reverse video.

The **CP/M SYSTEM** option permits reading of directories, changing User No's, changing the current drive, determining free disk space via Stat and Erasing of files. One nice feature of the Erase is that a display of files with similar extensions is given prior to committing oneself to erasing the file.

The final option is entitled Memory Desk Setup. Here one can move the window to place it anywhere on the screen, change the Notepad filename and Index Cards filename. Other choices enable the number of decimal places displayed on the calculator to be set from 0 - 7, setting of the Calendar date and finally to save the Setup data to disk.

The use of Monte's Window is so simple that no more than 20 minutes use would leave one panting with excitement! I would have no hesitation in recommending it to anyone who uses Model 4, but remember, you MUST have 128k.

WORDSTAR and EPSON PRINTERS

I have long since abandoned 'old faithful' Scripsit, (even with the Flextext + addition) in favour of Wordstar. Now many have criticised Wordstar as being complex but it IS the most common word proccessing software for micros. On reflection though, its complexity is no more than that of Scripsit and it has the one very big advantage that WYSIWYG (what you see is what you get). Geoff Smith's Scripsit goes a long way to remedy Scripsit's failings.

This article is not a review of Wordstar as such but hopefully provides some tips in its customisation which will further enhance its power.

Users of dot matrix printers such as the Epson MX, FX, RX, LQ series have available many character sizes and styles. Our old friend Scripsit with Flextext+ would certainly allow many of them to be specified within the text, however Wordstar also has the ability to change character sizes using the USER PATCH Area. The Print Menu from Wordstar below shows that at least 4 patches can be applied. The four most common ^PQ, ^PW, ^PE and ^PR can be set up using the INSTALL program to give for example:

^PQ	Initialise printer (clear previous settings)
^PW	Emphasised Normal size
^PE	Emphasised Double size
^PR	Condensed size

```
^P        < < <     P R I N T   M E N U     > > >
   ------- Special Effects -------     ¦ -Printing Changes- ¦
 (begin and end) ¦  (one time each)     ¦ A Alternate pitch    ¦
 B Bold D Double ¦ H Overprint char     ¦ N Standard pitch     ¦
  S Underscore   ¦ O Non-break space    ¦ C Printing pause     ¦
  X Strikeout    ¦ F Phantom space      ¦ Y Other ribbon color ¦
  V Subscript    ¦ G Phantom rubout     ¦  --User Patches--    ¦
  T Superscript  ¦ RET Overprint line   ¦ Q(1) W(2) E(3) R(4) ¦
```

I used to have Wordstar set up like this but in reality found that all my correspondence was in Emphasised print. The problem with Wordstar customisation of dot matrix printer drivers is that, to use the bold print feature of the above sub-menu, was to cause the printer to backspace after each letter to print it again. You can imagine the noise this made never mind the effect on the nerves and the worry if this was good for the printer mechanism. Besides, it took forever to Bold print in this manner.

As well as this the Underscore command worked OK but looked like this when printed - not much good ! Lazily leafing through the Epson manual one evening, the thought occurred that I might be able to use the Epson Underline command in place of the supplied one and all that was needed was to install it using two of the User Patchs - ^PE to switch it on and ^PR to cancel.
It worked like this.

So having got this working all that was needed was to dedicate the other two to switching on and off the double strike mode. This is a much sweeter (and quieter) way to Bold print. So then, you may ask, where does the Emphasised print fit in? Well Wordstar's Install program allows for an INITIALISATION string which I set for Emphasised print and also allows for reset of the printer after exiting Wordstar.

Experienced users of Wordstar may not be aware of several other faciliies which can be utilised. During the installation procedure at the PRINTER INSTALLATION MENU a section is dedicated to what is called "Special Printers only". As the dot matrix printer does not have normally facilities for I - Ribbon Selection, J - Vertical Motion, K - Horizontal Motion, L Print Modes and M - Phantom Characters, Alternate Pitch (these are the choices offered on the Menu), then it is possible to use these control codes imbedded in a document to switch the printer to other fonts. Owners of the FX80/FX100 printers have more choices than my MX100, eg Elite, Italic and downloadable fonts. These can be called from Wordstar documents by utilising otherwise redundant commands.

dBASE II Notes

Having recently been a convert to dBASE II my efforts in the programming scene have for the time being, been almost exclusively applied to writing applications software in the dBASE II command and query language. Most of this work takes place on my Sirius at work. dBASE II is a very popular and best selling Relational database which allows the user to go far beyond the basics of setting up a database and adding and accessing it. dBASE II provides users with the facility to write programs in a structured language, parts of which ane not unlike Pascal.

When one runs dBASE II, on MSDOS machines, the date is taken from the system date, however 8 bit CP/M versions require the operator to enter the date. This is important if one wishes to record the last update date on the database file. Mot users will keep their database and command files on drive B: therefore it is necessary to type: SET DEFAULT TO B to log drive B: as the drive in use. If it is required to set other conditions such as INTENSITY OFF, EJECT OFF, BELL OFF etc then I have found that one simple (relatively!) command file called first will set up all these conditions at once. The command file below can be prepared using either Wordstar (using the 'N' non-document mode) or if within dBASE II, MODIFY COMMAND GO.

After booting up all that has to be typed is:

DBASE GO <return>

```
* DBASE  GO.CMD - used to set up default SETS.   This file should
     be held on drive A: with the main dBASE II program.

ERASE
SET COLON OFF
SET TALK OFF
SET INTENSITY OFF
STORE "         " TO mdate
STORE f TO valid
DO WHILE .NOT. valid
  @ 10,20 SAY " ENTER TODAY'S DATE DD/MM/YY      ";
  GET mdate PICTURE '99/99/99'
  READ

*         divide date into day, month and year
  STORE VAL($(mdate,1,2)) TO day
  STORE VAL($(mdate,4,2)) TO month
  STORE VAL($(mdate,7,2)) +1900 TO year

*         validate month and day entry
  IF month >12 .OR. MONTH <1 .OR. day >31 .OR. day <1
     STORE '         ' TO mdate
     LOOP
  ENDIF

*         validate February if not Leap year
  IF month =2 .AND. year/4.00 <> INT(year/4.00) .AND. day >28
     STORE '         ' TO mdate
     LOOP
  ENDIF

  IF month =2 .AND. year/4.00 = INT(year/4.00) .AND. day >29
     STORE '         ' TO mdate
     LOOP
  ENDIF

*         if ok then set valid to true
  STORE t TO valid
ENDDO
SET DATE TO &mdate
ERASE
SET EJECT OFF
SET TALK ON
SET COLON ON
SET DEFAULT TO B
RELEASE ALL
*         enter your command filename here in the form:
*         DO filename
CANCEL
```

David Roberts
6 Plantation Road, Ballymacormick Road
Bangor, Co Down. BT19 2AF
Telephone 0247 - 462564

MONTEZUMA WINDOWS

I have been spending money again and this time I bought Borland's Pascal, Borland's Toolbox (both of them to run on my box under MSDOS 2.11) and also Montezuma Windows. This one runs on Model 4/4P under CP/M 2.2x and requires 128K memory.

I have not done anything about Pascal yet (not even copied the master diskettes) so I cannot say much about it. My version is 3.0 and this is very similar to the CP/M version so, maybe, later I will try to write about it. Looking at the manual I see that if the compilation is done in the memory the compiler, on discovering an error, enters automatically the editor at the point of error and, after correction, the compilation continues. If the compilation is to the disk then compiler aborts giving memory location where the error has occured. F command does then locate the error in souce file. The thing must have been written with me in mind.

I bought the programs through System Science (mentioned previously in connection with HSC1686) and the prices were inclusive of VAT:

Pascal with 8087 + BCD	£143.75
Turbo Toolbox	£ 63.25
Monte Windows	£ 63.25

I could have ordered the programs directly but dealing through System Science meant that the Turbo programs were delivered to me on Montezuma CP/M disks (together with IBM PC versions) and I did not have to bother with the postman, paying the duty etc with the window program.

Montezuma Windows were described in the August issue of the 80Micro (still alive though much slimmer than it used to be). The reviewer gave the program 5 star rating for ease to use, good documentation, being bug free and doing the job. Whilst the program is, as far as I can see, bug free it will not run if I have the HSC RAM installed. Whether this can count as a bug I don't know - probably not.

The program comes on a single sided, double density disk which does not contain any system files. There are in fact four parts - the actual program MW.COM, MANUAL.TXT, PRINTDOC.COM. and SETUP.MW The program requires 32K space on a disk but the manual's size is 52K. There is no other documentation. The manual can be read with the TYPE command, printed with PRINTDOC program, or loaded into WS and then read. This was the option I have chosen and, as the operation of the program is very simple, there is really no need for any hard copy documentation.

Montezuma Windows is a collection of programs consisting of a notepad, calendar, calculator, index cards, CP/M facilities and set up. The program, once loaded into the extra 64K RAM is invoked by pressing either both <Shift> keys at once or left <Shift> and <CTRL> which is really easier. There are some exceptions though. At drive sign prompt in CP/M (A>) one has also

to press enter. There may be some delay in the window appearing if a CP/M function is being performed but the window pops out immediately in top right hand corner whenever it is called and the computer expects a keyboard input. The programs are simple to use providing simple facilities. 80Micro claims that Monte Windows are what Borland Sidekick is to PC but I wonder. Of course I have not seen the Sidekick in action.

On calling the program the menu window appears. This window gives the following options:

[A] Notepad
[B] Calendar
[C] Calculator
[D] Index Cards
[E] CP/M System
[F] Set Up.
[BREAK (^C)] to exit

To return back to the program from which the window was called one presses <BREAK> or <CTRL>C.

But now that we are in the menu window lets see what we can do! Lets press A and see another menu appear. You will see:

[A] File (A:NOTEPAD.MW)
[B] Save screen to note
[C] Read note from disk
[D] Save note to disk
[E] Edit note
[F] Print note
[BREAK] to exit.

The notepad is one screen of 80x24 and any text scrolled is likely to be lost. The notepad file stores only one screen and hence option A. Whilst one cannot have more than one screen in the file there is no limit to number of notepad files one can open - at the usual CP/M price of 2K per file. One screen of 24*80 equals 1.88K so the overheads do not amount to much. The name of notepad file is changed with option A for one session but, once one leaves the notepad session, the name reverts to default which is declared in the SET UP module.

The option B is self-explanatory but, from there on, one can save it to the disk, edit it or print it. What a pity that one cannot transfer the screen into, lets say, WS text. Writing of this article would be much easier. If the screen contains characters in reverse video these characters are printed out normally. Options C & D are obvious but I ought to add that any entries in the notepad remain there, even if not saved to the disk, when one returns to the program from which the windows were called. Edit note brings one into 24*80 screen and there are hardly any editing facilities. Arrows move the cursor one space left or right, or line up or down. (WS diamond also works). <CLEAR> clears the notepad, ^R starts reverse video and ^N returns to normal mode. <RETURN> brings the cursor to the beginning of the next line. There are no means to delete characters, words or lines other than using the space bar. Errors are corrected by overtyping and there are no insert commands.

Option F dumps the note to printer and <BREAK> returns to main menu. This just about covers the Notepad. A useful facility to use computer instead of paper, making notes etc. As I write this I call windows frequently and I make notes on the pad of anything which comes to my mind that I want to say later.

Option B calls the calendar window. This window (as all others is about 3"x2 1/2") and to the left of it there appears calendar window about 4"x4". The calendar, which appears, when you buy the program and before you set it up, will be for October 1984 (birth month of Monte Windows). The menu looks as follows:

```
[A] Next month
[B] Previous month
[C] Next year
[D] Previous year
[E] Set date
[F] Save to Notepad
[BREAK (^C)] to exit.
```

The calendar function covers years from 1700 to 2200 though, as the manual points out, the records of events between years 1700 and round about 1750 may not match Monte calendar as until about 1750 Julian calendar was in use in Europe. The calendar is in the usual shape showing on the top bar days of the week and numbers below (Did you know on what day of the week you were born? I was born on Friday and so was the BOSS. It is also nice to know that my birthday in the year 2001 will be on Sunday!). Options A, B,C and D are obvious and all that I want to say on these is that holding down any of these keys will scroll through the calendar backwards or forwards month or year at the time. 80Micro says that arrow keys will do that but they don't - not on my computer. For the years 1900 and 2000 the calendar also checks cards (remember? Option D from main menu) and, if there are any appointments noted for the year/month in question the dates are in reverse video. With some 30 cards in use (on which I tested this), the search time is about 10-15 seconds. There is a funny thing though that outside this range the program says that it is checking cards for appointments but will not display them even if there are some. Also the search will find only the first date on each line. (What fun I am having trying it all as I write). Option E requires input of the month in the range of 1 to 12 and the year in four digits. Option F saves the calendar to the notepad and there you can do the usual with it, edit, save or print or just wipe it out.

So now we come to the option C which, by coincidence, brings forth the calculator. Calculator and the menu appear in one window which looks something like this:

```
          Calculator
==========================
                    0.0000
==========================
Calculator keys:
+: Add          -: Subtract
*: Multiply     /: Divide
M: Save Mem     R: Recall
C: Clear        P: Clr Prv
A: Auto-key     S: Sing Chg
ENTER: calculate result
[ ENTER (^C)] to exit
```

Clever - ain't it? Really it works just like any calculator apart from the fact that one can store amounts or results in memory or recall them from memory but one cannot add or deduct to/from

memory. So assuming that we have ((15/7) * (14*5)) - (25/45) how would we go about it? We would work out the first bracket and store that to memory, clear the calculator (not memory which is only cleared when 0 is stored), work out the second bracket and multiply it by memory and, of course, store the result. Then clear the calculator, work out the third bracket, change the sign with S option and add the memory and there it is 149.44. Actually clearing the calculator between the computations is not necessary as the chain is broken if the last result is not followed by the operating sign. Calculator is automatically cleared once the window is left but not the memory. This retains the result (or whatever) unless cleared by storing 0. If there is an amount other than 0 in it the M on the menu is highlighted. So all there remains to be said about the calculator are the keys P and A. P is a 'whoops' key and this clears last entry without affecting anything else. The most interesting is the A key. Every time I did work out the sums in this piece of description I left the cursor, before entering the windows, where I wanted the result to appear. Pressing A inserts, on returning to the program (in this case WS), the result in the text at the cursor position. Calculator can have up to 7 decimal places or exponential notation (and I do know what this looks like (6.5217391304E-01) and I even know that in this case the decimal point should be moved one place to the left).

Option D - index cards. I found it a bit expensive on the memory as, having created some thirty odd cards, I discovered that the file was 12K. And the cards contained subject only. .pa Anyway the card looks like this:

```
 _ Card    1 \_____________________________________________
|                                                         |
|@What a to do              (This is the Subject)         |
|=========================================================|
|11/3/84 Spring soon will be here                         |
|10-15-84 I wonder how many shopping days to Xmas?        |
|12 23 84 Thanks God. I'm off till 2 Jan                  |
|9/24/84 Three months to Xmas                             |
|7*26*84 Time I got some time off                         |
|03.05.85 This will also work though is not speci-        |
|         fied in the manual                              |
|                                                         |
|_________________________________________________________|
```

and the cards menu is below:

```
[A] Advance to next card
[B] Back to prior card
[C] Copy to Notepad
[D] Find a card
[E] Edit this card
[BREAK (^C)] to exit
```

The card contains a subject which is used for searches etc. If the subject is pre-fixed with '@' calendar program searches it for a date. There are also eight lines of text, each again of 50 characters. Options A and B are obvious and there is a repeat function on A and B which permits scrolling through the cards. (The arrow keys will not scroll - whatever 80 Micro says - at least on my computer they won't).

C option copies the card to the notepad where the card can be manipulated in the usual way. Find the card (Option D) works either by card number - which is allocated by the program - or subject. When searching by number one enters £n (n being the number of the card). Searching by subject (contents of the subject line) is done by specifying a string, partial string. The search disregards upper/lower case and, providing that the search string is in the subject, displays the first card meeting this criterion and asks whether to continue the search.

Option E enters the edit mode. One enters the subject which can be prefixed by '@' (remember?). One can write on the line of '==' just below but when the card is filed the '===' are restored and anything written there will disapper. One has eight lines of text, editing commands are exactly as for the notepad and, whenever the last card is completed, a blank card is automatically added at the end of the file. I find that the calendar will find the date in the card index even if the date is written in a format not specified in the manual. All the date formats shown on the card above will be acceptable to the calendar program providing they are in order of month/day/year.

Monte Windows give access to CP/M facilities from within a program. This is option E from the main menu and CP/M menu looks like this:

```
[A] DIR
[B]  USER  (x)                  { where 'x' is the current
                                  USER number.}
[C]  Current  Drive x:          { where 'x' is the current
                                  default drive.}
[D] Free space
[E] ERAse
[ BREAK (^C)] to exit
```

DIR option provides a simple file listing without sizes. One must remember the ':' if directory of drive is required. Answering option A prompt with 'a' would initiate a search for file called 'a' on the currently logged drive whilst the answer 'a:' would provide directory of that drive. Option B displays current user number and permits changing it. Very dangerous if one has open files. Option C displays currently logged drive and again permits one to change it. Also not recommended if the files are open. Have you ever been stuck in WS being unable to save a file because of the lack of space? Have you played with ^KF and ^KJ trying to make a space? Options D and E help in these circumstances. D invokes STAT.COM showing amount of free space only (sizes of files unfortunately non-available) and E permits erasing files. Option E, after accepting name of the file to be erased, asks whether one wants to see the directory. Answer 'Y' produces the list of files meeting the specifications in the delete answer and one is given a chance to back out. Understandable if one bears in mind how much havoc using the wild cards can create. Answering option E with <ENTER> produced 'All (Y/N) ?' - whoops there is all my work gone!

And so we are nearly at the end having reached the final menu which is below:

```
[A] Move the window
[B] Notepad file name
[C] Index Card file name
[D] £ Calc. decimals
[E] Calendar date
[F] Save Setup data
```

Window can be moved with L, R, U and D keys to any position on the screen and there it will appear, when invoked, right through the session unless permanently fixed with option F. Notepad and Index Card file names can be changed, number of decimal points can be set, pop up calendar date can be changed and finally all this data can be saved and become default values until changed and saved again. If the window has been placed somewhere where it would obstruct the calendar or cards it will be pushed to the right (on the same level) if either calendar or index cards are called for. If one works with several notepad files one would only use option B to set up the default one. All the others can be called from the notepad menu. Index card name can only be changed from the setup menu. I think I explained option D when speaking about the calculator. One would use option E to ensure that the default calendar is one for the current month and one would change this and save at the beginning of each month.

Well, so I have reached the end and I must say that I could not (so far) bomb out this program. It just will not accept a wrong answer. And so, hopefully having whetted your appetite, I cannot improve on the final verdict in 80Micro which I quote:

'Monte's Window performs well. After the novelty of calling windows and using concurrent applications wears off, you'll find so many uses for the collection of programs that you won't know how you did without them.'
ANON

Varilist for Model 4.

```
60000 CLS:CLEAR:S=1:E=59999!:DIM Z$(250),Z1$(250),Z2$(250),Z3$(250):D£=0:REM
      Varilist Mod.4 V3  05.10.85
60010 INPUT "Start line nuaber or Auto (A)";P$
60020 IF P$="A"OR P$="a"THEN CLS:GOTO 60040
60030 S=VAL(P$):INPUT "End line nuaber ";E:IF E<S THEN 60030:ELSE IF E=0 THEN
      E=59999!:CLS:GOTO 60040:ELSE CLS
60040 AD=&H8408:REM This for Extended Basic. Otherwise PEEK(&H2601)+256*PEEK(&H2602)
60050 AE=AD+1:IF AE>32767 THEN AE=AE-65536!
60060 AF=AD+2:IF AF>32767 THEN AF=AF-65536!
60070 AG=AD+3:IF AG>32767 THEN AG=AG-65536!
60080 NA=PEEK(AE)*256+PEEK(AD):IF NA>32767 THEN NA=NA-65536!
60090 LN=PEEK(AG)*256+PEEK(AF)
60100 PRINT@1840,LN;:IF LN<S THEN AD=NA:GOTO 60050
60110 IF AD=0 OR LN>E THEN 60470
60120 J=AD+4:IF J=>32767 THEN J=J-65536!
60130 P=PEEK(J):IF P=34 THEN GOSUB 60400:IF PEEK(J)=0 THEN AD=NA:GOTO 60050:REM If
      a string skip it
60140 IF P=143 OR P=220 THEN AD=NA:GOTO 60050:REM skip reas
60150 IF P=14 OR P=28 OR P=29 OR P=31 THEN GOSUB 60430:GOTO 60130:REM if a nuaber
      skip it
60160 IF P<65 OR P>90 OR P=32 THEN 60370:REM If not U/C or if a space skip it
60170 P$=""
60180 P$=P$+CHR$(P):J=J+1:IF J=32768! THEN J=-32768!
60190 P=PEEK(J):IF (P)64 AND P(91)OR (P)47 AND P(58)THEN 60180:REM Vars aust be U/C
      or nuabers
60200 IF P=35 OR P=36 OR P=37 OR P=40 THEN P$=P$+CHR$(P):REM If followed by £,$,%
      or ( put it in
60210 IF P<>35 AND P<>36 AND P<>37 AND P<>40 THEN J=J-1:IF J=-32769! THEN J=32767:
      REM If not £,$,% or ( then back one
60220 J=J+1:IF J=32768! THEN J=-32768!
60230 IF LEFT$(P$,2)="AS"THEN P$=RIGHT$(P$,LEN(P$)-2):REM Sort out Field vars.
60240 T=0:FOR I=1 TO K:IF P$=Z$(I)THEN T=I:REM See if we have it already
60250 NEXT
```

```
60260 IF T=0 THEN 60350:ELSE M=LEN(Z1$(T))-2:REM Have it so inc.count by 1
60270 IF MID$(Z1$(T),M,1)<>" "THEN M=M-1:GOTO 60270
60280 J$=RIGHT$(Z1$(T),LEN(Z1$(T))-M):IF INSTR(J$,"/")=0 AND VAL(J$)=LN THEN
      Z1$(T)=Z1$(T)+"/2":GOTO 60310
60290 IF INSTR(J$,"/")<>0 AND VAL(J$)=LN THEN M=INSTR(J$,"/"):A=VAL(RIGHT$(J$,
      LEN(J$)-M)):A=A+1:Z1$(T)=LEFT$(Z1$(T),LEN(Z1$(T))-LEN(J$)+M)+RIGHT$(STR$(A),
      LEN(STR$(A))-1):GOTO 60310
60300 Z1$(T)=Z1$(T)+","+STR$(LN)
60310 IF LEN(Z1$(T))>245 THEN Z3$(T)=Z2$(T):Z2$(T)=Z1$(T):Z1$(T)="":ELSE 60350
60320 M=LEN(Z2$(T))-2
60330 IF MID$(Z2$(T),M,1)<>" "THEN M=M-1:GOTO 60330
60340 Z1$(T)=RIGHT$(Z2$(T),LEN(Z2$(T))-M):Z2$(T)=LEFT$(Z2$(T),M-1):Z1$(T)=" "+Z1$(T)
60350 IF T=0 THEN K=K+1:Z$(K)=P$:Z1$(K)=STR$(LN):REM Add new var.
60360 IF P=34 THEN GOSUB 60400:GOTO 60140
60370 IF PEEK(J)=0 THEN AD=NA:GOTO 60050
60380 J=J+1:IF J=32768! THEN J=-32768!
60390 GOTO 60130
60400 J=J+1:IF J=32768! THEN J=-32768!
60410 IF PEEK(J)<>34 AND PEEK(J)<>0 THEN 60400:ELSE IF PEEK(J)=0 THEN RETURN :ELSE
      IF PEEK(J)=34 THEN J=J+1:IF J=32768! THEN J=-32768!
60420 P=PEEK(J):RETURN
60430 IF P=14 THEN J=J+3:GOSUB 60450:ELSE IF P=15 THEN J=J+2:GOSUB 60450:ELSE IF
 P=28 THEN J=J+4:GOSUB 60450:ELSE IF P=29 THEN J=J+5:GOSUB 60450:ELSE IF P=31 TH
EN J=J+9:GOSUB 60450
60440 RETURN:REM Skip nuabers
60450 IF J>32767 THEN J=J-65536!
60460 P=PEEK(J):RETURN
60470 DIM SL(13),SR(13):REM Sort into order
60480 T=1:SL(1)=1:SR(1)=K
60490 L=SL(T):R=SR(T):T=T-1
60500 I=L:J=R:I$=Z$(INT((L+R)/2)):PRINT@1840,J,T;
60510 IF Z$(I)<I$ THEN I=I+1:GOTO 60510
60520 IF I$<Z$(J) THEN J=J-1:GOTO 60520
60530 IF I>J THEN 60590
60540 W$=Z$(I):Z$(I)=Z$(J):Z$(J)=W$
60550 W$=Z1$(I):Z1$(I)=Z1$(J):Z1$(J)=W$
60560 W$=Z2$(I):Z2$(I)=Z2$(J):Z2$(J)=W$
60570 W$=Z3$(I):Z3$(I)=Z3$(J):Z3$(J)=W$
60580 I=I+1:J=J-1
60590 IF I<=J THEN 60510
60600 IF I=>R THEN 60620
60610 T=T+1:SL(T)=I:SR(T)=R
60620 R=J
60630 IF L<R THEN 60500
60640 IF T<>0 THEN 60490
60650 IF INP(251)<>61 THEN CLS:PRINT@1120,"SWITCH PRINTER ON":FOR M=1 TO 400:NEIT:
      CLS:FOR M=1 TO 400:NEXT:GOTO 60650
60660 CLS:LPRINT CHR$(7):PRINT:PRINT "Is the printer ready";:INPUT A$:IF A$<>"Y"AND
      A$<>"y"THEN 60660
60670 LPRINT CHR$(15);:LC=1:LP=66:LINE INPUT "Title?  ";T$
60680 PRINT:PRINT "Do you want line numbers printed?  If so press ENTER.   If you
      only want the    variables then enter V";
60690 V$=INKEY$ :IF V$=""THEN 60690:ELSE V=ASC(V$):IF V<>13 AND V<>86 AND V<>118
      THEN 60690
60700 IF V<>13 THEN LPRINT CHR$(14)TAB(5)T$:LPRINT:LC=LC+2:FOR I=1 TO K:GOSUB 60950:
      LC=LC+1:LPRINT TAB(10)Z$(I):NEXT:GOTO 60920
60710 LPRINT CHR$(14);TAB(5)T$:LPRINT:LC=LC+2
60720 FOR I=1 TO K:GOSUB 60950:LPRINT TAB(5)Z$(I);
60730 IF Z2$(I)=""THEN Y=0:GOTO 60760
60740 IF Z3$(I)=""AND Z2$(I)<>""THEN Z$=Z2$(I):Z2$(I)=Z1$(I):Z1$(I)=Z$:Y=1:Z=1:GOTO
      60760
60750 Z$=Z3$(I):Z3$(I)=Z2$(I):Z2$(I)=Z1$(I):Z1$(I)=Z$:Y=2:Z=2
60760 IF LEN(Z1$(I))<71 THEN GOSUB 60950:LC=LC+1:LPRINT TAB(40)Z1$(I):GOTO 60910
60770 J=60
```

```
60780 IF MID$(Z1$(I),J,1)<>" "THEN J=J+1:GOTO 60780
60790 A$=LEFT$(Z1$(I),J):GOSUB 60950:LPRINT TAB(40)A$:LC=LC+1
60800 B$=RIGHT$(Z1$(I),LEN(Z1$(I))-J+1):IF LEN(B$)<71 THEN GOSUB 60950:LPRINT
      TAB(40)B$:LC=LC+1:GOTO 60890
60810 J=60
60820 IF MID$(B$,J,1)<>" "THEN J=J+1:GOTO 60820
60830 C$=LEFT$(B$,J):GOSUB 60950:LPRINT TAB(40)C$:LC=LC+1
60840 D$=RIGHT$(B$,LEN(B$)-J+1):IF LEN(D$)<71 THEN GOSUB 60950:LPRINT TAB(40)D$:
      LC=LC+1:GOTO 60890
60850 J=60
60860 IF MID$(D$,J,1)<>" "THEN J=J+1:GOTO 60860
60870 E$=LEFT$(D$,J):GOSUB 60950:LPRINT TAB(40)E$:LC=LC+1
60880 F$=RIGHT$(D$,LEN(D$)-J+1):GOSUB 60950:LPRINT TAB(40)F$:LC=LC+1
60890 IF Y=1 AND Z=1 THEN Z$=Z1$(I):Z1$(I)=Z2$(I):Z2$(I)=Z$:Z=Z-1:J=60:GOTO 60760
60900 IF Y=2 AND Z>0 THEN Z$=Z3$(I):Z3$(I)=Z2$(I):Z2$(I)=Z1$(I):Z1$(I)=Z$:Z=Z-1:J=60:
      GOTO 60760
60910 GOSUB 60950:NEXT
60920 FOR M=LC TO LP:LPRINT:NEXT:PRINT:PRINT"Do you want another list? ";:
60930 Y$=INKEY$:IF Y$="" THEN 60930 ELSE IF Y$<>"Y" AND Y$<>"y" THEN END
60940 LC=1:GOTO 60680
60950 IF LC>60 THEN FOR M=LC TO LP:LPRINT:NEXT:LC=3:LPRINT CHR$(14)TAB(5)T$:LPRINT
60960 RETURN
```

PUSH without a POP ?! A Heresy?

M. Matthews

I had the need to write programs which run on both Model I and Model III. (My son has a Model III, and I have a Model I). There seemed no difficullty. If you ask if there is an 'E' in ROM at 106H, if the answer is 'yes', it is Model I: if 'no' it is Model III. And from then on, one can arrange to put either Model I or Model III Call addresses in Stores, all ready for use. But how do you CALL addresses in a Store? If one loads the store into HL, - LD HL,(STORE) - you cannot then CALL (HL). The only Z80 instruction is JP (HL). Impasse!

I thought of a somewhat corny way out. Why not put a bit of code (0CDH = CALL) in STORE in the Assembly programme:

```
LD IY,(STORE)
JP (IY)
RTT: ...
......
..etc..
STORE:DB 0CDH,'XY'
JR RTT (or JP RTT)
```

where YX is the DOS Call address.

And sure enough it worked quite happily. But I felt that this was not quite 'comme il faut', and I asked Leon Heller if he could suggest a better way. He said he had used for one of his programs, PUSHing the return address (RTT) on to the stack, so that the RET in the DOS Call program would then pull out the address after the Call had been carried out. My programme then became:

```
LD IY,RTT
PUSH IY
LD IY,(STORE)
JP (IY)
RTT:....
........
STORE:'XY'
```

Thus, you have a PUSH <u>without</u> having to write in a POP!! The POP is done in effect by the RETURN in the DOS programme. Other registers can of course be used instead of IY: I happened to be using the others for various purposes. It is interesting that both methods need about the same number of bytes, but Leon's is faster since it involves a PUSH and an effective 'POP'.

Bill Cowhig 21 Priory Road SALE M33 2BS Manchester 061-973-3604

HIERARCHICAL DIRECTORIES WITH TRSDOS?

Well, not exactly, but we're not far off.

Many members will be familiar with Southern Software's FC utility, which combines directory and file management with the possibility of shorthand DOS commands which you can define yourself. It runs on most model I/III DOSes. It occurred to me to use it to compile a master catalogue of those of my disks which are in a numbered series. You could adapt the method to a system of named disks if you use that. You would need to ensure that the disk names are on the labels! I find it much quicker and more convenient than the various master directory utilities I've seen, / including one I wrote myself. No long searches are required to find the names of files to be deleted from the master directory. The system works like this. Use FC to display the directory of a disk to be catalogued. Define a command (D or whatever you like) which will dump the screen display as a numbered or named command file, thus:

(D has been defined below as DUMP DIR?:1 3C00H 3FFFH)

```
   DUMP DIR82:1 3C00H 3FFFH
  D ALIGNER      1       SCRIPSIT LC  1
> ALTER    BAS 1       SETCAS   CMD 1
   D        CMD 1       SPOOL    CMD 1
   DESPOOL  CMD 1       SSPOOL   CMD 1
   EDTASM   CMD 1       SUPERZAP CMD 1
   ENDREL   REL 1       TOST         1
(&c...)
```

Now replace the disk to be catalogued with the disk on which the catalogue is to reside and press ENTER to execute the dump command. Repeat the procedure for each disk to be catalogued. (There's no need to redefine the D command each time). You will eventually end up with a disk whose directory looks something like this:

```
DUMP DIR181:1 3C00H 3FFFH
DIR54        1     D DIR67        1       SCAN     BAK 1
DIR55        1     > DIR68        1       SCAN     BAS 1
DIR56        1       DIR69        1       SCRIPSIT CMD 1
DIR57        1       DIR70        1
DIR58        1       DIR71        1
DIR59        1       DIR72        1
DIR60        1       DIR73        1
DIR60S       1       DIR74        1
DIR61        1       DIR75        1
DIR62        1       DIR76        1
DIR63        1       DIR77        1
DIR63A       1       DIR78        1
DIR63B       1       DIR79        1
DIR65        1       DIR81        1
DIR66        1       DIR82        1
```

The lower-numbered files are on the same disk, catalogued as DIR18. We are about to catalogue the visible ones as DIR181, which will be sorted immediately after DIR18. Note that the directories are in an easily-managed order. Thus you can catalogue more directories than FC can display on one screen. Above shows the screen just before we update the master directory by dumping it to its own disk. Incidentally on the first occasion that must be done twice, so that the master directory includes itself - an instance of Russell's Paradox.

All we need now is a program to LOAD the DIR files- they will automatically be sent to the screen- and move the cursor around so that we can tag and scan the directories we want to check. I wrote the SCAN/BAS program, kept on the master disk, to handle it. There follows a set of screen dumps to show how it works, and a listing. It's written for NEWDOS80, but should be adaptable for most other DOSes.

```
DUMP DIR181:1 3C00H 3FFFH   <S>CAN <T>AG E<X>IT
    DIR54        1     D DIR67        1       SCAN     BAK 1
    DIR55        1       DIR68        1       SCAN     BAS 1
    DIR56        1       DIR69        1       SCRIPSIT CMD 1
&c...
```

We press T to execute the Tag command. We're going to tag DIR82 (see below)

```
    DUMP DIR181:1 3C00H 3FFFH   <T>AG E<X>IT
    DIR54        1     D DIR67        1       SCAN     BAK 1
    DIR55        1       DIR68        1       SCAN     BAS 1
    DIR56        1       DIR69        1       SCRIPSIT CMD 1
    DIR57        1       DIR70        1
    DIR58        1       DIR71        1
    DIR59        1       DIR72        1
    DIR60        1       DIR73        1
    DIR60S       1       DIR74        1
    DIR61        1       DIR75        1
    DIR62        1       DIR76        1
    DIR63        1       DIR77        1
    DIR63A       1       DIR78        1
    DIR63B       1       DIR79        1
    DIR65        1     >  DIR81        1
    DIR66        1   T   DIR82        1
```

We then press EXIT to return to the previous display, followed by S to scan the directories we've tagged.

```
    DUMP DIR181:1 3C00H 3FFFH   ENTER TO CONTINUE, X TO STOP
    DIR54        1     D DIR67        1       SCAN     BAK 1
    DIR55        1       DIR68        1       SCAN     BAS 1
    DIR56        1       DIR69        1       SCRIPSIT CMD 1
    DIR57        1       DIR70        1
    DIR66        1   T   DIR82        1
```

In this case we press ENTER to scan the only one tagged, DIR82.

```
   DUMP DIR82:1 3C00H 3FFFH    ENTER TO CONTINUE, X TO STOP
  D ALIGNER      1       SCRIPSIT LC  1
    ALTER    BAS 1       SETCAS   CMD 1
    D        CMD 1       SPOOL    CMD 1
    DESPOOL  CMD 1       SSPOOL   CMD 1
    EDTASM   CMD 1       SUPERZAP CMD 1
&c.........
```

Now the listing:

```
5 REM SCAN/BAS. C.R.J.C. 1985
10 GOTO 1000
200 NK$=INKEY$:IFNK$=""THEN200ELSERETURN
300 C1=INT(CP/256):C2=CPAND255:POKECA,C2:POKECA+1,C1:RETURN
1000 CLEAR 2000:   DEFINTA-Z: DIMAR$(60): CA=&H4020: ST=&H3C00+64: SP=&H3FFF-
     63:  CL=&H4019: RT=42: LT=0: TM$=STRING$(14,32): N=0: K=0: DA$=CHR$(10):
     UA$="[": LA$=CHR$(8): RA$=CHR$(9): RW=ASC(">")
1002 DEF FN LS$(X$)=LEFT$(X$,INSTR(X$," ")-1)+"/"+MID$(X$,10,3)
1005 POKE CL,1
1010 CLS: INPUT"CATALOGUE DISK NUMBER";DN
1020 F$="LOAD DIR"+MID$(STR$(DN),2)
1030 CMDF$
1040 PRINT@32,"<S>CAN <T>AG E<X>IT          ";: GOSUB200
1050 IF NK$="S" THEN K=0: GOTO 2000
1060 IF NK$="T" THEN 3000
1070 IF NK$="X" THEN CLS: END
1080 GOTO 1040
2000 PRINT@32,"ENTER TO CONTINUE, X TO STOP";: GOSUB200
2010 IF NK$="X" OR K=N THEN 1030
2020 ONERROR GOTO 6000: LD$="LOAD "+ARRAY$(K): CMDLD$: K=K+1: GOTO 2000
3000 N=0: PRINT@32,"<T>AG E<X>IT          ";
3005 CP=ST: GOSUB300: POKE CP+1,RW
3008 GOSUB200
3009 POKE CP+1,32
3010 IF NK$=DA$ THEN IFCP<SPTHENCP=CP+64: GOSUB300: GOSUB 5000
3020 IF NK$=UA$ THEN IF CP>STTHENCP=CP-64: GOSUB300: GOSUB 5000
3030 IFNK$=LA$THENIF(CPAND63)>LT THEN CP=CP-21: GOSUB300: GOSUB 5000
3040 IF NK$=RA$THENIF(CPAND63)<RT THEN CP=CP+21: GOSUB300: GOSUB5000
3050 IFNK$="T"THENPOKECP,ASC("T"): GOSUB4000
3055 IF NK$="X"THEN 1040
3060 GOTO 3008
4000 CP=CP+4:      GOSUB300:      POKE      VARPTR(TM$)+1,PEEK(CA):      POKE
     VARPTR(TM$)+2,PEEK(CA+1): CP=CP-4: GOSUB300
4010 AR$(N)=TM$
4020 AR$(N)=FN LS$(AR$(N)):  AR=INSTR(AR$(N),"/"):  IF MID$(AR$(N),AR,4) ="/"
     "THEN AR$(N)=LEFT$(AR$(N),AR-1)
4030 AR$(N)=AR$(N)+":1"
4040 N=N+1: RETURN
5000 POKE(CP+1),RW
5030 RETURN
6000 IF ERL=2020 AND ERR/2+1=65 THEN K=K+1: RESUME2000
```

Chris Currie
14 Keston Road N17

IN DEFENCE of the 4P

Having read Anon's article in the August Newsletter I must say that he was unlucky with the 4P he received, I bought mine from OS, run it for many hours at a time & haven't had any trouble with it beyond the fact that Tandon drives are B' awfull & should never have been used.

I changed the drives in mine for some direct drive ones that I had been using on my model 1, that cured all noise & the slight twitch of the screen when accessing disc, even after several hours only cool air comes out of the top, the Tandons take so much more current than more modern designs, (they are still belt drive). I then fitted the Tandons to my model 1, that soon showed up their poor quality.

The correct way to start up a 4P is to put the disc nearly all the way in the drive, switch on, push the disc home & close the door before the drive red light comes on, the system then boots up correctly.

If you have trouble with a disc that won't boot just backup BOOT/SYS from a disc that works & that should do the trick.

My drives are now double sided 80 track & the Tandons have been put out to grass (one sold already).

It is of course essential to have 128K ram especialy as it is so cheap from anyone but Tandy, (will they ever learn?) it is then possible with a small jcl file to put the large overlay files of Multiplan & Superscripsit into ramdisk & speed things up considerably.

Now for other things, since starting this I have received the September issue, how time flies, this article should have been in it.

The latest Tandy catalogue has no reference to the model 4 or 4P in spite of the fact that there is a strong rumor in the States that an improved 4 with double sided 80 track drives will be out shortly, it should have had them some time ago.

Last year I wrote about the Z800 CPU, forget it, it will never be produced in quantity, the design team broke up & it looks as though the Z8000 will go the same way.

What is interesting is the CPU board by Steve Ciarcia in the September issue of BYTE, it uses the Hitachi HD64180 CMOS CPU which is Z80 code & CP/M 2.2 compatible & an improved DOS has been written in Z80 code that can use CP/M 2.2 programs, it can address 512K ram & handle 8" 5.125" & 3.5" drives (S/S, D/S, 40/80 track) as well as having two serial ports, one for a terminal (model 1?), the other for output & of course a Centronics printer port is added just to round things off, all this on a board only 7.5"x4", it looks an even more interesting way to go than Anon's co-processor board, it's cost is $499 with enough software to get going, which is all going to be discussed in the October issue.

E.C.Kilpatrick, 3a Gainsborough St,
SUDBURY. Suffolk. CO10 6ET.
Phone 0787 79504.

CGP-115 meets IBM

I've recently switched from a model 1 to an IBM PC, as explained in the August Natgug news, and now only retain one piece of Tandy equipment; a rather battered CGP-115 printer-plotter. I'd like to use this with the IBM, but no-one seems to be writing software for this odd combination, apart from the routines in the printer instruction manual. Basically, I'd like to use it for pie charts and other such functions; the Colplot program, from Molimerx, used to fulfil this need very nicely, but I couldn't bring myself to tackle the conversion job. If anyone can suggest a good public domain program I'd be very appreciative.

Writing this reminds me that I've never told the group about how I happen to own the CGP printer. A year or so ago, when the Tandy shops were selling off mountains of old model 1 stock, I happened to walk into their Centre Point store, the largest in London. While I was rummaging their shelves I noticed a slightly battered looking CGP printer on the shelf, and idly asked the price.

"Make us an offer" the salesman said. I said £10, expecting to be told that they wanted £50, but he just asked the manager and came back to tell me that I could have it for £20. It then developed that it was minus a transformer, manual, and a roller to hold the paper, and running slightly erratically, but I decided that it was worth taking a chance.

While I was in the shop I looked at their copy of the manual, and found that it used a 9.5 Volt power supply. This seemed vaguely familiar; when I got home I found that my old ZX81 had a 9.25 volt

unit, and soon put on the right plug. A piece of biro casing and a bit of knitting needle made a good paper support. When I tried it I found that it seemed to work, but was sticking between pens; a pair of tweezers and a slight bend in the jigger that turns the pens fixed that. A friend at another branch of Tandy later gave me the correct manual, and that's how I got a CGP-115 printer for £20, a few spare parts, and an hour's work! There isn't any special moral to this story, except to say that it never hurts to ask!

Anyway, to return to the original request, I'd be very grateful for any help with MS/DOS software for the printer. Although it seems slightly unlikely, I'd also be interested to hear from anyone who's found a way of making this printer produce a coloured screen dump from a PC.

Finally, a few items for sale, the last dregs of my Model 1 bits; all are reduced in price from the original advert.

Marcus L. Rowland

0669 0669 0669

I'm writing this two days after Swindon - the older that one becomes, the longer it takes to recover from such events ! Despite the decline in membership, there was no drop in attendance by the TRS-80 fraternity at this meeting; a couple of faces were missing (where was the benign boatee from Swanage?) but new faces made up the numbers. The hotel really had made an effort to overcome any past criticism, and I am sure that I am not alone in appreciating those efforts.(and we were all grateful for the lack of fire alarms!). Mind you, they obviously think the world of leprechaun Bannister; after spending hours and hours trying to do a disassembly, he went down to the bar where he was served by a young lady with a name badge proclaiming her to be Anna Lise !

Despite the repugnance shown by many members, CP/M proved to still be of great interest and related talks included SuperCalc, dBaseII, and Utilities. The emphasis for this meeting was 'hands-on experience' and members were encouraged to carry their machines into these sessions. Laurie did his usual welcome m/c talk, John Newgas covered Turbo Pascal, Leon had a couple of sessions covering C, and Mike Gordon-Saker explained the TRSDOS 6x Utilities.

In the systems room, interests seemed divided between CP/M and high-res, and with several printers churning out pretty designs and/or Dotwriter style texts. Carl had his colour WOTSIT, Tony Evetts was printing superb graphics, John Bodsworth was doing fantastic things with Tiny Geap, Ken Arnsten had his high standard text, and Brian Edwards was going to town with the full GEAP. Laurie has Zen up and running under CP/M, and it is possible to actually single step through a program by relocating Zen up above the CP/M program. Geoff Smith has a version of Scripsit adapted for CP/M which should be great news for Wordstar detesters! I'm sure to have missed out someone who had something marvellous. Sorry! It was a great weekend; the next one is booked - MARCH 14/15 - so make sure that you'll be there!

I had become very enthusiastic about Supercalc - after years of VisiCalc, the variable column widths, the hidden columns, protected cells, and the sorts, these were all too good to be true. Alas, 'tis so. Supercalc refuses to note that I have an extra 64k of memory, and so greatly restricts use of large spreadsheets. In desperation I turned to Multiplan, but even after loading it into the Memdisk to speed up operation, it was so terribly slow that it became embarrassing to demonstrate. Having a relatively straightforward 'column' type of job to do, I borrowed a copy of dBase II and was delighted with the ease and speed of input. In no time at all I had entered 440 records - and then the disk 'bombed' at record 383, and had the audacity to do so whilst performing the backup function. I tried copying the disk, the file, to no avail, and couldn't save the file by deleting records from 382 onwards. With that icy hand of fear and desperation clutching at my innards, I frantically rang the only telephone number that I knew would be answered in the daytime - that of Peter Hall. I could have thumped him for the calm, matter-of-fact way that he asked if my drives were 40T SS, and upon

assurance that they were, said to boot up Super Utility! Now if YOU are reading this, John Harding, no - my Model 4 SU still does NOT work, but my Model III version works fine and it cured that CP/M disk faster than it would have treated a TRSDOS 2.3 ! So, from that little experience I have concluded that I don't want 80Track double-sided drives after all, or at least, not until someone brings out a Super Utility to cope with that format ! Peter, I'll be indebted to you for life !

A Very Merry Christmas to One and All

(One for All and All for One - Cornish motto that might well be adopted by NATGUG!)

David Washford

PARITY ERRORS

I received several helpful replies to my plea for help on Parity Errors. I also received requests to pass on the answers as I am not alone in my problem.

It was the concensus of opinion that Parity and CRC Errors, were similar to Sector not Found. As far as the program was concerned, there was something missing. This concern for accuracy is all very well but it can make life very difficult. After all, I would like to know that a book had a page missing but I would not like to rewrite the whole book for the sake of a missing letter.

There appears to be many ways round the problem and most involve some form of Utility program. Super Utility is very powerful but its very power can make it dificult to use. Dosplus and Newdos 80 have utilities built in but they are designed to work with their own operating system. The authors of Super Utility have a set of programs that can be of help and these are put together under Toolbelt. While Toolbelt does not seem to do much that SU cannot do it only works with TRSDOS 6.x and does not need configuring before use and this can be useful if you are going to write back to the disk.

There is one program on the disk that reads a disk track by track and rewrites it. This refreshes the sectors and at the same time it checks the disk. If it cannot read a sector or if it finds an error it makes an attempt to correct it. How succesful the attempt is depend on the error. The simplist error is one where there is a Parity error but no fault in the text. This is fixed by recalculating the parity but some errors are more fundamental than that.

One of my disks had a Parity Error but on viewing the sector I could see nothing wrong. Once the sector was rewritten to disk the file loaded perfectly but another disk had a similar error code but the sector was far from correct. In fact it appeared more like the Roseta stone with its mixture of Hierogliphics and Arabic with few odd graphics symbols thrown in. On my first attempt, I let REFORMAT6 work through the disk and it corrected the loading probelm but left me to correct the text at a later date. Afterwards I decided to use the Stop on faulty sectors which presents the information as it is read. This gives you the opportunity to correct errors before it is rewritten.

Whether it is better to try and correct the sector before rewriting depends on the sort of data that has been garbled. Straight text is probably best handled back in the wrod processor that generated the text. Data files may not be as easy and may need attention before returning. For instance some databases seperate records by putting a special character at the end of each field and record. The special character cannot be entered via tha keyboard under normal program operation but Sods Law of Data Corruption says that if a piece of garbage can cause a problem then it will. If your corrupt sector has an extra or missing delimiter then it may cause all other records to be out of align and very difficult to correct though the database program. It is very easy to correct if you can work out what has happened at the faulty sector. In my case I was able to calculate that five small fields were in that load of garbage and therefore I reset the whole sector to spaces (H20) and put in five delimiters. This brought the subsequent records into line and left me five field to edit.

SIR does not have delimiters and all the records are in continuous bytes. However the record number is in the first four characters of the record and this is excluded from the CHANGE records command. If there is corruption in the record number it may not cause a problem but if you sort by record number the results are unpredicatable and SIR has great difficulty in sorting that column. It is generally possible to find the error and correct it as the sequential numbers are in the previous sectors.

The modify facilities in PREFORM6 are adequate but they can only be used at the time the sector is found to be faulty. If you want to go back to the sector for a second go at correcting the data then you need to use PMOD6. For that reason it is preferable to note the relative sector.

On the question of these Zappers, I found that they work in two ways. One deals with the disk as a series of Tracks and Sectors while the other works by file. If you have a file on two disks then they may be on different tracks but the relative sectors will be the same. If you are looking for faults in a file then it is quicker to search by file. It may also be safer because a disk may contain several versions of the same file. This is due to the way that the Dos handles deletions. A file that is deleted is only marked killed but the data is still on the disk until it is written over. This is why you can often recover an accidentally killed file.

If you search through a disk, track by track you may find the data belonging to the old file while the current data is sitting several tracks away. Because of the way the Dos handles disks it is no guarantee that the next sector in sequential order is part of the same file. Fortunately it is possible to step through the correct version in the file mode. Dosplus has two programs DiskDump and DiskZap which has the advantage that you select the mode when you select the utility. I spent some time trying to decipher the disk map to use DiskZap before somebody explained that Diskdump would go straight to the file.

Perhaps somebody could explain how to do the same in CP/M as SU offers very limited support.

Derek Trayler

Model 4 notes

Herewith a few more Model 4 notes which may be worth publishing. The ones on fielding for random files may be common knowledge, but I found them out the hard way, so there may be others in the same boat. Please edit it as you think fit.

I have first to confess to two bugs in my Varilist Mod.4 program. They will probably not bother most people, and they only came to light more or less by chance. The first only occurs where there is a variable on a line with a one digit number. I usually start numbering at 10, and often use 5 as a REM line with the program title and other data on it, but in ONE program I have a flag on line 5,and this gave trouble which was cured by the following change to line 60350. After Z1$(k)=STR$(LN) add

```
:IF LEN(Z1$(K))=2THEN Z1$(K)=" "+Z1$(K)
```

The second bug produced a mysterious variable without a name which occurred on five lines all concerned with random filing! Some research showed that it occurred where a space had to be put between AS and the variable, as in FIELD 1,5AS C$: where 5ASC$ is read as ASC. This is dealt with by the addition of the following line

```
60235 IF P$=""OR P$="AS"THEN J=J+1:IF J=32768!THEN
J=-32768!:GOTO 60130:ELSE GOTO 60130
```

Now to more important matters. I have three substantial accounting programs originally written for the Model I. Taking one as typical, it had four sections each about 12k., with a substantial amount of duplication in the form of subroutines which appeared in all four. When I got my Model 4 my first action was to convert them all to run in Model III mode, but I was anxious to convert to Model 4 mode to get the advantage of the 80-column screen.

The first blow was the loss of about 10k. of RAM in this mode. This at once involved me in splitting the programs into a base program and a string of overlays. As an example, one of my four original programs is now in the form of seven overlays to the base program!

Even then I found myself tight for working space. This particular program is a property management one, handling about 100 properties for 9 clients, with a weekly rent collection for some. The others are monthly or quarterly rents. As you can imagine this involves quite substantial arrays. In particular, each property has two flags, one indicating the owner, the other whether it is a weekly,monthy or whatever rent. For the weekly properties an array of single precision 14 by 4 by the total number of weeklies is needed to hold one quarter's details of rent due and received, and arrears brought and carried forward.

In the cashbook, of course, large arrays are needed for receipts and payments, and there is the further complication that four Bank accounts are involved.

The first step was to examine the program in detail. It was in fact the first large program I ever wrote, some six years ago, and although it has been much altered a lot remained unchanged. The base program can be divided into three main parts, the start-up, entry sub-routines (with extensive error-checking), and the filing routines.

The next step was to remove the start-up section as soon as it had done it's job. This provided about 1.4k. extra space!. Attention was then directed to the filing routines.

The filing is all done in random files, which means, of course, quite a lot of strings. My filing routines were all derived from the Basic handbook for the Model I, and it struck me that there might be a lot of redundancy. Taking the property flags as an example, there is for various reasons an array of 200 of these. The main reason is to allow of the addition of properties for individual clients and to keep them in logical groups.

In the original filing routine the two flags for a property were first combined by multiplying one by 100 and then adding the other to it. This gave yet another array, admittedly an integer one, and this was then converted to a string array using MKI$! The buffer was then fielded and the array filed.

g Some thought produced the following (because of the number of items they are filed in two sectors, but the second is a duplicate of the first except for the array indices):-

```
X=1:FIELD 1,240AS A$:B$="  ":FOR I=1TO 120:
LSET B$=MKI$(PR%(I)*100+CR%(I)):LSET A$=LEFT$(A$,X)+B$:X=X+2:NEXT:PUT
1,XXX
```

To read it back, use the following:-

```
10 X=1:FIELD 1,240AS A$:GET 1,XXX:FOR I=1TO 120:
PS%=CVI(MID$(A$,X,2)):IF PS%=0 THEN 20 ELSE
PR%(I)=INT(PS%/100):CR%(I)=INT(RIGHT$(STR$(PS%),2))
```

FOR SALE AND WANTED

Wanted:

Inexpensive printer for TRS-80 Model I, dot printer etc., working or not.

John Mortlock,
36 Valleyfield Road,
Streatham,
London SW16 2HR.
01-348 2047 (evening)
01-769 1639 (weekend)

For sale:

Model II Visicalc (list price £249.95)
Model II Scripsit (list price £299.95)

Both brand new and unused.

I have no use for these programs and would exchange them for anything useful for the Model I. In fact, I would cconsider another Model I.

I would also consider Spectrum equipment such as Microdrives and Interface I, plus cartridges, plus cash. Or, I am open to any offer, cash or otherwise.

I will answer all letters if a 17p stamp is enclosed, or, anyone who wishes to call and see me will be most welcome.

H.R. Elvin,
214 Morningglow Road,
Firth Park,
Sheffield S5 6SG.

For sale:

Model I 48K, Tandy Hi-Res graphics, expansion interface, green-screen monitor, cassette recorder, manuals for monitor and Hi-Res graphics disk and manual, cassettes, disks and books including Scripsit, Editor/Assembler etc. Bargain at £230

Aerocomp double-density board at £70.

Two Tandy disk drives, cased with power supplies at £75 each.

Or, for quick sale, £425 the lot.

Wanted: Model III Technical Reference Manual, for sale or loan.

Dr. Pirzada
(0522) 20843 (day)
(0522) 24326 (after 7 pm)

A PATCH TO DEBUG IN LDOS.

Problem - in Debug the screen was messy & difficult to read because the lines were not aligned one above the other. The problem was clearly the lack of a CR at the right moment (and indeed there was a graphics character on the screen just where you'd expect nothing, or rather an invisible CR).

Solution: In SYS5/SYS.SYSTEM replace the 0C7H à memory address 4F35H with an 0DH. On disk that becomes record 01, offset 79H.

Result: Happiness. Much easier use of a powerful program. I can recommend it for, apart from its normal uses, learning. It's easy to see what SBC HL,BC means and does, and a lot quicker than looking it up in a book.

PROBLEM SECTION CONTINUED

The Jan 85 edition of Micro 80 has a modification to Model 4 Scripsit which enables print codes to be added as well as many other features. John Kilpatrick typed it all in and sent me a copy which I have used extensively.

One of the patches changes the control keys to allow CTL I for insert and L for Line. This set me wondering why the function keys canot be used. I decided to try and change the program and switched F1 for I and F2 for L. This means that I can get into the Insert mode with a single keystroke and a Insert Line becomes much quicker.

I also changed the Video, Left and Right margin to suit my 12 char wheel. As all this worked I went on to change the default Top and Bottom Margins to fit A4 paper with a Page Length of 72. While these can be changed in the header it is better if they default to a more useful setting.

To complete the changes I would like to alter the Delete key from CTL D to F3 but I cannot find the address which holds the CTL D. Unfortunately Clifford Knight did not make any reference to Delete because it was already mnemonic the more reasonable. Can anyone help?

Regards,

Derek Trayler, 88 Grosvenor Drive, Hornchurch, Essex RM11 1PW (040 24) 47661

Database problem....
==========

I want some advice on database management programs. I want to keep a list of bulletin board phone numbers, together with the details such as name, system times, sysops name and address, etc, etc. I need to be able to sort on number, name (and sysop name if poss.). I want to print out some or all fields in different ordres, depending on where the list is to go.
I only need around 200 records.
Which program should I use, can anyone help? It should preferrably be very cheap(!) and able to read my existing (ASCII) data files.
Peter Tootill (051)428 2733

NATGUG NEWS

Volume 7 Issue 6 December 1985

OFFICIAL JOURNAL OF THE

National TRS-80 & Genie Users Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers, and compatible systems such as the Video Genie.

Details of the Group accounts, and the constitution of the Group, are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are obtainable from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the Secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Secretary and Newsletter Publisher:-

Brian Pain,
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU.
Tel: (0908) 564271

CONTENTS

2. Information on the Group

4. Editorial

5. Members' letters

5. Problem section

6. Secretary's notes

7. Model 4 file handling

8. Miscellaneous notes from Peter Toothill

10. PC compatibles

12. Noisy drives

13. A bouquet for Tandy

14. Model 4 file handling extra

15. HSC1686 yet again

20. Work and play on a Model 4

31. Wordstar and Epson printers

EDITORIAL

Although this is the December issue, you won't receive it until well into January, so Brian and I wish you a belated Merry Christmas and a Happy New Year.

Rather unusually, I received too much material for this issue, so if your contribution wasn't included, it'll be in the next issue. I've only got about eight pages, so that doesn't excuse the rest of you from sending in anything for January.

I've developed an interesting add-on: a simple 8 MHz MC68000 system running programs in RAM with no wait states, with an RS-232 interface to a TRS-80, QL or whatever, and a digital/analogue converter for music synthesis. I haven't done much work on the software yet, but it should be able to produce some quite interesting sounds, given the speed of the processor. A MIDI interface could be added quite easily. The total cost was about £75.

As I predicted, Tandy's joint venture with ACT has run into trouble, and has been terminated. Prices of the 1000 and 2000 PC clones have been reduced, and they are now good value for money, if you like that sort of thing. I read somewhere that they are in fact made by Tandon, who are now selling their own range of similar machines in Europe. However, with very cheap Taiwanese machines now coming onto the market, and the likelyhood of Amstrad bringing out a PC for under £500, the marketing of machines like the 1000 and 2000 is going to be an uphill struggle.

I've just expanded my QL to 512K, by replacing the 64K RAMs with 256K devices, at a cost of about £60, and a few hours work. Several other members of QUANTA (formerly IQLUG) have added additional memory to their machines in this way. It might be possible to use 256K RAMs in the Model 4 - is anyone thinking of trying it? Amstrad use them in their PCW256.

John Wellsman has formed a group for LISPers. There is a newsletter, entitled **LAMBDA** (for readers not yet addicted to LISP, the language is based on Church's Lambda Calculus, hence the name). Membership is £5 p.a. Enquiries to:-

John Wellsman,
294a Caledonian Road,
London N1 1BA.

The C group I am organising is gradually getting off the ground, after a slow start, following a mention in PCW. There are now have enough members for me to be able to produce the first newsletter.

Leon Heller

MEMBERS' LETTERS

TO WHOM IT MAY CONCERN: Someone from Bognor has sent me a disk. Unfortunately the GPO, bless their cotton socks, have seen fit to bend it in two, with the result that it can't be read. Since there's no covering note I have no idea what it contained, or who sent it, apart from a vague idea that someone phoned me from Bognor after my piece on buffer boards appeared. Needless to say I can't find his number.

Since I'm on the verge of parting with my TRS-80 (see letter and advertisment elsewhere in this issue), there's no point in sending me any software. The disk was a home-made flippy, sent in an ordinary Jiffy bag (not a particularly good idea), and had NEWDOS files on both sides, none of which would load. If the owner would like to write I'll send a replacement disk.

Marcus L. Rowland, 22 Westbourne Park Villas, London W2 5EA

PROBLEM SECTION

I'm a member of NATGUG and have a TRS-80 Model 1 48K and also an Epson RX-80F/T+ printer. I use my outfit to help in my other hobby of Genealogy and one of the jobs I would like to be able to do is to print a document at least 22" wide but no longer than 8" in height.

I've seen reference somewhere that it is possible to program the printer so that it prints 'sideways' characters. If this is indeed the case this would solve my problem. Have you any experience of this or can you put me in touch with someone in NATGUG who might be able to help me?

I must add that I'm not too technical so any instructions would have to be very basic. Hope you can assist me on this and look forward to your reply.

D.E. Mann,
9 Launceston Rd.,
Wigston Magna,
Leicester LE8 2GZ.

I am running WORD4WORD SUPERPLUS on a Video Genie I with 48k upgrade and DP2000 disk & controller. I have two disk drives and I normally run in double density using LDOS 513.

I cannot get W4W to run on LDOS. I have no data on patches and Premier seem to be out of business.

Even on TRSDOS 2.3 I cannot use the 'O-DIR', or any O-DOS commands.

Can anyone help with zaps to run on LDOS or to get DOS commands with TRSDOS please.

I am now running a Taxan 810 printer. Has anyone got a program to put TRS80/Genie graphics into an alternative character set ?

Allan Fowke
28 Queensway
Sawston
CAMBRIDGE CB2 4DJ

Has any member any experience of using the Concept keyboard produced by Star Peripherals at Winchester, either for use with the Model 1 or Model 3/4, and if so is any special interface necessary?

Although the keyboard is primarily designed for educational use, I wish to use it in connection with my accounting programs for single key input of code numbers to be converted via the keyboard from alpha descriptions. This would avoid errors which inevitably occur in translating account names into code numbers.

If there are any other such keyboards known to any members, I should be grateful for information.

Peter Errington,
34/35 West Bute St.,
Cardiff CF1 5LH.

WANTED

Books for Model I TRS-80:

"Microsoft BASIC decoded and other mysteries" by J. Farvour
"The custom TRS-80 and other mysteries" by D. Bathory Kitz

must be in good condition.

John Mortlock,
36 Valleyfield Road,
Streatham,
London SW16 2HR.
Tel: 01-348 2047 (eve.)
01-769 1639 (weekends)

SECRETARY'S NOTES

A member sent in an add for the M3 compiler. I lost it in record time which was ironic as I wanted to buy it! Please send in a fresh copy. Yes I know my middle name is Wxxxy. A London member has an article which explains how to convert the M1 TRSDOS/TANDY double density board into PERCOM compatible board. I will pass on his number to those interested. John Mortlock would like to hear from anybody with BASE II printer experience - especially downloading own characters - call him on 01-769-1639.

The AGM is in March'86 when Bob Sparling can give us a date for the weekend workshop.

Talking to the Luton College's VAX. I have some very short useful booklets on "howtodoit". The two main areas are MAIL/messages to & from and playing with BASIC etc on the VAX. Remember my account is under BPain with the password 566660. Once you are in type MAIL. There are some messages so you can then type READ 1 or READ 2 which will be the message numbers. You can SEND messages to yourself by typing SEND and following the prompts. you finish SEND by CTRL Z, and MAIL by EXIT.

I had hoped members would leave their electrity/gas readings in the messages as most users of bulletin boards cannot bring themselves to leave a message. My own readings since October are available covering gas/electricity/telephone costs if anybody is interested.

MODEL 4 FILE HANDLING

A further report on Model 4. I have been pursuing my memory-saving efforts, with considerable success. In common, I suspect, with a lot of other people, I derived my filing routines from the Model I handbook, without at that stage realising all the implications of what I was doing!

Transfer to the Model 4 eventually produced the error message 'Out of string space' in the middle of a FIELD line. A little thought made me realise that the memory was littered with field strings which were only used at the start and end of the program, that is to get initial data and to refile it as amended at the end.

There are two possible remedies for this. The first is simple but increases the program length. At the end of a filing routine add another line which throws away all the field strings thus:-

```
10 FIELD1,25ASA$,30ASB$,25ASD$,60ASE$
GET1,10:A1$(I)=A$:B1$(I)B$:D1$(I)=D$:E1$(I )=E$
20 A$="":B$="":D$="":E$="":RETURN
```

The second is to adopt as far as possible a standard string for fielding. I use GF$, with GG$ etc where more than one is essential. In this way there is never normally more than one string in use. Judicious use of Z=FRE(Z$) keeps the memory from becoming cluttered by forcing a garbage collection.

An example of this is the routine I now use to file and recover miscellaneous data in one of my accounting programs. This includes such items as the opening bank balance, the year, the week in the year, the rates and water rate, and a variety of counters for such matters as cheques and receipts. First the old version:-

```
10 FIELD 1,8ASBB$,2ASN1$,2ASN3$,2ASS$,2ASN5$,2ASN7$,2ASF2$,
2ASF3$,2ASG2$,4ASH1$,2ASO$,8ASBD$,2ASB5$,2ASQ$,4ASPT$,4ASRT$,203ASSH$:
GET 1,10
20 BB£=CVD(BB$):N1=CVI(N1$):N3=CVI(N3$):S=CVI(S$):N5=CVI(N5$):
N7=CVI(N7$)F2=CVI(F2$):F3=CVI(F3$):G=CVS(G2$):H=CVS(H1$):O%=CVI(O$):
B%=CVI(B5$):Q%=CVI(Q$):BD£=CVD(BD$):PT%=CVI(PT$):RT%=CVI(RT$)
30 BB$="":N1$="":etc.:REM Throw away all the strings.
```

This is replaced by:-

```
10 FIELD 1,48ASGF$:GET 1,10:BB£=CVD(LEFT$(GF$,8):
N1=CVI(MID$(GF$,9,2)):N3=CVI(MID$(GF$,11,2)):S=CVI(MID$(GF$,13,2))
N5=CVI(MID$(GF$,15,2)):N7=CVI(MID$(GF$,17,2)):F2=CVI(MID$(GF$,19,2))
F3=CVI(MID$(GF$,21,2)):G=CVS(MID$(GF$,23,4)):H=CVS(MID$(GF$,27,4))
20 O%=CVI(MID$(GF$,31,2)):B%=CVI(MID$(GF$,33,2))
Q%=CVI(MID$(GF$,35,2)):BD£=CVD(MID$(GF$,37,8)):PT%=CVI(MID$(GF$,45,2))
:RT£=CVI(MID$(GF$,47,2)):GF$="":Z=FRE(Z$):RETURN
```

Refiling is done in a similar way to the filing of references I described in my last letter, but I think a sample will make it clear:-

First, the old method:-

```
10 FIELD 1,8ASBB$,2ASN1$,2ASN3$,2ASS$,2ASN5$,2ASN7$,2ASF2$,
2ASF3$,4ASG2$,4ASH1$,2ASO$,8ASBD$,2ADB5$,2ASQ$,4ASPT$,4ASRT$:
GET 1,10
20 LSET BB$=MKD$(BB£):LSET N1$=MKI$(N1):LSET N3$=MKI$(N3):
LSET S$=MKI$(S):LSET N5$=MKI$(N5):LSET N7$=MKI$(N7):LSET F2$=MKI$(F2):
LSET F3$=MKI$(F3):LSET G2$=MKS$(G):LSET H1$=MKS$(H)
```

```
      30 LSET O$=MKI$(O%):LSET B5$=MKI$(B%):LSET Q$=MKI$(Q%):
LSET BD$=MKD$(BD£):LSET PT$=MKI$(PT%):LSET RT$=MKI$(RT%):PUT 1,10:
RETURN
      40 Throw away all the strings
```

The new one:-

```
      10 FIELD 1,48ASGF$:GET 1,10:LSET GF$=MKD$(BB£):LSET
GF$=LEFT$(GF$,8)+MKI$(N1):LSET GF$=LEFT$(GF$(10)+MKI$(N3):
LSET GF$=LEFT$(GF$,12)+MKI$(S):LSET GF$=LEFT$(GF$(14)+MKI$(N5):
LSET GF$=LEFT$(GF$,16)+MKI$(N7):LSET GF$=LEFT$(GF$,18)+MKI$(F2):
      20 LSET GF$=LEFT$(GF$,20)+MKI$(F3):
LSET GF$=LEFT$(GF$,22)+MKS$(G):LSET GF$=LEFT$(GF$,26)+MKS$(H):
LSET GF$=LEFT$(GF$,30)+MKI$(O%):LSET GF$=LEFT$(GF$,32)+MKI$(B%):
LSET GF$=LEFT$(GF$,34)+MKI$(Q%):LSET GF$=LEFT$(GF$,36)+MKD$(BD£):
      30 LSET GF$=LEFT$(GF$,44)+MKI$(PT%):
LSET GF$=LEFT$(GF$,46)+MKI$(RT%):PUT 1,10:GF$="":Z=FRE(Z$):RETURN
REM The remainder of this sector is used for storage of other matters,
SO CARE MUST BE TAKEN NOT TO OVERWRITE IT.
```

I have set this out at length because it shows that my method is not usually longer in terms of program, and may actually be shorter. You will notice that I have belatedly realised that the subsidiary string (B$) used in my previous version is not needed, the string version of the number can be directly added to the earlier part of the field string.

A small point is that a space before AS is not needed, and a space after it only if the string name starts with C. 4ASC$ reads as ASC and you get a syntax error.

I have at last cured a bug in my version of Dennis Long's listing program. Every now and then it would refuse to read beyond a certain point, complaining that the line number was astronomically high. I found that if the line started with the letter D, as D$="", it read the D as part of the number in line 63170 where it starts LN=VAL(LI$). Change this to LN=VAL(LEFT$(LI$,5)) and all is well.

M.C. Matthews,
13 Princes St.,
Dorchester,
Dorset.

Misc notes from Peter Tootill

The Model III/4 and external disk drives.
==========

Having been presented with a very good deal, I have just changed my Model I for a single drive Model 4. First impressions are very favourable, and I can now pronounce on the matter of external drives (discussed a couple of issues ago). The facts (or so I believe) are as follows: although the Model 3 and 4 external drives are accessed (when you type 'DIR' for example) as numbers 2 and 3, they are configured (inside the drives) as numbers 0 and 1. This is due to the way that Tandy have set up the disk bus, probably so that they could sell Model I drives to Model III owners when the Model III first came out. Having set mine up in this way I have no problems, it is just a bit strange having drives 0, 2 and 3, with no number 1. (Drive 1 has to be an internal drive). To avoid unnecessary delays, I have disabled drive 1 (using the LDOS command 'SYSTEM (DRIVE=1, DISABLE'). This tells the system that there is no drive 1, and stops it looking for files on it.

Model I and double sided drives.

I had a very old expansion interface (twisted pair mod and buffered cable type), and I had a lot of problems trying to run double sided drives on it. The problem was eventually tracked down to the fact that two of the connectors on the disk bus were joined. I think it was 32 and 34. If you are having this sort of problem, it is worth checking this point.

40/80 track switching on the Teac FD-55F

I obtained a pair of Teac FD-55Fs, which are 80 track double sided. They were not switchable to 40 track when I got them. However, I was told of a simple mod to make them so. All you need to do is locate the place where R14 should be on the PCB. It's near a large square IC. Solder a 100 ohm resistor in series with a switch to the connections on the PCB. Hey presto, you can now switch the resistor in to get 40 track mode, out to return to 80! The normal warnings about it not being a good idea to write to a 40 track disk apply. I have done it successfully, but if you must, it is safest to start with a new, or bulk erased disk and format it on the switched drive.
This mod needs a fine tipped soldering iron and a steady hand, there's not much room and the contacts are small too.

Other makes of drive can also be made switchable, but I don't know how (any suggestions, anyone?). By the way, if you have a 40 track Teac 55, don't think that you can convert it to an 80 track just by cutting out R14. I'm afraid it doesn't work. I think it is because the head is fatter than on a 40 track drive (it should be) and it can't write the narrower tracks.

Model 4 printer problems

I wanted to be clever and use the printer cable from my NEC portable (same cable as Model 100 and BBC micro) on my Model 4, so I just added a 34 way edge connector to it. It didn't work. The reason being that the cable only has 26 ways and the Model 4 uses pin 28 (fault) as well. The strange thing is that my printer doesn't! However, I added a few more strands to the cable and it now works.

Model 4 Software

If anyone is interested in a very smart terminal program for the Model 4, I have one called XT4 (I also have a Model I/III version). I also have a public domain 80 by 20 screen driver for the Model 4 in Model 3 mode, together with source code.

All are public domain, so if anyone wants a copies, send me a disk (formatted - in any LDOS format, or if it's Newdos-80 make it single density).

Mod 1/3 Commercial software.

As for commercial software, I like IFC very much - it is a 'cursor oriented directory' program. A disk directory is displayed on the screen and you can scroll through it (both ways). Files can be tagged for multiple copy or kill. This can be done in a number of ways, including (and I really like this) those that do (or don't) exist on another drive. So I can now check for multiple copies of a file and kill off spares. Other programs I have (or have used and

can recommend are the Powersoft Toolbox, Fed II, LED, and the LDOS modified version of Scripsit. The last gives most of the features I need in a word processor, including printer codes, print to screen (or disk). I will try to write more about these in a future issue, but if anyone wants to ask me anything, give me a ring on (051)428 2733.

Peter Tootill

NATGUG
======

Whither Natgug? Well I for one hope that it does keep going. However, I must admit that I find the sub a bit steep at £7.00 for 6 months. The CP/M users group is around the same for the year. Its newsletter only comes out quarterly, but is an excellent publication - properly typeset and very thick. I'm certainly not critising Leon, he does a good job, but my vote would go for a lower sub with fewer (say quarterly) newsletters. What do others think?

Peter Tootill

P C C O M P A T I B L E S

Speed as percentage of the fastest . . . . . .

Machine	Disk write	Disk read	Sieve	Calc	Format & copy	File copy	Av
AT&T 6300	81	80	87	89	36	39	69
Canon A200	46	83	58	59	36	30	52
Columbia	84	80	39	41	40	44	55
Compaq Deskpro	46	45	41	41	33	46	42
Corona	46	44	38	39	24	35	38
DG One	46	44	33	35	50	33	40
Epson QX16	45	80	42	44	33	57	50
Ericsson PC	46	77	42	43	33	42	47
IBM PC	46	52	40	35	40	67	47
ITT xtra	79	75	41	43	36	44	53
Kaypro 16	46	80	41	43	36	53	50
Lead. Edge	81	83	50	52	31	42	57
MPX 16	45	44	35	33	50	41	42
Mindset	45	44	25	44	33	33	37
Morrow Pivot	32	43	24	25	29	35	31
NCR Plus 4	46	80	42	43	16	30	43
NEC APC III	87	83	88	83	100	60	83
Osborne 3	44	43	28	29	29	26	33
Otrona Attache	84	80	97	100	36	39	73
Sr Partner	87	83	41	43	36	67	60
Polo	84	43	17	33	24	39	40
Sanyo MBC 775	84	83	67	69	100	49	75
Sanyo MBC 550	81	83	28	26	31	51	50
Color Fox	44	43	32	33	36	35	37
Chameleon +	81	83	35	37	17	41	49
Stearns	84	83	100	100	57	63	81
STM PC	81	80	96	100	33	51	74
Tandy 1000	46	44	34	35	33	49	40
Tandy 2000	87	83	96	100	40	40	74

Televideo 1605	43	42	41	43	27	35	39
TI Professional	84	77	44	46	44	41	56
Visual Commuter	46	53	42	43	44	56	47
Zenith 150	81	80	39	42	40	46	55
Compaq +	48	47	45	43	N/A	50	47
HP 150	74	71	51	49	N/A	35	56
IBM AT	100	100	95	89	N/A	100	97
" PCjr	32	44	32	28	N/A	46	36
" PC XT	44	59	36	34	N/A	76	50
Tandy 1200HD	44	44	34	35	N/A	53	42
TI Prolite	76	73	49	47	N/A	35	56
HP 110	62	86	67	63	N/A	N/A	69
Average	63	66	49	50	39	46	53
Maximum	100	100	100	100	100	100	97
Minimum	32	42	17	25	16	26	31
Model 4	15	35	18	14	12	18	19

PCs. The speed comparison is an adaptation of figures Byte published. Theirs were in seconds, which gave the reader an impossible task if he wanted to compare a range of machines. I got Multiplan to reduce all that to percentages. Then I got out a Model 4(III) version of the programs and tasks tested to see what I'm missing. The disk write and read were Basic programs accessing records.

IBM have obviously done a good job on the AT disks, at the cost of special disquettes and non-compatibility. The yet-to-be-announced PCDOS will not apparently bring much overall improvement in speed because the 80286 in protected mode has a lot of work to do accessing its memory segments.

The figures seem to damn the Model 4. But in reality I find that I am only rarely kept waiting; Multiplan sheets with a lot of formatting are slow, unbearably so. Drive operations are too, but most times I am expecting this and use the time productively elsewhere. And then the price . . . . for the programs as well as the hardware. The cost of an IBM system-with-programs to equal my Model 4 would be an expensive way to save a few minutes a day.

The Debug bug probably only affects us continentals (are they incontinent the other side of the water?). We find the character ROM in special-character mode at start-up, not space-compression mode. LSI's use of the latter therefore gives us a mucky screen.

Superscripsit. I launched a few flying insects when I turned on my central heating, some of which got into my SS files. The problem is interference (presumably mains-borne, not broadcast) causing garbage in SS files. It seems incredible but SS manages most times to channel the interference not into the text but into the control codes. Garbage there is capable of sending the machine looping towards the great data dump in the sky.

I found, with FED's help, that one of the character strings SS uses for a carriage return had been garbled. Simply replacing it with a copy of its neighbouring untouched brothers cured the problem. In a proportionally spaced file, like this one, these CR strings are some 7 characters long and most of the characters are in the above A0H range. I do wonder how the Basic program in 80 Micro for saving damaged SS files coped with these control strings.

French TUG. I suggested a few contacts between Tandy user groups each side of the Channel in an earlier issue. Deafened by the enthusiastic responses, all one of them, I have unfortunately to report an equally deafening silence from Paris. The last issue of the quarterly 'L'Utilisateur de TRS-80' was dated Février 85. It was the first issue brought out by the new committee, too. But then I haven't sent much along since then, either.

Much of the scene is similar - unease about Tandy and ACT, numbers of members, Big Blue . . . Tandy shops here now have the Amstrad, which comes out here with a French keyboard (azerty not qwerty, the numbers on the top row are all shifted) almost when it does in the UK. That's the first time that has happened. Sugar knows business, and means business. Prices are generally a little higher here. French machines include Thomson (3 models), Goupil, Exel, Bull, Léanord. The French individual has gone for micros less than the British. On the other hand the four biggest software firms in Europe are French. Don't ask me what they write, though.

Articles in recent issues of the mag include a Model 100 calculator, a Mod III expert system in Basic, a JCL file to create a DOSPLUS 3.5 Basic system disk, a patch allowing Mod I Pascal UCSD to use 80-track disks, solving algebraic equations, access to video and keyboard memory on the Mod 4, running two tasks on a Mod I simultaneously. If anyone would like one of them, just let me know.

LDOS. One useful feature of LDOS buried in the documentation is the 'keep the file closed' command. Very useful when power supplies aren't too reliable. If you tack a ! on to the end of a file spec, the OS will close the file again after each access. It takes a bit longer to complete the access but I've blessed it more than once. I live in a region subject to high winds and thunder storms. There is a very effective protection system on the mains which usually involves a 2 or 3 second black-out; 'nuff said. I have a battery power supply project in hand. More news soon, if I don't touch the wrong wire.

Disk drive reliability. Micro-Cornucopia, who are not experts, just fairly big users, gave their opinion of drive makes in a recent issue, as follows, in rough order of reliability: Epson, Panasonic (= Shugart), Misubishi, TEAC, Tandon full-height, TEC, Tandon half-height, Remex.

John Negus, (010.33.75.38.61.25), Bessas, 07150 Vallon Pont d'Arc, France

NOISY DRIVES

Following the sale of my trusty Model 1 several months ago, I use the proceeds of the sale to finance the purchase of twin Cumana 40/80 track double sided drives which I have added externally to my Model 4. With 710k+ on each drive I no longer have to worry much about disk capacity - in fact I managed to reorganise the software so that I no longer have to purchase floppies for some time to come.

Ever since I purchased them however, they seemed considerably noiser than even the Model 4 internal drives which in themselves were like coffe grinders. I put this down to resonance in the case after ensuring that I was using a 6ms stepping rate and had resigned myself to the fact that there was nothing which I could do about it. However, a few weeks ago whilst using CP/M, I was horrified to see the dreaded "Drive A: NOT READY" message and even worse, "Unrecoverable Error on Drive A:". Repeated cleaning of the edge connector underneath the Model 4 and cleaning of the disk heads made no improvement. I had visions of problems on the floppy disk controller board or other expensive horrors.

Last week whilst visiting Compec 85 with a fellow member and good friend we approached the Cumana stand and met the Quality Control Manager Carl Aldous. His advice for curing the noise was to open the drive case, remove the drives from the base plate and apply a little silicon grease to the guide runners for the heads. I did this one night and the difference was unbelievable, immediate silence. Since the I have not had one failure to access the drive. A friend with a Model 4P carried out the same to his drives and he also found that they were quieter.

I see we now have a new (?) Bullettin Board for Tandy Users - the TUG board on 01-200-7577. I've just bought myself a Miracle Technology WS2000 modem (in order to increase my telephone bill!!). I am considering subscribing to Prestel initially for a year. Do those members who use Prestel find that it is worth subscribing to for home use?

MBASIC

Whilst browsing through back issues of NATGUG NEWS and in particular, Dave Holman's CP/M - A NEW USERS TUTORIAL PART 5 (August 1985), my attention was drawn to his comment on Mbasic. He discusses the method of printing to the screen where Mbasic has no PRINT @ statement. He suggests (as in line 80 of his sample program) that the following will position the cursor to specific coordinates. If I may, I would like to add to this suggestion.

A simple method of simulating the PRINT @ (x,y) command is as follows:

```
DEF FNP$(L,C)=CHR$(27);"=";CHR$(L+32);CHR$(C+32)
```

To use this defined function (declared at the beginning of the program) all that is required is to write:

```
80 PRINT FNP$(8,25);"This is row 8, column 25)
```

David Roberts 0247-462564

A BOUQUET FOR TANDY.

As a well known detractor of Tandy's efforts to support it's computer users it gives me much pleasure to report the very willing help I have had from their service department recently.

A few weeks ago I bought a HI-RES board from a franchise dealer for my model 4P, it would not work, various phone calls later it was obvious that it was not designed for 'Gate Array' machines, so as no one else new the detailed answer I contacted Tandy's service department & was put in touch with Reg Williams who I was told understood the 4-4P differences.

He quickly confirmed that indeed the board was not the correct one for my machine, he told me to send it back with a note quoting my machine's serial number.

A few days later a new board arrived, it had a different gate array & the 'PALIO' chip had been replaced with a different type also there several extra wires added to both sides of the board, success, almost, there were shimmering vertical lines on the screen, text verticals were completely missing.

I contacted Tandy again, Reg Williams was not available so they asked me to leave my phone number & he would get back to me. Oh dear, I thought, how long will that be. First thing next morning he rang, then got called away, rang back about an hour later & after I told him the fault he said that he quite understood, would put another board on test at once on a 4P, (the previous one had been tested on a 4) & asked me to send mine back.

Two days the new one arrived together with an updated BASICG disc for good measure & every thing worked OK. Now you can't ask for better service than that can you, he was quite suprised when I rang & thanked him for his help.

As someone was complaining in the November issue that nobody had a good word for Tandy I hope this will help to redress the balance a little.

E.C.Kilpatrick, 3a Gainsborough St,
Sudbury. SUFFOLK. CO10 6ET. Phone 0787 79504.

MODEL 4 FILE HANDLING EXTRA

Since I wrote on 25th.November I have had a rush of sanity to the brain. As a result one or two of my filing routines have been vastly simplified.

The principal one is the one which files counters and suchlike, ALL OF WHICH ARE OF FIXED LENGTH. The result is that while recovery is unchanged, filing reduces to the following:-

```
10 FIELD 1,48ASGF$:GET 1,X:LSET GF$=MKD$(BB£)+MKI$(N1)+
MKI$(N3)+MKI$(S)+MKI$(N5)+MKI$(N7)+MKI$(F2)+MKI$(F3)+MKS$(G)+MKS$(H)+
MKI$(O%)+MKI$(B%)+MKI$(Q%)+MKD$(BD£)+MKI$(PT%)+MKI$(RT%):PUT 1,X:
GF$="":Z=FRE(Z$):RETURN
```

I have a number of others where two or three variable length strings are followed by a number of fixed length ones, and the same principle applies.

Simply put each in turn into GF$, and then add the fixed length ones as above. To give a simple example, we have A$, maximum length 25 chars, actual length say 15, and B$, maximum 10 chars, actually 8.

```
FIELD 1,50ASGF$:LSET GF$=A$:LSET GF$=LEFT$(GF$,25)+B$:
LSET GF$=LEFT$(GF$,35)+MKD$(X£)+MKI$(N)+ etc as required.
```

One of the principal gains, apart from extra working space, is that hangups due to being out of string space have vanished, and garbage collection has also ceased to be a problem.

I am sorry I was premature in writing last time, but I was too pleased with myself!

M.C. Matthews

HSC1686 YET AGAIN

The board is still a great novelty and is used mainly as a RAMDISK and I have a box with the power supply and fan for it. This did cost me £172.50 and my study now sounds like a factory - the fan being fairly noisy. The RAMDISK does speed up everything. I have discovered yet another little quirk though. Resetting the computer does make the drive N: inaccessible and one has to invoke RAMDSK.Com again but, once this command is invoked, any files which existed before the re-booting are still there (Did I already say this somewhere before?). I understood that RAMDSK.Com does clear the RAM but this is not so. I am waiting rather impatiently for the next issue of CP/MUG magazine to see how the other chap is progressing with his board.

In the office the 4P is a nuisance. Every time I try to start it in the morning (or any other time of the day) there appears a message 'not ready on drive a:'. One just presses <enter> in response and it generally works. Sometimes one gets this message again but the second <enter> hardly ever fails. And this nonsense occurs on occasions right through the day. WS sometimes tells that it has bad overlays and so on. My clerks are rather amused when they hear me speak to this miserable excuse for a computer. The trouble with Tandy machines is that there is hardly anybody who does repair them and of those who do, none seem to be interested in doing it. I rang one of the dealers and I was told that, as the machine was still under the guarantee, I should send it to Tandy for repair through the dealer from whom it was purchased. As I bought the machine from the dealer in Aberdeen or somewhere about and the thing is now in London this was hardly feasible. Nor do I wish to carry the thing to ACT Computerworld. It is not my computer! So the dealer said to me 'it will cost you £100.' I said 'lovely - good' and of course nothing has happened since. Does anyone know someone round London who can repair Tandy computers? Or for that matter someone who is interested in earning the money - wherever in the country they may be? Still in spite of my love/hate relationship with Model 4P I hope to use it for system development once I hand over my present responsibilities. I had already one successor but he has proved completely unsuitable. He did not know the first thing about accounts, was not interested in the computers ('they are tools only') and, after being shown a spreadsheet, and having explained to him the principles and help features, he came to me after one hour saying that he could not even make it add up two figures. Anyway I ought to hand over to someone after this year's audit because I will not be available to answer any questions on 1986 accounts and PW cost enough as it is without them having to search for the answers themselves. My project is to computerise some 5,000 welfare records, provide for automatic weeding, label print, print of pensioners etc. dBASEII is ideal for such a job and Model 4P can be set up in any odd corner and I can play with it, writing programs and testing them on a small data base. Once I have the thing operating to the satisfaction of the Welfare section then I think Tandy Model 4 and 15 MB hard disk would be the cheapest answer. Montezume CP/M supports Tandy 5MB or 15MB

hard disks.

On Thursday I collected Multiplan (CP/M version) for the office Model 4P. The dealer has done the installation but, not having access to Model 4, he has not been very successful. The Multiplan installation part of the manual is not that clear although the manual has the reputation of being one of the best. The dealer's trouble was that he has not realised that all control codes have to be prefixed by either &D, &H or &O (for decimal, hex or octal). So the 1A, which clears the screen and despatches the cursor home has to be entered as &H1A. I am ashamed to admit that it took me some time before the penny dropped and so I went to bed rather late that night and did not go to the office on Friday.

From the short time spent playing with this bit of software I find that it is considerably faster than the Tandy version but it does not have the type ahead buffer and it appears to be missing input if one types fast. I think the problem is that this version is a 8MH and it ought to be slowed down to 4MH - if I only could find out how to do it. Whilst playing with the Multiplan I have prepared myself a 'thingy' for paying the salaries. In this I have adopted the method which the Army used when the pay was computerised back in 1962. The assessment of the tax is done by:

a. obtaining total pay for the tax year based on the pay already received and the current rate of pay,

b. working out the total tax liability for the year

c. working out this month's tax by deducting tax already paid from the total liability and dividing the leftovers by the number of months/weeks remaining in the year.

The spreadsheet is just ideal for this type of work - but beware recursion when setting out the formulas.

Funny thing happened though (although not on the way to the Forum) as I played with Multiplan. The Multiplan cursor on the menu line has the '&' inside it and so one cannot see the first character. This happens in WS and dBASEII though only on odd occasions. So I decided to play some more with the installation to see whether I could find a cure. In order to speed up the proceedings I decided to do it using my new memory. I was really astonished when on linkage of blocks the installation bombed out due to lack of memory. The installation links 33 blocks on writing the product to the disk and it bombed out on me whilst linking block H0C. So I decided to do the installation without using the RAMDISK though I have not disabled it - and there it was again : 'linking block C', 'Not enough memory' and A>. I switched off the HSC 1686 and the installation proceeded to the bitter end. It is beside the point that I have not found any cure for the accursed ampersand in the cursor - what is important is that the use of RAMDISK does reduce the TPA. Montezuma CP/M boasts TPA of 55K and I wonder how much I lose when using the RAMDISK. Both WS and dBASEII are not affected by this reduction but I must try to install WS using RAMDISK to see whether there is any effect.

Looking through 'Readers Choice' in the last issue of Minicomputer News I see that the supermicros are based either on the proprietary processors or 68000 with odd 68020. But I found one based on 8086 and this one can take 250 peripherals. 68000 seems to be a very popular chip for the more powerful machines. And to think that I could have chosen one for my magic box. In the office we have now a couple of part time soldiers helping us with the aftermath of our move and one of them is a young lad awaiting university entry in the autumn. The lad is a real wizard with the computers, programs in five languages but his forte is operating systems. So of course we talk 'computers' especially as I am starved for the company of people who know the difference between a micro and a terminal. I was interested to hear this lad's opinion of the QL. He thinks it a 'botched up product'. Let's hope that Jack Tramiel will make a better job of his bid at producing a wonder machine.

Couple of items of interest to the TRS community in the July Byte. MISOSYS Inc. is selling PRO-NTO, a program which claims to be window controller and applications manager for Models 4, 4P, II, 12, 16 and Lobo MAX-80. This program is supposed to support four nested overlay windows which can be called from application programs (Basic, C, Pascal etc). The windows can be from 1x1 to 80x24. The application manager provides address mailing label and rotating index file, appointment scheduler, calculator, card filer and notepad, telephone list and auto-dialer. The second offering is by Tandy and consists of ViaNet software which, with ARCnet, links Tandy computers running MSDOS into a local area network.

There are quite a few LANs and communications about now. All this is lumped into now popular new cry 'Office automation'. To my mind - however much I am for the office automation - the most important aspects of such automation are word processing, filing and appointments/returns etc diaries. The communications are a nice addition (if you have your office spread round the country) but the least important at least to the customer. Not so to the hardware suppliers and programmers. The computer market has matured some time ago now but those making the living out of hardware and software must not admit it. After all who would survive then? So we have new gimmicks all the time - windows, mice, Lans, 16bit, 32bit etc etc. There is tremendous processing power packed now in very small boxes but how many people or firms do require all this power? The latest bit in Minicomputers News mentioned a supermicro capable of having 10,000 peripherals. Wonderful as an exercise in technology but does anyone really want 10,000 peripherals attached to one box? What puzzles me also is how does one plug in 10,000 cables into one box?

I have gone for communications in the office though as it does not look that my successor (yet to be found) will be likely to sort out the problems on the 11/23. So I have got myself a direct telephone line and a couple of boxes (for £800+VAT). These boxes permit a link to OEM. There's a clever arrangement in that turning a switch on one box and pressing a button on the other

turns OEM's terminal into a console (cutting out mine) and he then can start sorting the things out. I have not tried it yet to see whether the thing works. But it should prove useful once I am gone and the things need sorting out or programs need alterations. We were very lucky with our box of tricks though (11/23). We had the thing delivered in 1982 and for all purposes it keeps running trouble free. The minor problems like RL02 throwing reading problems were sorted out by DEC within 24 hours (and it only happened once). I have been now pressed to think about getting another machine (from public funds) which would also be maintained by the public and my answer is 'over my dead body'. The box is doing now all we want it to do and, unless the public would provide me with a duplicate, I don't want to face a conversion. Let them do it after I have gone!

My submissions to the NATGUG seem to have got out of order. The later bits are sent off before the earlier ones and so on. Also I seem to have about four different articles going at the same time and some of them get finished before the others and so they go off first. They also take some time to write depending on the time available and the inspiration or the lack of it. So please bear with me if, after reading that my office Model 4P has been sorted out, you then subsequently find out what was wrong with it.

Reading the CP/M tutorials in the NATGUG brought my attention to the feature of CP/M which, I would think, is never used on single user computer and that is the user command. Swapping the user area is very easy - just type User n (n being number from 1 to 15) and there you are. But what do you do once you get there ? The operating system boots in User 0 and there is a real desert in any other user area, unless you already put something there. I believe there are patches to CP/M which make User 0 programs available to any other user area but I don't have any of these. So to run in any other user area you have got to get some programs there. The obvious answer is PIP.COM which can transfer from one user area to the other with flag G but it only works for transferring from other user area to the current one. So how do we get the PIP to area other than 0. Actually this is quite easily done with DDT. Invoke DDT PIP.COM and then <CTRL>C. Change the user area and then, if you can convert the DDT pointers, you will know that you have 29 pages of PIP.COM in memory (TPA) and you can save it with SAVE. And there you are - you have PIP in your user area and you can pip at leisure using the switch G. Now your wife, if she is also using your system, won't find your private diary.

September BYTE today - I always look forward to it and nothing ever gets done on the BYTE day whether at home or in the office. Finally I have discovered the meaning of BASIC which is acromyn for Baby's All-purpose Simple Instruction Code. Do I hear howls of protest? The argument about structured and non-structured programming has been going on for ages and somehow I fail to see a purpose in it. As one can write bad programs in any language so no doubt one also can write good programs in Basic as

well, and Basic programs can be very neat with the main program at the end and all sub-routines at the beginning - sorted out in the frequency of their access. The problem with BASIC is that it should not be the first language one learns. The ability to create variables on the fly and GOTO-ing all over the program does create bad habits which subsequently prevent people from learning a language which enforces a structure. Another bad habit created by BASIC is sitting at the keyboard with barely an outline of a program in the mind and proceeding to write the code. With effort, ingenuity and improvisation it is possible to get a working program finally - program which will do for the author what he wants but also a program, which is impossible to maintain or to be used by anyone else.

Whilst on the subject of languages I am still waiting for my Borland Pascal v.3 and Toolbox to run under MSDOS. I am looking forward to it and to some programming as I have not done any for some time. The trouble with programming at home for own use is that one does come to the end of applications one can program for. When I got dBASE II I put every possible application I could think of on it and I became reasonably proficient in writing dBase programs. Then I have not touched it for a while. Last week, in the office, I was asked to put all returns and annual events on a computer and so I have written a quick and dirty program for a clerk to input the data which subsequently, using Report, could produce a monthly diary of events. The only snag was that, when I started, I realised that I had forgotten the dBase commands and I was making silly mistake like 'Store to mvariable....' and could not see what was wrong (for those uninitiated the syntax is 'store <whatever> to <variablename>'). I got it going in the end and it has done the job but, what should have taken me about ten minutes actually required almost half an hour. The girl input 300+ records in very quick time, Report in command mode has taken care of printing monthly diaries but now I shall have to produce a menu, provide for amending records and so on. I was going to do it this weekend but instead I spent my time fighting with five years' plan and also getting out to NATGUG two further articles, which have been written some time ago but needed checking and printing.

A friend of mine has bought QL. He is an electronic engineer and has studied programming when taking his degree. The QL is now £199 at Dixon's which I think is good value (Yes, Leon, I do know that SAGE accounts program is avilable on QL. I read that it was going to be some months ago in Minicomputer News and I mentioned it in one of my articles). Anyway that friend of mine has bought a game on tape (microdrive) and it won't work. He has changed it already three times and it still does not work. I must have a look at that QL one of these days. I wonder how fast does the SAGE run on QL? It is very fast on Z80 and the only bottleneck is the disk access as SAGE does not hold data in memory. I have got so used to it now that I can do a lot of my data input without the drives stopping the rotation. Of course I could put the whole lot of data on the Ramdisk but for these few entries every day it is not worth writing a submit file.

Anon.

WORK AND PLAY ON A MODEL 4

by

John Miller

Several months ago, I wrote about my experience with some Model 4 software, including DOSPLUS 4, PRONTO, ALLWRITE and HiRes Graphics programs. Here is a promised report on using databases, including Little Brother, some hardware notes, more on ALLWRITE and other odds and ends.

First of all, I'd like to thank everyone who took part in my super software sale - especially the long-suffering Brian Pain and some previously unheard-of neighbors. They took part quite involuntarily, owing to a pair of transposed digits in the typing of my telephone number! However, I had many interesting chats with Members: thanks to you all for your forebearance. At the end of this article, I have a few more items to offer for sale - and this time the 'phone no. is correct!

ALLWRITE - I previously speculated about the refusal of Prosoft to sell their products here anymore (mine being bought by proxy in the States). Knowing that software protection was one of the problems, I wrote to Chuck Tesler to tell him of our new Copyright Law extensions to software, and asking if he would reconsider. Here is his entire reply:-

> Thank you for your comments and suggestion. They came at a good time, because we recently decided that we would offer ALLWRITE in the U.K., under certain conditions.
>
> Piracy was NOT the reason we stopped selling outside the U.S. (Well, it was a factor, but only a very minor one for the U.K.) The real reason had to do with the after-the-sale support. Our support system depends on the telephone, not the mail. Domestic customers mostly call for help, and we get only a couple of letters a day for help.
>
> By contrast, overseas customers mostly write, and that costs us a lot more to handle. Further, we found that the complaint rate was MUCH higher from the U.K. than from the U.S., and the letters were, in many cases, unbelievably nasty. When we came out with ALLWRITE, I decided that being called names was not worth it (and since we were not able to make a profit on

overseas sales (because of the cost of answering letters), we just dropped such sales.

The situation with DOTWRITER is a little different: the previous distributor (RCM Computers) granted exclusive rights for Version 3.0 to a U.K. company, and that meant we could not legally sell it in the U.K. Apparently, that restriction does not apply to the current version 4.0, so we can sell it in the U.K.

Now, we will accept orders from the U.K., but we cannot and will not give the same level of support that we can give our U.S. customers: we cannot afford the cost. I hope this clarifies things a little.

Ted Gladstone tells me that he has just ordered ALLWRITE, and that he got a rather formidable declaration to sign before he did so; it amounted to saying that there was no guarantee that it would work on U.K. keyboards and machines and that he could not return the program if it did not work. This sounded pretty daunting, but I and several other people have been using ALLWRITE now for over a year with no problems at all. Reading the disclaimer in detail, it is clear that there is considerable confusion in the US as to what versions of the Model 4 are out over here. All of our standard Model 4s were built in France: right from the start, they came with a green screen and certain modifications which made them an upgrade on contemporary US models.

Further complications exist: there are two versions sold on the Continent, one with AZERTY keyboards for France and Belgium, with a different keyboard and version of TRSDOS 6 with the appropriate keyboard driver. The other is our own QUERTY machine. Some people had obviously been trying to use NEWSCRIPT with AZERTY keyboards, or trying to write in French with QUERTY keyboards, as Chuck Tesler specifically states that ALLWRITE works only with "American English" (it works fine with English English too...!) If you want to have French on your screen, then get the latest version of LESCRIPT, which works with either keyboard and 'talks' French if you want it to. Over in California (let alone in Tandy Towers, Dallas), there is not much known about the rather complex hardware situation, so it seems Mr Tesler is playing safe. I can understand the confusion over the hardware, but perhaps he is over-reacting a little - but then I did not get those nasty letters, so perhaps should not judge.

Certainly he produces excellent software with some of the best documentation in the business. I'd have signed away my soul to get ALLWRITE, I think!

I'm appalled to hear about the abusive letters from the UK. Hopefully, no members of this group are responsible. Both NEWSCRIPT and ALLWRITE are superb programs, with outstanding documentation. I have used them for years, in very exacting circumstances, and only needed to ask for advice from Prosoft a couple of times - usually to do something particularly tricky and unusual. The response has always been prompt and courteous. What sort of support do we expect from software publishers? I expect to get a disk that boots and a program that runs: I should have checked beforehand that it does the things I want it to and works on my hardware, printer included. I expect to get upgrades when they appear. If the manual is good, AND ONE READS IT, there should be few occasions to call for help. What do others think?

Yes, I have been through other Word Processors too: SCRIPSIT didn't last long; all the reviews and pages of patches in popular magazines put me off ever trying SUPERSCRIPSIT; LESCRIPT is nice (see my last article) but not for me. I did even try LAZYWRITER, which was the first to produce an 80 column Model 4 version, but I had to send it back. It must have been a very early incarnation, because several features didn't work (mainly involving the function keys - this could have been a hardware incompatibility problem). However, the main drawback was that text entry and editing were two separate modes, which I don't find intuitive. I need to go back and make corrections "on the fly", rather than writing corrupt text and having to go back later and clean it up after setting up another mode.

HARDWARE - I'm a lecturer in Geology at Edinburgh University. As well as teaching, I'm actively engaged in research and try to write one or two papers a year for publication. As well as word processing, I need to have a database of references for the many thousands of publications to which I refer, and I also need to process raw data and produce graphs etc. My current hardware consists of a 128K Model 4 with HiRes board, RS232, modem and Juki 6100 daisywheel at home, and a 128K Model 4P with an Epson Fx80 in my office. Recently, with the aid of Charles Lawson, our local electronics Guru, I put 2 80 track double-sided Mitsubishi drives into the 4P. These drives were formerly external ones on the 4 at home. The installation was quite easy, but we found that the drive cable had to be

replaced, as Tandy had yanked the SIDE SELECT pins as well as the DRIVE SELECT pins from theirs. The change makes the 4P a real workhorse, as now the ALLWRITE system disk can contain all the ALLWRITE support files, all the ELECTRIC WEBSTER dictionary, grammar and hyphenation files as well as PRONTO and lots more. Having done the conversion "blind", we now find that the Jan issue of 80 Micro has a detailed article on upgrading a 4P for 128K, HiRes board, double sided drives and more!

Beware of the 40 track Tandon half height drives extracted from the 4P. They appear to have ben hard-wired in some strange way, so that they won't work together outside the 4P, but do work OK singly. Thanks, Tandy! Incidentally, all the 4Ps sold in Britain, as far as I know, came directly from the US, rather than France, but there are two quite different board versions, the later one using gate arrays. Even more confounding, I see from Northern Bytes that Tandy changed the disk controllers to 1770 and 1773 Western Digital chips from the older 1791 and 1793 ones. They need different timing loops for software control, and appear in the latest 4s and 4Ps: Northern Bytes give patches for Format in TRSDOS 6.2 and LDOS. If you have been suffering I/O errors, this could be one cause.

Three new half-height 80 track DS Mitsubishi drives (80/40 switchable) went into the Model 4, and one 40 track single side drive for compatability with disks sent to collegues. This was quite a job, as the fixing screws for disk drives are not standard from manufacturer to manufacturer. However, I'm very pleased with the results. Previously, I had twin 80 track DS drives as external drives, and booted up in 40 track, switching to one of the 80 track drives as SYSTEM by software. The direct bootup is much neater. WATCH OUT - either if you have external drives or 4 drives internally. The first two drives, Logical 0 and 1, are attached to the controller board internal card edge and addressed as 0 and 1 (by the usual Tandy whip-out-the-pin method, side select missing also). The next pair, Physical 2 and 4, are attached to the external bus card edge. This is only tinned, and after a few weeks, needs cleaning, as per the old Model 1 Expansion Interface days! TWEAK, a special surfactant contact enhancer used in HiFi, works well here. Also, the way the controller is set up, you must address your two external drives as Logical 0 and 1, not 2 and 3 as you might think, so set the program blocks in the drives accordingly.

PRONTO AND ALLWRITE - last time I wrote, I reported that although you could call a PRONTO window from ALLWRITE, the computer froze on return to ALLWRITE. It turns out that the problem was a stack conflict in TRSDOS 6.2, and the following patch not only enables PRONTO and ALLWRITE to work together (heaven!) but is considered by LSI to be mandatory for TRSDOS 6.2, as other applications may have similar conflicts.

PATCH BOOT/SYS.LSIDOS (D06,2C=40:F06,2C=60)

After applying the patch, you must reboot for it to take effect. NOTE: this is for TRSDOS 6.2 **ONLY,** no other versions. Having a diary, card-file, calendar, calculator etc available in the middle of writing episodes is fantastic, and you can import and export information from windows to word processor and vice versa. This is the sort of thing that computers were made for, surely!

DATABASES - I use databases in two main applications. First, to keep a bibliography of scientific papers used in my work. The requirements here are to be able to rapidly access a reference or group of references by author and date or by subject, to print out lists of references in selected subject groupings, and, finally, to be able to access the references directly from the word processor. Bibliographic citations are often lengthy and complex; I don't want to type them twice. I want to be able to use the powerful "GET" command of ALLWRITE to pull in the references from the database file directly into the reference section of a paper I'm writing. So the database file has to be in ASCII format. The fields I use are AUTHOR, DATE, TITLE, REFERENCE, KEYWORDS and TERMINATOR. The keywords are a line of key word descriptors separated by commas, so that they can be examined by an INSTRING type search. The terminator is simply two full stops as the last data field: by using this, I can tell ALLWRITE where to stop the GET, so I don't get several hundred references each time! Incidentally, the double full stop marked End Of Record in DATAWRITER files, so I adopted it for LB. Since LB knows the length of each field, it has no need of an EOR marker.

The second application is in our University Extra-Mural Department, which has a huge number of different account numbers and a very large sum of money coming in and out each year. I set up a Model 4 there for accounting and word processing. There is no way we could use a standard accounting system package, so I simply used a data base to generate two

master files, one for income, one for expenditure, with every record a single transaction, from 5p up to thousands of pounds. We need to be able to check entries quickly in case of queries, but don't need running totals and balances during the year. In fact this is impossible, because the University Accounts Dept. ultimately handles the cash, and throughput of cheques etc can lag by several months. At the end of the financial year, however, we need to produce a report with subtotals for each account in both income and expenditure, as well as consolidated totals. Final reconciliation can be done by VISICALC or MULTIPLAN if need be. Datawriter coped very well here, and now LB is taking over.

Both I and the University started off with a Model I and Maxi Manager (remember that?). It was a hybrid BASIC/Machine code system. Very slow, and often used to freeze up during sorts (which took several hours), but it did work - ultimately, after garbage collection had taken place for ages. It wasn't too good for the references, however, as these involved long strings and thus more calls for the garbage collector. Then along came DATAWRITER, first on the Model I and then Model 3. Compiled BASIC and very much faster. I found the system very good for both uses. The ASCII files could be "got at" easily, storage space was reduced by using sequential files with variable length internal sub-records - important for references, as author's names etc can be as short as 5 characters or as long as 150. If you allocate the maximum likely field length each time, you waste a lot of disk space. The various DATAWRITER modules gave pretty complete control, allowing sorting, merging, restructuring, sophisticated selecting, calculating and a good, flexible report system. Drawbacks included a lack of menu operation: you had to know what each module would do, and any editing or other manipulation of the database meant the computer re-wrote the whole file, instead of altering it in place. This meant that secretaries etc sometimes managed to "loose" files when moving them about, despite my best efforts to make a fool-proof system. The ACCESS module gave extremely quick access to a record (half a second for any record amongst thousands) by using an index system, but only one field could be indexed, and that was a literal search. The ENTRY module was limited in the number of characters per field (usually too short for my bibliography), but you could make entries of any length using a word processor - but no error checking was done with this method. However, I liked DATAWRITER and stuck with it until...

LITTLE BROTHER came along for the Model 4. American software firms seem to compete in finding excruciating names for their products. I don't mind calling it "LB", but object to having to tell someone I'm using my Little Brother! However, it is an excellent program, and I have now converted all my databases to it. The file format is sequential ASCII, like DATAWRITER, but differs in that the fields are pre-defined as a fixed length, and unused character spaces are padded out to the field length with binary 0s. A simple BASIC program did the conversion. It does mean, however, that files grow in length considerably, but alterations to records can be done "in situ" so you don't have to live dangerously and re-write the data file after each operation. You can have 64K of records in a file and 1K of characters per record.

You need 128K, TRSDOS 6.2 and at least two drives to use LB. (There is also an MSDOS version, data file compatible with the TRS80 version). You boot up on a STARTUP diskette, which craftily loads a core image of the SYSTEM into the alternate banks and uses it as SYSTEM drive: your two hardware drives become data/program drives 1 and 2. This makes for very fast I/O and is quick to load up. LB is menu-driven, with attractive screens, using reverse video, function keys and other Mod 4 features. There is always a context-sensitive Help available, and selections from the main menu or mini-menus at the bottom of the screen use either a reverse video cursor for selection or tapping a single key where approriate. Very friendly and easy to use. With ordinary Model 4s, you need a RUNTIME disk in drive 1, with data in Drive 2; the runtime disk contains the appropriate overlays for each function. Creating new files, screens, reports etc needs the CREATION disk. With my new 80tr DS drives, all the programs are available on the one disk, so no swapping is needed.

You can have up to 10 different screens defined for display of information from each database; they are produced with a full screen editor and you can use reverse video highlighting etc to get classy results. Similarly, you can have 10 different INDEX files active, each with a customised select/sort combination for your rapid access to data. The sorting and search modules are very fast and comprehensive, and once indexed, records are quickly up on screen or sent to the printer. A very useful feature is an ADD index, which you can turn on or off, to tell you what records have been added but not yet inserted into the other indices. I'm very impressed wiith the report module, which is extremely flexible;

virtually any format can easily be designed for printed reports, including labels (many across if you want), and even form letters. Printer codes can be sent at any point, so, for example, I can print the Author, Date and Title files of my bibliography in condensed mode and the reference in condensed italics. Classy! System date, time, page no. and filespec are automatically available for report Headers and Footers if and where needed.

LSI have produced a first support utility package for LB, including a manager which allows new fields to be added, unallocated records to be stripped, field types changed in position and type and so on. Molimerx supplies LB in the UK. I must say it is the best system I have found for many years. Be warned, however: all good databases need lots of disk space. LB works superbly on hard disk or on quad density floppies, but could be limiting if you have large amounts of data to hold on a 40 track disk. There are a few features which I hope to see added, such as a repeating field that would insert the previous entry at a key touch. However, a real labour-saving feature is the RUN AUTOMATICALLY feature. You simply teach the program how to do the chores such as sorting, creating and index and then using that index to produce a printed report, by going through the key presses and responses as you carry out the operation. This procedure is saved in a file, and thereafter you simply give LB the filename, switch on the printer and go and do something else. Now if they could come up with a system that actually entered the data, that would be something. Or I could employ a secretary.. but that's another (hard luck) story! A point to look out for with the automatic run: it is the only save operation not prompting for a drive spec: it saves to drive 0, which of course is in RAM, so when you power down and run automatically next time, you get a file not found message. No wonder! The answer is to add a line to the Startup JCL which write protects the SYSTEM disk after it is established in RAM.

PLAY - well, that was work, and now for a game. Apart from ZORK, my only computer game is TOURNAMENT CHESS by Rapidynamic from Micro-Labs Inc, 902 Pinecrest Drive, Richardson, Texas, 75080. It uses the HiRes board (there is a Model 3 version also) for a very pretty display. See the screen-dump, which I hope Leon has some space for. You can run it in LoRes mode, but the display is almost unintelligable, owing to the asymmetric graphics blocks on the Model 4. Using the arrow keys, you move a cursor to the piece you want to move, "hook" it by pressing the

space bar (the computer beeps), move it to where you want it, and "unhook" by pressing enter. Provided it is a legal move, the computer politely beeps again and displays its devastating thoughts as it finds out how to mate you in three moves. Once decided how to kill you, it flashes its piece, moves it, beeps again and you are cornered. Well, I am. The damn thing has beaten me every time now - but I'm a novice player. There are seven levels, including Tournament, with built in clock (adjustable timing). Moves can be backed up (this is a sophisticated way of cheating, which I use often); games can be saved on disk; boards set up to your specification, a game history run through, screen sent to printer, kibitz moves made, notation style changed, opening styles and mid-game zeal set, games reviewed in animation, and so on. It apparently plays a pretty mean game, as some of my shame-faced so-called "expert" friends have had to admit. All this for $49 - definitely recommended, even if you just want to see some smooth animation HiRes graphics on a Tandy machine. Oh yes - it comes on a free operating system called RAPIDOS (TRSDOS 6 compatible), which boots while you blink!

PROGRAMS AND HARDWARE FOR SALE

* * * Tel: 031-667-5938 * * *

Now for the commercial section. Owing to a mailing mix-up, I have an extra copy of a very nice windowing calculator for the Model 4, which works on TRSDOS 6.x and DOSPLUS 4. It is called SUM-UP - you may have seen it advertised in 80 Micro. The program hides itself in HIMEM and you run your word processor, BASIC or whatever. If you want to do a calculation, in DOS or any application, press control C and the calculator appears in a window. You can do standard arithmetic operations, add text labels (decimals align automatically), send all calculations direct to the printer and convert from dec to hex and back. The latter is very handy when in BASIC. X exits to your program with the screen restored intact. If you don't want PRONTO or haven't got 128K RAM, then Sum-Up is really useful - and it works on DOSPLUS 4, whereas PRONTO doesn't. **£22** including postage.

DATAWRITER - database program described above. I have Model 1 or 3 disks for this; runs on most DOS. **£35** including postage.

BASCOM - Microsoft's BASIC Compiler for TRSDOS 6.x or DOSPLUS 4 (I have Dosplus patches). Current standard compiler for Model 4 BASIC - compiles HiRes GBASIC programs as well, a fact not generally advertised. Comprehensive manual; cost over £100 - only **£47** including postage.

DOTPLOT - a Tandy program for the Model 1 and 3 and Tandy printers: never appeared in the UK. Machine code driver and set of BASIC subroutines for adding to your own program to give HIRES graphics plotting commands on suitable printer (MUST BE TANDY - Line Printers VII or VIII, DMP 100,200,400). Standard plotting commands are implemented, including text, which can be printed sideways, upside-down etc,etc. Easy to produce business graphs, charts, math plots and "art". Comes on cassettes but all routines can be saved on disk and used under DOS. Very nice: I can't understand why it wasn't released here. **£11** including postage.

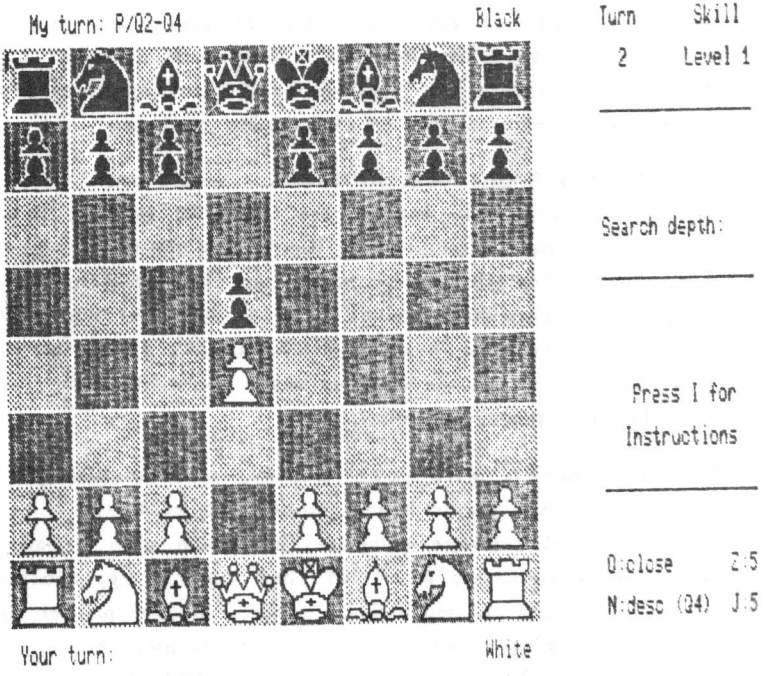
DOS RANDOM ACCESS & BASIC FILE HANDLING - Vols 1 and 2 by Muller; DSC Publishing, U.S.A. Two books with all the tricks for Random files, and a series of very useful BASIC programs, illustrating menu management, sorting, hashing, indexing, relational data bases, sequential searching, binary searches, printing, file maintenance, linked lists, blocking records, spanning across sectors etc etc. Programs in standard MICROSOFT BASIC for TRS80, inc. Model 2, or CPM. Using these routines saves hours of coding in your own programs. **£11 each,** postage included.

MODEL 100, 24K, complete with power supply, all manuals; includes BUSINESSPAK+ from PCSG, David Lien's Model 100 book and a printer cable. The BUSINESSPAK software comprises an album with 6 cassettes: WRITE+ (versatile print formatter for TEXT files - centering, underlining, justification, headers, footers and much more; sends embedded printer codes), EXPNS+ (a kind of spreadsheet, designed for expense-keeping, but adaptable for other purposes), PUT+ (simple database manager), SORT+ (rapid M/C code sort for TEXT, EXPNS and PUT files), TELEX+ (Telex and EMAIL using the 100's TELECOM package), GRAPH+ (pie, bar and line graph generator on DMP printers and the colour CGP115). The Model 100 has the US ROM fitted, not the standard UK one, so it will work with all the extensive US software packages, the Tandy Disk controller and the listings in past 80 Micro, including the M/C code ones. **£255 complete,** including carriage.

Telephone me first if you are interested in any of these items or want to chat about anything in this article - I'm in most evenings. Next month I hope to write about ZBASIC 3.0, a new "interpiler" whose source code can be ported to IBMs, Apples, Macs, CPM and other machines. First impressions are very favourable, but I'm going to play with it over Christmas.

Seasons Greetings to everyone!

Dr John Miller, 28/5 Causewayside, EDINBURGH EH9 3JW, Scotland.



WORDSTAR and EPSON PRINTERS

Further to David Robert's above named item in the November issue, Epson issued a paper on this very subject some years ago. From it, I supply some further suggestions which might be of help. Incidentally, my CP/M (2.2) is NOT from the Tandy stable but I don't expect this to invalidate what follows.

There are two ways of making the necessary adjustments, the first of which (using Install) I propose to ignore as the alternative is so much simpler. This uses DDT which, providing you know the relevant addresses, enables you to make the changes very easily. The unused commands to which David referred (plus the 4 user patches) enables a total of ten Epson commands to be permutated to meet personal requirements. Wordstar's commands ^B, ^D, and ^S are unaffected. Epson's suggested mix is given below.

^B gives **TEST UPPER CASE : test lower case)** not much
^D gives **TEST UPPER CASE : test lower case)** difference?
^S gives TEST UPPER CASE : test lower case

	LOCATION ADDRESS	WORDSTAR COMMAND	WORDSTAR USE	SUBSTITUTED CODE	ADAPTED FOR FOR:
1.	06DD	^PY	RIBBON	03 1B 2D 31	UNDERLINE ON
		TEST UPPER CASE : test lower case			
2.	06E2	^PY	RIBOFF	03 1B 2D 30	UNDERLINE OFF
3.	06B5	^PA	CHARALTR	03 1B 57 31	ENLARGED ON
		TEST UPPER CASE : test lower case			
4.	06BA	^PN	CHARSTND	03 1B 57 30	ENLARGED OFF
5.	06C4	^PV	SAME USE	03 1B 53 30	SUPERSCRIPT ON
6.	06BF	^PT	SAME USE	03 1B 53 31	SUBSCRIPT ON
		TEST UPPER CASE : test lower case			
7.	06C9	^PQ	USR1:	02 1B 54	SUPER/SUB OFF
8.	06CE	^PW	USR2:	01 0F	CONDENSED ON
		TEST UPPER CASE : test lower case			
9.	06D3	^PE	USR3:	01 12	CONDENSED OFF
10.	06D8	^PR	USR4:	02 1B 45	EMPHASISED ON
		TEST UPPER CASE : test lower case			

(NB: As you can see, there is no 'OFF' for 10 under this method.)

For those unfamiliar with DDT:

Boot up CP/M and PIP DDT to your Wordstar disk. Type DDT and then 'I' followed by the WS.COM file you wish to alter. Type 'R' to load it and, although this rarely varies for this purpose; note the file length when DDT provides it. For example:

```
DDT
DDT VERS 2.2
-IWS.COM
-R
-NEXT   PC
 3F00   0100    = 63 (3F00) - 1 (0100) = 62 pages
               (Note the 62 for later SAVE command)
```

I am interrupting my DDT instructions to draw your attention, (as if you hadn't noticed!), to the different typeface now appearing in this print out. It commenced with the page number on the previous page and will continue until the printer is switched off. It is double-printed (by reversing and reprinting the WHOLE line) but the compressed type itself is not immediately identifiable in the Manual except, possibly, as one of the line space settings from ESC A. Can anyone help?

Back to DDT. Type 'S' followed by the locations given above to make the changes. If the byte revealed is not correct, simply type the correct one and then 'Return' to bring up the next byte. Type '.' when changes for each location have been made and move on to the next one by typing 'S'+location. When finished, exit by CTRL-C and then SAVE the file back to the disk including the proper number of pages, thus: SAVE 62 WS.COM. However, whilst this program can be used for printing to the end of the last paragraph, another program on another disk had to be used for the rest of this item.

In the alternative set-up below, Emphasised now has an OFF setting; both commands are in addresses 5 and 6. The other addresses can be loaded as you wish. My selection is as follows:

LOCATION ADDRESS	WORDSTAR COMMAND	WORDSTAR USE	SUBSTITUTED CODE	ADAPTED FOR FOR:
5. 06BF	^PT	SUPER/ON	02 1B 45	EMPHASISED ON
	TEST UPPER CASE : test lower case			
6. 06C4	^PV	SUB /ON	02 1B 46	EMPHASISED OFF
7. 06C9	^PQ	USR1:	02 1B 4D	ELITE ON
	TEST UPPER CASE : test lower case			
8. 06CE	^PW	USR2:	02 1B 50	ELITE OFF
9. 06D3	^PE	USR3:	02 1B 34	ITALICS ON
	TEST UPPER CASE : test lower case			
10. 06D8	^PR	USR4:	02 1B 35	ITALICS OFF

The ease of using DDT enables wide experimentation with the many codes shown in the Epson Manual. They usually combine CHR$ values and ASCII characters, both of which have to be converted to Hex before being inserted by DDT.

For amateurs, like myself, the easiest way to convert to Hex is to use the Manual's Table of English Character Codes. CHR$ values appear in the small square in the bottom right of each character box. Hex codes are found by combining the Hex value at the top of the relevant column with that for the relevant row. E.g. CHR$(27) is 1B. Where the Epson code is an ASCII character, within quotes, simply find the character in the Table and read off the Hex code as before. It should be noted that, as in the above examples, the byte in the first column tells the computer how many bytes the Epson control code actually contains.

A future article is planned which will provide alternative WS printing programs. This will give Hex codes and locations to enable you to produce a PRINT MENU which gives the correct codes.

Don Smith, 82, Oldridge Road, Balham, LONDON SW12 8QA.

NATGUG NEWS

Volume 7 Issue 7 January 1986

OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers, and compatible systems such as the Video Genie.

Details of the Group accounts, and the constitution of the Group, are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are obtainable from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the Secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

Leon Heller,
8 Morris Walk,
Newport Pagnell,
Bucks. MK16 8QD.
Tel: (0908) 613004

Secretary and Newsletter Publisher:-

Brian Pain,
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU.
Tel: (0908) 564271

CONTENTS

2. Information on the Group
4. Editorial
4. Members letters
5. Problem section
6. Oggy Oggy Oggy
7. Speeding up MX-80 and MX-100 printers
8. Workshop meeting
9. Hypercross
11. Model 4 ramblings
13. Flexible filespecs
15. DBase II - what to do with it - Part 1
22. Prestel
23. Comments on Model 4/4P mods. etc.
25. Wordstar and Epson printers - 1
29. Copying from 80-track to 40-track disks, CP/M to DOS
30. For sale and wanted

EDITORIAL

At the recent Which Computer Show in Birmingham, Tandy had their usual large stand. Their new 3000 model was launched at the show; it appears to be excellent value if you want an IBM AT clone for about 2/3 the price of IBM's offering. When it gets Xenix it might do quite well. I didn't see any Model 4 machines, and the Model 16 (or is it called the 6000 now) wasn't being pushed very hard, so it looks as if Tandy have decided to concentrate on the marketing of Japanese-made IBM lookalikes, with Amstrads for the hobbyist and home user. I heard recently that a Tandy store manager reckoned that he sold 20 Amstrads for every Model 4.

The Commodore Amiga received its official UK launch at the show. It's still a bit unfinished in terms of the software, and the PAL version won't be available for a few months, but it is a quite mind-blowing machine. Commodore demonstrated it at a recent QUANTA workshop, and several people I know are thinking of getting one. It is basically the sort of machine I suggested that Tandy ought to make, if they were to survive, several months ago. The price is likely to be around £1200, which is less than many of you will have spent on your hardware, I would think.

One or two members are using Prospero's excellent ProPascal compiler. This will shortly be available for the QL. They already have ProFortran available for the QL, and I picked a copy up at the January ZX Microfair; it looks excellent. I know the people at Prospero quite well, and (in company with several others) have been on at them for some time to produce a C compiler. They have at last seen the light, and it looks like one will be forthcoming. Like all their software, it'll be written in ProPascal.

The March Swindon workshop will be upon us quite soon. Bob Sparling has organised the weekend, and can be contacted on (0793) 740158 if anyone has any queries. David Washford has done an excellent job with the programme/booking forms, which you should receive with this issue of the newsletter. Since the AGMs of both NATGUG and QUANTA are both due, a QL workshop has also been arranged for that weekend.

Once again, I've had to hold some material over for the next issue.

Leon Heller

MEMBERS' LETTERS

As you will see from the "For Sale and Wanted" section, I'm putting my Model I up for sale. It has served me well over the years, but now I need something more powerful, in order to do the things that interest me. I'm using a Compaq portable at the

moment, with plans to buy either an IBM PC/AT or a Commodore Amiga. That remains to be decided.

RH Evans,
15 Hammond Road,
Woking,
Surrey.

PROBLEM SECTION

I am looking for a copy of an article by Ron Potkin about a game called "Warpath", which appeared in Computer and Video Games in early 1983. The article was in seven parts, and I need parts 2 and 5. The publishers have been unable to help; can anyone loan me a copy?

Andrew Freeman,
1 Bourton Close,
Stirchley Park,
TF3 1RF.
Tel: Telford 594372.

If anyone is successfully using Dotwriter with a Tandy LP8 could they please get in touch with me.

Mac Randle,
Tel: (0926) 640078

I normally use LDOS on my Model III and have transferred packages using patches when available.

During the recent Tandy clearance I bought (on impulse) copies of the old Profile (26-1562) and Business Graphics Analysis Pack (26-1597). Can anyone help with the transfer to LDOS? In particular, with the graphics package, so that I can tie it in to Visicalc under LDOS. A partial solution would be to use TRS-DOS 1.3, but this won't work unless I can patch the DOS to handle the slow stepping rate of my non-Tandy drives. Can anyone help with the patches?

The graphics package has a driver for a multi-pen plotter (26-1191) but this is obsolete. Is it possible to use the four pen CGP-115 plotter (26-1192), or will the driver have to be changed. Can this plotter be used with the Model II at all?

Jim Lane,
7 Central Avenue,
Pinner,
Middx. HA5 5BT.
Tel: 01-866 4650

WANTED

The Supercalc2 installation codes for inverse video cursor and protected cells for use on a Gemini GM832.

D. Washford, 6 Houston Way, Frome, Somerset. (0373) 72739



Oggy Oggy Oggy



No, it isn't an advertisement for Locomotive Software ! In view of the amount of interest in my chosen title, I thought that I'd go the whole hog and display to the whole world ALL of my interests in life - if you look carefully then you'll see that the engines have lady crews !!

Enough, enough. My own big news this month is that my Model 4 now sports a high-resolution board; I nearly chose the Grafyx Solution kit at $199 but found that the Tandy kit from Os, at only £90 INC VAT was more than capable of meeting my needs. Indeed, I think that it is the best £90 investment that I've ever made !! Having got my hi-res, it was somewhat inevitable that I should dig out all the 80-Micro back numbers for the various hi-res programs and utilities, and get typing..... disaster ! My version of Rembrandt (BASIC) refused to run, and Zen didn't like the macro calls.

Thank you, John Kilpatrick, for a working copy of Rembrandt (plus other good goodies!) - I didn't fancy waiting for my finger to grow so that I could type that lot in again! One of the really good things about NATGUG is that friendly help is always so close and freely offered.

On the subject of Zen, Laurie tells me that he will introduce a SVC psuedo-op in the next Model 4 version. However, I was very disappointed to hear that Zen sales do not seem high enough to warrant Laurie writing some updates to his original (Model I) machine code notes. Now I want to know WHY people aren't buying Zen - it not only offers a much more relaxed 'syntax' for typing in long listings, but it gives such a conformity between Models I, III, and 4 - AND CP/M - that I don't believe any other Editor/ Assembler package can offer. Am I missing something ?

The December magazine was a very good issue, with lots of very interesting and sensible content. D.E. Mann of Leicester asked about sideways printing - the Longview program from Prosoft ($29.95, and Prosoft will sell it to the UK) enables a Visicalc file to be printed 'down' the paper rather than across it. Alternatively of course we now have many Dotwriter 'sideways' fonts, although I feel that this could be more difficult than using Longview.

May I remind members that Brian purchased a set of the original 80-Micro magazines, which I hold together with my own later copies. Instead of asking for copies in Natgug, members can save time by contacting me direct - all I need is return postage, 6p per photocopy sheet, and an addressed sticky label, plus of course the details of what is required! Thanks to other members, I also have a full set of the Encyclopaedia for the TRS-80, and many copies of Byte. Any redundant 1985 issues of Byte would be gratefully received at Swindon!

Fancy Tandy putting that lovely little CGP115 on offer - I picked one up from Os for £45 (£49.95 less User Group discount) and am very pleased with it. I'd be even more pleased if someone sent me some software for it!!!

David Washford, 6 Houston Way, FROME, BA11 3EU. (0373) 72739.

SPEEDING UP MX-80 and MX-100 PRINTERS

The January 1986 issue of 80 MICRO has an interesting article for those NATGUGers who own an MX-80 or MX-100 printer. The article sets out a very simple modification which will increase the printing speed by (they claim) 40%.

I own an MX-100 at home but use an FX-100 in work so I can see the difference in speed, particularly in the emphasised and condensed mode. This modification involves the replacement of two crystals. The standard MX-100/MX-80 has two crystals located on the main circuit board, on at each end.

Before sarting the modification, it is a good idea to print out a full A4 page using your wordprocessor and time it. This will be useful for comparison when the mod is complete.

To get at these crystals it is necessary to remove the top cover. The MX-80 has the cover screws on the underside whilst the MX-100 has 5 of them on the top. It is necessary to remove the plug to the control buttons before the cover is completely free. The MX-80 also requires removal of the platen knob.

Take this opportunity to sweep out all the gunge and fag-ends which hide under the covers. Locate the driver board on the left side rear. Unplug the large blue plug and unscrew the two philips screws on the left side. Gently remove the board from the inter-board connectors and place aside. This will reveal the main board. Remove CN2 and CN6 from this board adjacent to the large capacitors and the ground wire at the rear centre. The retaining screws are the two philips screws connected to the heatsink for the two regulators adjacent to the transformer. The remaining screw is near the middle of the board close to the front. Set aside the screws. The removal of the board should be done carefully as it is retained by several plastic clips which don't have much 'give'.

Once the board is removed locate the two crystals at either end of the board. The article in 80 MICRO said that they were both 6Mhz but I found that the left side one was 6Mhz whilst the right side one was 8Mhz. Using a solder sucker and a clean iron, remove the crystals. Replace the left side one (beside the two large chips) with the 8Mhz one and replace the right side one with a new 10Mhz crystal.

Replacement of the main board involves gentle spreading of the plastic clips and fitting the screws. Refit all connections to the main board. Next locate the driver board over the inter-connectors, screw down and replace connections. I suggest you loosely replace the top cover. and reconnect to mains etc.

Now reprint the same page printed earlier and watch it go! Don't forget to time it. -- See the improvement !!! Try emphasised and compressed modes to ensure that all is well.

The magazine article suggests you don't exceed 10Mhz as the processor and RAM can't keep up. They suggested that two 10Mhz crystals should be used but after trial I can tell you that it

farkles your print quality. The 10Mhz crystal should cost you under a fiver.

David Roberts, 6,Plantation Road, Bangor Co Down N.Ireland.
Prestel Mailbox 247462564 Telephone 0247-462564

WORKSHOP MEETING

Enclosed with this issue is a booking form for the Swindon Weekend Workshop, to be held over the March 14/15/16 weekend. For the benefit of our new Members, I would like to draw attention to the following points - which are so readily taken for granted by the old-timers:

Workshops were originally conceived by Brian & Leon as a session of self-help between the dedicated TRS-80 users. Several "one-day" meetings were held, in various locations up and down the country, but the "biggies" were always the whole weekend sessions held initially at Milton Keynes and later also at Swindon. Accommodation became a problem with the former and so, despite allegations of inconvenience for our Midlands and Northern members, Swindon has become the mainstay in more recent years, with meetings being held in March and October.

Attendance at these workshops became almost mandatory, such is the sense of friendly TRS-80 fanaticism; there might be only thirty attendees at one of the more rural venues, or there could be over 200 at a more national event but no matter which, if you have a problem then you'll soon be introduced to someone with the answer! (In more extreme cases, it might be someone with an alternative!). It is surprising how freely programs are given away, programs that might have taken their donors months to write. It is also very useful to let a previous purchaser demonstrate commercial software so that one can decide whether or not to buy for one's own use, whilst other members, the Hackers, get their kicks by using soldering irons and old bedsteads to create all kinds of magic boxes !

The Wiltshire Hotel has adapted as far as possible to meet the needs of these 'computer maniacs' and has learnt that whilst the majority do go for some, albeit short, shuteye, there will be others intent on staying at their machines all night. The Ballroom becomes the "systems room", with anything up to 80 computers (and peripherals) up and running, and the Stratton Suite is divided into two different lecture rooms. (Lectures are very informal - at the last meeting emphasis was put on "hands-on" tutorials given, as always, by experienced members). Another suite is occupied by Os House and his crew, who will do anything between fixing a screen flicker to selling a new model 3000.

A noticeable change by the Hotel last October was the freedom given to us in our attendance at the Restaurant - previously we'd all had to go as part of a mass booking and for a fixed menu. However, we must not forget that the hotel IS a commercial undertaking, and must charge for its services. You DO NOT have to stay at the hotel in order to attend, but if you don't then you shouldn't be surprised if you are asked to pay an admission fee for the systems room and again for any lectures that you might attend. Be grateful that the coffee is then free! If you do stay at the hotel, then you are given the option of cutting your costs by sharing a room - but since the charge includes evening meal and breakfast do not expect a 50% reduction.

I hope that the above might clarify the situation for those who have yet to experience their first exciting, sleepless weekend workshop ! We all look forward to meeting old, and making new, friends on March 14th !!

David Washford, Committee Member.

MODEL I > > > > HYPERCROSS > > > > CP/M

Two years ago, although my ModelIwas still going strong, I yielded to the temptation to buy a computer package on special offer from a nearby computer store. The package consisted of a Z80 Morrow Micro-Decision with bundled software comprising CP/M, MBASIC, OBASIC, LOGICALC (spreadsheet), WORDSTAR, the PERSONAL PEARL database, and Communications Program. The two, double density, disk drive Morrow comes with a highly sophisticated Lear-Siegler ADM-31 terminal with high-lighting, inverse video and other special facilities.

Having made this purchase, I gave up any idea of upgrading my Tandy. However, it was not long before I also gave up any idea of doing any serious programming in MBASIC. It was so frustrating to have to put in the spaces and spell out in full words such as LOAD, SAVE, RUN etc. Editing was a nightmare, the only shorthand being a full-stop after EDIT to bring up the current line. The result was that I never bothered further with MBASIC on the Morrow which thereafter became dedicated to word processing and spreadsheet work. I was still a bit worried about what I would do if the Model I did pack up. All my major programs depended on its continued service. Fortunately, I began to realise the potential of Hypercross which had appeared in the Molimeux catalogue.

John Harding advised me that, whilst the program would transfer ASCII files from the Model I into the CP/M formats in his catalogue, he could not guarantee they would work. I expected to have to make the obvious changes, such as inserting spaces into compressed Basic programs and replacing several of the Tandy Basic commands, (e.g. CLS and PRINT@ and, as it turned out, PRINT USING). To cut a long story short, I bought it and have never really looked back.

For making the necessary changes, my DOSPLUS operating system proved invaluable. The SR (search & replace) command really came into its own. It is essential, however, especially where spaces are to be inserted after such reserved words as "FOR", "NEXT" and "TO", to have a trial run without providing a replacement. This will find all the occasions these letters come together, even within strings and Data lines. All inappropriate ones can then be identified BEFORE any replacement takes place. Sometimes this trial-run indicates that it would be easier NOT to replace with SR at all. Once the line numbers have been identified, it is often quicker to use the other excellent editing facilities in Dosplus and make the necessary changes, line by line, through the program.

Using SR, it was child's play to substitute "PRINT CHR$(26):" for "CLS:" and replace the Tandy filename formats with Mbasic ones. Replacing "PRINT@" was rather less easy. I did it by using FOR/NEXT loops to move down the screen to the wanted line and then TAB the text into the right place. When I saw Dave Holman's short program on this subject in the August issue, I wrote the following snippet.

```
10 ' PROGRAM TO CONVERT PRINT@ NUMBERS TO L AND C VALUES

20 PRINT CHR$(26):FOR I=1 TO 4:PRINT:NEXT I
30 T$="ENTER PRINT@ NUMBER FOR CONVERSION":T=LEN(T$):T1=(80-T)/2
40 PRINT TAB(T1)T$;:INPUT X:F=INT(X/63):G=X-(F*64)
50 FOR I=1 TO 4:PRINT:NEXT I
60 PRINT TAB(4)"TRS 80 FORMAT:          LINE NUMBER (L) =";F;
70 PRINT"      COLUMN NUMBER (C) =";G
80 FOR I=1 TO 4:PRINT:NEXT I:IF F=0 THEN F=1
90 M=INT(F*(24/16)):D=INT(G*(80/63))
100 PRINT TAB(4)"CP/M   FORMAT:          LINE NUMBER (L) =";M;
110 PRINT"      COLUMN NUMBER (C) =";D
120 A$=INKEY$: IF LEN(A$)=0  THEN 120
130 L=M:C=D :' GOSUB USES DAVE HOLMAN'S FORMULA
140 PRINT CHR$(26):GOSUB 180
150 PRINT "* HERE"
160 A$=INKEY$: IF LEN(A$)=0 THEN 160
170 GOTO 20
180 PRINT CHR$(27);"=";CHR$(L+32);CHR$(C+32);
190 RETURN
```

I converted this program to print out the L and C values for all the PRINT@'s I could find in the listings of my Tandy programs. With this printout at hand, Dave Holman's formula could be used either, on each occasion, or as a Gosub. The Heading centering formulas in many of my programs (example in Line 30) only needed a change to the screen width from 64 to 80.

Using Hypercross is very easy. I keep it, with Basic, on a DOSPLUS disk stripped of everything else. Another disk, formatted either on the Morrow or, by using Hypercross itself, is the transit disk. With the Dosplus disk in Drive 0, load Basic and the program to be transferred from its disk in Drive 1. Save it, using the 'A option, to the Drive 0 disk. Save, in ASCII, as many programs for copying as the disk can hold. Then type CMD to return to DOSPLUS.

Insert the CP/M formatted disk into the Tandy's Drive 1 and load Hypercross from Drive 0 with the command HX1. The resulting menu asks you to state your DOS and whether you are using single or double density. Then several screenfuls of CP/M formats follow until you identify yours by typing the appropriate key letter. All your selections are then screened for confirmation.

The directories of both drives can be called providing the proper identification is given i.e. DIR :0 (Tandy) and DIR :B (CP/M). Similarly, care must be taken when using the COPY command, not to confuse these suffixes. It is also better to use the same file names for both formats to avoid confusion. A typical command might be COPY ANYFILE/TXT:0 ANYFILE.TXT:B -A. Note the use of the Tandy 'slash' in conjunction with the :0 drive and the CP/M 'fullstop' with the :B Drive.

The final '-A' indicates that an ASCII file is to be copied. Image copies are possible using the final command '-R'. When all files on Drive 0 have been copied, transfer the CP/M disk to its computer. All the files can then be PIP'd to another disk thus

releasing the transit disk for further copying. Thanks to the prior use of the DOSPLUS editing facilities, debugging of the transferred programs should be a fairly simple job. However, if difficulties arise, or if further changes are required in due course, you can always use Hypercross in reverse and get the best of both worlds. Temporary copying from CP/M to Tandy gives the benefit of quicker and better editing facilities before re-copying the revised program back to its CP/M environment.

Another disappointing difference between Tandy Basic and CP/M Mbasic is in the way the PRINT USING commands work. It is very cumbersome to do, in Mbasic, what is so easy on the Tandy. Consequently, as long as my Tandy lasts, I am using my converted MBASIC programs to print out modified Tables plus data files which Hypercross transfers without difficulty. The Tandy can then print out the larger Tables (which are in condensed type) from the transferred data files.

Incidentally, I have also discovered that Hypercross plus Tandy editing is much less time-consuming than trying to edit with Wordstar. When using the latter, 'Direct statement in file' errors abound when Basic tries to load the Wordstar-amended text file. By noting the last line loaded by Basic before the error occurred, it is possible to produce a successor text file. This can then be 'merged' with the lines already transferred to Basic. However, this is messy and might have to be done several times when editing a long program. Using Hypercross and the Dosplus editing facilities makes life much easier.

Finally, Hypercross allows you to ERASE FILE.TXT:B or KILL FILE/TXT:0 to tidy up your transit disks as you complete your copying.

Don Smith, 82, Oldridge Road, Balham, LONDON SW12 8QA

MODEL 4 RAMBLINGS

Five months ago, I decided that my trusty Model I was not long for this world, and a Model 4P would answer all my problems. To date, I have not been disappointed with it. Initially I clung to NEWDOS 80 as the old operating system I was used to. This was greatly improved by the twin 80-track drives Oz House installed for me.

The best thing for NEWDOS 80 users, however, is a niftly little prog. I bought from TAS called The Memory Disk Driver. As it says, this program creates a disk in the extra 64k bank of memory (if you haven't got the extra bank then don't read on). You have the option at installation of formatting the drive (and specifying the number of banks to be used) and you can also configure the memory drive to be a System disk. All your system files can be copied over to drive 2, leaving you free to do whatever you want with the other two drives. You can also copy the files you commonly use into the memory drive at installation, using an /ILF file. The contents of the memory disk remain unchanged if there is a reboot, which is something CP/M cannot do (more about that in a bit).

Two other NEWDOS utilities that deserve wider attention are PDR and CAT, both written by Steve Ridell. PDR will scan a NEWDOS disk and automatically determine the PDRIVE values and load them

into memory. This is a great help if, like me, you have a combination of 40 and 80 track, single and double sided and Model I and 4 (well III really) disks. The other program, CAT, does this as well, but goes further. It will read an unknown disk, which may be NEWDOS, MULTIDOS, DOSPLUS, or even TRSDOS, work out the disk format, set a skip parameter if necessary, and give you the disk directory (in alphabetical order).

I've managed to convert most of the programs I used on the Model I, including the database program AIDS which up to now had done all I needed. However, a project at work required the use of a bigger database program, and I was forced to use dBase and CP/M. I would strongly recommend dePace's book on this subject, by the way.

One of the reasons for learning CP/M was that at work we have a beastly machine called a Torch. This is a half-breed cross between CP/M and a BBC, and uses an operating system called CP/N (there's an N there, not an M). This has a disk directory structure midway between CP/M and the Acorn DFS, and there is a utility to cross between these two. So far though, I haven't found a s_i_m_p_l_e_ way of transferring files from CP/M to CP/N. The method which I have used is as follows.

1. CP/N to BBC using the Torch WRTACORN.COM
2. BBC to LDOS.
3. LDOS to CP/M

There must be a simpler way, but I don't know it. Incidentally, one of the reasons for doing this was to transfer text files, because the Torch runs WordStar. I have therefore been forced to come to terms with this little WP.

WordStar is like Mrs Thatcher. Although I don't like it, it is always perfectly consistent and predictable, powerful and it appeals to people who don't know better. I don't think it is nearly as versatile as Lazy Writer, my favourite WP, which allows programmable keys and the chance to undo edits with a single keystroke, and in ease of editing, speed of scrolling and speed of disc access I don't find it half as good as Scripsit Plus - even the CP/M version - although it is very good at long chunks of prose!

One of the things which I have discovered about WordStar is that the screen handling on the Model 4 could be memory mapped. When scrolling up or down a screen, standard Wordstar has to send each character to the screen using the BIOS. For this reason, when you scroll the screen up or down one line, WordStar has to send every screen character to the screen individually, causing a short period of absolute confusion while everything overlaps everything. Come to think of it, it isn't that short a period, and it could do really with speeding up.

Setting WordStar to use the Model 4 memory mapped screen allows a real increase in speed, though sometimes this is accompanied by a short stroboscopic flash like a cross between Demon Seed and Hawkwind. Anyone wanting to do it can find the bytes to patch in the WordStar manual. The Model 4 screen is memory mapped from F800 to FFFF, and is switched in by sending 86H to port 84H, and switched out by sending out 87H.

The bytes to patch are as follows:-

Name	Address	Byte	Function
MEMAPV	02B0	01	0 = not memory mapped
MEMADR	02B1	00	Address of start
	02B2	F8	of screen

HIBIV	02B3	01	Inverse video on with hi-bit
HIBCUR	02B4	01	Hibit for cursor
CRBLIV	02B5	FF	Blink cursor
SWIN	02C3	3E	Routine to switch in memory-mapped
	02C4	8E	board. Decodes as LD A,86H
	02C5	D3	OUT (84H),A
	02C6	84	
	02C7	C9	RET
SWOUT	02C9	3E	Routine to switch it out.
	02CA	8F	
	02CB	D3	
	02CC	84	
	02CD	C9	

By the way, these addresses only apply to version 3.0, though for version 3.3 the addresses can all be offset by subtracting 20H from these addresses. These modifications haven't been properly tested on a Tandy but should be OK.

I have a Model I with twin disks in a Blandford box to sell if anyoune's interested, with only 1 prev. ownr., gd. bdywrk.,vgc.

Regards to all,
Richard Marks . 01-609 1340.

FLEXIBLE FILESPECS

By C.R.J. Currie

If you need to convert Basic programs to run on several different Tandy machines, examine this short file-reading program. It runs unchanged on TRS-80 Disk Basic, CP/M MBasic, and MS-DOS MSBasic, and can be compiled with BASCOM. (Type CLEAR 500 before running it on a Model I or III.) You can include routines from it to add the same portability to your Basic file handling.

Adjust the filespecs by asking the user at the start for the range of valid drive numbers or letters in her system. That distinguishes TRS-80 Basic from the others. Ask for the filename and extension separately or, if they are specified in the program, assign them to separate variables. Then build up the filespec as a string and open the file. An error-handling routine ensures that all available drives are searched for the file, and another rebukes the Model I/III user for entering drive letters.

Users of your program should have no more problems with BDOS errors or unlogged disks.

The range of valid drives is inclusive and must be continuous, but you can specify the same drive letter or number for the upper and lower ends of the range.

Test the program on an existing text file, or save it in ASCII and test it on itself. It should display the first line of the file and then stop.

```
4 REM *** VALDRIVE/BAS (ALIAS VALDRIVE.BAS). (C) C.R.J. CURRIE 1985
5 REM DEMO PROGRAM FOR ADJUSTING FILESPECS TRS80 DOS//CP/M//MSDOS
6 REM *** ALSO ALLOWS AUTOMATIC DRIVE SEARCH ON CP/M OR MSDOS
8 CLEAR:'CLEAR 500 IF ON MODEL I/III
10 DIM SE$,DL$(2),CO$(2):'SEPARATOR,DRIVE LETTERS,COLON
20 GOSUB 1000: REM *** GET VALID DRIVE RANGE & SET UP DELIMITERS
30 GOSUB 2000: REM *** GET FILESPEC IN TWO PARTS
49 REM *** PREPARE TO OPEN SEQUENTIAL FILE TO BUFFER £1
50 PURP$="I":BUFF=1
55 GOSUB 4000:REM SEARCH DRIVES FOR FILE
59 REM *** NOW TEST BY READING FIRST RECORD
60 IF FLAG <>1 THEN LINE INPUT £BUFF,A$:PRINT A$:STOP ELSE STOP
999 REM *** NEXT IS VALIDATING SUBROUTINE
1000 LINE INPUT"ENTER LOWEST VALID DRIVE NO./LETTER FOR YOUR
     SYSTEM: ";LV$:IF LEN(LV$)>1 THEN GOSUB 1050:GOTO 1000 ELSE
     LV=ASC(LV$)
1010 LINE INPUT"ENTER HIGHEST VALID DRIVE NO./LETTER: ";HV$:IF
     LEN(HV$)>1 THEN GOSUB 1050:GOTO 1010 ELSE HV=ASC(HV$)
1020 IF ASC(LV$)<65 THEN TYPE=2:CO$(1)="":CO$(2)=":":SE$="/" ELSE
     TYPE =1:CO$(1)=":":CO$(2)="":SE$="."
1030 RETURN
1050 PRINT"ONE CHARACTER ONLY, PLEASE RE-ENTER.":RETURN
1999 REM *** NEXT IS EXAMPLE SUBROUTINE TO GET FILESPEC
```

```
2000 LINE INPUT"ENTER FILENAME (NO EXTENSION): ";FI$
2010 PRINT"ENTER  EXTENSION  (NO DELIMITER  PLEASE)":LINE  INPUT"
     (PRESS RETURN/ENTER IF NO EXTENSION) :";EXT$
2020 RETURN
2999 REM *** DRIVE NO./LETTER INCREMENT ROUTINE
3000 :IF DL$(TYPE) = "" THEN TV = LV:  DL$(TYPE) = CHR$(TV): ELSE
     TV = TV+1:  DL$(TYPE) = CHR$(TV): IF TV>HV THEN PRINT"DEVICE
     NOT AVAILABLE, FILE NOT FOUND":DL$(TYPE)="":FLAG=1:RETURN
3009 REM *** STORE CORRECTED FILESPEC IN FS$
3010  IF  EXT$>"" THEN FS$ = DL$(1) + CO$(1) + FI$ + SE$ + EXT$ +
     CO$(2) + DL$(2):RETURN
3020 FS$=DL$(1)+CO$(1)+FI$+CO$(2)+DL$(2):RETURN
3999 REM *** DEMO FILE SEARCH ROUTINE
4000 CLOSE  BUFF:ON  ERROR GOTO 60000:GOSUB 3000:IF  FLAG=1  THEN
     RETURN  ELSE  IF TYPE =1 THEN ON ERROR GOTO 0:ON ERROR  GOTO
     61000:RESET:ON ERROR GOTO 0:ON ERROR GOTO 60000
4010 OPEN PURP$,BUFF,FS$:ON ERROR GOTO 0:RETURN
60000 IF ERL=4010 THEN RESUME 4000
60010 PRINT"ERROR IN LINE ";ERL:STOP
61000 IF  ERL=4000  THEN PRINT"TRS-80 DRIVES  ARE  NUMBERED,  NOT
     LETTERED":PRINT:RESUME 20 ELSE 60010
```

DBASEII = WHAT TO DO WITH IT = PART 1

It is a few months now since I finished typing my series on CPM, and I have thought about taking on another project. For some time I have been toying with the idea of using dBaseII as my database program. Until now I have used few databases mainly because, although I had plenty of uses for them, I have not found one that really combined all the features that I needed. I started with Profile on the Model 1; in fact it was the earliest version and I transferred it to the Model 4 in it's Model 3 mode. This was a very cumbersome and weak database, but it did the job. Lately I have been using PFS:File and PFS:Report on the 4. this was a vast improvement on Profile 1, but it was still not 100% and the sorting was only up to 2 levels. Without PFS:Report the PFS system is extremely weak and may well be better when enhanced with all the extras that I see for the MSDOS Version.

One of the biggest problems I found was that to transfer from Profile to PFS I had to printout the entire file and then retype it. I swore after this that I would never change from PFS to another database after the marathon typing session. I still think that PFS is quite a good database and has many merits, but recently I have been taking a long at dBaseII. The first question was could it do sorts of greater than 1 level. Aha I may have lost some of you by now. Well lets just explain about sorts.

Imagine a database with names and other personal details, in fact don't try to imagine one I will give you an example.

NAME	INITIALS	FORENAMES	WORKPLACE	EMPLOYMENT	CODE	SALARY
Abbot	DF	Donald Frank	Shopfloor	Checker	2	7500
Bristow	MW	Martin William	Shopfloor	Packer	5	7000
Bristow	MJ	Michael John	Shopfloor	Checker	2	7500
Cockram	S	Shaun	Office	Manager	1	9000
Cole	AS	Arthur	Shopfloor	Cleaner	6	6000
Cole	A	Arthur	Office	Clerk	4	7600
Cole	A	Amanda	Office	Typist	3	7500

Firstly don't pay any attention to the wages and jobs, my knowledge of these matters is slight, somewhat similar at this stage to my knowledge of dBaseII. However, lets consider a sort of people alphabetically by surname. That is simple and in fact the above list is in that order. Often though that may not be enough and sorting on initials as well may be needed. This is the second level of the sort and many databases can do this. In the above case though, this is still not enough, a third level is required, requiring a first name sort. Greater levels may be needed to sort people with identical names and first names by sorting on their workplace.

In some cases the above list may be needed to be sorted on a field, that's the headings, such as NAME and SALARY, for instance a sort in order of WORKPLACE may be what is wanted. Some databases will only sort on the KEY FIELD, normally the first one. Even more difficult is to sort on fields such as EMPLOYMENT above. A straight alphabetic sort will put cleaners above managers and packers. That may be all that is required, but if the database needs to be sorted in order of importance we have to use more devious methods. In this case simply by adding a CODE field with lower values being the higher importance. A sort using the code as the key field will result in a database rearranged in order of importance. If your database can do all of those things then probably you are happy with your lot. If it won't then read on, dBaseII is for you.

First things first, what systems can dBaseII run under? CPM and MSDOS are the 2 I know of, but more may be in existence or on the way. It comprises a number of files, and these will vary with different versions of dBaseII. Currently version 2.4 is the latest I know of but am prepared to stand corrected on this matter. At this stage I will explain the meaning of the various filename extensions.

DBF	DATABASE FILES
FRM	REPORT FORM FILES
CMD	COMMAND FILES
NDX	INDEX FILES
MEM	MEMORY FILES
TXT	TEXT FILES

The meaning of each of these will become clear as the series progresses. There may be an exception to these extensions when using MSDOS, for example the COM command files used under CPM are called CMD files in MSDOS and therefore dBaseII CMD files are called PRG under MSDOS. I must add that dBaseII command files are not executable code but similar to JCL type of files and will allow a series of commands and decisions to be made automatically.

Some specifications and requirements for dBaseII.

A Z80, 8080 or similar system is needed with at least 48K of memory, an addressable screen (all TRS 80's have this), a mass storage device (floppy or hard disk) finally a CPM or MSDOS operating system. A printer is desirable but not mandatory. dBaseII has the following specifications:-

Records per file	65535
Characters per record	1000
Fields per record	32
Characters per field	254
Largest number	1.8 x 10-63
Smallest number	1.0 x 10-63
Accuracy	10 digits

These values may be one reason for not using dBaseII, especially the fact that only 32 fields are available. Some users seem to require unlimited fields, although as yet I have no reason for more than about 12.

Before use, dBaseII must be installed for your particular machine. This is vital if the program is to run at all and even if it does run, all of it's facilities may not be implemented. I shall now run through the process of installing dBaseII for use on a Model 4/4P. In the example below the sequence may not be the same as that you take, all replies to prompts appear after the ? or : prompt marks. Firstly type INSTALL, and the program will display

```
dBaseII INSTALLATION PROGRAM  VER 2.7

ARE FULL SCREEN OPERATIONS WANTED (Y/N)? Y

SELECT TERMINAL TYPE

A -HAZELTINE 1500       B -SOROC, TELEVIDEO
C -HEATH 89             D -PERKIN ELMER 1100
E -ADM 3A               F -ADM-31
G -VDP-80               H -INTECOLOR
I -GNAT-SYSTEM 10       J -TRS-80 II (P&T)
K -APPLE                L -VECTOR GRAPHICS
M -SUPERBRAIN           N -VISUAL 100
O -OSBORNE              P -HP 2621, HP-125
Q -CROMEMCO 3102        R -TRS-80 (FMG)
S -ADDS VIEWPOINT       T -XEROX 820
U -NEC

Y - MODIFY PREVIOUS INSTALLATION
Z - USER SUPPLIED TERMINAL COMMANDS
```

The various options used will now follow, however a reply of E will often do. Options Y and Z are roughly the same and if you have not installed your version of dBaseII then run INSTALL twice, selecting Terminal E (ADM 3A) on the first time and then when INSTALL is run the second time select Option Y. In fact the same questions are asked if you select Option Z, but no defaults are given. Where the default on your screen is the same as the one given here then just press <ENTER> or <RETURN> if you are using Video Genie

```
Option Y

MODIFY PREVIOUS INSTALLATION ROUTINE

FOR THIS METHOD, YOU WILL NEED THE HEX OR
DECIMAL CODES THAT CAN BE SENT FROM YOUR
COMPUTER TO THE VIDEO TERMINAL TO CONTROL IT
TYPE "Y" IF YOU WISH TO CONTINUE: Y

WILL YOU BE ENTERING COMMANDS AS HEX OR DECIMAL? H

COMMANDS ARE ENTERED AS A SEQUENCE OF NUMBERS
TYPE A CARRIAGE RETURN TO END A SEQUENCE

1 -     DELETE A CHAR SEQUENCE
2 -     DIRECT CURSOR POSITIONING SEQUENCE
3 -     CLEAR AND HOME SCREEN COMMAND
4 -     BRIGHT/STD VIDEO COMMANDS
5 -     DIM/REVERSE VIDEO COMMANDS
6 -     INITIALIZATION SEQUENCE
7 -     EXIT SEQUENCE
8 -     RESET TO STANDARD VIDEO MODE
9 -     ALTER SCREEN SIZE

SELECT ITEM TO CHANGE
ANY CHAR OTHER THAN 1 - 9 TERMINATES SESSION
```

Make your required selection at this point, the prompts that follow are the same as for Option Z below, but only those areas that you wish to examine/alter are displayed.

Option Z

USER SUPPLIED SPECS ROUTINE

FOR THIS METHOD, YOU WILL NEED THE HEX OR
DECIMAL CODES THAT CAN BE SENT FROM YOUR
COMPUTER TO THE VIDEO TERMINAL TO CONTROL IT
THE CODES (OR SEQUENCES) THAT YOU WILL NEED ARE:
    DELETE A CHAR SEQUENCE
    DIRECT CURSOR POSITIONING SEQUENCE
    CLEAR SCREEN COMMAND
    HOME CURSOR COMMAND (CLEAR AND HOME CAN BE COMBINED)
    OPTIONAL: BRIGHT/DIM COMMANDS OR VIDEO/REVERSE COMMANDS

TYPE "Y" IF YOU WISH TO CONTINUE : Y

Options Y and Z use the same questions from here on

WILL YOU BE ENTERING COMMANDS AS HEX OR DECIMAL? H
COMMANDS ARE ENTERED AS A SEQUENCE OF NUMBERS
TYPE A CARRIAGE RETURN TO END A SEQUENCE

NOW ENTER THE CODES FOR CHARACTER DELETION
THIS IS THE SEQUENCE "BACKSPACE,SPACE,BACKSPACE"
ON MOST TERMINALS IF THIS IS TRUE FOR YOUR
TERMINAL, THEN TYPE "Y" :Y

ENTER THE CHARACTER DELETE SEQUENCE

(3 BYTE MAX) 03,08,20

--- DIRECT CURSOR POSITIONING ---

THE CURSOR CONTROL SEQUENCE IS USUALLY A 3
TO 4 BYTE SEQUENCE. THE FIRST ONE OR TWO
BYTES ARE USUALLY FIXED AND THE REMAINING
BYTES CONTAIN THE LINE AND COLUMN NUMBERS
FIRST, ENTER THE POSITION IN THE SEQUENCE
THAT HOLDS THE COLUMN NUMBER

CURRENT VALUE = 04
<ENTER>

NEXT, ENTER THE POSITION IN THE SEQUENCE
THAT HOLDS THE LINE NUMBER

CURRENT VALUE = 03
<ENTER>

MANY TERMINALS ADD A CONSTANT TO THE LINE
AND COLUMN NUMBERS. ENTER THE CONSTANT BIAS
FOR YOUR TERMINAL

CURRENT VALUE = 20

NOW ENTER THE SKELETON FOR THE DIRECT CURSOR
COMMAND. ENTER A ZERO IN THE PLACES WHERE
COLUMN AND LINE NUMBERS GO

(11 BYTE MAX) 1B,3D,00,00

---- DIM/BRIGHT OR VIDEO/REVERSE VIDEO ----

ENTER THE COMMAND THAT WILL SWITCH TO
HIGH INTENSITY OR NORMAL VIDEO

(5 BYTE MAX) 0E

```
ENTER THE COMMAND THAT WILL SWITCH TO
LOW INTENSITY OR REVERSE VIDEO

(5 BYTE MAX) OF

---- CLEAR AND HOME COMMAND(S) ----

ENTER THE COMMAND(S) THAT WILL CLEAR THE
SCREEN AND PLACE THE CURSOR IN THE UPPER
LEFT CORNER OF THE TERMINAL

(11 BYTE MAX) 1A

ENTER THE COMMANDS TO BE ISSUED WHEN
ENTERING THE FULL-SCREEN EDITING MODE
(IF ANY)

(11 BYTE MAX) 00

ENTER THE COMMANDS TO BE ISSUED WHEN
LEAVING THE FULL-SCREEN EDITING MODE
SUGGESTION: USE DIRECT CURSOR POSITIONING
TO PUT CURSOR ON THE BOTTOM LINE OF THE SCREEN

(11 BYTE MAX)  1B,3D,37,20

ENTER THE COMMAND THAT WILL SWITCH TO
STANDARD INTENSITY OR NORMAL VIDEO
TO RESET THE SCREEN AFTER FULL SCREEN OPERATIONS

(5 BYTE MAX) 00

ENTER THE SCREEN WIDTH

CURRENT VALUE = 80

NEXT, ENTER THE NUMBER OF LINES ON THE SCREEN

CURRENT VALUE = 18

ENTER A CHARACTER TO BE USED FOR
INDICATING MACROS OR ENTER FOR
DEFAULT CHARACTER OF AMPERSAND (&) : <ENTER>

PRESS ENTER IF THE ERROR CORRECTION DIALOGUE IS TO BE USED OR ANY OTHER
KEY IF NO DIALOGUE IS WANTED  : <ENTER>

ENTER OPERATING SYSTEM

   A - CP/M 1.4 OR CP/M 2.2
   B - CDOS SYSTEM
   C - CROMIX SYSTEM
   D - MP/M II SYSTEM

A

TYPE "Y" TO SAVE, ANY OTHER KEY TO ABORT INSTALL
Y
```

I should emphasize that the TRS 80 Model 4/4P emulates the ADM 3A terminal and that selecting ADM 3A will often work, with the exception of Reverse Video.

Having installed your dBaseII the next thing to do is to get it up and running. To do this type dBase or dBase ????????; where ???????? is a valid filename of a CMD file, more on CMD files later. The program will prompt by asking for the date unless you specify a CMD filename. The date is used to indicate more recent updates on files and pressing <ENTER> will enter a date of 00/00/00

If you have the HELP file on your disk then typing HELP is probably the best thing to do first of all. The dBaseII prompt is a full stop which I shall omit from all

examples. Firstly you should create a database file using the CREATE command. This command will then prompt

```
ENTER FILENAME
```

Reply with any valid filename, dBaseII will add the extension .DBF automatically. Next the data structure is entered as follows

```
ENTER RECORD STRUCTURE
AS FOLLOWS
FIELD NAME,TYPE,WIDTH,DECIMAL
001
```

Reply here with the above details for example

```
001 NAME,C,20
002 INITIALS,C,5
003 AGE,N,3
004 SALARY,N,6,2

005 <ENTER>
```

This will create a database with a 20 position name field etc. The C in the TYPE column indicates Character, N is Numeric and L is Logical. If a field is not going to have calculations carried out on it then it is probably best to make it a Character type even if it only contains numbers, examples of this are dates of birth etc.

The next prompt is

```
ENTER DATA NOW (Y/N)
```

If you don't want to enter data just yet type N and the file will be created and ready for use on the disk. if you reply Y then the following will appear

```
RECORD 00001

NAME :              :
INITIALS :
AGE :  :
SALARY :       :
```

If you have installed everything correctly the above should appear possibly with reversed video if you took that option during INSTALL. If it does not appear then an error has been made during INSTALL, data can be entered without the full screen mode above; but obviously full screen editing is much simpler. Enter the data that you require and press the DOWN ARROW or <ENTER> to advance a field. Note that if a field is filled with data the cursor will automatically advance to the next one, this feature can be turned off if not needed. Once the first record has been completed the second will appear and so on. To exit you should press <CTRL> W to write the current record and <CTRL> Q to quit without writing. As you press <ENTER> at the end of each record and progress to the next the previous record is written. Pressing <ENTER> on a blank record will exit to the command prompt as well.

Assuming that you have entered some data and finally exited the CREATE command, you will probably want to display the data and by typing LIST this will happen.

```
00001 Smith              DP    23     7000.00
00002 Hobson             M     31     8500.00
00003 Toms               RAW   45     6000.00
```

The record numbers can be omitted by typing LIST OFF. Other LIST options are as follows

```
LIST FOR NAME = "Toms"
LIST OFF FOR NAME = "Hobson"
LIST OFF FOR AGE > 23
LIST OFF FOR AGE > 23 .AND. SALARY > 7500
```

The combinations are endless. Similar to list is DISPLAY, this will allow a scope of record numbers to be entered and unlike LIST which scrolls continuously, DISPLAY will

scroll 15 records at a time. Try typing the following

```
DISPLAY ALL
DISPLAY ALL FOR NAME = "Tom"
DISPLAY RECORD 2
DISPLAY NEXT 1
DISPLAY
```

Also try these which should explain themselves

```
LIST STRUCTURE
LIST FILES
DISP STRU
```

The last example shows that commands may be abbreviated to four letters if you wish. Typing GO TOP will move the record pointer to the first record, typing a number will point at that record, this will be the record that appears next when DISPLAY is typed by itself. SKIP 3 and SKIP-3 should explain themselves.

Should you wish to leave dBaseII and return at a later time, then before using a database file you must tell dBaseII which one to use by typing USE NAMES for example. To add to a database type APPEND after the USE command and more records can be added just as when you created the file. INSERT will prompt for data entry on a record after the current one. INSERT BEFORE is obvious, and INSERT BEFORE BLANK will insert a blank record and not prompt for data entry. DELETE is the opposite of INSERT and can contain a scope such as DELETE NEXT 3, or DELETE RECORD 5. DELETE FILE A:DUMMY.DBF is how a file can be killed. These cannot be recovered from within dBaseII. However, deleted records can be resurrected by using RECALL in the same way as DELETE. Records can be permanently deleted by typing PACK after all deletions have been made, this will pack all the records together and totally delete any "DELETED" records.

With the above information you can play a little with dBaseII, but before I leave you I will tempt you of things to come with some commands to try for yourself.

```
EDIT 3
? 23*5
? "Hello"
ERASE
LIST STATUS
GO BOTTOM
? NAME
```

The last word for this part is after you have finished using dBaseII you MUST exit by typing QUIT, this will close all files and exit gracefully. It is now 10 PM on Sunday and tomorrow I have been asked by someone at work who is now using dBaseII there to demonstrate how it works, so armed with this article I shall "Boldly go where I haven't been before"

Good luck and I shall return next time with all the <CTRL> codes that you need for that EDIT command that you will probably have tried out by now.

Dave Holman
160 London Road West
Bath
Avon
BA1 7QU

HELP

1 Is anyone running Profile under NEWDOS80 V2 ? I would like to so that I can use 80 track drives. Please can anyone let me know of any patches or other modifications that are necessary, or any other better programs.

2 Does anyone have, or have access to, the following 80-US Journal's ?
Jan-Feb 79, Sep-Oct 79, Nov-Dec 79, Jan-Feb 81, Mar-Apr 81, Jul-Aug 81.
Mike Gibbons 021-747 2260

P R E S T E L

I've thought about it and talked about it long enough! I've decided, I'll try PRESTEL for a year. Through the generosity of Trevor Hutchinson, with the loan of his Prestel compatible modem I have logged on to the demonstration pages using the User ID 4444444444 and Password 4444. Whilst the demonstration facilities are very limited it was sufficient to get the flavour of the database.

The great day arrived when the BT envelope arrived with my USER ID and Password accompanied by the quarterly directory. I loaded up my copy of Don Bannister's PRESTEL program for Model 4 TRSDOS 6.x (purchased from Os House, Blandford Computers) and logged on to the Keats Computer. Even here in Northern Ireland the phone call is only charged at local call rates.

Would you believe it!!! I was not logged on for any more than 5 minutes when I suddenly lost control of the keyboard - Prestel would not respond to any key input yet various frames were appearing. Imagine my terror when I saw 'charged' frames appearing on the screen. No amount of swearing or sweating would stop it. I had read about HRH Prince Philip's Prestel Mailbox being hacked and here it was happening to me before my very eyes. Don's documentation warns about not logging off properly thereby providing the opportunity for someone else to pick up your line at you expense. I'll swear a full five minutes passed during which the Mailbox screen appeared and lo and behold the hacker announced that he had cracked my password and that he was not in Northern Ireland. He even suggested that I should not use abusive language - Huh!!!

Being new to the software, I had, in the moments (minutes?) of panic forgotton to press <F2> key which would have recorded the evidence on disk file for later printing. Eventually, control was returned. I immediately logged off.

A few minutes later in a condition of composure I logged on again and called the page where my Prestel bill to date was displayed.... the b****** had run up frame charges of 34p (not much you say - what about the principle of the thing then?). Next thing I did - change my password. Reflecting later I remembered that I was presented with an official looking response frame requesting that I should re-enter my password again. Muggins obliged! So that was how he did it.

WARNINGS FELLOW PRESTELers. Don't fall for that trick like I did.

Next morning I phoned Prestel and complained. Two mornings later a very pleaseant young lady from Prestel phoned me (at 7.35 IN THE MORNING!!) at home and said that I had not been the victim of a hacker but we had a crossed line with another user. She said that he should have logged off. What about my charges then-Miss? Oh, we will clear them from your account as you were not responsible for them. Thanks... Goodbye.

That was two weeks ago and the charges are still there. I honestly don't believe that it was a crossed line. British Telecom will never admit to a hacker. I SAY - I WUZ HACKED. After I finish this letter I shall write to them again about it.

Apart from this experience I can say that so far things have been interesting. The Tandy and Portable section looks good. Anyone who wants to converse with me via the Mailbox can do so. My number is 247462564.

David Roberts, 6,Plantation Road, Bangor Co Down N.Ireland.
Prestel Mailbox 247462564 Telephone 0247-462564

Comments on Model 4/4P mods Etc.

Reference Leon's question about extra memory for the 4/4P, there are three firms advertising memory enhancements for them in 80 Micro as well as for the 1 & 3, one of them 'Alpha Technology inc.' first advertised back in July last year, the other two 'Intellitech Corporation' & 'Seatronics of Holland' started in November.

They all seem to be advertising the same thing, I am now waiting to find out who is the originator, the Dutch firm seem to be from aditional information I have received.

The Alpha Technology board has been reviewed in the January 80 Micro along with a Ram-disk program which if it can all be made to work makes the change to an IBM compatible even less necessary especially as I already have double sided 80 track drives & shall be carrying out the 4 drive mod, (also described in the January issue), to my 4P very soon, with the 'gate array' machine it's very simple but for the earlier machines it would be advisable to get OS House to do it, he has had a lot of experience with the snags.

The January issue also had the instructions on how to speed-up an Epson MX-80 printer, I have carried them out & run 2400 sheets of printing through without the slightest problem, I did of course clean & lubricate everything first.

Re Peter Tootall's comment about edge connectors, even the General Northern disk connector had pins 32 & 34 connected together so that seems a common occurence.

When I took my Tandon drives out of my 4P they both worked with the Model 1 but only at a slower stepping rate than they had been using in the 4P & didn't they get HOT!, that explains why the 4P has a fan in it, only cool air comes out now no matter how long I am running.

Silicon grease on the head slides is a good idea with all drives, always makes then run quieter.

When using Mitsubishi drives in the 4P it is not necessary to extend the power cable, if it is disentangled from the other power wires there is enough to reach, it means cutting the cable tie & tieing the others up with a piece of string if you don't have any spare ties but that is simpler than extending the cable, as for the 34 way connectors as Tandy still insist in pulling out pins to polarise the connector all you have to do is take the connector carefully off the cable, pull connectors from the middle of the other side, (the earth side), & push them in the empty slots, if of course you have some identical connectors spare pull pins from them instead, but be carefull every make is different.

The three firms advertising 'SuperMem' as they call it also advertise a 'Speed-up' mod of up to 8mhz so the speed comparisons on page 10 & 11 of the December issue of Natgug would look quite different with that mod fitted, as I said who needs an IBM compatible.

When I installed my 80 track drives I got a little PCB with all the necessary circuitry on it for switching & mounted it behind the switches on the front of the casing along with red & green LEDs to show which size I was using, two colour LEDs would have been better but I hadn't got any.

Since starting this article I have received more detailed information from 'Alpha Technology' their description of both modification kits & software is almost word for word with the Dutch specifications, so maybe they started it after all, it will be a question of who are the best people to deal with, I am hoping a friend of mine will be able to go over to Holland soon & see what sort of a firm 'Seatronics' are.

I am sorry to note that 'Anon' is still unhappy with his 4P, it is a long way from being a miserable excuse for a computer, with the additions I have refered to it is quite a remarkable one, the one 'Anon' has just needs looking at by someone who realy understands them, if of course he still has Tandon drives that may be the cause, I seem to recall that the message 'not ready on drive a:' did happen to me once or twice before I changed the drives but I put it down to the disc not being entered into the drive properly, as opening the door & reinserting it corrected the fault.

The Misosys program 'Pronto' was reviewed in the November issue of 80 Micro & it is quite usfull for keeping dated notes as well as address records that need altering frequently, it has one advantage over the 'Montezuma' window program in that providing you enter the date on startup it displays the current month's calender with the date surrounded by a flashing cursor, if you enter the time at startup it also show it on the index card facility along with the date, unfortunately you cannot use 'Term' or 'Dialer' without the modem board being fitted & that is not available or legal in this country.

There are a lot of other usefull facilities but I have not got round to trying them out yet, being retired I no longer have to organise my time & as a result never seem to have any.

E.C.Kilpatrick, 3a Gainsborough St,
SUDBURY. Suffolk. CO10 6ET. Phone 0787 79504.

FREE BOTTLE OF CHAMPAGNE !

I have a bottle of rare Bulgarian champagne that I will give to anyone. All they have to do is to tell me where I can get better service from than Os House of Blandford Computers. I don't expect any of our readers not to know Os - in case they don't he and his staff and family are incredibly kind and helpfull. I am sure that it is not economic for him to attend all the meetings or to help in all the ways that he does, but I am sure that we appreciate it. I personally try to show this by ordering from Os where possible.

Mike Gibbons 021-747 2260

Aren't Computers Good !

One of my other interests is underwater diving (SCUBA diving). I was talking to a local diving shop director a couple of months ago and somehow the conversation turned to computing. To cut a long story short we agreed to look at my computer equipment and see what could be done with a computer today. He was so impressed that he decided to get a system straight away. His total outlay was about a tenth of what some salesmen were quoting and it does everything that he wants !

Mike Gibbons 021-747 2260

Wanted

Does anyone know anything about a program called Teacher's Aide (0214RD) that used to be sold by Microcomputer Applications ? I am interested in seeing a copy or knowing if it still can be obtained from anywhere.

Mike Gibbons 021-747 2260

WORDSTAR and EPSON PRINTERS:-I

This is the first of a two-part article which will cover two arrangements of Epson printer commands using the ten available locations described in my last article. This first arrangement should give most general users all they need. The second arrangement, whilst repeating some codes used in this arrangment, will include the sub/superscript commands for those who have the need for them. For both arrangments, I am providing a 'tailor-made' PRINT MENU to make it easier to find the right code.

My last article gave brief instructions on the use of CP/M's DDT program. Begin by copying to a new disk the usual three Wordstar files - WS.COM, WSMSGS.OVR and WSSOLVY1.OVR.

The following changes to WS.COM are in Hex numerical order so that, having called the first location 'S6B5', you can continue without a break until the last one at '06E5'. When finished, type '.' then check your changes, by typing 'D6B0'. The VDU will show the lines of memory which include your changes. For hard copy, type ^P and repeat the command.

	LOCATION ADDRESS	WORDSTAR COMMAND	WORDSTAR USE	SUBSTITUTED CODE	ADAPTED FOR
1.	06B5	^PA	CHARALTR	03 1B 57 31	ENLARGED ON
	TEST UPPER CASE : test lower case				
2.	06BA	^PN	CHARSTND	03 1B 57 30	ENLARGED OFF
3.	06BF	^PT	SUPER/ON	02 1B 34	ITALICS ON
	TEST UPPER CASE : test lower case				
4.	06C4	^PV	SUB /ON	02 1B 35	ITALICS OFF
5.	06C9	^PQ	USR1:	01 0F	CONDENSED ON
	TEST UPPER CASE : test lower case				
6.	06CE	^PW	USR2:	01 12	CONDENSED OFF
7.	06D3	^PE	USR3:	02 1B 45	EMPHASISED ON
	TEST UPPER CASE : test lower case				
8.	06D8	^PR	USR4:	02 1B 46	EMPHASISED OFF
9.	06DD	^PY	RIBBON	03 1B 2D 31	UNDERLINE ON
	TEST UPPER CASE : test lower case				
10.	06E2	^PY	RIBOFF	03 1B 2D 30	UNDERLINE OFF

Type '^C', to get out of DDT, followed by SAVE 62 WS.COM. Now, use DDT to call 'WSMSGS.OVR'. Making the changes below will produce this:-

^P < < < P R I N T M E N U > > >

Begin and end for	Only once each	-Epson Printer codes-
B, D, S and Y	time for H	A Enlarged on
B Bold D Double	H Overprint char	N Enlarged off
S Underscore	Q Condensed on	C Printing pause
Y Underline	W Condensed off	PROGRAM WS2.COM
E Emphasise on	T Italics on	has sub/superscript
R Emphasise off	V Italics off	and Elite type

When you type the 'R' to load WSMSGS.OVR, in most cases, you should get calculation values (for the subsequent SAVE command) of 6E00H-0100H i.e 110D-1D or 109 memory pages. Note the latter for use when saving the changed program.

ALTER PRESENT VALUES WHERE NEW VALUES ARE DIFFERENT

PRINT MENU: LINE 1 (Changes start:16B7 and end:16F3)

BYTE Nos:	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	16B0	20	20	20	20	20	20	0E	20	20	A0	AD	AD	AD	AD	AD	AD
CHANGES	16B0								42	65	67	69	6E	20	61	6E	64
ASCII									B	e	g	i	n		a	n	d
PRESENT	16C0	A0	D3	F0	E5	E3	E9	E1	EC	A0	A0	C5	E6	E6	E5	E3	F4
CHANGES	16C0	20	65	6E	64	20	66	6F	72	7C	20	20	20	4F	6E	6C	79
ASCII			e	n	d		f	o	r	¦				O	n	l	y
PRESENT	16D0	F3	A0	AD	AD	AD	AD	AD	AD	AD	A0	20	20	20	7C	20	AD
CHANGES	16D0	20	6F	6E	63	65	20	65	61	63	68	20	20	20	7C	AD	C5
ASCII			o	n	c	e		e	a	c	h				¦	-	E
PRESENT	16E0	D0	F2	E9	EE	F4	E9	EE	E7	A0	A0	C3	E8	E1	EE	E7	E5
CHANGES	16E0	F0	F3	EF	EE	A0	D0	F2	E9	EE	F4	E5	F2	A0	E3	EF	E4
ASCII		p	s	o	n		P	r	i	n	t	e	r		c	o	d
PRESENT	16F0	F3	AD	20	7C												
CHANGES	16F0	E5	F3	AD	7C												
ASCII		e	s	-	¦												

PRINT MENU: LINE 2 (Changes start:1708 and end:173F)

BYTE Nos:	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	1700	EE	F5	F3	AD	A0	20	0E	20	28	62	65	67	69	6E	20	61
CHANGES	1700									20	42	2C	20	44	2C	20	53
ASCII											B	,		D	,		S
PRESENT	1710	6E	64	20	65	6E	64	29	20	7C	20	20	28	6F	6E	65	20
CHANGES	1710	20	6E	64	29	20	59	20	20	7C	20	20	20	20	20	74	69
ASCII			a	n	d		Y			¦						t	i
PRESENT	1720	74	69	6D	65	20	65	61	63	68	29	20	20	20	7C	20	41
CHANGES	1720	6D	65	20	66	6F	72	20	48	20	20	20	20	20	7C	20	41
ASCII		m	e		f	o	r		H						¦		A
PRESENT	1730	20	41	6C	74	65	72	6E	61	74	65	20	70	69	74	63	68
CHANGES	1730	20	45	6E	6C	61	72	67	65	64	20	6F	6E	20	20	20	20
ASCII			E	n	l	a	r	g	e	d		o	n				

PRINT MENU: LINE 3 (Changes start:1781 and end:178E)

BYTE Nos:	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	1780	20	53	74	61	6E	64	61	72	64	20	70	69	74	63	68	20
CHANGES	1780	20	45	6E	6C	61	72	67	65	64	20	6F	66	66	20	20	20
ASCII			E	n	l	a	r	g	e	d		o	f	f			

PRINT MENU: LINE 4 (Changes start:17B8 and end:17CA)

BYTE Nos:		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	17B0										7C	20	4F	20	4E	6F	6E	2D
CHANGES	17B0										7C	20	51	20	43	6F	6E	64
ASCII											¦		Q		C	o	n	d
PRESENT	17C0	62	72	65	61	6B	20	73	70	61	63	65	20	20	7C	20	43	
CHANGES	17C0	65	6E	73	65	64	20	6F	6E	20	20	20						
ASCII		e	n	s	e	d		o	n						¦			

PRINT MENU: LINE 5 (Changes start:17F9 and end:1832)

BYTE Nos:		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	17F0										58	20	53	74	72	69	6B
CHANGES	17F0										59	20	55	6E	64	65	72
ASCII											Y		U	n	d	e	r
PRESENT	1800	65	6F	75	74	20	20	20	20	7C	20	46	20	50	68	61	6E
CHANGES	1800	6C	69	6E	65	20	20	20	20	7C	20	57	20	43	6F	6E	64
		l	i	n	e					¦		W		C	o	n	d
PRESENT	1810	74	6F	6D	20	73	70	61	63	65	20	20	20	20	7C	20	59
CHANGES	1810	65	6E	73	65	6D	20	6F	66	66	20	20	20	20	7C	A0	A0
ASCII		e	n	s	e	d		o	f	f					¦		
PRESENT	1820	20	4F	74	68	65	72	20	72	69	62	62	6F	6E	20	63	6F
CHANGES	1820	D0	D2	CF	C7	D2	C1	CD	A0	A0	D7	D3	B2	AE	C3	CF	CD
ASCII		P	R	O	G	R	A	M			W	S	2	.	C	O	M
PRESENT	1830	6C	6F	72	7C	5E	4F	20	4F	6E	73	63	72	65	65	6E	20
CHANGES	1830	A0	A0	20	7C												
ASCII					¦												

PRINT MENU: LINE 6 (Changes start:1849 and end:1882)

BYTE Nos:		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	1840	20	20	20	20	20	20	0E	20	20	56	20	53	75	62	73	63
CHANGES	1840										45	20	45	6D	70	68	61
ASCII											E		E	m	p	h	a
PRESENT	1850	72	69	70	74	20	20	20	20	7C	20	47	20	50	68	61	6E
CHANGES	1850	73	69	73	65	20	6F	6E	20	7C	20	54	20	49	74	61	6C
ASCII		s	i	s	e		o	n		¦		T		I	t	a	l
PRESENT	1860	74	6F	6D	20	72	75	62	6F	75	74	20	20	20	7C	20	A0
CHANGES	1860	69	63	73	20	6F	6E	20	20	20	20					A0	E8
ASCII		i	c	s		o	n								¦		h
PRESENT	1870	AD	AD	D5	F3	E5	F2	A0	A0	D0	E1	F4	E3	E8	E5	F3	AD
CHANGES	1870	E1	F3	A0	F3	F5	E2	AF	F3	F5	F0	E5	F2	F3	E3	F2	E9
ASCII		a	s		s	u	b	/	s	u	p	e	r	s	c	r	i
PRESENT	1880	AD	A0	20	7C	53	70	61	63	65	20	42	61	72	20	72	65
CHANGES	1880	F0	F4	A0	7C												
ASCII		p	t		¦												

PRINT MENU: LINE 7 (Changes start:1899 and end:18D1)

BYTE Nos:		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	1890	74	75	72	6E	73	20	0E	20	20	54	20	53	75	70	65	72
CHANGES	1890										52	20	45	6D	70	68	61
ASCII											R		E	m	p	h	a
PRESENT	18A0	73	63	72	69	70	74	20	20	7C	20	52	45	54	20	4F	76
CHANGES	18A0	73	69	73	65	20	6F	66	66	7C	20	56	20	49	74	61	6C
ASCII		s	i	s	e		o	f	f	¦		V		I	t	a	l
PRESENT	18B0	65	72	70	72	69	6E	74	20	6C	69	6E	65	20	7C	20	51
CHANGES	18B0	69	63	73	20	6F	66	66	20	20	20	20	20	20	7C	A0	A0
ASCII		i	c	s		o	f	f							¦		
PRESENT	18C0	28	31	29	20	57	28	32	29	20	45	28	33	29	20	52	28
CHANGES	18C0	A0	E1	EE	E4	A0	C5	EC	E9	F4	E5	A0	F4	F9	F0	E5	A0
ASCII			a	n	d		E	l	i	t	e		t	y	p	e	
PRESENT	18D0	34	29	20	7C												
CHANGES	18D0	A0	A0														
ASCII					¦												

Type '.' and then D16B0, followed by successive 'D's to check your entries. The ASCII output on the right should show all the letters in the revised PRINT MENU except for those letters which will appear in highlight on the screen. These show up as a series of 'stops'. When satisfied that all is correct, type '^C' to exit DDT. Then SAVE 109 WSMSGS.OVR.

Finally, type 'WS' and type 'D' to edit any file. When loaded, type '^P' and check that the revised PRINT MENU is as it should be.

Don Smith, 82, Oldridge Road, Balham, LONDON SW12 8QA.

For Sale
1 Discs
Brand new 8" discs - only 99p.
I also have some 5.25" discs.
2 High Resolution Graphics Option for the Model 1.
As sold by Tandy for £169. Now the last four only are for sale at £59.95 as kits but will be fitted free if required. This is your last chance !
Mike Gibbons 021-747 2260

SPARE MANUALS
I have spare copies of the following manuals which I have bought and no longer require. Please contact me for further details.
Model 1 Technical Reference Handbook (26-2103)
Model 1 Dosplus 3.5 Manual
Model 1 Level 2 Basic Reference Manual (26-2102)
Model 1 TRSDOS & DISK BASIC Reference Manual (26-2104). This is the one with the brown cover.
Most of the Tandy manuals above are now out of print.
Mike Gibbons 021-747 2260

COPYING FROM 80-TRACK TO 40-TRACK DISKS, CP/M to DOS

I regularly use Hypercross to copy data from my Model III (with 40-track drives) onto the CP/M machine in the office, which has 80-track drives. I use DEC VT180 as the interchange format; Hypercross will format and write to the disks, and the office machine will read them. So far the process has been very reliable.

Copying the other way is a different matter. The 80-track machine would write to the VT-180 disks, and read the data back, but the data was usually unreadable on the TRS-80. I've now at last found a solution which seems reliable if cumbersome. It may be relevant for any other members who need to use 80-track drives to write to disks that will later be read by a 40-track drive.

1. The first requirement is a new disk formatted in 40 tracks (in my example, in VT-180 format) by double-stepping on an 80-track drive. If you can't do this find someone who can format the disk for you on an 80-track-drive machine. This disk is to be used only for copying from the 80-track to the 40-track machine, and must not be written on by the 40-track machine. Once it is formatted, you can use it again and again, but you should only use the 80-track machine to delete unwanted files from the directory.

2. Next, use the 80-track drive to copy the files to the disk formatted under 1. above.

3. At this stage some of the files may still be unreadable on the 40-track machine. Use a good disk zapping utility on the 40-track machine to make a track-to-track copy of the whole double-stepped disk onto a true 40-track disk.

4. Copy the files over onto the TRS-80 DOS using Hypercross or its equivalent. You should now have no difficulty.

Christopher Currie

FOR SALE AND WANTED

For sale:-

Speech synthesiser for Model 3/4. Full port decoding, variable pitch O/P and unlimited vocabulary using phonemes.

Only £25.

Keith Howell,
7 Matthews Terrace,
Aldershot,
Hants.
Tel: (0252) 332161 (evenings only)

W A N T E D

DOT-WRITER with auxiliary programs for Model I TRS80
(Alternatively for Model III)

Bill Cowhig 21 Priory Road SALE M33 2BS Cheshire.
061-973-3604.

For Sale

Software

Systems and utility Programs

	Model	Price
LDOS Operating System, 2 disks and manual	I	20.00
MISOSYS DSMBLR III, Disk and documentation	I/III	10.00
BLINK, Link Facility, Disk and documentation	I/III	10.00
MONITOR 5, Disk and Documentation	I	10.00
LDOS Fix disk, Disk only, documentation on disk	I/III	5.00
Editor Assembler, 2 disks and documentation	I	20.00
Structured Basic Translator	I/III	10.00
ZCAT, LDOS Disk cataloging Program	I/III	10.00
Toolkit II, Disk and documentation.	I	10.00
EDX, Comprehensive Word Processing Package	I/III	10.00
Numb, Tape and documentation	I/III	3.00
GSF, Tape and documentation	I/III	3.00
Accel 3, Basic compiller, tape and documentation	I	3.00
TRS-80 Budget Management	I	5.00

Games Programs

The Valley, Computing Today Software, Tape only	I/III	3.00
F for Freddie, Flight Simulator, Tape and card	I/III	3.00
Galactic Empire, Adventure	I/III	3.00
Defense Command, Arcade game, tape only	I	3.00
Robot Attack, Arcade game, tape only	I	3.00
Super Nova, Arcade game, tape only	I	3.00
Cyborg, Arcade game, disk only	I/III	5.00

Hardware

TRS-80 Model 1 (late ROM), keypad, lower case,	100.00
TRS-80 Video Display (green)	35.00
Tandy Computer Tape Recorder CTR-80A	15.00
Expansion interface with 32k.	100.00
One 40 track single density drive, incl Power supply.	100.00
Twin 40 track single/double density drives, incl power supply	200.00
Tandy DMP 100 Printer with interface cable.	100.00

All with manuals.

Books

TRS-80 Level 2 Basic: a self teaching guide.	5.00
The Softside Sampler, Entertainment Programs	4.00
Microsoft Basic Decoded & other mysteries	11.00
TRS-80 Disk & other mysteries	5.00
TRS-80 Assembly Language Programming	2.00
Games for your TRS-80	1.50
TRS-80 Programs	2.00
Natgug News Vol 5 - Present	5.00

Conditions of sale.

All Prices are for items sold separately, 10% discount on more than five items in any one order. Package and Postage is included in the Prices, but not insurance if any Purchaser requires the items insured during transit, this is available at cost, details shall be determined when sale is agreed.

Contact
Pic Evans,
15 Hammond Road, Horsell, Woking, Surrey, GU21, 4TD.
Telephone Woking 25163.

NATGUG NEWS

Volume 7 Issue 8 February 1986

OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers, and compatible systems such as the Video Genie.

Details of the Group accounts, and the constitution of the Group, are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are obtainable from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the Secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

Leon Heller,
65 Flanders Mansions,
Flanders Road,
London W4 1NF
Tel: 01-994 7976

Secretary and Newsletter Publisher:-

Brian Pain,
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU.
Tel: (0908) 564271

CONTENTS

2. Information on the Group

4. Editorial

4. Members' letters

7. Wordstar and Epson printers - II

12. DIR patch to Pencil 2.0

14. Converting Scripsit files to Wordstar and vice-versa

17. Montezuma's Memdisk and reboots

18. Subscription reduction

LP

EDITORIAL

Please note my change of address (on page 2). After about 10 years in Newport Pagnell I've returned to "the great wen"; Samuel Johnson's name for London. A wen is a nasty skin lesion, by the way.

Please come to the Swindon workshop, if you can. Since the AGMs of both NATGUG and QUANTA are due, we are holding a joint workshop for the two groups, as we did a year ago. With about 200 members, NATGUG is still quite viable, although I am once again rather short of contributions, which accounts for the reduced size of the newsletter.

I mentioned some time ago that I had interfaced a Motorola MC145156 PLL frequency synthesiser chip to my Model I. The chip is now controlled by a Z8 single-chip processor, with an RS-232 interface to the Model II or QL. Although the output frequency of the synthesiser is extremely stable, according to a frequency counter, the lock detect signal is pulsing low, which means that the loop is not perfectly locked, which is rather puzzling. I remember someone telling me that the MC145156 had a bug in it, but Motorola deny this. Has anyone else got any experience of this device? The problem might be due to noise from the processor or pre-scaler affecting the phase-detector, so I'll see if using separate power-supplies cures the problem.

Leon Heller

MEMBERS' LETTERS

Firstly, may I wish you all a brisht new year and one twice as prosperous than the last.

Now, may I give the correct meaning for "OGGY OGGY OGGY", the title of Dave Mashford's contributions to this magazine.
The saying originated in Cornwall. There is a device known as a Taty Oggy, which was a full meal wrapped up in a pastry, these are now termed as Cornish Pasteys. When the Husband was at work down the mine, the wife would send the Taty Oggy's down the mine shaft and then call at the tops of there voices OGGY OGGY OGGY, so as to tell there men-folk that it is time for there meal.

I think that dear old Brian must have lost the NATGUG stamp, as all of my NATGUG's come with 'Independent QL Users Group' stamped on them. This, as you could imagine has caused me some dispute, as people are now saying that I am a secret QL User (Although I am now comming over to using the Motorola 68000 processor).

Since I have emigrated up north, there are only a select people who know my new address. It is as follows:

14 RoseDale, M.S.G. Campus, Teesside Airport
Darlington, Co. Durham. DL2 1RQ

Mind I am only hear up to the start of July.

I am also eligible to Subscribe to the British Computer Society (BCS) which entitles me to many things, one of witch is "COMPUTING" the magazine. In the December (5th) copy of this magazine there was an article writen by one Ivor Tiefenbrun. The following quote are taken from that article:

If everyone agrees with you, you know you're definitely wrong.

There are three reasons for buying a computer:
To bankrupt your company out of total malice;
Because you're so drunk that you're paralytic and incapable
at the time you buy one; or
That you actually want one. No one need a computer.

If you take the engineering industry as a fairly straight honest industry and put that at zero with nothing above it, then doctors are probably about 20 levels down, used car salesmen 30 levels, hi-fi people are 40 or 50 levels and computing people must be about 300 to 400 levels down.

Back home at xmas I was confronted by one Mister E.C. Kilpatrick saying that his PENCIL will not read his Model III directory. (This turned out to be a problem with the operating system rather than PENCIL). However, the coding in PENCIL will only take a directory on standard Model I and III disc's. If the format wavers from the TRSDOS standard at all then PENCIL will not be able to read it !!.
So I then set to, to write some code that will read the directory of mostly any format. This code taking the evening of Christmas day and up to the afternoon of Boxing day, before I was satisfied with it.

I have writen this up in a article which should also be in this issue, as Leon is running short on articles again folks. No-mater how insignificant you think a peas of information is, it could be what someone was looking for so please do keep sending them.

One more point. I am still on the look out for an OMICRON memory mapper board. If you have one you don't want, then could you get in tuch with me. Please note that it is only the mapper board that I am interested in and not the board that enables you to operate a 8" disc from the tandy.

Peter J Knaggs

The French TUG, the Association des Utilisateurs de TRS 80, has proposed to its members a widening of the subjects of its interest. On the paper announcing the elections, they propose Amstrad, Commodore, PC compatibles as machines to be covered, and sections specialising in communications, servers . . Tandy whetted our lips with a promise of a hard disk on loan to the group some time ago. It was due to be used for an on-line link in the group. You can guess what happened, the Tandy executive concerned was moved on.

Tandy Europe has split recently; Tandy France is now operational. They have kicked out ACT, and also Matra, who caused a lot of pain; at one moment my local Tandy shop (well, 50 miles away) had to send back almost every Model 4 they received. They still haven't caught up on the backlog of spare parts orders. I'm waiting for a keyboard, to give my Model 4 a separate one. I got so fed up waiting that I ended up pulling the existing one out and building it a separate housing. It works fine, though the cable lengthening is a bit of a kludge. The cable is captive and I had to lengthen it (instead of replace it) to avoid any problems with the Tandy repair shop afterwards.

We've been on the edge of the recent snow that caused havoc locally. Still, we were near enough to be without mains current for 36 hours. I cannot say that that didn't worry me; what I can say now is that short blackouts don't worry me. Twice today the lights have gone out momentarily, and I've just gone on typing away, thanks to some batteries I've linked into the Model 4's underskirts.

I do not recommend the mod to the faint of heart. You need to supply around +12V @ 4A, +5V @ 4A and -12V @ 0.1A. I ended up feeding the drives off a separate (fourth) supply, to avoid the 'pull' on the video image when the drives start up. Of course I've lost all protection, in the event of problems. I run mine with the battery chargers on, to avoid having to get simply enormous batteries (10 hours @ 8A, plus a large margin for error . .). The problem is to get the charge at the right level to keep the small batteries charged without cooking them. And I had my FDC chip go phut, probably due to my ministrations, but cause unknown. Still, I am well in pocket if you compare all that to an uninterruptible supply, some £600.

There is one small problem - the video is not perfectly stable. Straight verticals have a curve in them, and the curve moves slowly up and down. The same effect takes place with text, but so slowly that you have to look for it to see it. Anyone know what it could be?

The last French group magazine has:

- 2 programs in Basic under NewDos, one for mapping the files on a disk, the other for reading a complete sector or track (this last has a routine in assembler too).

- a report on a Mod I clone called the 'Guépard', sold with NewDos & CP/M, integral battery backup, 1.5Mb drive capacity and several more goodies, all for a very reasonable price, around £1200.

- an explanation of the Mod I ROM floating point routines.

- an article about programming the User Keys in Electric Pencil of another Mod I clone which used to be sold in kit form.

- an article on expanding the Mod I memory to 60K and switching out the ROM.

- an article on the High Resolution Card, sold here by Micro-Influx, containing 64K extra memory. It comes with an extended Basic and provides an easy means apparently of defining a new set of characters compatible with Teletext, Prestel for you, Minitel for us. The 64k can be used as a Memdisk.

Teletel is a vague relation of Prestel, using the same standards, I believe, for graphics and modem speed. Most people access it from a small terminal which the Post Office supplies free. The catch is that it replaces the telephone directory: you have the country's telephone directory on line, updated weekly. You only get the terminal free when you are due for it, otherwise it costs about £6 a month on the telephone bill. The whole thing is run by the Post Office, but they make place for information providers in the same way as Prestel. For the moment, though, there are many fewer bulletin boards here, or even message services, the equivalent of Telecom Gold. We have access though to PSS. The setting up of all the information providers' file servers has spread a good amount of business the way of local programmers. There are said to be a million terminals in use already, and they are only just getting geared up to full production (against 65,000 linked to Prestel).

Anyone who would like more news on one of the articles has only to contact me.

John NEGUS, 19 010 33 75 38 61 25. Bessas, 07150 Vallon Pont d'Arc, France.

WORDSTAR and EPSON PRINTERS:-II

This is the final article on the above subject. It is provided for those who have need of sub/superscript and/or a continuous Elite. This second arrangement of the Epson printer codes has to have its own WSMWGS.OVR file. If both sets are kept on the same disk then the second set has to be given different names. However, the third Wordstar file - WSOVLY1.OVR - can be shared by both sets of files PROVIDING one of the main Wordstar files has its usual name of WS.COM.

This was the name given to the main file for the first arrangement and so my second set of files are named 'WS2.COM' and 'WSMSG2.OVR'. As before, DDT is used to make the necessary changes. However, before we can start, we must make copies of the main Worstar files. This should be done via spare capacity on a third disk. Here they can be renamed before being copied alongside the files for the first arrangement. In the case of WSMSG2.OVR, it is essential that this be copied from that already altered for the first arrangement. Otherwise, the following instructions will not make much sense.

Your PRINT MENU for the second arrangement will appear as follows:

< < < P R I N T M E N U > > >

Begin and end for	Use once for C & H	-Epson Printer codes-
B, D, S and Y	C Printing pause	V Subscript on
B Bold D Double	H Overprint char	T Superscript on
S Underscore	A Emphasised on	Q Sub/super off
Y Underline	N Emphasised off	PROGRAM WS.COM
R Elite on	W Italics on	has Enlarged and
No off available	E Italics off	Condensed type

One thing I discovered in experimenting with these various arrangements is that some of the former Wordstar commands (as opposed to the USER patches) can be very sensitive as to the purpose for which they are used. They may perform alright within the text but, in some cases, appear to leave a residual code which later combines with another code (?CR or LF?) to give an unexpected effect. The odd double-printing to which I drew your attention in my original article was such an effect. It is for this reason that locations used for one purpose in the first arrangement have not necessarily been used for the same purpose in the second arrangement. However, I don't propose to investigate these time-consuming mysteries any further.

By illustration: this is what you can get from this arrangement.

TEST EXAMPLE:

Italics can emphasise *special* items.
Signals identified by S_1; etc, and a
formula such as $P = I^2R$ can be found in electronics.

Use DDT to make the following alterations to WS2.COM

	LOCATION ADDRESS	WORDSTAR COMMAND	WORDSTAR USE	SUBSTITUTED CODE	ADAPTED FOR
0.	03F8	NONE	FILENAME	32 for 53	'2' for 'S'
1.	06B5	^PA	CHARALTR	02 1B 45	EMPHASISED ON
		TEST UPPER CASE : test lower case			
2.	06BA	^PN	CHARSTND	02 1B 46	EMPHASISED OFF
3.	06BF	^PT	SAME USE	03 1B 53 00	SUPERSCRIPT ON
		TEST UPPER CASE : test lower case			
4.	06C4	^PV	SAME USE	03 1B 53 01	SUBSCRIPT ON
5.	06C9	^PQ	USR1:	02 1B 54	SUPER/SUB OFF
6.	06CE	^PW	USR2:	02 1B 34	ITALICS ON
		TEST UPPER CASE : test lower case			
7.	06D3	^PE	USR3:	02 1B 35	ITALICS OFF
8.	06D8	^PR	USR4:	02 1B 4D	ELITE ON
		TEST UPPER CASE : test lower case			
9.	06DD	^PY	RIBBON	03 1B 2D 31	UNDERLINE ON
		TEST UPPER CASE : test lower case			
10.	06E2	^PY	RIBOFF	03 1B 2D 30	UNDERLINE OFF

I have settled for a permanent Elite because, if used, it is likely to be for the whole job. Unlike underlining, emphasising, italicising, etc, it is not a style one would intersperse for special effect.

Because there is no off for Elite, this print-out is still in elite type. One advantage of this is that it gives us the chance of seeing the effect of re-running the above Test Example with elite on.

TEST EXAMPLE:

Italics can be used to emphasise *special* items.
Signals identified by S_i; etc, and a
formula such as $P = I^2R$ can be found in **electronics**.

As you can see, all commands work except for Emphasised. Having already discovered this, I compensated for its loss by trying out the still remaining Wordstar commands. So, for the re-run, I changed the following - ^Bformula^B and ^Delectronics^D. The result shows that some 'emphasising' of text is still possible.

The next step is to alter the PRINT MENU (on WSMSG2.OVR) as follows:

ALTER PRESENT VALUES WHERE NEW VALUES ARE DIFFERENT

(NOTE: These changes apply to the version of WSMSGS.OVR which was previously changed in line with my first article on the subject. PRESENT values are, therefore, either the unchanged originals or the values resulting from the first set of changes).

PRINT MENU: LINE 1 (Changes start:16CA and end:16DB)

BYTE Nos:		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	16C0	20	65	6E	64	20	66	6F	72	7C	20	20	20	4F	6E	6C	79
CHANGES	16C0													55	73	65	20	6F	6E
ASCII												!		U	s	e		o	n
PRESENT	16D0	20	6F	6E	63	65	20	6E	61	63	68	20	20	20	7C	AD	C5
CHANGES	16D0	63	65	20	66	6F	72	20	43	20	26	20	48				
ASCII		c	e		f	o	r		C		&		H		!		

PRINT MENU: LINE 2 (Changes start:171A and end:173C)

BYTE Nos:		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	1710									7C	20	20	20	20	20	74	69
CHANGES	1710											43	20	50	72	69	6E
ASCII										!		C		P	r	i	n
PRESENT	1720	6D	65	20	66	6F	72	20	48	20	20	20	20	20	7C	20	41
CHANGES	1720	74	69	6E	67	20	70	61	75	73	65						56
ASCII		t	i	n	g		p	a	u	s	e				!		V
PRESENT	1730	20	45	6E	6C	61	72	67	65	64	20	6F	6E	20	20	20	20
CHANGES	1730	20	53	75	62	73	63	72	69	70	74	20	6F	6E			
ASCII			S	u	b	s	c	r	i	p	t		o	n			

PRINT MENU: LINE 3 (Changes start:177F and end:178E)

BYTE Nos:		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	1770															7C	20	4E
CHANGES	1770																	54
ASCII																		T
PRESENT	1780	20	45	6E	6C	61	72	67	65	64	20	6F	66	66	20	20	20
CHANGES	1780	20	53	75	70	65	72	73	63	72	69	70	74	20	6F	6E	
ASCII			S	u	p	e	r	s	c	r	i	p	t		o	n	

PRINT MENU: LINE 4 (Changes start:17BA and end:17DE)

BYTE Nos:		00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	17B0									7C	20	51	20	43	6F	6E	64
CHANGES	17B0											41		45	6D	70	68
ASCII										!		A		E	m	p	h
PRESENT	17C0	65	6E	73	65	6D	20	6F	6E	61	20	20	20	20	7C	20	43
CHANGES	17C0	61	73	69	73	65	64	20	6F	6E							51
ASCII		a	s	i	s	e	d		o	n					!		Q
PRESENT	17D0	20	50	72	69	6E	74	69	6E	67	20	70	61	75	73	65	20
CHANGES	17D0	20	53	75	62	2F	53	75	70	65	72	20	6F	66	66	20	
ASCII			S	u	b	/	S	u	p	e	r		o	f	f		

PRINT MENU: LINE 5 (Changes start:180A and end:182B)

BYTE Nos:	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	1800										7C	20	57	20	43	6F	6E	64
CHANGES	1800												4E		45	6D	70	68
													N		E	m	p	h
PRESENT	1810	65	6E	73	65	6D	20	6F	66	66	20	20	20	20	7C	A0	A0	
CHANGES	1810	61	73	69	73	65	64	20	6F	66	66							
ASCII		a	s	i	s	e	d		o	f	f							
PRESENT	1820	D0	D2	CF	C7	D2	C1	CD	A0	A0	D7	D3	B2	AE	C3	CF	CD	
CHANGES	1820										A0	D7	D3					
ASCII												W	S					

PRINT MENU: LINE 6 (Changes start:1849 and end:1881)

BYTE Nos:	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	1840	20	20	20	20	20	20	0E	20	20	56	20	53	75	62	73	63	
CHANGES	1840										52	20	45	6C	69	74	65	
ASCII											R		E	l	i	t	e	
PRESENT	1850	73	69	73	65	20	6F	6E	20	7C	20	47	20	50	68	61	6E	
CHANGES	1850	20	6F	6E	20	20	20	20	20	7C	20	57						
ASCII			o	n						!		W						
PRESENT	1870	E1	F3	A0	F3	F5	E2	AF	F3	F5	F0	E5	F2	F3	E3	F2	E9	
CHANGES	1870	E8	E1	F3	A0	C5	EE	EC	E1	F2	E7	E5	E4	A0	E1	EE	E4	
ASCII		h	a	s		E	n	l	a	r	g	e	d		a	n	d	
PRESENT	1880	F0	F4	A0	7C	53	70	61	63	65	20	42	61	72	20	72	65	
CHANGES	1880	A0	A0															
ASCII					!													

PRINT MENU: LINE 7 (Changes start:1897 and end:18C9)

BYTE Nos:	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F
PRESENT	1890	74	75	72	6E	73	20	0E	20	20	54	20	45	6D	70	68	61	
CHANGES	1890								4E	6F	20	6F	66	66	20	61	76	
ASCII									N	o		o	f	f		a	v	
PRESENT	18A0	73	69	73	65	20	6F	66	66	7C	20	56	20	49	74	61	6C	
CHANGES	18A0	61	69	6C	61	62	6C	65	20			45						
ASCII		a	i	l	a	b	l	e		!		E						
PRESENT	18C0	A0	E1	EE	E4	A0	C5	EC	E9	F4	E5	A0	F4	F9	F0	E5	A0	
CHANGES	18C0		C3	EF	EE	E4	E5	EE	F3	E5	E4							
ASCII			C	o	n	d	e	n	s	e	d							

Refer to my last article if you need help to save and test these changes.

I am not suggesting that these two arrangements are the only or the best ones available. They meet my needs and, now you know how I arrived at them, you can experiment for yourself!

Don Smith, 82, Oldridge Road, Balham, LONDON, SW12 8QA

Further to my recent articles on the above, I should let members know of my experience when using the superscript code since the articles were written.

I have been engaged on a Local History project in which I had to give fairly frequent references to sources of information. I used the version of Wordstar described in my final article. I soon discovered that successive superscript commands resulted in alternate super/sub scripts and a change of type style on the following pages. (such as that shown in my first article).

Being reluctant to be beaten on this issue I have experimented further with various possibilities. The one which works perfectly is to repeat a null superscript command either immediately after the operative one or at the end of the paragraph. The position has to be chosen bearing in mind that the null command will create two blank spaces and so these should be positioned where they will be least noticed. Even if only a single superscript command is used on a page, it is essential to send a null one before the page end. In this way, the unwanted change in type style on the following page is avoided.

I have not had time to check whether this same solution will serve for any of the other commands which misbehave.

By a null command I mean the following:

"One view^T(1)^Q is that....."^T ^Q

This prints thus:

"One view(1) is that....."

As can be seen I have left two spaces between the on/off null command. If I remember correctly, one of my many failures involved either using one space only or none at all between the on/off command hence my settling for two and success!!

Don Smith, 82, Oldridge Road, Balham, LONDON, SW12 8QA

FOR SALE

Newscript, set up on an LDOS data disk for the Mod III/4. £30.

Superscripsit. £80.

Both 'as new', unusable on my French keyboard.

John NEGUS, 19 010 33 75 38 61 25. Bessas, 07150 Vallon Pont d'Arc, France.

DIR PATCH TO PENCIL 2.0z.

Yet another Patch to pencil by Peter Knaggs.

Whilst I was back home for xmus, I was confronted by one Mister E.C. Kilpatrick saying that his PENCIL will not read his Model III directory, (This was a problem with his operating system rather than with his PENCIL). However, the coding in PENCIL will only take a directory on standard Model I and III disc's. If the format wavers from the TRSDOS standard at all then PENCIL will not be able to read it !!.
So I then set to, to write some code that will read the directory of mostly any format. This code taking the evening of Christmas day and up to the afternoon of Boxing day, before I was satisfied with it.

The routine for the DIR command is in the PENCIL overlay PENCIL01/SYS at memory address 6AB7. On entry to this routine the DE register pair are pointing to the character after the R of the DIR command. It will also be noted that the command buffer ends with a 00 byte value.

The routine I devised uses the DOS-CALL function of NEWDOS/80 to perform the function. A DOS-CALL facility is also available in most of the other dos's (With the notable exception of TRSDOS).
The code had to accept all the standard DIR parameters.

This is the coding:

```
                ;NEWDIR/ZEN
                ;New DIR codeing for Electric PENCIL 2.0z
                ;Will handle all of the PENCIL DIR commands
                ;  But will work under all PDRIVE setings for NEWDOS
                ;
                ;This is a NEWDOS/80 specific programme but can simply,
                ;  be altered for other dos's
                ;
                ; Peter J Knaggs   1984
                ;
                        ORG  06AB7H          ; Origin for PENCIL patch

                EXEC:   EXEC EXEC            ; Set Entry point

                Start:                       ; Scan through the code for *
6AB7 1A                 LD   A,(DE)          ; Read Buffer character
6AB8 FE2A               CP   '*'             ; Is it all files ?
6ABA 2007               JR   NZ,Drive        ; No => Skip this code
6ABC 3E0D               LD   A,13            ; Yes => Set to Carriage Return
6ABE 32F66A             LD   (CMD+5),A       ;      Place before /PCL
6AC1 3E2A               LD   A,'*'           ;      Reset chr to *

                Drive:                       ; Set drive # if 0 1 2 or 3
6AC3 FE34               CP   '4'             ; Is it a drive Number ?
6AC5 3824               JR   C,Next
6AC7 FE30               CP   '0'             ; No => Ignore it and
6AC9 3820               JR   C,Next          ;       Move on to next chr
6ACB 32F56A             LD   (CMD+4),A       ; Yes => Set Drive number

                DoIt:                        ; Take the Directory
6ACE 21F16A             LD   HL,CMD          ; Point to the DOS command
6AD1 CD1944             CALL 4419H           ; DOS-CALL => Execute it
6AD4 C2D669             JP   NZ,69D6H        ; Error => Report it and return
```

```
6AD7 21F56A            LD   HL,CMD+4       ; No => Point to Command
6ADA 3630              LD   (HL),'0'       ; Reset defaults:
6ADC 23                INC  HL             ;      Drive to 0
6ADD 3620              LD   (HL),' '       ;      only /PCL files
6ADF CD0B53            CALL 530BH          ; Clear out keyboard buffer

                Wait:                      ; Wait for a key
6AE2 3A7F38            LD   A,(387FH)      ; Look at keyboard
6AE5 B7                OR   A              ; Is a key pressed ?
6AE6 28FA              JR   Z,Wait         ; No => Wait until one is
6AE8 C30162            JP   6201H          ; Yes => Return to the menu


                Next:
                ; Get the next character from the keyboard buffer
6AEB B7                OR   A              ; am I at end of buffer ?
6AEC 28E0              JR   Z,DoIt         ; Yes => Then execute it
6AEE 13                INC  DE             ; No => Move on to next chr
6AEF 18C6              JR   Start          ; Do it all again

                ; This is the DOS command
6AF1 44495220 CMD:     DB   'DIR '         ; Dos function
6AF5 30                DB   '0'            ; Drive number (+4)
6AF6 20                DB   ' '            ; for /PCL files only
                                           ;      or 13 for all files
6AF7 2F50434C          DB   '/PCL'         ; /PCL files only
6AFB 0D                DB   13             ; End of command

                       END                 ; End of programme
```

For those of you how do not feel confident enough to modify your PENCIL from that, then hear is the NEWDOS ZAP to PENCIL01/SYS. Note: I have zaped out the old PENCIL coding so as to keep things tide, but you only need the underlined code:

```
DRV 00  096D CD0B 53D1 0113 0021 526F EDB0 C9DD mS!Ro
0   10  2101 8290 6AED 63DD E5E5 ED73 396E DD21 !Ics9n!
0H  20  2B6E DD22 336E CD6B 6DCD 4D6D CD2C 44C2 +n"3nkmMm,D
    30  D76D D101 1400 2179 6FED B0C9 1AFE 2A20 m!yo*
DRS 40  073E 0D32 F66A 3E2A FE34 3024 FE30 3820 >2j>*40$08
444 50  32F5 6A21 F16A CD19 44C2 D669 21F5 6A36 2j!jDi!j6
1BCH60  3023 3620 CD0B 533A 7F38 B728 FAC3 0162 0#6 S:8(b
    70  B728 E013 18C6 4449 5220 3020 2F50 434C (DIR 0 /PCL
    80  0D00 0000 0000 0000 0000 0000 0000 0000
    90  0000 0000 0001 8210 6B00 0000 0000 0000 k
    A0  0000 0000 0000 0000 0000 0000 0000 0000
    B0  0000 0000 0000 0000 0000 0000 0000 0000
FRS C0  0000 0000 0000 0000 0000 0000 0000 0000
9   D0  0000 0000 0000 0000 0000 0000 0000 0000
9H  E0  0000 0000 0000 0000 0000 0000 0000 0000
    F0  0000 0000 0000 0000 0000 0000 0000 0000
```

Peter Knaggs,
12, Seymour Road, CHIPPENHAM, Wiltshire. SN15 3NH.

CONVERTING SCRIPSIT FILES TO WORDSTAR AND VICE-VERSA

I quite often copy Scripsit files to CP/M for editing and printing with Wordstar. I don't recommend the conversion programs in a recent issue of 80-Micro. To copy from S to W, I delete all format lines and block markers, save the file in Ascii, and copy over with Hypercross using the Ascii option. Since I use Geoff Smith's Scripsit-Plus, I also have to make sure that printer control codes are removed. It's best to replace each function code by a single character which is not otherwise used in the file; that can then be globally replaced by the appropriate Wordstar control code after the file has been copied over. Paragraph codes (@C) are replaced by line codes (@X) before copying, and page codes (@V) by .pa. When the copied file is examined with Wordstar, only the beginning of each paragraph is visible. The rest is recovered by reformatting the paragraph with CTRL-B. If you want to reformat all the paragraphs automatically, use CTRL-Q-Q-B. Then go away for tea while Wordstar does it.

I've only recently solved the problem of copying the other way. If Hypercross is used with the Ascii option, the result is a hard carriage return (Scripsit @X) at the end of every line; they have to be taken out by hand before the paragraph can be reformatted. Moreover the paragraph-ends look the same as the line ends. Wordstar control codes come out looking like square brackets and can't be distinguished from each other.

I therefore decided to use Hypercross's image-format copy routine and to write my own filter, which runs under NEWDOS80 (it should also run under DOSPLUS and MULTIDOS, but not under TRSDOS 1.3). It gets rid of Wordstar line feeds and 'soft' carriage returns, preserves 'hard' carriage returns, converts the control codes which I want to keep into characters that I can recognize, and deletes the other control codes. The source code is appended hereto in case it is useful (it'll make Laurie's hair stand on end, but it works). The protocol characters into which the Wordstar control codes are converted can of course be changed.

After using the filter on a file, load the result under Scripsit, save it back in ASCII, and load it again. That resets the 8th bit of the last byte of each word, which Wordstar messes up. (You shouldn't try to do this by the apparently obvious method of resetting the 8th bit in the filter program, since you may convert soft carriage returns to hard ones, and your'e back to square 1. It would be OK if the soft carriage return was checked for right at the beginning of the routine. As I use EDTASM, I couldn't face the retyping.) If the Scripsit video width settings are the same as the Wordstar margins were, the copied file should look the same as the original.

Incidentally the filter removes tabs, which shouldn't be found in a Wordstar document-mode file anyway (the document-mode tab is a string of spaces).

Christopher Currie

Tandy News

1 Did you know that Tandy are dissolving their partnership with ACT after only 6 months as trade has been poor.
The engineering side is to be taken over by Tandy and the sales by ACT.
2 Tandy apparently have several new interesting products to be released after Christmas.
Mike Gibbons 021-747 2260

```
;   wstosc. Wordstar to
    Scripsit-Plus. Model III.
00100 vdcls  equ  01c9h; ROM
    clear-screen routine
0110 vdline  equ  021bh;
    display message
0120 kbline  equu  0040h;  get
    line from keyboard
0125 vdchar  equ  0033h;
    display a char.
0130 close  equ  4428h;  dos
    file close
0140 extrt  equ  441ch;  dos
    extract filespec
0150 open  equ  4420h;  dos
    file open
0160 jp2dos  equ  402dh;  jump
    to dos
0170 outbyt  equ  001bh;
    write byte to disk
0180 inwit  equ  0013h;  read
    byte from disk
0190 errmes  equ  4409h;  dos
    error mess. display
1000   org  8000h
1010 start  call  vdcls;
    clear screen
1020   ld  hl,msg1;  prompt
    for filespec
1030   call  vdline;  display
    it
1040   ld  hl,txt1;  buffer
1050   ld  b,1fh;  max. length
1060   call  kbline;  get the
    file spec
1070   jr  c,start;  loop if
    break pressed
1080   ld  hl,txt1;  point to
    it again
1090   ld  de,fcb1;  point to
    fcb
1100   call  extrt;  filespec
    to fcb
1110   jr  nz,start;  again if
    wrong
1120 loop2  ld  a,0dh;
    carr.ret.
1130   call  vdchar;  skip
    line
1140   ld  hl,msg2;  output
    filespec
1150   call  vdline;  display
    prompt
1160   ld  hl,txt2;  buffer
1170   ld  b,1fh;  max length
1180   call  kbline;  get the
    line
1190   jr  c,loop2;  loop if
    break
1200   ld  de,fcb2;  2nd fcb
1210   ld  hl,txt2;  point agn.
1220   call  extrt;  extract
    it
1230   jr  nz,loop2;  go back
    if error
1240   ld  hl,buff2;  buffer
    for output file
1250   ld  b,0;  lrl=256
1260   call  open;  open it
1265   jp  nz,error;  display
    error if any
1270   ld  de,fcb1;  input fcb
1280   ld  hl,buff1;  buffer
    for input
1290   ld  b,0;  lrl=256
1300   call  open;  open it
1305   jp  nz,error;  display
    error if any
1310 copy  call  read;  read
    byte
1325   jr  nz,err1;  test for
    close
1330   cp  01ah;  is it ctrl-
    z?
1340   jr  z,finish;  close if
    so
1343 bkspc  cp  08h;
    backspace
1344   jr  nz,tcomp;  go on if
    not
1345   ld  a,92;  backslash
1346   call  write;  output
1347   jr  copy;  goback for
    next
1350 tcomp  cp  't'-64;  ctrl-
    t
1351   jr  nz,nxt1
1352 bk1  ld  a,'!';  replace
    with !
1353   call  write;  output it
1354   jr  copy;  go back for
    next byte
1355 nxt1  cp  't'+64;  8th
    bit set
1356   jr  z,bk1;  replace if
    crtl-t
1357 scomp  cp  's'-64;  ctrl-
    s
1358   jr  nz,nxt2
1359 bk2  ld  a,5fh;  uline
    char. (_)
1360   call   write;  output
1361   jr  copy; see line 1354
1362 nxt2  cp  's'+64;  8th
    bit
1363   jr  z,bk2
1364 dcomp  cp  'd'-64;  ctrl-
    d
1365   jr  nz,nxt3
1366 bk3  ld  a,7ch;  vert.
    bar char. (|)
1367   call  write
```

```
1368   jr  copy
1369 nxt3  cp  'd'+64;  8th
    bit
1370   jr  z,bk3
1371 bcomp  cp  'b'-64;  ctrl-
    b
1372   jr  nz,nxt4
1373 bk4  ld  a,7eh;  tilde
    (~)
1374   call  write
1375   jr  copy
1376 nxt4  cp  'b'+64;  8th
    bit
1377   jr  z,bk4
1378 carret  cp  8dh;  soft
    carr.ret.
1379   jr  nz,leap
1380   call    read;  get next
    char.
1381   cp  0ah;  shd. be
    linefeed
1382   jr  copy;  strip & go
    back
1383 leap  cp  0dh;  true
    carr.ret., ie para.
1384   jr  nz,nxt5
1385   call  write;  output it
1386   call  read;  get next-
    line feed
1387   jr  copy;  ignore it &
    go back
1388 nxt5  cp  20h;  control
    code?
1389   call  c,read;  get next
    if it is
1390   call    write;  output
    that instead
1391   jr  copy;  go back
1400 finish  ld  de,fcb1;
    input file
1410   call    close;  close
    input file
1420   jr  nz,error;  disp.
    error
1430   ld    de,fcb2;  output fcb
1440   call    close;  close
    output file
1450   jr  nz,error;  disp
    error
1460   jp    jp2dos;  return
    to dos
1465 err1  cp  1ch;  eof?
1466   jr  z,finish;  finish
    if so
1470 error  jp  errmes;
    display & ret to dos
1500 read  ld  de,fcb1;  input
    file fcb
1510   call    inwit;  get
    byte
    for 1st filename
1520   jr  nz,err1;  test for
    close
1530 ret
1540 write  ld  de,fcb2;  2nd
    file fcb
1550   call    outbyt;  push
    it out
1560   jr  nz,error;  display
    error if any
1570 ret
4000 msg1  defm  'enter input
    filespec:'
4010   defb 0dh
4020 msg2  defm  'enter output
    filespec:'
4030   defb 0dh
4040 txt1  defs 20h;  buff.
4050 buff1  defs 100h;  file
    buffer
4060 fcb1  defs 20h;  fcb
    storage
4070 txt2  defs 20h;  buff.
    for 2nd filespec
4080 buff2  defs 100h;  2nd
    file buffer
4090 fcb2  defs 20h;  output
    file fcb
4100 end   start
```

Miscellaneous Notes for the Computer User

1 When in doubt check everything twice even if you think you have done so already !

2 When ANY fault develops with the Model 1 the edge connector to the interface is always responsible, even if you cleaned it yesterday !

3 When it doesn't work look it up in the manual - when this doesn't work throw away the manual and do it how you think it should be done !

This was printed on a Ibico Daisywheel type printer costing £99. It is slow at 12cps but the quality is as good as an expensive daisywheel printer - ideal for letters. The mechanism is made in Switzerland and the electronics are made in Japan. I bought mine from a firm called "Typewriter Centres" who have several branches in Birmingham & the West Midlands.

Mike Gibbons 021-747 2260

MONTEZUMAS MEMDISK AND REBOOTS

One of the little problems with Montezuma CP/M 2.2 is that a reboot wipes clean the contents of the memory disk, replacing what was there with E5's. Worse - with some word processors if your file is on drive M: and it becomes too long for the 64k allowance the system may lock up on you. The only way to unlock it is with a reboot. Problem.
Here is a solution which I've never actually used for real, but should do the trick. Firstly, you will need to make a copy of your system disk. Normally at power-on, the Memdisk is full of junk, and needs wiping. Someone who is a better person than I could write a patch which looks at the Memdisk, decides whether there is anything worth salvaging, and acts appropriately. This patch merely nobbles the code which wipes the disk.

Having made a copy, you will need a Disk Zap program such as Superzap to zap the disk. Now find this sector. It should be Track 1 Sector 0BH, but it might be different on different disk configurations. There are 4 bytes which need to be changed to 00, and these are underlined.

```
    Current-Track        Current-Sector       Current-Block
          0001                 000B                 0000

0000   84 36 3C 3E   8F D3 84 7E   36 C3 BE 20   1E 3E EF D3
0010   84 CD BA EA   29 3E FF D3   84 CD BA EA   3E 0D 32 3F
0020   EB 21 DC F5   22 15 F7 3E   8F D3 84 21   C2 EA 3A 34
0030   EA B7 C4 08   ED 0E 00 C3   00 D4 36 E5   23 CB 7C C0
0040   18 F8 1A C7   16 54 52 53   2D 38 30 20   4D 6F 64 65
0050   6C 20 34 20   36 34 6B 20   43 50 2F 4D   20 76 65 72
0060   73 20 32 2E   32 20 28 63   29 20 28 70   29 20 31 39
0070   38 32 20 44   69 67 69 74   61 6C 20 52   65 73 65 61

        Current-Drive
              A

       ¦.6<>...^6.. .>..¦
       ¦....)>......>.2?¦
       ¦.!.."..>...!..:4¦
       ¦..........6.£.¦.¦
       ¦.....TRS-80 Mode¦
       ¦1 4 64k CP/M ver¦
       ¦s 2.2 (c) (p) 19¦
       ¦82 Digital Resea¦
```

Having changed these 4 bytes, save the changes. You have now created a new system disk which will not wipe the MemDisk on rebooting. Next time your system crashes with a vital piece of data on drive M: then reboot using this disk and voila.

Don't use this disk regularly - normally you do need to wipe the MemDisk. Incidentally, if you are reading this with a locked-up system with priceless data on the M: drive and haven't yet made an altered system disk then you're in trouble.

Richard Marks 01-609 1340

FOR SALE OR EXCHANGE.

GENIE micro computer (16k sound,Hi & Lo speeds)
EXPANDER EG3014 (16k RAM disk & Parrallel printer interface)
ACULAB stringy floppy+ floppy tapes
12" GREEN screen monitor(Tandy)

Books:
- MICROSOFT BASIC & OTHER MYSTERIES by J.Farrour
- TRS-80 Assembly language programming W.BARDEN
- Users manual for level 1 (Radio Shack)
- Level II Basic reference manual(Radio Shack)
- Modifications to the Genie
- Service manual for Genie.
- NATGUG news letters covering 4 years(min 6 copies)
- Micro 80, 8 copies (Australian)

Some software (all casstte)

May split ,exchange or.£250 the lot .

** WANTED **

Omnicron mappers 1 & 2,RS 232 inteface for Genie & Modem
Disk mysteries (Penington),disk programs & LDOS Newsletter.

R. Bains,
452 Leagrave Road,
Luton,
Beds. LU3 1RH.

SUBSCRIPTION REDUCTION

The NATGUG subscription has been reduced to £5.00 for six months, or £10.00 per annum.

ZBASIC UPGRADES.

Vernon Blackmoore rang to suggest that if 5 purchasers got together then a discount could be negotiated. Ring him on 0742-584685.

NATGUG NEWS

Volume 7 Issue 9 March 1986

OFFICIAL JOURNAL OF THE

National TRS-80
& Genie Users
Group.

INFORMATION ON THE GROUP

Membership of the Group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the Group is open to anyone with an interest in the TRS-80 range of microcomputers, and compatible systems such as the Video Genie.

Details of the Group accounts, and the constitution of the Group, are obtainable from the Secretary.

Members requiring assistance with problems related to the TRS-80/Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are obtainable from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the Secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor.

Chairman and Newsletter Editor:-

Leon Heller,
65 Flanders Mansions,
Flanders Road,
London W4 1NF
Tel: 01-994 7976

Secretary and Newsletter Publisher:-

Brian Pain,
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU.
Tel: (0908) 564271

CONTENTS

2. Information on the Group

4. Editorial

5. Members' letters

6. Spellsys - a cheap and efficient CP/M spelling checker

8. ZBASIC compiler

8. A ZBASIC 2.2 'Dostamer'

9. Benchmarks

11. More on dBASE II

12. Oggy Oggy Oggy

13. Random access files

14. Patches for all

18. Diskname - a utility for TRSDOS

EDITORIAL

At the AGM, held during the recent Swindon workshop, I resigned as Newsletter Editor. Geoff Smith very kindly volunteered his services as Newsletter Editor for the next year, so, in future, please send all contributions (preferably on disk) to:-

Dr. Geoff Smith,
17 Homefield Road,
Bushey,
Herts.

I also resigned as Chairman, but as it is a mainly titular post, was persuaded to stand again, and was duly elected. Brian Pain continues as Secretary and David Washford as Committee Member, together with Leighton Davies as Software Librarian.

My thanks to Andrew Donald who has pointed out that it was Cobbett, and not Johnson, who disparagingly referred to London as "the great wen". I dredged the quotation up from my long term memory, and didn't check it, hence the error.

My thanks also to Dave Martin who solved the problem with my frequency synthesiser, mentioned in the last issue. There was actually nothing wrong with my circuit, just with my interpretation of the Motorola data sheet.

I recently bought a superb piece of software from Grey Matter for £70. It's a set of B Tree file management functions written in C by SoftFocus, a small Canadian company, and supplied in source code form. I got it on an 8" disk, ported it from the Model II to the QL, and got it working (with some difficulty, I must admit, due to the bugs in Lattice C for the 68000). Once compiled it is very easy to use for the development of applications software written in C and the performance is excellent - any one of 2000 records retrieved in under 2 secs, with floppies. I've asked a couple of QL users with hard disks to try it out with very large files. This package should also be of interest to NATGUG CP/M users, as it should work with the C/80 compiler, although you could have trouble compiling the source, with only 60K or so of TPA available (the standard QL with 128K RAM isn't big enough - I used my 512K system), and might have to split it up into several files, and compile them separately. I'll shortly get it working on the Model II, which will enable me to put the packages I'm developing with it onto the Model 4, and the Amstrad range. I've developed two packages so far - one for union branch membership records, and one for pharmacy labelling.

I would like to thank everyone who has contributed to NATGUG News over the years. Unlike most editors of similar amateur publications, I have rarely had to complain about a lack of material, and have found it an enjoyable and interesting task. I hope your new editor will find it equally enjoyable.

Leon Heller

MEMBERS' LETTERS

First of all I would like to thank all the members who answered my request for the missing part of Bugs from Outer Space. Yes, I realise that it was about four months ago (!), but I haven't had much time to do anything on the computing side leisurewise because I have been involved with a project to translate one of my TRS80 database programs to run on a Matmos PC which our Sales Manager at work has just aquired. Fortunately, it's BASIC is similar to the Model 4's, which is just as well because the manuals for the thing are so awful that I had to dig out all the information I could find about the Model 4 BASIC from 80Micro!

While writing I thought I aught to warn users of the LDOS Toolbox from Powersoft about a problem with the PDIRT/CMD program, which reads TRSDOS 1.3 directories from within LDOS. The program is aptly names, because it is DIRTY! It acheives the reading of TRSDOS disks by changing the Drive Code Table for the selected drive, which includes making LDOS think a disk has 19 sectors, that the directory is really on cylinder 17, and that there are 6 Grans each of 3 sectors each per cylinder. Unfortunately, it doesn't restore the DCT's origonal information before exiting, with the result that it you now write to an LDOS disk in that drive it will get it's granule allocations in a mess and clobber previously-recorded data and certainly the new files will be in a mixed-up state. Just to add injury to insult, it doesn't report that anything is wrong while your writing to the disk because it THINKS it's doing it properly! The only program that I have tried after using PDIRT which does act up as a result is LSI's RDTEST/CMD from the Utility1 disk - as soon as it started telling me it was having trouble reading sector 18 I know something must be wrong! My answer to this problem is to assign a spare logical drive (say 4) using MOD3/DCT to use the same drive as drive 1. Write protect this drive and use it exclusivly to read TRSDOS 1.3 disks. Once you've finished with it, just DISABLE it, and you're back to normal.

Did you know.....? When in LBASIC you can OPEN"O" devices as well as files? Just try OPEN"O",1,"*DO" and then PRINT#1 something and watch the screen! This could be useful for database report programs with the ability to send output to a file, the screen or the printer (or the RS232 i suppose!).

I notice that there arn't that many programs published in the mag., so I have decided to stop NATGUG dissappearing when you turn it sideways (!) by contributing some of the utilities and things I have developed for my own use.

R. P. Sainsbury, Park Farm Nurseries, Landford, Salisbury, SP5 2BE.

P.S. I've noticed that the envelope my NATGUG comes in is stamped "Independent QL User's Group" as well!

PROSOFT
BOX 560
NO. HOLLYWOOD, CA 91603
(818) 764-3131

Memo

TO: Mr. David Washford
6 Houston Wau
Frome, BA11 3Eu
England

DATE: 2/5/86

SUBJECT: letter of 1/31/86

Thank you for ordering additional DOTWRITER font disks. We've sent them under separa cover, and the combined price for three disks is $49.95 plus shipping.

FOLD

Enclosed please find a font catalog summary; we no longer issue update pages or new Reference Catalogs, because the size became excessive. However, each font disk contains a text file that will print the pages for the fonts on that disk, so you can print your own catalog on the actual printer you are using.

We have resumed sales of our products outside of the United States. It became apparent that the pirates were acquiring our software through friends in the U.S.; so the only people we were penalizing were the honest ones who were willing to pay for what they used! (People are a lot more complex and ingenious than any system set up to keep them honest, I guess.)

We expect to have additional fonts in a few months, and will send print samples to all registered DOTWRITER owners when they are ready. Thank you for your support, and please give my best wishes to the other TRS-80 supporters in your group.

SIGNED Chuck Tesler

Chuck Tesler

FORM NO. ME 13N

SPELLSYS - A cheap and efficient CPM spelling checker.

Spelling checkers come in two types - those like HEXSPELL that scroll through text on the screen highlighting words that they don't recognise and those that grind away analysing the text before presenting you with a list of unrecognised words, out of context, to check and correct. SpellSys is the second type.

The disk comes with a 42,000 word master dictionary, a user dictionary and six .COM files -: SS is the executive programme which controls SPELL, REVIEW and FIX which create the word list, review the words and replace misspelled words respectively. CONFIG allows you to specify default drives for output files and set SpellSys up for whichever word processor you use. WORDS is a standalone programme which rearranges a group of letters and checks to see if the new combination is in the dictionary.

Before running SpellSys with any word processor for the first time you need to run CONFIG, which asks for the characters used to identify lines such as formatting lines, which you want it to ignore, and for embedded characters to ignore like soft hyphens. If you use more than one word processor you can have an appropriately configured version of SS for each. You can also temporarily add or remove control, embedded or delimiter characters when entering SS

To use SpellSys just enter SS and enter drive and file names when prompted.
SS calls WORDS.COM which analyses and sorts the words in the file. It displays the total number of words and number of different words and then looks up all the words in the master and user dictionaries, making a temporary file of those not found in either.

REVIEW.COM then takes you through the unrecognised words one by one asking if you want to -

show it in context
Look up the dictionary
Correct a Misspelling
Put in user dictionary
Ignore it
Go to Previous word
Skip to next word
Exit reviewing.

Show in context searches sequentially through the file and shows all lines in which the word appears, with line numbers and the word marked in reverse video. The dictionary lookup allows wildcards and is very fast but only the main dictionary is searched, not the user one. You can go back and foward through the list as much as you want, unlike some much more expensive spelling checkers. When the end of the list is reached SS displays 'this is the last word' and entering E(xit) then calls FIX.COM which automatically replaces the mis-spelled words in the source file with the corrected version and updates the user dictionary.

SpellSys works exactly as described in its manual. The only part which needs attention from the user is the actual review of words. I can't compare its speed with other spelling checkers as I never used CPM for word processing before taking on the dBase User Group magazine but for a 20K text file it took about 4 minutes to do the word analysis and dictionary checks and 1 minute to replace the 3 misspelled words in that particular article. I have also used it to check our year-end diagnostic index which was almost 200 K and that took about 15 minutes to analyse, but I don't think that matters as the programme only needs attention when actually reviewing the list of unfamiliar words.

If the programme is started by entering SS the three .COM files are called automatically as required but they can also be used alone to sort word lists and add words to the user dictionary. SPELL.COM can also be used to sort or merge any Ascii files with records up to 128 characters and separated by line feeds, deleting any duplicated records in the merged file.

This is an American programme and the main dictionary of course has American spelling and cannot be easily changed. The user dictionary is a simple ASCII file and can be edited with any word processor (it must be saved in non-document format though)

The stand-alone programme WORDS.COM also included on the disk seems designed for crossword puzzle addicts. It takes a group of up to 15 characters and lists all words in the dictionary that use all, or just some, of the characters. Naturally the time it takes depends on the number of letters supplied - between 3 and 4 minutes to unscramble a 15 letter word

SpellSys must be one of the best bargains outside the public domain. Its cost is under $30 and it seems to do as much, if not more than the usual CPM spelling checkers in the over $150 range. There is a 30 day money-back guarantee which, in my experience, usually guarantees a good programme. It also has the most sensible licensing agreement I've seen yet - no restriction on the number of copies you can make for your own use and the owner is encouraged to make one copy for someone else to try. If the borrower likes the programme they can become a registered owner for only $15.

SpellSys is produced by MicroGroup,Po Box 65,Bend, OR 97709, USA

Ariela Taylor
42 Davenham Avenue
Northwood
Middx

ZBasic Compiler

The full price of Zedcor's latest version of ZBasic is around £80, allowing for arrangements to pay in US dollars and a guess as to the future value of our £!

For Model I & III: When version 3.0 was originally announced there was a special upgrade price (from v.2.2) for around £55 if you sent your old disk in by the end of November - 1985. For us Brits Zedcor have now agreed to extend this offer until the end of April. I told them news was slow in reaching this country, and they replied by extending the deadline.

For Model 4 & 4P: (or IBM PC's, Macintoshes, Apple IIe/c etc.) the full cost of £80 holds. BUT if we can raise at least 5 orders this falls to £60.

Any takers? Contact Vernon Blackmore, 64 Glenorchy Road, Sheffield S7 2EN
Phone (0742) 584685

A ZBasic 2.2 'Dostamer'

While on the subject of ZBasic I have written a simplified DOS shell like the Dostamer available from Molimerx. The Dostamer advertised there looks a marvelous programme, and no doubt it is on a Model 4. However, the Model I (and I assume Model III) version has far fewer facilities than the write-up in the Molimerx catalogue. I don't think Molimerx themselves realised this when they produced their blurb; certainly Mr. Harding was very willing to refund my money when I complained.

So out came my ZBasic 2.2 ..... and I now have a DOS shell for LDOS on my Model I. Does anyone want a copy? The basic idea is that it auto boots and displays the disk directory in 3-across format. You can then tag filenames and perform mass copies or deletes. Placing the cursor over a /CMD programme or a /BAS file will run that file, first loading LBASIC if necessary.

Obviously I've written the shell with my own needs in mind, and it is far from a generalised DOS shell such as Dostamer. However, for a lot of routine operations it has made my life easier. To a limited extent I could customise a version for your own needs, e.g. change the call to Superscripsit to Visicalc or whatever. But remember it's for LDOS on the Model I and I doubt whether it would transfer to another operating system since I've used LDOS locations and system calls.

Vernon Blackmore 64 Glenorchy Road., Sheffield S7 2EN Tel: (0742) 584685

BENCHMARKS

Here is another offering for your TRS-80 Newsletter. It's on an old subject, but may provide some amusement. Twenty or so years ago, long before the days of micros, computing was done on main-frames. Round about then I was involved in setting up a REMOTE-JOB-ENTRY (RJE) terminal to a far off 1107 machine. Various other facility suppliers also wanted our custom. They all told us how fast their processors were and could sometimes quote figures for 'Gibson mixes' and the like for cpu action; but it seemed to me that we also needed to know about the effects of software, after all we were not interested in trophies for best machine speed, we wanted results. So I wrote a FORTRAN routine which was small enough to avoid writer's cramp yet was guaranteed to load the machine in a not unrepresentative manner; it was named HORROR. In fact a couple of weeks after first testing HORROR an engineering problem arose which, from the computing operations aspect, was quite similar.

The new-fangled things called mini-computers, time-sharing services and programmable pocket calculators were coming along, so HORROR was tried on as many as possible. The results were quite illuminating. The standard run in those days used 50000 iterations, but if the calendar wouldn't permit so much then fewer were used. The fastest found was 4 seconds on a CDC 6600 and the slowest was around two days on either the DEC PDP8S or the Hewlett Packard programmable calculator of the day (cannot recall which took what, but the other took about half the time). I haven't been able to try it on a CRAY.

When micros turned up naturally they too were subjected to HORROR, although usually the iterations were limited to 32766. Again the results were most interesting and, in a devious way, had some bearing on my decision to set up on my own, but that's another story.

HORROR PROGRAM

```
10 REM HORROR (C) Copyright N.C.Baust
20 X=0:   INPUT"N=";N%:   IF N%=0 THEN END
30 FOR I%=1 TO N%
40   X=X+SIN(EXP(COS(I%))): REM Sometimes (FLOAT(I%))
50 NEXT
60 PRINT I%,  N%,  X,  X/N%
70 GOTO 20
```

Essentially HORROR is a composite test of software efficiency, effects of resolution matching, word length, clock speed, cpu operations and scheduling. When a program calls for, say, COS(X), you not only expect the library routine to be reasonably accurate but also to run to appropriate resolution. In other words the algorithm should use as few terms as possible (to keep time low) but enough to match the resolution in the result.

The duration of this work is obviously dependent on the number of bytes to the variable for any given clock speed. If we assume that the functions use 5-term polynomials, evaluated in nested fashion, then every iteration involves about 15 each of floating point additions and multiplications, plus use of multi-brackets. There is also an INTEGER to REAL conversion.

Overall the 32766 iterations involve maybe half a million additions and half a million multiplications; quite a load, and note that the algorithms may use other than 5 terms. Of course in a multi-tasking or time-sharing mode then turn-round time is also affected by the amount of other work the system is doing, i.e. how much overhead is used by the OPSYS in allocating cpu time to tasks, etc. as well as how much time is allocated to those other tasks.

Recently HORROR was run on several micros and under various operating systems. The following table of results has times in seconds. The value of X (for N=1000) shows the final resolution of each system although not all calculations done in HORROR are necessarily to that extent.

No attempt has been made to find coding which produces fastest results on each machine, that would be a different exercise. What was done was to use (as near as possible) the same direct style of coding on all machines.

Five comments:-

a) Quite obviously the tremendous amount of type conversion (INTEGER to REAL) incurs extreme penalties in the 6,8 byte/REAL systems; note the non-linear growth in time with iterations.

b) Just as claimed, the TRS-80 internal clocks lose time, i.e. effectively run slow so that timing by differences between start and stop TIME$ are low; see figures for model III.

c) The model I performs well in comparison with the new 'super' systems except under CP/M CBASIC where it took almost 8.5 days (12169 mins=730140 secs). (There is no clock in CP/M so auto-timing is not possible. Both test runs ended during the night, so devious means had to be used to compute the end time.) Note that the CP/M runs in 14 figure resolution, presumeably for all real number calculations. Actually this took so long to run that, for a while, it became a way of life to check the display on getting-up, returning from work and prior to going to bed. Since there was no way of monitoring operation without interfering with or disturbing the run (batteries in the radio need replacing), it was an act of faith to keep the machine on all that time.

d) If you are interested in speed-up mods, try contacting Os House.

e) What have ACORN been up to in the BBC (resolution v speed)?

Norman Baust

HORROR cpu time in seconds

Micro	*X for 1000*	*N=100*	*N=1000*	*N=10000*	*N=32766*
TRS-80 I	*649.32*	*9*	*87*	*880*	*2880*
*10.64MHz XTAL, 1.774MHz cpu, NEWDOS+, 8 bit*4 byte REALs*					
*ibid OMIKRON MAPPER CP/M (? 8 bit*6 byte REALs in CBASIC)*					
OBASIC	*649.321*	*7.8*	*78*		
MBASIC	*649.321*	*8.5*	*74.5*	*781*	*2530*
CBASIC	*649.321389813*	*94*	*1342*	*65700*	*730140*
TRS-80 III	*649.322*	*7*	*64*	*643*	*2104 (2485 by stopwat*
*10.14MHZ XTAL, 2MHz cpu, TRSDOS, 8 bits*4 bytes REALs*					
ibid + speed-up mod			*25*	*256*	*839 (994 by stopwatch*
ibid and compiled		*7*	*61*	*615*	
ibid in DBL	*649.3214636445046*		*66*	*662*	*2169*
TRS-80 4P = III, 2MHz cpu, TRSDOS	*649.322*	*6*	*62*	*622*	*2035*
TRS-80 4P = 4P, 4MHz cpu, TRSDOS	*649.321*	*3*	*29*	*291*	*951*
TRS-80 4P = 4P, 4MHz cpu, MONTEZUMA CP/M	*649.321*	*3.8*	*35.5*	*354*	*1126*

BBC 649.321392 6.47 64.7 648.1 2122
*16MHZ XTAL, 2MHz cpu, DOS, 8 bits*4 bytes INT, *5 bytes REALs*

68008 upgrade 649.32139 8.49 85.6 1276 7627
*8MHz cpu, OS9, 8 bits*4 byte INT, *8 byte REALs*

ANALOGUE DEVICES 150 649.322 .266 2.7337 27.217 89.247
*? XTAL, ? cpu, ? co-proc, MACBASIC, 8 bits*2 byte INT, *4 byte REALs*
Micro-MAC 5000 11.4 117 1177
(Simpler version of AD 150)

IBM XT 649.322 5 52 512 1674
*? XTAL, ? cpu, NO co-proc, ? PC DOS, ? 8 bits*2 byte INT, *4 byte REALs*

DOUBLE PRECISION and/or compile on TRSDOS/NEWDOS runs has little effect on cpu time for HORROR because the maths functions are SINGLE PRECISION, only X is DBL.

MORE ON dBASE II

As a long-time (by micro standards) user of dBASE II I'm pleased to see it spreading among NATGUG members. Bugs notwithstanding I think it deserves its place as top selling data management programme for 8 bit machines, if only because of its flexibility. dBASE is actually a programming language rather like BASIC with some features of PASCAL and writing your own data based applications in it is as easy as writing in BASIC with all the file and index handling code done for you. It has a reputation as difficult to learn, which I'm sure Dave Holman's articles will show to be unjustified;it is probably just due to a large but limited manual. The fact that there were over 20 books on dBASE in the last computer book list I saw says enough about the manual's quality.

The most recent version of dBASE II is 2.43* (sorry Dave), which has only recently become available in the UK. Anyone about to buy should be sure that they get this and not 2.43 (no star). This is VERY important as 2.43 had a bug affecting APPENDs to indexed files and the only solution Ashton Tate (the publishers of dBASE) had to offer was to suggest that you APPENDed without the index and re-indexed afterwards. Fine for small data files but mine are near the 8 Mb limit by the year-end and have indexes in constant use

Like most large and complex programmes dBASE has bugs, which vary for each version but are mostly not as catastrophic as 2.43s APPEND one. Version 2.3B, where I started, used to add empty sectors to programme files edited with the built in editor (removed again by PIPing with both V and E options), occasionally ran the .BAK file instead of the .CMD one and, much more serious, used to get data and programme files mixed up. I was thinking of invoking the Trades Description Act when Ashton Tate set up its UK branch and I finally found someone who knew about the bugs and told me they were being corrected in version 2.4. 2.4 had stack problems under certain conditions but they could be programmed round and it ran our rather large and complex laboratory record system for almost 3 years. I don't know about versions 2.41 and 42 as they didnt offer any improvements that we wanted and we obviously did'nt get 2.43 but I've had an evaluation copy of 2.43* for about

three months now and we've found no real problems. Ashton Tate do have a 'hot-line' and also publish a rather pricey monthly magazine called Tech Tips which includes bug reports, with their solutions if possible.

I'd also like to draw the attention of 'serious' dBASE users to the existence of the UK dBASE User Group. This runs quarterly London seminars and a bimonthly magazine (of which I'm the present editor). The subscription is £25 + vat, and most of the members are either corporate users or computer 'professionals' so it is nothing like as friendly as NATGUG but still useful to those who have to use dBASE

Ariela Taylor
42 Davenham Avenue
Northwood
Middx

OGGY OGGY OGGY

And yet another really great Swindon Weekend passes into memory ! It truly was wonderful, not only to see so many people there, but also to see how many came early on Friday - at least a dozen by lunchtime, followed by a steady stream all through the afternoon, although zapper John Newgas and data 'Star' Ariela were missed. It was good to see that most of last autumn's absentees, including that benign boatee, were back again. The hotel excelled itself once again, allowing us the full Table d'Hote menu for Dinner ($9.95 Friday night and $12.75 on Saturday). For the few of you who didn't come, the next one is already booked, **OCTOBER 17th-19th** , and the Hotel will accept reservations on 0793 28282.

The best part about Swindon, for me personally, was that I finally acquired two 80/40 double-sided drives - and my Model 4 Super Utility actually boots now ! Peter Hall kindly got and fitted them for me, and I understand from Os that supplies are now at last becoming more plentiful. Anyway the transportation of software from 40T SS to 80T DS has begun - do these disks ever get full ? !

Who likes puzzles ? Dave Holman showed me a CP/M script package that he'd written, and worked well on his Model 4 and MX80 outfit; put the disk into my machine and the printer would generate an extra line feed - ruining the effect. One would suspect dip-switches, and so these were manipulated profusely - with no effect. We swapped printers - still no good, but my printer on his Model 4 was fine. Eventually we swapped the actual printer cable and, Presto, the extraneous linefeed disappeared down its own carriage return !! Persistent examination by Keith Howell revealed that pin 24 needed to be disconnected for this one piece of software to work - although my faithful original cable works everything else. I mention it in the hope that it might help someone else in difficulty.

At the AGM, held also this weekend, Leon resigned as Chairman and Newsletter Editor, and declined to stand for re-election. A major disaster was averted by splitting these two functions and persuading Leon to continue as our Chairman. Dr Geoffrey Smith is our new Magazine Editor, but for one year only, so will all the budding Robert Maxwells ensure that their names are on next year's nomination list. One immediate benefit of Geoff's editorship will be

that HE will print out all contributions sent to him on disk, and so if you'll all kindly submit your articles to him on disk then the quality of the next NATGUG magazine is promised to be tremendously improved. Please include a return label and postage with your disk.

Of major concern at the AGM, once again, was the low number of members. Folks, you must understand that we are extremely close to becoming non-viable and this danger can only, in practical terms, be averted by heavy recruitment. It has been proposed that we court firstly the serious Amstrad user (common Z80 and CP/M), and then later the IBM clone gang (common MS-DOS), and if that is the way to ensure that our Group, our Magazine, and our Workshops, all continue then so be it. But can I ask you all to give us your full support in recruiting more TRS80 users ? We nearly all seem to know someone who has just picked up a second-hand model I or III or even a 4 (and who was it that got a Model II for $70?) - can we persuade them to join Natgug, especially whilst Brian is offering a special rate of 12 months for $10 ?. I've enclosed a couple of forms for you to send in - Brian has more when you need them !

It seems to be mandatory now that when talking of Swindon then one must mention Don Bannister. Well, would you believe that in the restaurant on Saturday night they'd laid on a St. Patricks night ? !

David Washford, 6 Houston Way, Frome, Somerset BA11 3EU (0373 72739)

RANDOM ACCESS FILES

In the December 85 issue M.C.Matthews had a report on the model 4 and random file allocations which left me perplexed. There were FIELD statements defining GF$ (and other variables) and later calls of LSET GF$=..... and finally GF$=.... The point of the last was to allow clearance of strings from memory, but it would also wipe out the definition in the field statements rendering further disc accesses under the original definitions impossible (model I manual; models III and 4 empirically so).

The GF$ string definition code remains in memory, and it seems to me that if there is no statement such as GF$=.... then (in respect of GF$) the space occupied remains as specified by FILES at the time of the call for BASIC (from TRSDOS) whatever referencing is made of GF$. Garbage clearance does not affect the FILES space - each string in a FIELD definition occupies only one region in memory and that FIELD space remains at least until the file is closed. Strings not defined in FIELD statements do accumulate in memory (on each re-assignment except perhaps for MID$()=...), whence the need for clearance, e.g. by FRE(A$). In other words, if Mr. Matthews dropped his use of GF$=... there would be no need for garbage clearance on that score.

A further point, if there really is a need to concatonate all those string representations into GF$ in the FIELD statement, it can be done at one go, i.e.

LSET GF$=MKD$(BBE)+MKI$(NI)+MKS$(N3)+.....+MKI$(F2)

This will remove almost all of those LSET and LEFT$() code repetitions - which take up lots of memory.

An oddity noticed ages ago is that the manuals say that FILES specifies the maximum number of files which can be open simultaneously i.e it presumably is used to allocate overall field space. However it seems rather to specify the highest number a file may have. i.e. FILES 4 means you can have open any combination of files 1,2,3 and 4 but you could not have 1,3, and 5. (Which was a nuisance when first discovered, it meant retyping a lot of code when a change in requirement allowed a reduction in open files.)

N.C.Baust

PATCHES FOR ALL

This article collects together a number of program modifications which might be useful to some members of NATBUG. If any of them make you yawn because you've seen them umpteed times before, please forgive me - hopefully they'll be of use to new members who haven't!

DIAG/CMD - Users of Howe Software's System Diagnostics program may already be aware that after use of this program, certain DOS commands can crash the system - indeed, in my case it also crashed the system disk! (Thankfully, good old Super Utility was able to totally recover it). I have traced this to the fact that the "Byte I/O' hook from ROM (which is contained at address 4033H) has been corrupted, but as yet I haven't been able to find out why, so until such time as I do, here is a patch that makes the "Exit Program" option reboot so that the corrupted DOS is reloaded. I know it's not A Good Thing to have programs reboot when finished, but it will save your disks!

Address 5312: Change from 2D40 to 0000.

PDRAW/CMD - Hands up how many PowerDraw users who are fed up with being asked "Tape or Disk" each time they load or save a file? Join the club! The following modification will bypass this prompt and default to disk operation only.

Address 6317: Change from 21816BCD to 3E44180D.

The following patch ensures that the correct buffer number is put into the heading on "source" files (It currently seems to send the highest used buffer instead).

Address 6573: Change from 0C to 0D.

I also have a few useful tips on PowerDraw:

1. You can type PDRAW * to recover buffers after accidental exit instead of holding down "R" during load.
2. You can type PDRAW FILENAME to automatically load a file when PowerDraw has loaded.
3. Assembler "source" files will not load into the Tandy Series-I assembler because PowerDraw assumes a file header which Series-I doesn't have. You can make it load by replacing the first 7 bytes of the file with B0B0B0B0B0200D. Once loaded, delete line zero and re-save it.

TRSDOS 1.3 - The first patch for this (non-standard!) operating system is to get rid of the "Type in up to 63 charecters" message in the BUILD command: it clutters the display and means you can only see the last eight lines you have typed.

PATCH *6 (ADD=5FE4,FIND=CD1B02,CHG=000000)

The next one cuts about 2 seconds off the (long) boot time by stopping the DOS testing for non-existent drives. As it stands, it should only be used on 2-drive systems.

PATCH *0 (ADD=4E52,FIND=00,CHG=01)
PATCH *0 (ADD=4E64,FIND=04,CHG=01)

The first line starts the drive-test from drive 1 (what's the point of testing drive 0(!)?). The second line makes it only test one drive instead of four, so once it has restored the head on drive 1 it will immediately return to drive 0 and continue the boot process. If you add external drives you will of course have to reverse the patch to use them.

The following patch for TRSDOS 1.3 comes from The Alternate Source (hope they don't mind my reprinting it!), and corrects ".....a wonderful little bug which can destroy the operating system environment". Apparently, the AUTO command was written by the same idiot who decided to keep the directory sectors looking tidy by wiping out the record for a file being killed, thus preventing any chance of recovery. In this case, he has arranged that the AUTO command buffer is padded out with blanks to fill the 32-byte space. It is done by padding out the DOS command-line buffer before copying it to the GAT sector, but infortunately a slight error in calculation means that if the hapless user types in an AUTO command with 32 or more charecters it's goodbye DOS and probably goodbye disk as well! OK, so who's going to do that anyway? Well, as TAS says, "The wonderful charm of computers and programming is that you can always depend on someone at some time to do something out of the ordinary". They even give a suitable AUTO command to prove it:-

AUTO GREAT WAY TO CRASH A TRSDOS DISK(ENTER)

Try it at your peril! I disassembled the code instead, and sure enough, they're right! Anyway, the answer is simple - stop it padding out the buffer: it's unnecessary, and it doesn't crash the system.

PATCH *6 (ADD=531A,FIND=3620,CHG=0000)

Incidently, it IS possible to have a lagitimate AUTO command that long, such as:-

BASIC PROGRAM/BAS -F:4 -M:40000(ENTER)

Remember that (ENTER) counts!

LDOS: BOOT WRITE-PROTECTED! - The following method described how to patch LDOS so that drive 0 boots write-protected. it involves changing a single byte in CONFIG/SYS. It will be necessary for me to describe why it works rather than give an "instant" patch because it will vary depending on your system. I am using LDOS version 5.1.4 on Model III: other versions may vary slightly.

The CONFIG/SYS file is made up of a number of load-module blocks just like any /CMD file. First there is a header, then 19 bytes that get written directly to the screen (the "***CONFIGURING***" message), a 1-byte block to disable interrupts, followed by as many blocks as are necessary to hold the contentes of protected memory, followed by 2 bytes which contain the value of HIGH$. (The protected-memory blocks are obvious because of their load address). Then there comes a lot of short blocks, the exact number and size of which will depend uppon the DOS version, the model (I or III), and the requirements of your configuration. At the end of the file are another 19 bytes that get rid of "***CONFIGURING***", and just above this is the block we are interested in. It has 80 bytes and loads from 4152H on my version. This block contains the Drive Code Tables as they were at SYSGEN. Note that these do NOT load into the locations your LDOS manual tells you for the DCTs. (Think about it!). You will have to find out for yourself where they load. You could use CMDFILE, although I used a BASIC program modified from "Machine Language Disk I/O and Other Mysteries" to do it (Anyone who would like it please send me an A4 s.e.a. for a listing. I have a TRSDOS and LDOS versions, please state which). WARNING! Don't use something like Monitor-5, because it will actually load CONFIG/SYS into memory, and this could cause havoc!

Using LSI's DCT/CMD, look at the table for drive 0 when it's NOT write-protected, and you should see something like this:-

Logical Drive 0

X'4700'= C3 85 45 44 41 05 27 11 45 14

```
X'C3'=  1100 0011          Enabled
X'85'=  1000 0101          LSB of Disk Driver
X'45'=  0100 0101          MSB of Disk Driver
X'44'=  0-1-0-0-0-1-00     DD, 5", Floppy, 0.5 sec, 6 ms
X'41'=  0-1-0-0-0001       DDC, Sides=1, STD DC, Phys #1
X'05'=  0000 0101          Current Cylinder = 5
X'27'=  0010 0111          Cylinder Count = 40
X'11'=  000-10001          Sectors/Track = 18
X'45'=  010-00101          Gran/Track = 3, Sectors/Gran = 6
X'14'=  0001 0100          Directory Cylinder = 20
```

If you now software-write-protect drive 0 and run DCT/CMD again, you'll see that relative byte 3 has changed:-

Logical Drive 0

X'4700'= C3 85 45 C4 41 05 27 11 45 14

```
X'C3'=  1100 0011          Enabled
X'85'=  1000 0101          LSB of Disk Driver
X'45'=  0100 0101          MSB of Disk Driver
X'C4'=  1-1-0-0-0-1-00     WP, DD, 5", Floppy, 0.5 sec, 6 ms
```

.....(The rest as before).

(If you don't have DCT/CMD, use DEBUG to see the DCTs and read the description in the LDOS Technical Section). From this, you can deduce that you have to SET bit 7 of relative byte 3 of drive 0's DCT within CONFIG/SYS to boot up write-protected. Now it's easy! Using FED, display CONFIG/SYS.CCC, and (L)ocate the start address of the block of DCT's and move the cursor 3 places right (to relative byte 3). Now, look at the byte there, and change it so that bit 7 is set and so that NO OTHER BITS CHANGE! This last point is important - get it wrong and it'll throw a wobbly! (S)ave the record to disk, E(X)it FED, reboot and .... Viola!

The patch is easiest removed simply by un-write-protecting drive 0 and re-SYSGENning. You could possibly apply the patch as an X-patch, but it'll make CONFIG/SYS longer. Don't ever try a D-patch because the position within CONFIG/SYS of the required byte varies depending upon the configuration done.

BOOTSTRAP STEP-RATE - As LDOS users know, the Bootstrap Step-Rate is set when you FORMAT a disk. Now, suppose you want to give the disk to someone with non-Tandy drives and they moan that it won't boot? On the other hand, you may have been given a disk by that same person and want to speed-up it's boot time by changing the steprate from 30ms to 6ms. Here's how: Decide on the required steprate and convert it into the required byte as follows:- 6ms=18H, 12ms=19H, 20=1AH and 30=1BH. Now, apply this patch.

```
PATCH BOOT/SYS.SYSTEM (D00,95=XX:D01,95=XX)
```

where XX is the required number. There are two sectors to patch because LDOS (at least the Model-III version) has two Boots, one on sector 0, the other on sector 1. This is necessary because the Model-III ROM expects it's Boot to be on sector 1 (for TRSDOS's oddball format!), whereas LDOS must refer to it's Boot on sector 0 for Model-I compatability! A similar technique may well work to make TRSDOS 6 boot on slow-step drives (I suspect that also has two Boots because it must use the Model-III ROM bootstrap loader before it switches into Model-4 mode).

SYSTEM INFORMATION - Cylinder Ø, sector 2 on an LDOS system disk contains the so-called System Information. Beginning from relative byte 70H can be found the default Drive Code Tables which are used to set the drive configurations in the absence of CONFIG/SYS, or when a global RESET command is performed. (there seems to be a duplicate set starting at 20H, but these do not seem to do anything!). These tables are set out in the usual way as shown above, and can be zapped to change the default information. For instance, a Model III owner with slow-stepping drives will find that after doing a global RESET command, he will then have to reset the STEP parameter for the non-system drives. To change the defaults to avoid this, zap relative byte 3 of each DCT accordingly, using the same method as for changing software-write-protect previously described. The best way to be sure you are right is to do a global reset, then set the STEP parameter as needed and then examine the DCT's in memory to see how to change the defaults.

Another useful trick for 2-drive owners is to prevent the automatic re-enabling of drives 2 and 3 upon global reset or reboot without CONFIG/SYS. To do this, make the following patch:

```
PATCH BOOT/SYS.SYYSTEM (D02,84=C9:D02.8E=C9
```

To return to normal, use C3 instead of C9.

Some other useful locations in CYL Ø, SEC 2 are:

```
Byte ØØ: Always contains 51H, even on data disks.
Byte Ø1: C9H=CONFIG/SYS active, Ø=not
Byte Ø2: Ø=Date prompt ON, FFH=not
Byte Ø3: Ø=Time prompt ON, FFH=not.
```

FED PATCH - Would you like FED to start up using the tidy 128-byte display mode instead of the untidy 256-byte mode? Ok, here's what you do. Type the following to modify your FED:

```
FED FED/CMD.RRW3(ENTER)     Load FED to modify itself
L5Ø17                       Locate address 5Ø17H
HØ1(BREAK)                  Change the display mode flag
S(ENTER) X(ENTER)           Save change and exit
```

This works with the free FED that comes with LDOS 5.1.4. I don't know about other versions

Roy P. Sainsbury, Park Farm Nurseries, Landford, Salisbury, Wilts.
Telephone: Romsey (Ø794) 39Ø319 after 5pm.

**** Some typo's I found after printing this article:
There are a few @ symbols that should really be O.
In the list of System Information bytes above,
The "CONFIG/SYS" flag info is transposed - that is,
C9H=CONFIG/SYS NOT active, O=Active. Sorry about that!

DISKNAME - A utility for TRSDOS

This program provides the facility to change the name and/or date of TRSDOS 1.3 disks. With modifications, it should also work for Model I TRSDOS 2.3.

Assemble the listing below, and give it the filename DISKNAME/CMD. To run the program, type DISKNAME :d at TRSDOS Ready. :d is an optional drive number, which defaults to drive 0 if omitted. Single-drive users need not have a copy of the program on every disk - just specify :0 and the program will prompt for you to swap disks.

The program will first display the current name on the disk and prompt for a new one. Enter a new date, or press (ENTER) if you don't want to change the name. Next you will be prompted for the date in the same way. You may a) Type in a new date, b) Press (ENTER) to leave the date unchanged, or c) Enter a single slash (/) to take Today's Date from the system clock. The entered date MUST be valid or the program will print an error message and re-prompt for the correct date. (To avoid complications, the program will NOT accept Feb 29th, but as this only happens once every four years it won't matter too much!). The date and time will then be re-written to the disk and a return taken to DOS. Note that at any of the prompts you may press (BREAK) and the program will abort without changing anything.

```
00100 ; * * * * * * * * * * * * * * * * * * * * * * * * * * * *
00110 ; *      DISKNAME - NOVEMBER 1985                         *
00120 ; *      SYSTEM   - MODEL-III/TRSDOS 1.3                  *
00130 ; *      CHANGES DISK NAME AND CREATION DATE              *
00140 ; * * * * * * * * * * * * * * * * * * * * * * * * * * * *
00150 ;
00160           ORG     7000H
00170 KBCHAR    EQU     002BH           ;SCAN KEYBOARD
00180 VDCHAR    EQU     0033H           ;DISPLAY CHAR. ON VDU
00190 KBLINE    EQU     0040H           ;GET LINE OF I/P FROM KB
00200 VDLINE    EQU     021BH           ;DISPLAY MESSAGE ON VDU
00210 DATE      EQU     3033H           ;GET TODAY'S DATE
00220 CURSOR    EQU     4020H           ;POINTER TO CURSOR POS'N
00230 EXIT      EQU     402DH           ;EXIT TO TRSDOS
00240 ABORT     EQU     4030H           ;ABORT TO TRSDOS
00250 ERRDSP    EQU     4409H           ;DISPLAY TRSDOS ERROR
00260 RDGAT     EQU     4A93H           ;READ GAT SECTOR
00270 WTGAT     EQU     4A9BH           ;WRITE GAT SECTOR
00280 SYSBUF    EQU     4D00H           ;SYSTEM SECTOR BUFFER
00290 START     XOR     A               ;SET SPACE COMPRESSION
00300           LD      (CURSOR+4),A    ;MODE
00310           LD      A,(HL)          ;CHECK FOR DRIVE NUMBER
00320           CP      ':'
00330           JR      NZ,DEF0         ;DEFAULT IF NOT
00340           INC     HL
00350           LD      A,(HL)          ;GET DRIVE NUMBER
00360           SUB     '0'             ;CONV. TO BINARY
00370           LD      (DRIVE),A       ;SAVE DRIVE
00380           JR      NZ,DEF0         ;GO IF NOT DRIVE ZERO
00390 SWAP      LD      HL,(CURSOR)     ;GET CURSOR POS'N
00400           LD      A,(HL)          ;GET CHAR. FROM SCREEN
00410           CP      ' '             ;IS THE MESSAGE THERE?
00420           JR      NZ,BLANK        ;YES, GO REMOVE IT
```

```
00430           LD      HL,PRSWAP       ;DISPLAY MESSAGE
00440           CALL    VDLINE
00450           JR      TIME            ;SKIP NEXT BIT
00460 BLANK     LD      A,30            ;BLANK OUT MESSAGE
00470           CALL    VDCHAR
00480 TIME      LD      BC,0200H        ;SET TIME DELAY COUNTER
00490 LOOP      PUSH    BC
00500           CALL    KBCHAR          ;SCAN KEYBOARD
00510           POP     BC
00520           CP      13              ;(ENTER)?
00530           JR      Z,GO
00540           CP      1               ;(BREAK)?
00550           JR      Z,GO
00560           DEC     BC              ;COUNT DOWN....
00570           LD      A,B
00580           OR      C
00590           JR      NZ,LOOP         ;REPEAT IF NOT ZERO
00600           JR      SWAP
00610 GO        PUSH    AF              ;SAVE KEY CODE
00620           LD      A,30            ;BLANK OUT MESSAGE
00630           CALL    VDCHAR
00640           POP     AF              ;GET BACK KEYCODE
00650           DEC     A               ;ZERO IF (BREAK)
00660           JP      Z,ABORT         ;CHICKEN!
00670 DEF0      LD      A,(DRIVE)       ;GET DRIVE NUMBER
00680           LD      C,A
00690           CALL    RDGAT           ;READ GAT TO SYSBUF
00700           JP      NZ,ERRDSP       ;ABORT IF I/O ERROR
00710           LD      HL,SYSBUF+0D0H  ;POINT TO NAME FIELD
00720           LD      DE,PRNAME+6     ;LOC. IN NAME PROMPT
00730           LD      BC,8
00740           LDIR                    ;COPY NAME TO MESSAGE
00750           LD      DE,PRDATE+6     ;LOC. IN DATE FIELD
00760           LD      C,8
00770           LDIR                    ;COPY DATE TO MESSAGE
00780           LD      HL,PRNAME       ;PROMPT FOR NEW NAME
00790           CALL    INPUT           ;AND GET IT
00800           JR      Z,NAMEOK        ;ACCEPT CURRENT NAME
00810           LD      DE,SYSBUF+0D0H  ;NAME FIELD IN GAT
00820           CALL    UPDATE          ;PUT NEW NAME INTO IT
00830 NAMEOK    LD      HL,PRDATE       ;PROMPT FOR NEW DATE
00840           CALL    INPUT           ;AND GET IT
00850           JR      Z,DATEOK        ;ACCEPT CURRENT DATE
00860           LD      A,(HL)          ;GET 1ST CHAR.
00870           CP      '/'             ;DO WE WANT TODAY'S DATE?
00880           CALL    Z,TODAY         ;GO LOOK AT CALENDER!
00890           PUSH    HL              ;SAVE BUFFER POINTER
00900           CALL    VALID           ;CHECK FOR VALID DATE
00910           POP     HL              ;GET BACK POINTER
00920           JR      NC,ACCEPT       ;DATE IS OK
00930           LD      HL,DERR         ;DISPLAY ERROR MESSAGE
00940           CALL    VDLINE
00950           JR      NAMEOK          ;TRY AGAIN!
00960 ACCEPT    LD      DE,SYSBUF+0D8H  ;DATE FIELD IN GAT
00970           CALL    UPDATE          ;PUT NEW DATE INTO IT
00980 DATEOK    LD      A,(FLAG)        ;ANY CHANGES MADE?
00990           OR      A
01000           JP      Z,EXIT          ;DON'T WRITE IF NOT
01010           LD      A,(DRIVE)       ;GET DRIVE TO UPDATE
01020           LD      C,A
01030           CALL    WTGAT           ;WRITE UPDATED GAT
```

```
01040           JP      NZ,ERRDSP       ;ABORT IF I/O ERROR
01050           JP      EXIT            ;RETURN TO TRSDOS
01060 ;
01070 ; ****  SUBROUTINES
01080 INPUT     CALL    VDLINE          ;DISPLAY PROMPT
01090           LD      HL,INBUF        ;GET KEYBOARD INPUT
01100           LD      B,8             ;MAX. INPUT LENGTH
01110           CALL    KBLINE
01120           JP      C,ABORT         ;CHICKEN!
01130           INC     B               ;CHECK FOR NOTHING INPUT
01140           DEC     B
01150           RET
01160 UPDATE    LD      A,(FLAG)        ;SIGNAL AN UPDATE
01170           INC     A
01180           LD      (FLAG),A
01190           EX      DE,HL           ;SWAP POINTERS
01200           LD      B,8             ;LENGTH OF FIELD
01210 COPY      LD      A,(DE)          ;GET CHAR. FROM INPUT
01220           CP      13              ;CR?
01230           JR      Z,PADOUT        ;FILL REST WITH BLANKS
01240           LD      (HL),A          ;COPY TO NAME/DATE FIELD
01250           INC     DE              ;BUMP POINTERS
01260           INC     HL
01270           DJNZ    COPY            ;DO NEXT CHAR.
01280           RET                     ;NO PADDING REQ'D
01290 PADOUT    LD      (HL),' '        ;STORE A SPACE
01300           INC     HL
01310           DJNZ    PADOUT          ;FILL NEXT POS'N
01320           RET
01330 TODAY     PUSH    HL              ;SAVE INBUF POINTE
01340           CALL    DATE            ;PUT "TODAY" INTO IT
01350           LD      (HL),13         ;TERMINATE WITH CR
01360           POP     HL              ;POINT BACK TO START
01370           PUSH    HL              ;AND SAVE IT AGAIN
01380           DEC     HL              ;POINT BACK TO
01390           DEC     HL              ;CURSOR CODES
01400           CALL    VDLINE          ;DISPLAY TODAY'S DATE
01410           POP     HL              ;RESTORE POINTER
01420           RET
01430 VALID     LD      D,'/'           ;SET TERMINATOR
01440           CALL    NUM             ;GET MONTH
01450           RET     C               ;ERROR ABORT
01460           CP      12              ;MONTH > 12?
01470           CCF
01480           RET     C               ;ERROR ABORT
01490           LD      E,A             ;SAVE MONTH-1
01500           CALL    NUM             ;GET DAY
01510           RET     C               ;ERROR ABORT
01520           PUSH    HL              ;SAVE BUFFER POINTER
01530           LD      HL,TABLE        ;LENGTHS OF MONTHS
01540           LD      D,0             ;CLEAR FOR ADDITION
01550           ADD     HL,DE           ;GET LENGTH OF THIS MONTH
01560           CP      (HL)            ;DAY > LENGTH OF MONTH?
01570           POP     HL              ;RECOVER POINTER
01580           CCF
01590           RET     C               ;ERROR ABORT
01600           LD      D,13            ;SET NEW TERMINATOR
01610 NUM       XOR     A               ;CLEAR FOR 1ST LOOP
01620           LD      B,2             ;FOR 2 DIGITS.....
01630 MULT      ADD     A,A             ;MULTIPLY ACCUMULATOR
01640           LD      C,A             ;BY TEN
```

```
01650           ADD     A,A
01660           ADD     A,A
01670           ADD     A,C
01680           LD      C,A             ;SAVE PRODUCTS
01690           LD      A,(HL)          ;GET DIGIT
01700           SUB     '0'             ;CONV. TO BINARY
01710           RET     C               ;ERROR IF < 0?
01720           CP      10              ;DIGIT > 9?
01730           CCF
01740           RET     C               ;ERROR IF > 9
01750           INC     HL
01760           DJNZ    MULT            ;DO UNITS DIGIT
01770           ADD     A,C             ;ADD TENS DIGIT
01780           DEC     A               ;MINUS 1
01790           LD      C,A             ;SAVE IT
01800           LD      A,(HL)          ;GET TERMINATOR
01810           CP      D               ;CORRECT?
01820           INC     HL              ;START OF NEXT FIELD
01830           SCF                     ;IN CASE OF ERROR
01840           RET     NZ              ;ERROR IF INVALID
01850           CCF                     ;CLEAR ERROR FLAG
01860           LD      A,C             ;RESTORE VALUE
01870           RET                     ;NO ERROR
01880 ;
01890 ;******  MESSAGES AND STORAGE LOCATIONS
01900 PRNAME    DEFM    'NAME: DISKNAME ==) '
01910           DEFB    3               ;TERMINATOR
01920 PRDATE    DEFM    'DATE: MM/DD/YY ==) '
01930           DEFB    3
01940 PRSWAP    DEFM    'Mount target disk and press (ENTER) '
01950           DEFB    29              ;RETURN TO START OF LINE
01960           DEFB    3
01970 DERR      DEFM    'INVALID DATE - Try again!'
01980           DEFB    29              ;RETURN TO START OF LINE
01990           DEFB    27              ;CURSOR-UP
02000           DEFB    30              ;ERASE TO END OF LINE
02010           DEFB    3
02020           DEFB    192+19          ;COMPRESS 19 SPACES
02030           DEFB    27              ;THEN CURSOR-UP
02040 INBUF     DEFM    '               '   ;BUFFER FOR USER INPUT
02050           DEFB    13              ;TERMINATOR
02060 TABLE     DEFB    31              ;TABLE OF LENGTHS
02070           DEFB    28              ;OF MONTHS
02080           DEFB    31
02090           DEFB    30
02100           DEFB    31
02110           DEFB    30
02120           DEFB    31
02130           DEFB    31
02140           DEFB    30
02150           DEFB    31
02160           DEFB    30
02170           DEFB    31
02180 DRIVE     DEFB    0               ;DEFAULT DRIVE
02190 FLAG      DEFB    0               ;FLAGS CHANGES MADE
02200 LENGTH    EQU     $-START
02210           END     START
```

To convert the program for Model I TRSDOS 2.3, change the following lines:

```
00200 VDLINE    EQU     4467H           ;DISPLAY MESSAGE ON VDU
```

```
00250 RDGAT   EQU     4AF0H           ;READ GAT SECTOR
00270 WTGAT   EQU     4B03H           ;WRITE GAT SECTOR
```

Delete the following lines:
00210, 00300, 00860, 00870, 00880, and lines 01330 to 01420 inclusive. The Model I version will not be able to take the system date, but this is no great loss since TRSDOS 2.3 makes no use of it anyway! Be aware that I have not tested it on a Model I, but the addresses that needed changing were obtained from "TRSDOS 2.3 Decoded", so it should work.

Finally, for those inquisitive minds who are wondering how I got the Series-I source listing into Scripsit for this article, here's how: First, CONVert it from TRSDOS 1.3 to LDOS. Then ROUTE printer output to a file, run EDAS 3.5 and load the source file (remembering to use the "-" parameter because Series-I doesn't have a header!). Then, do a "Hardcopy" of the listing, which goes to the file instead. After returning to LDOS and RESETting the printer, Run Scripsit and load the "printout". All that remains to do now is to scan through and delete the page-markers that EDAS has inserted! Easy, En?

Roy P. Sainsbury, Park Farm Nusreries, Landford, Salisbury, Wilts.
Phone: Romsey (0794) 390319 after 6pm.

FOR SALE

Model 100 8K	£100
Brother HR5 dot matrix printer	£ 75
Metal carrying case for above items	£ 25
Manuals/Cassette player etc	£ 15
All items for	£200

DP Wood,
Flat 14,
Goldsmith Court,
Stukely St,
London WC2B 5LF.
Tel: 01-831 7063

* * * LOST * * *

Will the person who "borrowed" the Juki 6100 manual from the top table at the Swindon workshop please return it to:-

Keith Howell,
7 Matthews Terrace,
Aldershot,
Hants. GU11 2AD.

NATGUG NEWS

Volume 7 Issue 10 April 1986

OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the group is open to anyone with an interest in computers but special emphasis is placed on equipment in the TANDY range.

Details of the Group accounts, and the constitution of the Group, are available from the Secretary.

Members requiring assistance with problems related to the TRS-80 / Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are available from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor, on disk if at all possible (5.25", NEWDOS-80 v2 or Montezuma Micro CP/M prefered, any combination of density, sides or tracks, but please say what it is). Your disk will be returned.

Newsletter Editor
Geof Smith
17 Homefield Rd.,
Bushey,
Herts WD2 3AP
01-950-6345

Secretary & Newsletter Publisher
Brian Pain
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU
0908-564271

CONTENTS

Information on the group 2

Editorial 4

Members Letters 6

Problem Section 7

Oggy Oggy Oggy 8

Cumana Disk Drives 9

A Taste of Pascal 10

Execute from a Menu 13

Put 5.25 inches on Arnold 16

Kermit - Part 1 17

Space savings in FIELDS - revisited 23

Blandford Computers
STD (0258) 53737

While stocks last:
Tandy Model 4

1 x 40T SSDD	£400	2 x 40T SSDD	£450
2 x 80T DSDD	£600	4 x 80T DSDD	£800

Models 100 and 1000 - Ring for Special LOW price
Model 3000 Multi user now working
Tandon cut price range of PCX & PCA machines
Amstrad cut price range of machines

Hard drives for the Model 4
Floppy drives - 5¼ 80/40T DSDD switchable

Printers: Tandy DWP 210 - Quen Daisy wheel - Citizen 210D
all at £130.44

Disks: 5¼ at £6.97 / 10 black 40T DSDD
5¼ at £12.18 / 10 coloured 80T DSDD

Printer ribbons - paper - phones
Part Exchange - ask for our secondhand list

Blandford meeting on Sunday, September 7th, FREE lunch.
All prices are exclusive of VAT.

EDITORIAL

Welcome to a different set of biases and opinions on computing in general and Tandy in particular. At present I'm not too certain whether or not I'm presiding over a wake or a re-birth. This week I've had a phone call from Brian saying that he's already had a response from interested Amstrad owners but I've also had a phone call from one of the silent majority saying he was not renewing his membership, had gone to CP/M and was planning to go MSDOS and could we sell his Model 1. What is clear is that NATGUG's collective experience in Level II BASIC, and TRS-80 specific operating systems and hardware is no longer in great demand. Those of us left are in it for the fellowship as much as for guidance in matters computational. If the computer aspect of the group is to survive then we must evolve or we will be ousted from our ecological niche.

The last Swindon weekend seemed to be showing a great upsurge in the use of and interest in CP/M. This probably offers temporary sanctuary especially if the recruitment of PCW 8256/8512 members is successful. We are having Dave Holman's series on CP/M reprinted as a booklet which may be of use to those just starting on the CP/M trail. Has anyone any suggestions for expansion or addition to the topics covered in his articles. It would also be helpful to receive some more reviews and comparisons of the multitude of CPM software, both commercial and public domain. Would anyone care to compare and contrast the merits or otherwise of Wordstar, Spellbinder or Perfect-Writer for instance.

Another possible bridge for crossing the machine divide is with the use of portable languages. In this context C and Turbo Pascal spring to mind. Leon has been extolling the virtues of C for a number of years and its portablity has improved of late. However, I still find that its source code is pretty cryptic for my tastes and the lack of an efficient run-time debugging system has always held up my use of the language for anything other than trivial utilities. Perhaps someone out there is using one of the more modern implementations with proper source level debugging such as Living-C or an interpreted version such as Instant-C. A review or even just a quick note would be very useful. These latter two are 16 bit C's, for us more 'umble mortals MIX-C at $39.95 would seem excellent value.

Turbo Pascal by Borland International gets my vote as one of the best computing environments that I've come across. The speed of the compiler almost offset's the time penalty of compilation, and the close interaction of the error trapping with the editor makes debugging relatively easy. This coupled with the fact that the compiler is available for CP/M-80 & 86, PCDOS & MSDOS, the Mac and the Amiga makes for almost universal portability of code amongst micros. We even port the code to our DEC-20 mainframe with only minor changes to the I/O. When you consider that you get all of this for £49.00, it is no wonder that it has become the de facto standard. In this issue

of the newsletter we have a very brief introduction to Pascal and our first small Turbo Pascal program. I hope that this is the first of many and if any of you have any small utilities or even subroutines written in either C or Pascal I for one would very much like to see (!) them. Whilst on the subject of Turbo, I note that Borland has just released Turbo Prolog for MSDOS systems, this appears to be an incremental compiler which really does give you the best of both interpreted and compiled situations - do we have any members interested in AI? On the CP/M front Borland appear to be on the point of releasing Turbo Modula-2. This language is Niklaus Worths' successor to Pascal and has actually been designed to be used rather than taught as was the case with Pascal. The early indications are the language is very good indeed and may succeed C as a language for system implementation as well as the more usual computational usages.

The area of computer communication is also a field which offers great opportunity for cross system interest. I have started in this issue the first part of three or four articles on Kermit - which is basically a computer to computer communication protocol. I would very much like to see some information on one of the other popular protocols such as MODEM-7 so that we can compare the strengths and weaknesses of the available systems and sort out the horses for courses. Great developments also appear to be taking place in both hardware and software in the form of new super-whizzo do everything modems and terminal programs (do we actually need SYSOPS now I wonder ?). Would anyone like to tell those dithering on the edge about the pros and cons of the new goodies.

I make no aplogies for a rather long first editorial. There was plenty of space to fill and it has given me the opportunity to make some suggestions as to the direction I think the magazine should take. The rest is up to YOU. More ideas in the form of letters will be most welcome, but contributions are essential. The newsletter is being printed as a continuous file on a Daisy wheel printer rather than being a paste-up. I really do not want to have to re-type your contributions and so would greatly appreciate receiving them on a disk. I'm using CPM-Scripsit to prepare the Newsletter so any of the Montezuma or Genie CPM formats would be most convenient. However I can read virtually any 5.25 CP/M Format and also PC-DOS. If you are running under a Tandy operating system, then NEWDOS-80 v2 would be most suitable but again I can read any at a pinch. Your disk's will be returned to you.

I look forward to hearing from ALL of you - Ed.

PS. Thought for the month
- On a clear disk you can seek forever !

MEMBERS LETTERS

FUTURE DIRECTION OF NATGUG/QUANTA

Dear Ed.,

As a longtime user of TRS-I AND III, who has also a QL a Commodore 64 and an Amstrad 8256 within the group, I also wonder how long NATGUG can survive. As one who has had only a few hours on the Amstrad, I was amazed by the quality of the Locoscript (after Scripsit) and the ability to refer to a list of Files whilst retaining the letter in memory. Also the ease of printing in different fonts which my Scripsit is not patched to do.

In short we should jump on the Amstrad Bandwagon, especially in view of the proposed launch of their IBM compatible for around £500. Although I note that DOTWRITER is now again available in the U.K. (re David Washford - March Issue), I am not sure about its compatibility with my Tandy Lineprinter VI or my Seikosha GP100A Mark II, and in any case cheap programs running under CP/M are in plentiful supply. The Amstrad 8512 is the twin disc version with CP/M V1.4 and LocoScript V 1.2 and appears to be better value - at the moment. Again to rival Dotwriter there are the POLY/PROGRAMS which can print up to 25 distinctive Typefaces - are there programs to do this with my Model-III.

Incidently our Computers are used primarily for Business purposes, using Visicalc for designing and operating accounting systems, and Scripsit for letters etc.

We also have a 3M Copier for which we require something like Dotwrier to design Posters and Handbills.

JOHN JEFFERY TEL (DERBY) 0332-881239

PROBLEM PAGE

Alhough most of this problem seems to be directed at the QL, there may be someone with knowledge of obsolete technology - I mean just where do you buy quill pens these days ? - Ed.

SEIKOSA GP100 MARK II PRINTER

Dear Ed.,

As a recent owner of a QL (£200 including Ferguson Monitor - Model No 3MM02G5) I have had some difficulty in interfacing it with the above Printer. Incidently the price originally quoted for the interface was £34.00, but upon checking Sinclair QL World, the Price quoted at MIRACLE SYSTEMS was £19.50. The shop involved (Gordon Harewood - Alfreton (0773)832078 agreed to charge me £19.50 after copying the Advert.

However upon connecting the printer and programming it as a Centronics FX80, it proceeded to print in a very jerky fashion and also left a space between each line. I would like to know the precise instructions to be given when installng PRINTER DAT in QUILL.

Also can my TRS80 Model III, 40 track Disc drives be interfaced with the Q.L., and if so how do I address them and what interfaces do I require.

JOHN JEFFERY DERBY (0332) 881239 SCRIPSIT/NEWDOS

OGGY OGGY OGGY

Ever thought about how many paradoxes there are in our everyday life ? As one of the more vociferous attackers of the QL - and I must admit that this was due to downright jealousy after seeing some fantastic screens (particularly when compared to a Model I) - I was quite upset to read of its virtual demise following the sellout to Amstrad. Paradox number 1.

In the many and varied reports that assailed us during the days that followed, most of the so-called experts agreed that the failure of the QL to capture the market had absolutely nothing to do with the machine itself; the flop was solely due to the refusal of software houses to write and publish QL programs. Now for paradox number 2. The so-called NATGUG experts have always asserted that the strength of the TRS-80 (Models I, III, or IV) was in the phenomenal amount of software available for it - so why have Tandy UK deserted us and turned instead to selling the Amstrad, which, for all its good points, doesn't run Tandy software ?

Many members were surprised by the intent by NATGUG to court the Amstrad user, whilst many others were disappointed that we didn't pursue the PC and MS-DOS people. Well, guess what ! Mr. Sugar, of Amstrad, has hinted that he could soon be selling an IBM clone - for around £500 ! Guess where NATGUG will be heading then!

Back to our support for Tandy software houses. I had a phone call recently from the new and highly delighted owner of Zedcor ZBASIC. He assures me that this has completely transformed his Model 4 - and that the publishers have told him that he is the ONLY owner in the UK. Well now, how about that as a bad example of our support ? Those of you who missed Vernon Blackmore's letter in last month's magazine should perhaps read page 8 again

At the time of writing, Os is still making plans for BLANDFORD '86, but it looks as though the date will be two weeks after the August Bank Holiday, so pencil SEPT 7TH in your diary now, and watch this space for further announcements ! You did write down the SWINDON date, didn't you ? 17th - 19th OCTOBER - and it's time to be letting us know what YOU want on the programme.

David Washford, 6 Houston Way, FROME, Somerset BA11 3EU. (0373) 72739

(With respect to Dave's note on NATGUG's amorous intentions, we DO intend to court MSDOS users but the AGM felt that we needed more funds for advertising etc than were at present available and that a successful recruitment of PCW 8256/8512 users might fund this. Also the group's expertise with MSDOS is nowhere near as extensive as with CPM and therefore we had little to offer in terms of a knowledge base for either hardware or

software. Six months or so would enable those of us with MSDOS/PCDOS machines to become expert - the definition of an expert being someone who is one chapter ahead of you - Ed.)

CUMANA DISK DRIVES - David Roberts

Last November I wrote to the Newsletter commenting that by greasing the guide rails of my Cumana Shugart twin DS drives, the noise level had been reduced. I also stated that it seemed to cure the NOT READY ON DRIVE A: message. How wrong I was on the latter. Soon afterwards the trouble reappeared and was so persistant that I lost confidence in their use and was beginning to use the infernal Model 4 40 track drives. As some of you might know, we are fortunate here in Northern Ireland to have Don Bannister and Trevor Hutchinson as the local 'Gurus'. Even these two esteemed gentlemen were foxed by the problem.

I finally wrote to the Engineering manager of Cumana, Mr C. Magee, who wrote back suggesting that I should first check that the terminating resistor pack was in place on the last drive and failing that, check the two 40/80 track switches for correct position. Apparently the middle position is a reset position. These were checked out with no avail.

One evening Trevor had a final look at the drives and with surprise in his voice said something to the effect: 'Cor... who ever saw power regulators of a power supply plugged into sockets!!!'. He had struck gold. A follow-up phone call to Cumana confirmed that this was an old practice (my drives are only one year old) and that they had discontinued this due to flexing of the board causing intermittent faults. He also promised to send a metal shield to fit over the power supply as in later models. This I recieved two days later.

Congratulations Cumana for super service. So the final answer was to remove the socket and solder regulators to the board directly. 100% operation and confidence thanks to Trevor, Don and Cumana.

So, if anyone in the Group has Cumana Drives, remove the cover, look under the perforated power supply cover and if you find the same setup, you know what to do.... otherwise you are living on borrowed time and someday when you are in the middle of a long article to NATGUG NEWS (come on ...let's hear your problems and solutions), you will be looking in disbelief at the NOT READY ON DRIVE A: message.

David Roberts. Bangor, Co. Down

A TASTE OF PASCAL - Steve Ridall

Pascal, in the same way as BASIC, was designed as a teaching aid. It was not however, designed with another language in mind but rather as a method of encouraging structured programming. Contrary to popular opinion, PASCAL is not a difficult language to learn, in fact I would argue that learning PASCAL is easier than learning BASIC. Some features of the language, ie. pointers can be a little daunting, but very effective use of the language can be made without some of the more exotic features (pointers are in fact similar to the VARPTR command in BASIC.

Subroutines (known as procedures) are very straitforward and can be nested within other procedures. Variables can be of any length, depending on the compiler (usually 99 characters may be specified but only the first 8 or so are significant). One aspect that does take a little getting use to is that 'assignment' and 'equality' are treated differently. The '=' is used give the value to constants ie. pi = 3.1416.. or in tests for equality IF a = b THEN..... Assignment of values to variables is differentiated by use of a preceding colon ie. VALUE := 20 ; COST := VALUE * VAT. Remarks are enclosed in curly brackets or '(*...*)'. The terminator of an expression is ';' (in BASIC a similar symbol is ':'). Perhaps the best way to give the flavour of PASCAL is to show a small program.

Two different types of loops are demonstrated in the program below, the REPEAT and DO WHILE. You may notice that portions of the program are indented. You will find this with most PASCAL programs as it makes them easier to read and the structure somewhat clearer. This is not a requirement of PASCAL as long as a terminator (;) is used to separate statements then there is no reaso why they could not be written in one continual stream.

```
PROGRAM EXAMPLE (INPUT OUTPUT)
VAR cash,income,expenditure,total:INTEGER;
finished:BOOLEAN; (*finished can only be TRUE or FALSE*)
BEGIN
   finished:=FALSE;
   expenditure:=0;
   income:=0;                (*variables do NOT start out with
                               zero values by default*)
   WHILE NOT finished DO (*the loop BEGIN ... END will be
                          executed until finished is set to
TRUE*)
   BEGIN
      WRITELN('Cash Flow Program');
      WRITELN;                  (*Print a blank line*)
      WRITELN('Enter Income or 0 to finish ');
      READ (cash);              (*input cash value*)
      IF cash = 0 THEN finished := TRUE;
      income := income + cash;
   END;

   finished := FALSE;
```

```
   REPEAT
   BEGIN
      WRITELN('Enter expenses or 0 to finish');
      READ(cash);
      IF cash = 0 THEN finsihed := TRUE;
      expenditure := expenditure + cash;
   END;
   UNTIL finished := TRUE;
   WRITELN('Total income is ',income);
   WRITELN;
   WRITELN('Total expenses ',expenditure);
   total := income - expenditure;
   WRITE('Total = ',total);
END.          (*All PASCAL programes must end with a full stop*)
```

One or two points that may need clarifying are .....

Line 1 In most high level languages, including PASCAL you must name the program in the first line, this one is called EXAMPLE. The hardware devices used and any files must be stipulated in the first line of the program. In this case keyboard (input) and VDU (output) are declared.

Line 2 All variables must be declared at the beginning of the program. This can be beneficial since a glance at the top of the program makes it very much less likely that you will choose the same variable twice. Variable must be declared as integer/real/boolean/character or you may specify your own. Arrays can be any of these types.

Line 4 Every block of code begins with a BEGIN and ends with an END, makes sense ?

Line 5 As BASIC except that you must use ':=' instead of '=' to reassign a value to the variable.

One of the most useful features of PASCAL is the records which are part of the specification of the language. Any field may of course be accessed within the record and in fact records may be enclosed within one such field. You could consider a date as an example of a record. A date has three components: the day of the month, the month and the year. Sometimes we are interested in the date as a whole ie what is your date of birth. Other times we are interested in particular components of the date, ie in what year will Halley's comet appear (NO FT, no comet ? Ed.). Thus the date can be considered as a record with 3 fields. Records must be declared at the beginning of the program with the TYPE statement.

```
TYPE dates  =  RECORD
               day  :1..31;
               month:1..12;
               year :0..9999;
               END
```

This could then be used to declare variables whose values are

```
dates
eg.   today,lastcomet,nextcomet : dates
```

a field designator would then be

```
                    nextcomet.year
```

and the statement

```
          nextcomet.year := lastcomet.year + 82;
```

would update the year field in the record variable nextcomet.

A list of some BASIC vs PASCAL statements is given below.

```
============================================================
BASIC              PASCAL                  COMMENTS

Print"Hello"       WRITELN('Hello);        The LN at the end gives a
                                           carriage return
PRINT(a + b)       WRITE(a + b);
INPUT(x)           READ(x);                x defined as
                                           integer/real/own-numeric
LINEINPUT a$       READLN(a);              A declared as an array of
                                           characters
x%/y%              x DIV y                 DIV used for integer
                                           division
IF..THEN..ELSE     IF..THEN..ELSE
AND/OR/NOT         AND/OR/NOT
+,-,*,/            +,-,*,/                 Except for DIV above

'FOR' loops
FOR x=1 to 10      FOR x:=1 to 10          If more than one statement
co = co + x        BEGIN                   is used then they must be
.......              co := co + x;         enclosed in BEGIN ... END
NEXT X             END
============================================================
```

PASCAL is a very nice language and I have only covered a few of its merits. One of its limitations is in string handling capabilities although the UCSD P system includes strings (Borland's Turbo PASCAL has quite reasonable extensions for strings - Ed.). A good introduction to PASCAL is 'PASCAL an introduction to methodical programming' by W. Findlay & D. Watt, published by Pitman, ISBN 0-273-02188-5.

Steve Ridall. - Hornsey, London

Execute from a Menu in Turbo PASCAL - Dave Roberts

Now that the dark winter days are receding (look outside at the snow, rain and wind!!) and spring is in the air, a married man's thoughts turn to..... well.... what can he usefully program in Pascal.

Wouldn't it be nice to have a little program which would run on booting up and would display a menu of the main programs on the disc and which could be run by pressing only one key. Now I'm not saying that I'm too lazy to type the program name but I'm thinking rather of my spouse who from time to time wants to use Wordstar. Come to think of it, some of my colleagues at work might appreciate the same facility on the Sirius.

Now writing normal self-contained Pascal programs using data files isn't too difficult, but where do I begin when I want to call external programs from within the Pascal program? Most of the books on the subject of Pascal don't have much if anything to say on the problem. After several nights thumbing through various books and manuals I stumbled across the pre-declared procedure EXECUTE. The following is the first 'play - program' which I used to test whether I can call programs such as Wordstar, Supercalc, dBase or whatever.

```
PROGRAM MENU;
VAR
  FILENAME: FILE;
BEGIN
   CLRSCR;
   GOTOXY(28,7);
   WRITELN('M E N U ');
   ASSIGN(FILENAME,'WS.COM');
   EXECUTE(FILENAME)
END.
```

```
PROGRAM MENU;
VAR
FILENAME: FILE;
BEGIN
   CLRSCR;
   GOTOXY(28,7);
   WRITELN('M E N U ');
   ASSIGN(FILENAME,'SC2.COM');
   EXECUTE(FILENAME)
END.
```

```
PROGRAM MENU;
VAR
  FILENAME: FILE;
BEGIN
 CLRSCR;
 GOTOXY(28,7);
 WRITELN('M E N U ');
 ASSIGN(FILENAME,'DBASE.COM');

 EXECUTE(FILENAME)
END.
```

```
PROGRAM MENU;
VAR
FILENAME: FILE;
BEGIN
 CLRSCR;
 GOTOXY(28,7);
 WRITELN('M E N U ');
 ASSIGN(FILENAME,'SUBMIT.COM
                        WS.SUB');
 EXECUTE(FILENAME)
END.
```

Of these four little examples only those which call SC2.com and DBASE.COM work. (I find that I have to put .COM after the filename). The problem with the one which calls WS.COM is that it will certainly call Wordstar but Wordstar continues on into the document mode and opens a file called WS.COM. Now this is a dangerous thing!!. Saving this file would overwrite Wordstar itself, hence a quick exit without saving. Why does this

happen? Anyone out there with any ideas how to overcome it?

A little known fact about Wordstar is that one can go straight into the document from the CP/M command line by typing :WS ⅛filename⅜. Is this a clue to what is happening?

The fourth little example doesn't work either. All I get is the message 'Command Buffer Overflow' then it bombs out. Logically, it should work because SUBMIT.COM WS.SUB is used in the normal command line. I normally use a submit file to set up Wordstar. This includes re-defining the keyboard and PIPing the overlays to drive M:.

I would be grateful if any one can help me sort out this problem. They can then have a copy of the completed program.

For those interested, here is my submit file and Key definition file.

(NB. The daisy wheel I'm using does not have a caret, control is therefore represented by an upright bar.

WS.SUB

```
      KEYDEF  WSKEY.KDF     (*this copies the key definition
file*)
      PIP M:=A:WS*.OVR    (*copy overlays to MEMdisk*)
      M:                  (*log onto drive M: MEMdisk*)
      A:WS                (*call wordstar*)
      ERA M:WS*.*         (*clears MEMdisk at finish*)
      A:                  (*log onto drive A:*)
      KEYDEF DEFAULT.KDF (*reset keyboard on exit*)
```

WSKEY.KDF

```
      CL=|G       (*clear key = delete *)
      BK=|C       (*break = Ctrl C*)
      UP=|E       (*up arrow = Ctrl E*)
      DN=|X       (*down arrow = Ctrl X*)
      LF=|S       (*left arrow = Ctrl S*)
      RT=|D       (*right arrow = Ctrl D*)
      !UP=|[      (*shift up = escape*)
      F1=|KD      (*Func 1 = Save & Done*)
      F2=|B       (*Func 2 = reformat paragraph*)
      F3=|OG      (*temporary para indent*)
```

DEFAULT.KDF

```
CL=|X
BK=|C
DN=|X
LF=|H
RT=|I
!UP=|[
!RT=I
!LF=|X
F1=MDIR A:|M
F2=MDIR B:|M
F3=MDIR C:|M
```

By copying the Wordstar overlay files to memdisk and logging onto drive M: you will find that wordstar runs much faster.

David Roberts. 6 Plantation Rd. Bangor, Co. Down.
Tel. 0247-462564 Prestel Mail Box 247462564

(The answer to your problem may lie in the way in which CP/M normally deals with command line tags. Having processed the main .COM filename the CCP looks to see if there are any other tags or names on the command line. If there are any, it constructs up to two more FCB's in the system parameter area starting at 005CH. The main program can look here to see if you specified anyfile and do something about it - like load it. Now Turbo Pascal may be doing its own processing of command lines and not proceesing tags in the same way as the CCP. I'd advise a good hack with Z8E to see what was going on - Ed.)

PUTTING 5.25 INCHES ON ARNOLD.

This small nugget of information is aimed at the 1 or 2 Amstrad users that might belong to the group. The information as it stands applies directly to the CPC464 and comes from an article in COMPUTING August 15 & 22, 1985. It may also also apply to the PCW 8256 but that is not guaranteed. The Amstrad's come with nice little 3 inch thingies, that certainly are not floppy but are a trifle expensive and can be difficult to obtain - disks I'm talking about. Also, there is rather more software on the 5.25 format. 5.25 inch drives are pretty cheap these days and it would be quite nice to just bolt one on and get the best of both worlds. Apparently it is quite a simple job since all the signals are present to conform to the Shugart SA400 Standard. The problem is that the interface does not present them in the required order. On the Shugart interface all the odd numbered pins are signal grounds and the even numbered pins carry the interface signals. The Amstrad reverses this sequence with odd numbered pins carrying the signals and evens the grounds. The Table gives the pin correspondence and function.

SA400 pins	Function	Amstrad interface pins
2	Not used	1
4	Head load	3
6	Drive 3 Select	5
8	Index Pulse	7
10	Drive 0 Select	9
12	Drive 1 Select	11
14	Drive 2 Select	13
16	Motor On	15
18	Step direction	17
20	Step Pulse	19
22	Write Data	21
24	Write Gate	23
26	Track 0 sense	25
28	Write protect	27
30	Read Data	29
32	Side 1 Select	31
34	Ready	33

In the case of the CPC464 the blue stripe on the cable coming from the interface identifies pin 34 NOT pin 1 as is usual. A suitable cable can be made from a 34 way IDC connector to mate with the disk drive and 34 plug header which would normally be intended for soldering to PCB's. The latter mates with the connector already on the cable. These connectors may vary with the CPC 664 & PCW 8256.

Anon.II.

KERMIT - A file transfer protocol. - Geof Smith

This discussion of Kermit is based in part on the two articles published in Byte June/July 1984 and partly from my own experiences in setting up and using Kermit on a number of different computer systems.

What is Kermit ?

One thing that it is NOT is a little green frog although the documentation does claim that it is named after the Muppets Mega Star. The documentation also claims that it is the Celtic for 'free' which seems to make more sense since it is in the public domain. It is also NOT a high powered modem - communications program. There are many of these available both commercially and in the public domain, some of which employ the Kermit protocol and I hope to get some reviews on these from other members.

As the title says Kermit is a file transfer protocol - ie. a set of rules that enable a file to be transferred via a communication link from one computing environment to another with 100% fidelity. How the set of rules are implememted is irrelevant, as long as the rules are obeyed the file will get through unchanged. In the case of Kermit the protocol has been implemented in virtually every language and on machines ranging from a Beeb to a Cray (see end of article for complete list). There are other protocols in use, the most common being the X-MODEM protocol put forward by Ward Christensen. However MODEM-7 and successors were initially developed for communications between micros and so its use and universality of implementation are different to that of Kermit's. What I hope to do in this and the next couple of issues is to discuss the development of and thinking behind the Kermit protocol and detail the features and use of Kermit on the Model 4 & MSDOS systems.

Spawning of Kermit.

Kermit was developed initially at Columbia University in response to what is quite a common situation. The campus had a number of large main-frames in a central computing facility with many smaller systems scattered around laboratories and departments. With the explosive increase in the number of micros there was much demand for ways in which to exchange files between the central and peripheral computers. Additionally, with increased student interest in computing, usage of the mainframe on-line-storage was growing at an uncontrollable rate and the need to economically archive files was an urgent consideration. Given a reliable way to transfer files between mainframe and back, micros with floppy disks could prove an inexpensive way of achieving this. What was needed was a file transfer system that could work across the complete range of computers. The commercially available packages would only serve a strictly limited number of machines, and would be financially

crippling given the number of machines that needed to be supported. The solution was to develop their own system.

The Communication medium.

The only communication medium common to all computers, large and small, is the asynchronous serial telecommunication line, used for connecting terminals to computers. Certain aspects of this medium are almost universally followed -- voltages, signals, character encoding (ASCII, ANSI) and bit transmission sequence. Serial connections can be made in many ways: dedicated local lines (ie. null modem cables), leased telephone circuits, dialup connections. Dialup connections can be initiated manually from the home or office using an inexpensive modem, or automatically from one computer to another using a programmable dialing mechanism. The asynchronous serial line offers the ordinary user a high degree of convenience and control in establishing intersystem connections, at relatively low cost.

Once two computers are connected with a serial line, information can be transferred from one machine to the other, provided one side can be instructed to send the information and the other to receive it. But right away, several important factors come into play:

Potential Problems.

1. Noise -- It is rarely safe to assume that there will be no electrical interference on a line; any long or switched data communication line will have occasional interference, or noise, which typically results in garbled or extra characters. Noise corrupts data, perhaps in subtle ways that might not be noticed until it's too late.

2. Synchronization -- Data must not come in faster than the receiving machine can handle it. Although line speeds at the two ends of the connection may match, the receiving machine might not be able to process a steady stream of input at that speed. Its central processor may be too slow or too heavily loaded, or its buffers too full or too small. The typical symptom of a synchronization problem is lost data; most operating systems will simply discard incoming data they are not prepared to receive.

3. Line Faults -- A line may stop working for short periods because of a faulty connector, loss of power, or similar reason. On dialup or switched connections, such intermittent failures will cause the carrier to drop and the connection to be closed, but for any connection in which the carrier signal is not used, the symptom will be lost data. The serial telecommunication line provides no safeguards against such problems, and therefore must be regarded as an intrinsically unreliable medium.

Getting Reliable Communication over an Unreliable Medium

To determine whether data has been transmitted between two machines correctly and completely, the two machines can compare the data before and after transmission. A scheme that is commonly used for file transfer employs cooperating programs running simultaneously on each machine, communicating in a well-defined, concise language. The sending program divides outbound data into discrete pieces, adding to each piece special information describing the data for the receiving program. The result is called a "packet". The receiver separates the description from the data and determines whether they still match. If so, the packet is acknowledged and the transfer proceeds. If not, the packet is "negatively acknowledged" and the sender retransmits it; this procedure repeats for each packet until it is received correctly.

The process is called a communication protocol -- a set of rules for forming and transmitting packets, carried out by programs that embody those rules. Protocols vary in complexity; the programmers at Columbia chose a simple approach that could be realized in almost any language on almost any computer by a programmer of moderate skill, allowing the protocol to be adapted easily to new systems.

Accommodating Diverse Systems

Most systems agree how to communicate at the lowest levels - the EIA RS-232-C asynchronous communication line and the ASCII character set - but there is rarely agreement beyond that. To avoid a design that might lock out some kinds of systems, the important ways in which systems can differ must be considered.

Design Considerations

1. Mainframes vs Micros

The distinction made in the context of this project was that a micro is any single-user system in which the serial communication port is strictly an EXTERNAL device. A mainframe is any system which is "host" to multiple simultaneous terminal users, who login to "jobs", and the serial line is INTERNAL, ie. is the link between CPU and VDU/Console. In the latter case where the serial line is internal the appearance of certain characters on the line such as CTL/C may signify special events to the command processor or all input may be translated to upper case etc. The moral here is that care must be taken to disable special handling of a mainframe job's controlling terminal when it is to be a vehicle for interprocessor communication. But some systems simply do not allow certain of these features to be disabled, so file transfer protocols have to be designed around them.

2 Line Access

Line access can be either full or half duplex. If full duplex, transmission can occur in both directions at once. If half duplex, the two sides must take turns sending, each signaling the other when the line is free; data sent out of turn is discarded, or it can cause a break in synchronization. On mainframes, the host echoes characters typed at the terminal in full duplex, but not in half duplex. Naturally, echoing is undesirable during file transfer. Full duplex systems can usually accommodate half duplex communication, but not vice versa.

3. Buffering and Flow Control

Some systems cannot handle sustained bursts of input on a telecommunications line; the input buffer can fill up faster than it can be emptied, especially at high line speeds. Some systems attempt to buffer "typeahead" (unrequested input), while others discard it. Those that buffer typeahead may or may not provide a mechanism to test or clear the buffer. Systems may also try to regulate how fast characters come in using a flow control mechanism, either in the data stream (XON/XOFF) or in parallel to it (modem control signals), but no two systems can be assumed to honour the same conventions for flow control, or to do it at all. Even when flow control is being done, the control signals themselves are subject to noise corruption.

4. Character Interpretation

Systems can differ in how they interpret characters that arrive at the terminal port. A host can accept some characters as sent, ignore others, translate others, take special action on others. Communications front ends or multiplexers might swallow certain characters (typically DC1, DC3) for flow control, padding (NUL or DEL), or for transfer of control ("escape"). The characters that typically trigger special behavior are the ASCII control characters, 0-31 and 127. However, virtually all hosts and communication processors allow any "printable" character (ASCII 32-126) to reach an application program, even though the character maybe translated to a different encoding for internal use.

Some operating systems allow an application to input a character at a time, others delay passing the characters to the program until a "logical record" has been detected, usually a sequence of characters terminated by carriage return or linefeed. Some record oriented systems like IBM VM/370 discard the terminator, others keep it, and there are different ways of keeping it -- UNIX translates carriage return into linefeed; most DEC operating systems keep the carriage return but also add a linefeed

5. Timing Out

Hosts may or may not have the ability to "time out". When exchanging messages with another computer, it is desirable to be able to issue an input request without waiting forever should the incoming data be lost. A lost message could result in a protocol "deadlock" in which one system is waiting forever for the message while the other waits for a response. Some systems can set timer interrupts to allow escape from potentially blocking operations; others, including many microcomputers, can not do so. When timeouts are not possible, they may be simulated by sleep-and-test or loop-and-test operations, or deadlocked systems may be awakened by manual intervention.

6. File Organization

Some computers store all files in a uniform way, such as the linear stream of bytes that is a UNIX file. Other computers may have more complicated or diverse file organizations and access methods: record-oriented storage with its many variations, exemplified in IBM OS/360 or DEC RMS. Even simple microcomputers can present complications when files are treated as uniform data to be transferred; for instance under CP/M, the ends of binary and text files are determined differently. A major question in any operating system is whether a file is specified sufficiently by its contents and its name, or if additional external information is required to make the file valid. A simple generalized file transfer facility can be expected to transmit a file's name and contents, but not every conceivable attribute a file might possess.

Designers of expensive networks have gone to great lengths to pass file attributes along when transferring files between unlike systems. For instance, the DECnet Data Access Protocol supports 42 different "generic system capabilities" (like whether files can be preallocated, appended to, accessed randomly, etc), 8 data types (ASCII, EBCDIC, executable, etc), 4 organizations (sequential, relative, indexed, hashed), 5 record formats (fixed, variable, etc), 8 record attributes (for format control), 14 file allocation attributes (byte size, record size, blocksize, etc), 28 access options (supersede, update, append, rewind, etc), 26 device characteristics (terminal, directory structured, shared, spooled, etc), various access options (new, old, rename, password, etc),in addition to the better known file attributes like name, creation date, protection code, and so on. All this was deemed necessary even when the designers had only a small number of machines to worry about, all from a single vendor !!.

7. Binary Files versus Parity

Each ASCII character is represented by a string of 7 bits. Printable ASCII files can be transmitted in a straightforward fashion, because ASCII transmission is designed for them: a serial stream of 8-bit characters, 7 bits for data and 1 for

parity, framed by start and stop bits for the benefit of the hardware. The parity bit is added as a check on the integrity of a character; some systems always transmit parity, others insist on parity for incoming characters, still others ignore the parity bit for communication purposes and pass it along to the software, while still others discard it altogether. In addition, communication front ends or common carriers might usurp the parity bit, regardless of what the system itself may do.

Computer file systems generally store an ASCII file as a sequence of either 7-bit or 8-bit bytes. 8-bit bytes are more common, in which the 8th bit of each byte is superfluous. As well as files composed of ASCII characters, computers also have "binary" files, in which every bit is meaningful; examples include executable "core images" of programs, numbers stored in "internal format", databases with imbedded pointers. Such binary data must be mapped to ASCII characters for transmission over serial lines.

8. Software

Finally, systems differ in the application software they have. In particular, no system can be assumed to have a particular programming language. Even widespread languages like FORTRAN and BASIC may be lacking from some computers, either because they have not been implemented, or because they are proprietary and have not been purchased. Even when two different systems support the same language, it is unrealistic to expect the two implementations of the language to be totally compatible. A general purpose file transfer protocol should not be geared towards the features any particular language.

The above discussion should have given you some insight into the problems that face us in the world of computer communications and perhaps you now understand why we can't always just plug them together for a happy and fruitful union!. Next month I will review the protocol itself but in case any of you want to try out KERMIT, on receipt of a disk and return postage I can let you have a number of implementations that will work on Model 1/3 (tested under NEWDOS/TRSDOS) Model 4 (CPM) and PC-Clones (PCDOS).

Geof Smith.

Space saving in filing routines revisited - M.C. Matthews

I read with interest Mr. Baust's comment on my filing routines, and would first say that he obviously missed my second instalment which appeared in the same newsletter. This covers his point about the concatenation of fixed length items.

His main point seems to be that he cannot see where the space saving comes in. Most of my filing is in the form of arrays of one sort or another, and to take a simple example, I have an array which holds information in the form of integers. Each integer has four pieces of information packed into it, and there are 300 of them.

Filing these is staightforward. We can file them in blocks of 127 in each sector, using A as the variable and A$ as the field string. If we do this we have the dimension A$(127), which takes 393 bytes, and we are left with these strings in the string space. If we file in the method I suggest, that is

```
FIELD 1, 255 as GF$
FOR I=1 TO 127
    LSET GF$=LEFT$(GF$,(I-1)*2)+MKI$(A)
NEXT I
```

we only occupy 25 bytes of string space. This is determined by practical experiment using a simple program as follows:-

Program	Result	Difference
10 OPEN"R",1,"TEST":0"		
20 PRINT FRE(Z$)	27918	
30 FIELD 1,255 AS A$:PRINT FRE(Z$)	27911	7
40 FIELD 1,100 AS B$,100 AS C$,55 AS D$:PRINT FRE(Z$)	27890	21
50 FIELD 1,255 AS GF$:PRINT FRE(Z$)	27883	7
60 DIM A(127):PRINT FRE(Z$)	27362	521
70 FOR I=1 TO 127:LSET GF$= LEFT$(GF$,(I-1)*2)+MKI$(A(I)) NEXT:PRINT FRE(Z$)	27346	18

If we change lines 50 to 70 we get the following result:-

Program	Result	Difference
At line 30	27869	
50 X=0:DIM A$(127):FOR I=1TO 127: FIELD 1,(X)AS T$,2AS A$(I):X=X+2:NEXT :PRINT FRE(Z$)	27453	416
60 DIM A(127):PRINT FRE(Z$)	26932	521
70 FOR I=1TO 127:LSET A$(I)=MKI$(A(I)) :NEXT:PRINT FRE(0)	26932	0

Since the second method is 42 bytes LONGER than the first we can see that the free memory is in fact 414 bytes greater just on this one routine. Looking at the early part of the program, line 40 shows that each subdivision of the field takes an extra 7 bytes of memory. The real saving is in the fact that it is no

longer necessary to dimension field strings for arrays, and removing these from one of my programs reduced its memory demands by nearly 6kb.

I have in fact abandoned the use of GF$="" at the end of each routine, but since fielding is usually just a matter of putting FIELD 1,255 AS GF$, ALL my random filing routines re-field when called. This has the further advantage of reducing errors resulting from calling a routine with an incorrect field.

M.C. Matthews, Dorset.

While on the subject of FIELDing things, I recently wrote a quick and dirty BASIC program to split a large (360 sectors) text file into more manageable pieces.

```
10 CLEAR 1000 : OPEN "R",1,"FILE/TXT:1"
15 FIELD 1,255 AS A$ : FIELD 2,255 AS B$
20 I=0 : RI = 0 : RO = 0
30 TAG$ = CHR$(65+I)
40 NM$ = "FILE"+TAG$+"/TXT:1"
45 OPEN "R",2,NM$
50 RI = RI + 1 : RO = RO + 1
60 GET 1,RI : LSET B$=A$ : PUT 2,RO
70 IF RI = 360 THEN CLOSE : END
80 CLOSE 2 : RO = 0 : GOTO 30
```

Quite crude but should work I thought, although line 15 bothered me. However, the manual does say (p 7-47) that the buffer is 255 bytes and of course Basic will not let you have a string of greater length. It does appear to work, but you only get the first 255 characters of your file when you load it into Scripsit. The answer is of course that the buffer is NOT 255 but 256 bytes (since 0 counts as 1 - logical (!) isn't it?) and the 256th byte gets zapped to zero. Lines 15 AND 60 have to be

```
15 FIELD 1,128 AS A$,128 AS AA$ : FIELD 2,128 AS B$,128 AS BB$
60 GET 1,RI : LSET B$=A$ : LSET BB$=AA$ : PUT 2,RO
```

Most habitual BASIC users will probably have discovered this eons ago but it may save one or two casual users the odd hour of hair pulling - Ed.

NATGUG NEWS

Volume 7 Issue 11 MAY 1986

OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the group is open to anyone with an interest in computers but special emphasis is placed on equipment in the TANDY range.

Details of the Group accounts, and the constitution of the Group, are available from the Secretary.

Members requiring assistance with problems related to the TRS-80 / Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are available from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor, on disk if at all possible (5.25", NEWDOS-80 v2 or Montezuma Micro CP/M prefered, any combination of density, sides or tracks, but please say what it is). Your disk will be returned.

Newsletter Editor
Geof Smith
17 Homefield Rd.,
Bushey,
Herts WD2 3AP
01-950-6345

Secretary & Newsletter Publisher
Brian Pain
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU
0908-564271

CONTENTS

Information on the group 2

Editorial 4

Sorting Data with DSM4 6

Oggy Oggy Oggy 10

A Use for Boolean Variables 12

Some More on BASIC Filing 14

Memory Expansion for the Model 4 15

Kermit - Part II 19

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Blandford meeting on Sunday, September 7th, FREE lunch.

All prices are exclusive of VAT.

EDITORIAL

Apologies for the slight delay in producing this issue of the newsletter, but I've been soaking up the sunshine in a somewhat more pleasant climate than that which prevails here at present. There seemed little point in putting the newsletter together prior to my holiday since only ONE contribution has arrived. On my return this situation had improved to the grand total of three articles but even as I write this there have been no letters/comments at all this month. It is not very easy too judge if you are happy with content etc. if there is no feedback - Enough chastisement for the present.

When I took over the role of Editor of the Newsletter it seemed to me that the one of things I could do was to try and improve the relationship (what relationship ?) between TANDY UK and the NATGUG. On the advice of Os House I wrote to John Sayers, the managing director of TANDY UK. A copy of my of my letter and his reply are reproduced below.

Dear Mr Sayers,

I have recently taken on the post of Editor of the Newsletter of the National TRS-80 User Group. The group has done much in the past to aid TRS-80 users in both the hobbyist and business fields but the number of members has dwindled dramatically in the last few years and at present is just hovering on the limits of viability. Those who are left are in the main what I would term semi-professionals or skilled amateurs, most of the members either use Tandy equipment to run small business concerns or are computer professionals who use Tandy equipment as an adjunct to their work involvement. This represents a considerable core of knowledge of Tandy equipment, operating systems and software that will be dissipated in the next year or two unless interest in the group can be revived. In the past there seems to have been an unwillingness on the part of Tandy UK to acknowledge the existence of the group and doubtless there were commercial reasons for this. However, in the current climate I would have thought that the ability to refer clients to a source of free (to Tandy) expertise would offer distinct advantages. To this end I would ask if it is possible as a general policy for branch managers to mention the existence of a Tandy User Group when making a sale of computer equipment and perhaps give a telephone number where the group secretary can be contacted (Mr. B. Pain 0908 564271).

Additionally, as editor of the newsletter I would like to write informed editorials on new Tandy equipment and software. This would be made very much easier if I could receive any press releases and other product information for incorporation into the newsletter,

yours sincerely,

Dear Dr. Smith,

Thank you for your letter of the 4th may regarding the National TRS-80 User Group and the work done by yourself.

I certainly would be prepared to instruct our stores of the work carried out by the User Group. I presume the address on your letter is the one to which all communication should be sent. I will let you have a copy of the recommendation to our store managers notifying them of your Group as soon as this has been circulated.

As regards to your final paragraph, I will ensure that our Merchandising Department keeps you informed of the new Tandy equipment and software that is coming to the market.

Thank you for taking the time to write. Can I perhaps suggest that you contact Mr. Ted Russel, Director in charge of Tandy Computers, and maybe he can arrange regular meetings between our technical support and merchandising personnel and your group,

Yours sincerely,

J.R.C. Sayers,

I found this reply to be highly encouraging and think we should all to our utmost to foster this relationship. With respect to Tandy equipment, two of the latest to appear are the TANDY 3000 and the TANDY 600. The 3000 is the TANDY rival to the IBM PC/AT and Ariela Taylor who is buying one of these for her hospital department has promised a review in the near future. Initial impressions are that it is a nice piece of equipment and very, very fast. The 600 is TANDY's new MS-DOS lap-held portable, with a built-in 3.5" drive. I'm not sure that there are any in the country as yet but would be interested if any one has seen any initial reports. Will it be as successful as the Model 100 I wonder, since there is a lot more competition in the lap-held market now.

In this newsletter we have one of the first reviews that I have seen on an extended memory board for the Model 4. The degree to which you can extend 8-bit technology does not cease to amaze me. Six or seven years ago a 48K upgrade for the Model 1 seemed out of this world. Now we have 1 megabyte for the Model-4. In this context Trevor Hutchinson (08206 23996) has just finished a prototype 64K/256K board for the Genie III. I have been inveigled into attempting to get some CPM-software together to implement a RAM disk for the board, and I hear tell that a certain Belfast guru may be doing the same for NEWDOS-80. Trevor intends to expand the board's capacity to 1 Megabyte and also envisages that the board will be adaptable to the Model-4. We certainly hope to have some demonstration kit running by next Swindon.

SORTING DATA WITH DSM4

Some time ago I was asked to print a list, in Alpha and Numerical order. As such it was an easy job for SIR but I ran into two problems. The data was handwritten and had many foreign names which looked odd, even when spelt correctly. The lists had to be printed on sheet paper with each letter of the Alphabet starting on a new page and 1.5 line spacing for easy reading.

The problem of poorly written data is that it makes for errors which have to be corrected. SIR requires that a field is re-entered if one letter is wrong and this leads to more errors. I also found that some of the numbers had a prefix letter and this added to the complications.

All this made a simple job much more difficult and when the next one arrived, I looked a little harder before I started. With over 2,000 records and each one almost filling a line at 12 chr per inch, I had nearly 200K of data. That alone is more than a standard disk will hold and splitting the file between disks makes life very difficult when the whole file needs to be sorted.

I opted to use a home-made program because that way I could control the results but on the other hand I lost some of the facilities that the commercial programs offer. The solution is to make a hybrid program with a mixture of Basic and standard packages.

One very good way of entering data is to use a word processor but few offer a Sort routine built in. Where the records are to be printed out in columns, it is easier to use a Calc program. Visicalc and Multiplan are especially good. Visicalc on the model 4 will hold more records than Multiplan but cannot have variable column widths. On balance it would appear that Muliplan was preferable but as neither program will hold 200k, I decided to use neither. My choice was eventually decided for me. Wordstar will hold the full data and retain Tabs but above all it is easier to get a Wordstar experienced typist to enter the data.

The advantage of the model 4p is that it suits the home typist and the on-screen prompts of Wordstar save looking through manuals. On the negative side and possibly the reason for the commercial failure of the 4p was the small drives. A file in Wordstar should not exceed one third of the disk capacity because at any one time it is possible to have three versions of the same file on the disk. This can be reduced by putting the backup file on another disk but this is of limited use on a two drive machine.

An advantage of Wordstar is that it is safe and can easily hold sufficient for one sessions work and the blocks can be merged at a later date. This suits most typists because it takes some 22 hours to put in 200K. By using several data disks I could keep backup copies and make sure the disks did not get too full.

To assist the typist, the data was compressed so that each line could be viewed on screen. This meant inserting spaces before printout but on a large job it is the best way because a little bit of processing at the end can make the entry much easier. All this meant the use of Basic and this is where my experience in CPM gets rather ragged. I chose to change back to TRS-DOS 6.2 for the later stages.

The simplist way to use CPM data under TRS-DOS is to use Hypercross which can read and write under both systems. This allows the data to be transfered without problems and from then on I could use all the facility of TRD-DOS.

At this stage I had all the data on TRS-DOS but in the order that the records were entered. The 200K file was too large for CMD"O" sorts and even an index sort (Newdos 80 or Dosplus 4), could only sort the first three letters. Thus Hong Kong, Honolulu and Honiton were all equal and this was not adequate. The book tells us to sort in blocks and merge the data back. I managed it once but could not face the effort and the time required for a really large job. So I opted for DSM4 which is the Rolls Royce of sorts.

DSM4 is not only a sort routine but half way to being a data base. It will select, delete and sort data in almost any form and very rapidly. Before you can begin, you need to describe your data but Text is always the default. You state the position of the field on which the sort is to start and all other fields in order. Thus you can sort a name like FRED BLOGGS the 6th character followed by the first character. The only restraint being that the data must be in the same position in each string.

Having made up this sort parameter you are invited to save it as a Map file and this can be used over and over again. You can edit the Map file and those that have done sorting before will appreciate the value of being able to change a parameter after seeing the result of the first attempt.

Once the Map file is written, you can get on with the sort and this requires the data to be read from disk. This is where you see the difference between a professional and a novice. My routine took in the records at about one a second and with 2000 records there was time for a cup of tea before finding that I had a sector not found. DSM4 grabbed the records and ticked up the 100's. I checked it with a watch and found that it averaged about 100 X 98bytes in 1.5 seconds. Thus the whole file was accessed in about 30 seconds.

The screen gives an active display as it sorts the blocks and puts them into a work file. A short delay before it starts merging them back and in less than 90 seconds its all over. If the file/sort fields are short enough to handle in one pass then it is even quicker. Because it does not use Basic arrays it can sort much larger files in memory than CMD"O" but the time penalty of larger files is not really worth worrying about.

Unlike CMD"O" and other sorts, the data is not moved and the disk file is still in the same order. The index file gives the order on which the files are accessed. This worried me a little although I could see the advantage because I could have one index in Alpha order and another in Numerical order. I was also pleased to see that there was a simple Basic program which showed the principle of accessing by index.

The index is really a long list of numbers which correspond to the Record number in the data file. Thus the first record in sorted order may be 123 and the next 005. Each number is stored in a string as a two byte integer. Although I roughly knew what that meant I was please to see the syntax given.

```
10 OPEN "R",1,"MYINDX/IND",2:'       Open index file (lrl=2)
20 FIELD 1,2 AS S$:'                    Field the index file
30 OPEN "R",2,"MYDATA/DAT",lrl:'        Open data file
40 FIELD 2,??????????????:'             Field data file
50 FOR L%=1TO LOF(1):'                 For as many records as
                                       are indexed
60 GET 1,L%:'                    Get record number from index
70 GET 2,CVI(S$):'             Get that record from data file
80 'do what you want with data.:' Print or write to new file
90 NEXT L%:'                      continue with next record
100 CLOSE:'                            close when done
110 END
```

The file can be printed via line 80 or it can be written to a new file in sorted order. If the index file in 10 is changed the file can be read in a new order and there is no limit to the number of indexes that can be used. Although DSM4 can sort in either direction it is also possble to reverse the sort in line 50 FOR 1%=LOF(1) TO 1 STEP -1:

A couple of points about DSM4. The sorted index only contains those records that meet with the select criteria. The default is to select all records but you can specify records using logical operators AND,OR,= etc. Another feature allows records to be 'marked delete'. You could mark a record as deleted by having a "*" or some other unique character in a specific place. DSM4 then ignores the record for the sort and can make a note of the deleted record numbers. This allows a record to be deleted and the number be re-used without rewriting the whole file. I found it useful for duplicates where I could add a single marker and from then on the record would not print. If the deletion turned out to be an error it can be undeleted by removing the marker.

I had a few problems on the way but these were nearly all down to me. The first one was when the sort seemed to take a long time. The problem being that I did not know how long to wait. It turned out that there was a small fault on the data disk and the program aborted when it could not read a sector. I thought it had sorted the index and could not understand why it did not work as described. Later I found that the screen is always active and tells you what is going on. When it is sorted, it tells you x records sorted..

The second problem was absolutely my fault in that I left off the lrl=2 in line 10. This did not show up as a Syntax error but it meant that the record number was garbage. All I saw was 'Input past end' or some such error code. I also found one strange fact that has bothered me before. If you use LOF(n) it is possible to find that LOF(n) is greater than the number of reords in the file. I believe it is something to do with the number of sectors/lrl leaving a remainder. DSM4 knows exactly how many records there are and thus I found that LOF(1) in the index file was always correct but not on the data file.

Using DSM4 to do the Sorting, I was well on my way to achieving my printout but I was still left with the need for 1.5 line spacing and forcing a new page for each new letter. The simplist way of getting 1.5 line spacing is to use the variable line spacing in the printer. The Epson and the Quen 1120 will both accept print codes to set the line spacing although both are different. This seems to upset the Forms

Filter so I used a counter to keep the pages to 40 lines and print a Page No as a footer. I also use a second routine to look at the first chaaracter to detect when the B's started and force a new page.

My first attempt started with chr$(65) and incremented one after each letter. Thus after finding the first "A" it looked for "B" but this failed to separate all the letters. It turned out that there were no records starting with "U". I therefore changed it to look for the first letter of the first record and then pick up the change. The new letter then becomes the standard and the program looks for the next change.

To force the new page and still get the footer at the bottom, I found that it was easiest to send CHR$(13). Thus I sent STRING$(40-C,13). As C=the number of lines printed and 40 the lines on the full page, 40-C gave me the blank lines to the end of the page. When I was using normal spacing I just sent TOF and the forms/flt did the rest, but I could not get this to work with non-standard line feeds.

The last problem occured when I found that I could not get all the data on an A4 page and leave sufficient for ring binding. I then resorted to the print codes again. The standard spacing for a 12chr wheel is 10/120th inch. By reducing this to 9/120ths I was able to gain 3/4 of an inch without reducing clarity significantly.

Derek Traylor, Hornchurch, Essex.

OGGY OGGY OGGY

You can tell that Summer is coming because we are having to work hard at producing the programmes for Blandford and Swindon!

The Blandford Workshop, with its legendary House Hospitality, will be held on SUNDAY SEPTEMBER 7th - don't miss it. (Blandford is only a mere 30 minutes from Poole & Bournemouth, so you can drop the rest of the family there and thus make everybody happy !!). Scheduled so far is The Model 4 in a Multi-User Environment, an Introduction to MS-DOS, Model 4 Networking, and demonstrations which could

well include an Amstrad and a Tandy conversing with one another. For those who have not visited Os recently, the Blandford by-pass has made it an absolute doddle - just a few yards up the road signposted for Melbury Abbas. The Blandford Bulletin Board (0258 54494) will be updated with the programme, so get the modems out. Remember, thanks to Os, the Blandford Workshop is F R E E !!!

After that, the only bad news is that Swindon (October 17th-19th) is not also free - but the GOOD NEWS is that prices should be held to the same level as applied in March. Quite apart from that phenomenally popular Systems Room (which appears in itself to justify the whole weekend for many members), there will be hands-on sessions on dBase II, demonstration talks on windowing and using Monte's Window, MBASIC vs CBASIC, and a full session on the Wordstar commands which have become standard for so much CP/M software. Laurie Shields will be there, with a variation on his recent themes, and hopefully Carl will present his D-I-Y "memdisk look-a-like" program.

At the time of writing this article neither schedule is finalised. If YOU have any ideas, thoughts, requests or desires relating to these weekends, then please get in touch. For the Blandford meeting, please ring either Os House or Leo Knaggs, on 0258 53737. Regarding the Swindon weekend, which will of course be held in The Wiltshire Hotel, please ring me on either 0225 61636 (8.00am to 5.30pm) or 0373 72739 (6.30pm to 8.30pm - no later please, when I'm not at a workshop then I go to bed very early!). It would be nice to hear from some Amstrad users about what they would like to see and hear.

Many of us nowadays use our machines for business, and so I leave you with this report from a recent 'Times' :

Computers are now so commonplace in the States that fraud by a keyboard operator or user is almost immediately detected; the art of auditing transactions has been well developed. However, grave concern is now being expressed at the virtual impossibility of auditing the program itself, especially since so few users even possess a listing of their software - worries about that old chestnut of siphoning-off the rounded-up or rounded-down cents have now become extremely serious. The report concluded by stating that so far as the UK was concerned, the potential problem was either just not recognised, or if it was then it was immediately 'swept under the carpet' !!

I hope that Brian has included a renewal notice with this issue - but if not, then he won't mind if you send your cheque in with your name and address on the back !

David Washford, 6 Houston Way, FROME, Somerset BA11 3EU

A USE FOR BOOLEAN VARIABLES

The small Turbo Pascal Pascal program (getrec) overpage is not particularly exciting and was merely written to take individual records from a file produced by Cardbox Intrisic Format and put each into a separate file. Each field in this format is separated by a NULL (ASCII 0) and each record by two NULLS. The interesting piece of the program is the section outlined by (***...***).

This is a REPEAT...UNTIL loop which will exit when the Boolean variable fin becomes TRUE. Line 1 reads a character from the file into the variable letter. The next line (Line 2) illustrates the difference between ':=' and '='. The expression (letter = chr(0)) returns a value of FALSE for every character assigned to letter except ASCII 0. This is then AND'd with the other boolean variable zero that is initially set to FALSE. The result of the AND can be obtained from the truth table:

x	y	x AND y
FALSE	FALSE	FALSE
FALSE	TRUE	FALSE
TRUE	FALSE	FALSE
TRUE	TRUE	TRUE

This value is passed to the loop variable fin. The next line (line 3) then sets zero to true if the character read was a NULL. The end effect of this is that the loop will only exit when two NULL's are read in succession, ie. at the end of each record. Pretend that you are a computer and step around the loop if you don't believe me. Boolean logic might look a little mysterious but can be very useful on occasion.

I have recently done a comparison of Turbo PASCAL versions 2 and 3 on both CPM-80 and MSDOS. Under MSDOS there is no doubt that although version 3 produces larger code it compiles and executes about twice as fast as version 2. However, under CPM-80 the code is not only about 2k larger with version 3 presumably because of a larger run time library, but there is NO advantage gained in either compilation or execution speed. Therefore unless there are any version 3 extensions that you need for your programs, you are best advised to stick with version 2 if running under CPM-80.

Ed

```
program getrec;

var infile,outfile:text;
    inname,outname:string[20];
    letter,ttl:char;
    zero,fin:boolean;
    icount:integer;

begin
write(con,'Enter name of inputfile');
readln(con,inname);
write(con,'Enter initial name for 1st output file ');
readln(con,outname);
assign(infile,inname);
reset(infile);
icount:=0;

REPEAT
   OUTNAME[6]:=CHR(ORD(OUTNAME[6]) + 1);
   ASSIGN(outfile,outname);
   rewrite(outfile);
   writeLN(con,outname);
   zero:=FALSE;

(*********************************************************);
   REPEAT
      read(infile,letter);                    (* Line 1 *)
      fin:= zero and (letter = chr(0));       (* Line 2 *)
      zero:= letter = chr(0);                 (* Line 3 *)
      write(outfile,letter);
   UNTIL fin;
(*********************************************************);

   icount:= icount + 1;
   write(outfile,chr(0));
   close (outfile);
   write(con,icount:5,'records read');
   write(con,'Type any key to continue, space bar to top');
   read(con,ttl);
UNTIL ttl <> ' ';
close(infile);
end.
```

SOME MORE ON BASIC FILING ROUTINES

Another small contribution in connection with filing routines. In common I suspect with most people, my string input routines control the permitted length of the input. This is done with a variable LE(ngth), which is set before calling the subroutine. As most string input in my programs is destined for a random file, it occurred to me that I could kill two birds with one stone.

At the start of the input routine a string of spaces is set up of the required length. Immediately before return from the routine the input is LSET into this string, so we return with a standard length string.

The routine may be of interest to some people. It runs as follows:-

```
10 Z$="":Z1$=STRING$(LE,32):PRINT CHR$(14);:REM GET CURSOR
20 R$=INKEY$:IF R$="" THEN 20 ELSE R=ASC(R$)
30 IF R=13 THEN LSET Z1$=Z$:PRINT CHR$(15);:RETURN
40 IF R=8 AND Z$="" THEN 20:REM CANT BACK-SPACE IF NO INPUT
50 IF R<>8 AND LEN(Z$)=LE THEN 20:REM NO MORE ROOM
60 PRINT R$;:IF R=8 THEN Z$=LEFT$(Z$,LEN(Z$)-1):GOTO 20
70 Z$=Z$+R$:GOTO 20
```

You will see that this permits the construction of Field strings by simple concatenation.

This process has a further advantage in that it permits neatly formatted printing without tabs. Suppose we have A$ 20 characters and B$ 15, we can PRINT A$+" "+B$, and a series will be neatly aligned one under the other with three spaces between each string.

The only minor complication I have so far found is with dates. In my accounting programs these are entered as a 6 character string, 12 Jan. This is alright, but if the date is 1 Jan we need RSET instead of LSET. I deal with this on return from the subroutine by inspecting the string to see if the last character is a space.. If it is then it is switched to the front.

```
IF RIGHT$(Z1$,1)=" "THEN Z1$=" "+LEFT$(Z1$,5)
```

I hope this is helpful to someone

M.C.Matthews, Dorset.

MEMORY EXPANSION FOR THE MODEL 4

One of the nicest features of the model 4 is the extra memory. It allows a larger sheet in Visicalc and bigger files in Le Script and Scripaid and some other wordprocessors can have Banks available. The memdisk allows rapid loading and saving and seems to get round 'those sector not found errors' as long as you remember to save before turning off and nobody pulls the plug. However, a disadvantage of the model 4 is that you cannnot use the banks and memdisk at the same time and the capacity is rather limited. When 35 track SD was the standard, a 56K memdisk would have seemed adequate but today it is rather miserly.

The Amstrad CPC128 starts off equal with the expanded TRS-80 but a 256K ramdisk is available to bolt on the back. The thought that the rotten little Arnold with its Hi-res and flash colour graphics should go one up on sheer bulk capacity is too much. It was time for the TRS-80 to fight back.

Do you remember when the when the model 1 had 4K and the new chips took it up to 16K? Then the same keyboards started to sprought 64K when the even newer chips became available. That was the limit, we were assured because the Z80 will only handle 64K of memory. Suddenly 128K was possible and the Joyce came out with 256K. So if Amstrad can do it for the Joyce and and the Arnold why not the model 4.

Lured by promises of 1/2Meg, 1Meg and perhaps even 1.5Meg, I started to look at upgrades. The problem being that they are not cheap and I have burnt my fingers before. It is one thing to upgrade the hardware but will it do what I want. Remember the 80 col display for the model 1 that would not work with the Wordprocessors that most needed it. The CPM that would not run normal CPM programs and the Bigmem board that lacked usable software. All sounded great but were generally disappointing in some way.

Having waited for others to take the plunge, I was forced to go on alone and sent of to Holland for a Kit. Nothing happened at first but after a couple of weeks my order was returned because I had not included the expiry date. After the delay I had some doubts about the company, but through lack of alternative, I complied and re-ordered.

Having sent of the order at the end of March, I heard nothing until the middle of May when out of the blue, the package arrived. It consisted of a 30cm tube of chips and a small bag of miscellaneous chips and componants. I found a letter and a manual. The letter was partly in English but one paragraph stated "Please let it anybody else with knowless about

electronics while it is a lot of work". That was just the letter and I turned to manual with real fear. Now there are probably a few people that 'knowless' about electronic than me but they do not have to read 'Double Dutch'. However my fears were unjustified and whoever wrote the manual, it was not the writer of the letter. The manual is clear, as well explained as a complex matter can be, and seemed to make sense. It also helped translate the letter. It more or less meant that 'if you think this is going to be easy then you don't know enough to attempt it'.

Joking aside, it is not for the faint heart or the inexperienced or you are likely to lose the use of your model 4p for some time. Model 4 owners may well find the proposition much easier. The 4p does not have room for the extra board and so the modification has to be done on the existing board. As I am no expert I will not try and explain in detail but in essence you need to remove the 64K chips and replace them with the 256K chips supplied.

Even a novice hacker would not find that hard but the conversion does not end there as the circuitry needs some modification. The problem being that cutting tracks is easy but it makes it difficult to restore the board if it need servicing. The kit chose the safer method of removing pins so that at worst you needed new chips. My resident experts all approved of that approach.

The letter also stated that 512K is the most that can be put in a model 4p because there was not room for more but the model 4 can have 1Meg by piggy-backing chips. They had supplied the kit on approval and asked me to decide whether I could manage it or get somebody else to do it and return it for refund if not. The instructions warned that it could take five hours to complete the conversion and obviously you cannot use the computer in the mean time. The only proviso was that the seal on the ramdisk must not be broken otherwise no refund. As you only need the disk after conversion that seemed fair enough.

Having looked at the instructions and had some advice, I decided that I could have done it if I had really wanted to. Of course I could have run the London Marathon or swum the English Channel if I had really wanted to, it was just the lack of time. So off went the kit to our local expert Phil Haswell. Phil is a professional and owns a TRS-80. Phil confirms that the instructions are clear, adequate but even he felt the pressure with the sheer volume of alterations and confirms that the computer could be returned to it orginal state as only one track has been cut.

Once converted the model 4 looks just the same, not even a go faster stripe or a TURBO badge to show off but inside it has hidden depths. In fact so ordinary does it look that if you use ordinary software it will behave quite 'ordinarily'. Which after all, is quite reassuring.

To use the extra memory you have got to set up the mendisk as you do with TRS-DOS but in this case it goes further. You can leave Bank 0 for Lescript, Pronto, Double Duty etc and start on bank 1. You can down load your SYS files and even switch drives. You can load in programs as with JCL and no doubt even more once you ge the hang of it.

The Memdisk is based round the Newdos 80 ILF files and at first it was only available for Newdos 80 v2 or 2.5 and later v3 (v3! where did that one come from. As one of the few legitimate owners I had never heard of an 80 col version). I ordered the Newdos driver but was sent the TRS-DOS version. TRS-DOS 6.n does not have ILF files so a special program is included.

Essentially you generate some JCL type files with the parameters that you want or else you use the default ones provided. This goes on the disk as RAMDISKn/PAR (note the n). You then have a list of the files you want put in the Memdisk. SYS0-13, Basic, and so on. These are in RAMDISKn/ILF and you can probably see that this is similar to having the TRS-DOS Memdisk parameters and Copy command in a JCL. To initialise, you type RD n (n being the PAR and ILF files that you want ie RAMDISK1/PAR). For most purposes you might only need one type of memdisk but you can have one with BASIC and one without. In my case I need a print driver for Scripaid but it could be Multiplan overlays. The ILF files can be on any drive as long as it is specified.

This sound a bit complicated but the default settings do most of it. The only snag being the time taken. From switch on to 'ready' can take nearly two minutes (OK so I am impatient and I do know how long tapes take but if I had wanted to wait two minutes, I would have got up later). But the nice thing is that given the correct ILF your memdisk is now drive 0 with the speed up that that can give and drive 0 is now called drive 2 and the system disk can be replaced by a data disk. If you need to Reset, the program looks through and checks the directory of the memdisk. If it is intact, it will use it without format and retaining the data.

In operation, the program appears invisible (can something appear invisible) and the speed take you by surprise. Type (BREAK) S in Scripsit and the cursor blinks and carries on . There is none of the drive activity while it loads the overlay from 0 and then drive 1 to Save and the silence is uncanny.

Nevertheless, saved it has been. Just watch!. I have just saved the whole file and I bet most of you did not even notice.

Bottom Line. If you like Banks and find the Memdisk too small then this is for you. While it could expand the use of a single drive machine, it is more expensive than a second drive. If you have a 1 Meg memdisk you are going to have trouble saving it on a 40 SS drive. If you use Newdos 80 then it will allow you to use the second bank but there are other programs, although none of these allow more than 128K. On top of the Ramdisk, you get the facility to change the system drive but again this can be achieved without. It would be a great thing for virtual word processors like Wordstar or others that use overlays but there is no CPM driver. If you use Dosplus 4 or another DOS then you will have to go back to TRS-DOS but if the upgrade takes off, the Software companies will have to think again.

If you have a 4p then 1/2 Meg is the limit and think twice about work involved. You may find a friendly hacker but you are prevailing on his kindness if you expect it done for nothing. I think the model 4 version should be quicker and easier but it is not a plug 'in and go' board. The 4 can take the full Meg but you have to piggy-back chips. I have heard the model 3 can take 1.5 Meg but it was not mentioned by this supplier.

The kit was supplied by Seatronics inc.
Kasteel str. 4-abc
6223 BJ Maastricht.
The Nederlands

It was advertised in the 80 micro that has also printed a review of the model 4 version. The company seemed OK but the delay in supplying and answering letters was too long for my liking and I do not seem to be alone. I have since noticed that the above address is slightly different and maybe they have moved recently (any truth in the story that successfull micro-electronics firms move into smaller factories.

The price ($200 - 512K) reflects the cost of the 256k chips which are not in plentiful supply but in time, and under the pressure from the newer 512K chips, the price will probably fall. The software is not protected but is is claimed that the disks are registered and pirate copies can be traced back. On the plus side, it does everything claimed and without hidden snags or costs. The 1/2 Meg limit may not be too much of a problem for 4p users but you are better off than without. Maybe the 512K chips will be the next upgrade but one thing is certain, the Amstrad, Spectrums and what have you, are going to be sproughting 256K before long and the old 64K machines are going to be yesterday systems in the shops.

Derek Traylor.

KERMIT PART II

Last month I talked about some of the potential compatability problems that had to be taken into account when the KERMIT protocol was designed. This month we will take a look first at the characteristics of KERMIT that resulted from those design considerations.

Characteristics of KERMIT

- Communication takes place over ordinary terminal connections.

- Communication is half duplex. This allows both full and half duplex systems to participate, and it eliminates the echoing that would otherwise occur for characters arriving at a host job's controlling terminal.

- The packet length is variable, but the maximum is 96 characters so that most hosts can take packets in without buffering problems.

- Packets are sent in alternate directions; a reply is required for each packet. This is to allow half duplex systems to participate, and to prevent buffer overruns that would occur on some systems if packets were sent back to back.

- A timeout facility, when available, allows transmission to resume after lost packets.

- All transmission is in ASCII. Any non-ASCII hosts are responsible for conversion. ASCII control characters are prefixed and then converted to printable characters during transmission to ensure that they arrive as sent. A single ASCII control character (normally SOH) is used to mark the beginning of a packet.

- Binary files can be transmitted by a similar prefix scheme, or by use of the parity bit when both sides have control of it.

- Logical records (lines) in textual files are terminated during transmission with quoted carriage-return/linefeed sequences, which are transparent to the protocol and may appear anywhere in a packet. Systems that delimit records in other ways are responsible for conversion, if they desire the distinction between records to be preserved across unlike systems.

- Only a file's name and contents are transmitted - no attributes. It is the user's responsibility to see that the file is stored correctly on the target system. Within this framework, invertible transfer of text files can be assured, but invertible transfer of non-text files depends on the capabilities of the particular implementations of KERMIT and the host operating systems.

- KERMIT has no special knowledge of the host on the other side. No attempt is made to integrate the two sides. Rather, KERMIT is designed to work more or less uniformly on all systems.

- KERMIT need not be written in any particular language. It is not a portable program, but a portable protocol.

Thus KERMIT accommodates itself to many systems by conforming to a common subset of their features. The resulting simplicity and generality allow KERMIT on any machine to communicate with KERMIT on any other machine, micro-to-mainframe, micro-to-micro, mainframe-to mainframe. The back-and-forth exchange of packets keeps the two sides synchronized; the protocol can be called "asynchronous" only because the communication hardware itself operates asynchronously.

As far as the user is concerned, KERMIT is a do-it-yourself operation. For instance, to transfer files between your micro and a mainframe, you would run KERMIT on your micro, put KERMIT into terminal emulation mode, which "connects" you to the mainframe, log in and run KERMIT on the mainframe, then "escape" back to the micro and issue commands to the micro's KERMIT to send or fetch the desired files. Any inconvenience implicit in this procedure is a consequence of the power it gives the ordinary user to establish reliable connections between computers that could not otherwise be connected.

As described last month, the process of information transfer centres around the sending and receiving of discrete pieces of data called packets. We will now consider the design of the packet in a little more detail

Packets

KERMIT packets need to contain the data that is being transferred, plus minimum information to assure (with high probability) that the expected data arrives completely and correctly. Several issues come up when designing the packet layout: how to represent data, how to delimit fields within the packet, how to delimit the packet itself, how to arrange the fields within the packet. Since the transmission medium it self is character-oriented, it is not feasible to transmit bit strings of arbitrary length, as do some of the bit-oriented protocols. Therefore the smallest unit of information in a packet must be the ASCII character. This precludes some techniques that are used with other communication media.

Control Fields

Since KERMIT packets are short, it is important to minimize the amount of control information per packet. Therefore the decision was made to limit the length of each control field to 1 character with the exception of the checksum. There are 95 printable characters to work with (128 ASCII characters, less

DEL and the 32 control characters), therefore values from 0 to 94 can be represented with a single character. (From last month you may remember that the ASCII control characters are not used since they mean different things on different systems). This lead to the following implementation of control fields

- The packet SEQUENCE NUMBER is used to detect missing or duplicate packets. It is unlikely that a large number of packets could be lost, especially since packet n is acknowledged before packet n+1 is sent. So the sequence number can be a small quantity, which "wraps around" to its minimum value when it exceeds a specified maximum value.

- To prevent long packets, a small maximum length can be enforced by specifying the PACKET LENGTH with a single character; since there are 95 printable ASCII characters, this would be the maximum length, depending on how the control fields are counted.

- The CHECKSUM is also of fixed length. The actual length depends on the desired balance between efficiency and error detection.

The packet length and checksum act together to detect corrupted, missing, or extra characters. These are the essential fields for promoting error-free transmission. But so far, we've only considered packets that carry actual file data; special packets are also required composed only of control information, for instance to tell the remote host the name of the file that is about to come, or to tell it that the transmission is complete. This can be accomplished with a packet TYPE field. The number of functions that needs to be specified in this field is small, so a single character can suffice here too.

Packet Framing

The beginning of a packet is marked by a unique start character, SOH (Start Of Header, ASCII 1, Control-A). This character cannot appear anywhere else within the packet. SOH was chosen because, unlike most other control characters, it is generally accepted upon input at a job's controlling terminal on most mainframes as a data character, rather than an interrupt or break character. This is probably no accident, since it was originally intended for this use by the designers of the ASCII alphabet. Should a system be incapable of sending or receiving SOH, it is possible to redefine the start-of-packet character to be any other control character; the two sides need not use the same one.

There are three principal options for recognizing the end of a packet: a fixed length, a unique packet-end character, and a length field. There are arguments for and against each involving what happens when characters, particularly a length or terminator control field character, is lost or garbled, which

will be mentioned later. KERMIT uses a LENGTH field.

To take in a packet, a KERMIT program gets characters from the line until it encounters the SOH. The next character is the length; KERMIT reads and decodes the length and then reads that many subsequent characters to complete the packet. If another SOH is encountered before the count is exhausted, the current packet is forgotten and a new one is started. This stratagy allows arbitrary amounts of noise to be generated spontaneously between packets without interfering with the protocol.

Encoding

In order to make each character in the packet printable, KERMIT "quotes" any unprintable character by transforming it to a printable one and precedes it with a special prefix character. The prefix is normally "#"; the transformation is done by complementing bit 6 (adding or subtracting 64 , modulo 64). Thus control-A becomes "#A", control-Z becomes "#Z", US (control-underscore on most terminals) be comes "# ". The prefix character is also used to quote itself: "##". Upon input, the reverse transformation is performed. Printable characters are not tranformed. The assumption is that most files to be transferred are printable, and printable files contain relatively few control characters; when this is true, the character stream is not significantly lengthened by quoting. For binary files, the average quoting overhead will be 26.6% if all bit patterns are equally likely, since the characters that must be quoted (the control characters, plus DEL, and "#" itself) comprise 26.6% of the ASCII alphabet.

KERMIT also provides a scheme for indicating the status of the 8th bit when transferring binary files between systems that must use the 8th bit for parity. A byte whose 8th bit is set is preceded by another special quoting character, "&". If the low-order 7 bits coincide with an ASCII control character, then control-character quoting is also done. For instance, the byte 10000001 would be transmitted as "&#A". The "&" character itself can be included as data by quoting it (#&), and the control-quote character may have its 8th bit set (&##). 8th-bit quoting is only done when necessary; if both sides can control the parity bit, then its value is preserved during transmission. If the 8th bit is set randomly on binary files, then 8th-bit quoting will add 50% character overhead. For some kinds of binary data, it could be less; for instance, positive binary numbers in 2's complement notation do not to have their high-order bits set, in which case at least one byte per word will not be quoted.

A third kind of "quoting" implements rudimentary data compression. At low speeds, the bottleneck in file transmission is likely to be the line itself, so any measure that can cut down on use of the line would be welcome. The special prefix character "~" indicates that the next character is a repeat count (a single character, encoded printably) and that the character after that (which may also have control or 8th-bit

prefixes) is repeated so many times. For instance "¢†A" indicates a series of 93 letter A's; "¢H&#B" indicates a series of 40 control-B's with the parity bit set. The repeat count prefix itself can be included as text by quoting it with "#". To keep the protocol simple, no other transformations are done.

Error Detection

Character parity and Hamming codes are forms of "vertical redundancy checks" (VRCs), formed by combining all the bits of a character in one way or another. The other kind of check that can be used is the "longitudinal redundancy check" (LRC), which produces a "block check character" formed by some combination of each character within a sequence. The sending side computes the LRC and sends it with the packet; the receiving side recomputes it for comparison. There are various forms of LRCs. One form produces a "column parity" character, or "logical sum", whose bits are the exclusive-ORs of the corresponding bits of the data characters. Another is the "checksum" which is the arithmetic sum of all the characters in the sequence, interpreted numerically. Another is the "Cyclic Redundancy Check" (CRC) which passes the characters through what amounts to a shift register with imbedded feedback loops, producing a block check in which each bit is effected in many ways by the preceding characters.

All of these techniques will catch single-bit errors. They vary in their ability to detect other kinds of errors. For instance, a double bit column error will always go undetected with column parity, since the result of XORing any two bits together is the same as XORing their complements, whereas half the possible double bit errors can be caught by addition because of the carry into the next bit position. CRC does even better by rippling the effect of a data bit multiply through the block check character, but the method is complex, and a software im plementation of CRC can be inscrutable.

Standard, base-level KERMIT employs a single-character arithmetic checksum, which is simple to program, is low in overhead, and has proven quite adequate in practice. The sum is formed by adding together the ASCII values of each character in the packet except the SOH and the checksum itself, and including any quoting characters. Even non-ASCII hosts must do this calculation in ASCII. The result can approach 12,000 in the worst case. The binary representation of this number is 10111011100000, which is 14 bits long. This is much more than one characters worth of bits, so we can discard some high order bits and still have a viable validity check.

The KERMIT protocol also allows other block check options, including a two-character checksum and a three-character 16-bit CRC. The two- character checksum is simply the low order 12 bits of the arithmetic sum, broken into two printable characters. The CRC sequence is formed from the 16-bit quantity generated by the CCITT-recommended polynomial

$$x^{16} + x^{12} + x^5 + 1$$

which is also used in some form with other popular transmission techniques. The high order 4 bits of the CRC go into the first character, the middle 6 into the second, and the low order 6 into the third.

Some care must be taken in the formation of the single-character block check. Since it must be expressed as a single printable character, values of the high order data bits may be lost, which could result in undetected errors, especially when transferring binary files. Therefore, the 7th and 8th bits of the sum are extracted and added back to the low order bits; if the arithmetic sum of all the characters is S, then the value of the single-character KERMIT checksum is given by

(S + ((S AND 300)/100)) AND 77

(numbers are in octal notation). This ensures that the checksum, terse though it is, reflects every bit from every character in the packet.

A final note on parity -- a parity bit on each character combined with a logical sum of all the characters (VRC and LRC) would allow detection and correction of single-bit errors without retransmission by pinpointing the "row" and "column" of the bad bit. But control of the parity bit cannot be achieved on every system, so the parity bit is used for binary data whenever possible can, but if needed is surrendered to the communication hardware. If we have use of the 8th bit for data, then it is figured into the block check; if we do not, then it must be omitted from the block check in case it has been changed by agents beyond the knowledge or control of the KERMIT program.

Next month we will look at the actual structure of a packet and see how the whole system works. Meanwhile on the subject of how KERMIT got it's name, an eagle-eyed reader spotted a letter in Practical Computing which stated that KERMIT is the acronym for KL-10 Error-free Reciprocal Micro Interchange over Tty lines, KL-10 being the CPU for DEC-10 & DEC-20 mainframes. It sounds boring enough to be true!.

NB. On the print wheel I'm using
¢ = tilde = decimal 126
† = right curly bracket = decimal 125
Anyone know a good 10 cpi ASCII sequence Qume wheel

Ed

NATGUG NEWS

Volume 7 Issue 12

JUNE 1986

OFFICIAL JOURNAL OF THE

National TRS-80

& Genie Users

Group.

INFORMATION ON THE GROUP

Membership of the group is by subscription to the Newsletter, which is published monthly. Membership details are obtainable from the Group Secretary. Membership of the group is open to anyone with an interest in computers but special emphasis is placed on equipment in the TANDY range.

Details of the Group accounts, and the constitution of the Group, are available from the Secretary.

Members requiring assistance with problems related to the TRS-80 / Video Genie may call the Secretary. An attempt will be made to put them in touch with a member who can help with the problem.

Workshops are arranged from time to time in various parts of the country.

Sub-groups exist in many areas. A list is provided in the Newsletter from time to time.

The Group maintains two software libraries (Models I and II) which are free to members. Library lists are available from the Secretary.

For confidentiality reasons, the membership list is not generally available, but members may ask the secretary for a list of members in their area, and mailshots to all members may be arranged.

Back numbers of the Newsletter are available from the Secretary.

Please send all contributions for the Newsletter to the Editor, on disk if at all possible (5.25", NEWDOS-80 v2 or Montezuma Micro CP/M prefered. any combination of density, sides or tracks, but please say what it is). Your disk will be returned.

Newsletter Editor
Geof Smith
17 Homefield Rd.,
Bushey,
Herts WD2 3AP
01-950-6345

Secretary & Newsletter Publisher
Brian Pain
24 Oxford Street,
Stony Stratford,
Bucks. MK11 1JU
0908-564271

Blandford Computers
STD (0258) 53737

While stocks last:
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1 x 40T SSDD	£265.50	2 x 40T SSDD	£312.26
2 x 80T DSDD	£586.96	4 x 80T DSDD	£800.00

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3-1/2" drives

Printers: Tandy DWP 210 - Quen Daisy wheel - Citizen 210D all at £140.00, subject to availability

Disks: 5-1/4 at £6.97 / 10 black 40T DSDD
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**** VERY SPECIAL OFFER ****

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26-5103 2 Disk, 26-5111 mono monitor	£ 715.00
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26-5104 1 disk 10 meg hard drive + colour monitor	£1262.50

Blandford meeting on Sunday, September 7th, FREE lunch.

All prices are exclusive of VAT
and are subject to change without notice

CONTENTS

Information on the group 2

Editorial 5

Letters.....6

Automatic PDRIVE's.....7

Bugs in BASCOM.....8

Comment on Kermit.....9

5-1/4" Disks on the Amstrad.....10

Extra Memory on the Model 4 10

TRSDOS Extra Memory Patch 11

MIX - A Versatile Editor 13

Kermit - Part III 17

Readers Adverts 24

EDITORIAL

Thank you to all the contributors, we made 24 pages with one article to spare for next month - keep up the good work. I received my CPM user group newsletter this month, it is published approximately every quarter. I normally look forward to quite an entertaining read with articles from DEBUGGER etc. However, I was in for quite a shock. Apart from a number of readers letters, virtually the whole issue was devoted to Software Lists from the various CPM libraries and their new MSDOS libraries. Even the software had a certain lacklustre feel with yet more disks full of terribly exciting BASIC versions of reversi etc. It made NATGUG look positively bursting at the seams with useful / interesting information.

With respect to the letter I sent to TANDY HQ, a member phoned me up in the week to say that he'd seen a copy in his local Tandy Store. The manager confirmed that it had been sent out to all the branches. Perhaps our secretary would like to give us a report next month on the state of the membership and if there has been any direct referrals from Tandy stores (Brian ?). On the subject of Tandy stores, Colin Ashford rang me this evening to say that Tandy were selling CPM-Plus and C-BASIC for 9.95 pounds. This is in 8 inch (model II) format but includes full documentation. Tandy UK seem to be doing a bit of consolidation in their UK retailing and are about to close 8 of their 16 AT Computerworld Stores. If you remember, these were set up in conjunction with Apricot with ambitious plans to become the largest European retailer of personal computers. This joint venture split up earlier this year and obviously could not function now since Apricot have dropped their low end machines completely, the XEN now being their only micro. One presumes that the financial pressures induced by the ultra cheap Korean and Taiwanese PC clones forced this move from Apricot, how will TANDY's range stand up to this competition I wonder.

I haven't seen much interesting 8-bit software this month. However, one piece of software which has been introduced first to CPM rather than MSDOS is KAMAS. This is an 'ideas' or 'outline' processor rather in the style of Think -Tank or Ready. It has had pretty reasonable reviews in Byte and 80-Micro and may be worth thinking about if you do the sort of writing that needs a lot of organization. One final comment, I've just seen Os's latest advert and the price of the Model 2000 looks very attractive. Presumably Tandy are going to stop production before very long, but none the less, it represents a very powerful piece of computing equipment at that price (it makes the IBM PC look very pedestrian) and it was popular enough in the States for the major software companies to make sure their programs would run on it (Lotus etc). I would reckon they will sell like hot cakes in the same way as the 4P before it was discontinued.

LETTERS

Dear Ed.

Not so much a contribution as a series of questions, and a thank you list. First of all, things I need:

Does anyone have any information regarding the model 4P hi-res board? Like how much? Where from? Is it worth it? Is it fast? Does anyone have a second hand one for sale?

How do I make model 3 programs like NEWDOS 80 v2 (thank you Tony Evetts) run in model 4 mode, with a 80 x 2 screen, at 4 MHz etc?

What editor assemblers are available for the model 4 mode? Again, how much, where from, and is it available secondhand?

I need Visicalc 4 or better (?). As above.

What is DosPlus 4 (and all the other questions again)?

Are there any other TRS80 model 1 or model 4/4P users in my area (Sussex)? If so, how about sharing a subscription to 80-Micro, as my wallet is not that spacious.

Would someone mind announcing once in a while when the weekends are? This is my fifth year of membership, but and I have still attended no workshops (or whatever they are called now), since I have not heard about them in time to arrange transport.
(See Blanford Computers Advert and April, May OGGY - Ed)

Thank you to Brian, for helping with the newsletter delivery problems and for referring me to Robert Viera.

Thank you to Robert Viera, who helped me with a fairly unique little problem I was having whilst fitting my two DS 40/80 track Mitsubishi drives into my 4P. (Would you care to share the problem and solution with the rest of us - Ed)

Jon Silver - Brighton
Tel: (0273) 501901 after 7 pm & weekends.
or (0424) 216611, ext 196, from 8:30 a.m. to 5:30 p.m.

Automatic PDRIVE

I normally use LDOS as an operating system whenever I possibly can, but sometimes circumstances force me to use NEWDOS-80. This changing between operating systems tends to give rise to several headaches.

The worst problem is in trying to read an unidentified disk and you have no idea of the correct PDRIVE. Unlike LDOS, you cannot expect Newdos to work it out and it is very pedantic.

At one time I had to keep a box of disks which Pdrive'd Drive 1 to read one or other of the likely disks, 80/40 model I/III single and double density. Mainly it is a matter of familiarity and that was why I tried to keep off Newdos 80 wherever possible.

Then I found myself returning to Newdos to run Model III programs and the problem started again. I knew a disk should have been OK but none of my regular disks would read it. That was when I decided to get Login. This utility looks at an unknown disk and works out the Pdrive regardless of how the system has been set up. It will even read a 40 track disk in an 80 track drive without a hardware switch.

Login only takes a small amount of space and is called by "Login n". It defaults to drive 1 and it is claimed to recognise any legitimate Pdrive. I found it works quickly and has worked with some unlikely combinations. In fact it has only once failed to recognies a disk and that turned out to be DOSPLUS which was not fair. Although it did read a 40 track disk in an 80 track drive it may not read an 80 track disk in a 40 track drive.

I have not seen it on sale in this country and got mine sent in from Seatronics who seem to be offering some unusual hardware and software options. Apart from their memory expansion they offer a speed-up kit. This is claimed offers a real advantage in working speed over the standard machine. I have always fought shy of these ideas and the only one I ever had for the Model I, never worked from the time that I bought it. Recently I was told that the memory that I had insatlled may not have been fast enough. Now they tell me!

Generally my fears were based on the risk of speed against reliability and the thought that there was probably a very good reason for keeping the speed where it was. The advert seemed to make sense but I have still not risked my cash or computer.

According to Seatronics the TRS-80 always keeps the speed of the Z80 at below its top speed so that slower and cheaper memory can be used. After a few years the prices began to drop but Tandy continued for reasons of compatability and inertia. Many of the later 4's and most of the European models have faster chips but have waits or delays put in to slow them down. It is possible to get even faster chips and the latest 256K chips have a 125 ns operating speed. This allows several speed-ups although the very

fastest operation requires a new Z80 to be fitted.

I do not know how well the kits work on the model 4 but a friend swore his was a big improvement on a model I. Search and find and all calculations in Visicalc were much quicker. In fact some of the tardiness in benchtests seem to relate to these 'wait states'. I for one would welcome a more authorative opinion.

Derek Traylor.

(There is also a public domain program called CAT by Steve Ridall that does essentially the same job in automatically setting up the PDRIVE tables for unknown NEWDOS disks. Ed)

BUGS IN BASCOM

The Model III version of Microsoft's Basic Compiler, which Tandy sold at about #129 and Harding's were selling early this year at a substantial discount, has one serious bug. It occurs in sequential input using INPUT# or LINE INPUT#. If the last byte of a physical sector on the disk is a carriage return (0DH), the compiled program goes back to read from the beginning of that sector instead of going on to the next sector. The fault appears to occur on all DOS, so must be a fault in the compiler or the runtime routines.

There are two possible ways round it. If you are using INPUT#, a comma instead of a carriage return gets over the sector boundary, so it may be worth including a random access routine in your programs to test the last byte of each sector for 0DH and change it to a comma if it is. Instead of LINE INPUT#n you can use INPUT$(1,#n) for single-character input and test for 0DH to build up the string. That is of course much slower but seems reliable.

Mention of INPUT$ is a reminder that you can use most of the additional commands and statements available under CP/M MBASIC (versions 4.51 to 5.3) or Model 4 Basic in a compiled Model III program, although of course you can't test them with the interpreter. You can choose whether to compile using 4.51 (i.e. Model I/III Basic) lexical conventions (spaces don't matter, 2-character variable names) or 5.3 (i.e. Model 4 Basic) ones (must have spaces, can have long variable names with reserved words embedded). You can also do without line numbers if you want, and you have double-precision transcendental functions. You can't use Basic statements peculiar to non-Tandy DOS (e.g. Apparat's extensions). Despite that and the bug, however, BASCOM seems good value at Harding's price (less than one-seventh of the standard prices for the CP/M and MS-DOS versions, which do no more). It also allows greater program portability (if the program compiles and runs under Model III BASCOM, it'll probably compile and run under CP/M BASCOM and MS-DOS BASCOM).

The bug doesn't occur in the CP/M and MS-DOS versions, both of which I use regularly.

The MS-DOS version (at least v. 5.35, which we have in the office) does, however, have a similar bug. It can handle strings up to 32K long, because it uses 4-byte string pointers instead of the old 3-byte ones. This excellent feature hasn't been implemented properly. If you read a string longer than 255 bytes from a sequential file, the string space is corrupted and the program will eventually crash - not always at the same point, which makes you think there's something wrong with the hardware! You're lucky if you get an error message. Again, single-character input with INPUT$(1,#n) is the way round it, but slows down performance severely. It's probably wise not to try to write a string longer than 255 bytes to a sequential file either. Moreover if you are handling several very long strings in memory you can get a memory overflow and the program will crash without an error message. As usual, 'software support' in such cases is a joke - more annoying when you've spent an IBM-style sum of money than a TRS-80 style one. When will Microsoft issue a product which works properly as documented?

Chris Currie

COMMENT ON KERMIT.

Kermit has gained some acceptance as a file transfer protocol. I feel this is a pity as we had a perfectly acceptable standard in the Christensen protocol. I suppose we must now accept the Kermit protocol but I feel we should not enthuse over it as the Christensen protocol was perfectly adequate. It had good error checking - I have transferred hundreds of files using it and never got a bad byte !. The problems of having two protocols far outways any shortcomings of the Christensen one.

I suppose in these days of unenmployment the possibility of someone being able to market a Christensen - Kermit convertor will at least provide someone with an income.

Roy Barber

(* I think you slightly misunderstand the situation Roy. In the computing field outside of micros, literally dozens of communication protocols exist, each being somewhat tailored to a particular machine environment. The x-modem protocol was primarily designed for the CPM environment for communication over a telephone line. KERMIT was designed to be as machine independent as possible with the primary aim of mainframe to micro direct communication. You just don't find the X-modem protocol implemented on DEC-20, IBM-360, CRAY's etc whereas the KERMIT protocol has been implememted on almost any machine that you care to name. As usual it's horses for courses and for binary file transfer between like micros, X-modem is more efficient. - ED).

5-1/4 DISKS ON AMSTRADS.

Anyone contemplating using an old 5 1/4 disk drive on an existing Amstrad 3 inch system should be aware of the fact that the Amstrad controller requires to see a 'drive ready' signal on pin 34 of the disk drive. Many older disk drives do not produce this signal.

The problem can be overcome by a 'bodge' on the drive. The easy way is simply to tie pin 34 on the drive permanently to ground with a wire link. Under this condition the drive is always ready and the controller may need to have two or three tries before it gets a good read from the disk. This will normally only be apparrent to the user as a slight delay in response at the first disk access.

A better way is to AND together the 'drive select' signal (pin 12 for a second drive) with the 'motor on' signal on pin 16. This can be done using an open collector 74LS32 piggy-backed on top of one of the existing drive chips. The output of the the AND gate is taken to pin 34 on the drive. (Check first that pin 34 is not connected in the drive).

Neither solution is perfect but in most cases it will get the system working on the 5inch drive. I have done the AND gate mod on a couple of drives for Amstrads and they work OK.

Perhaps the ideal solution would be to delay the 'ready' signal a few hundred milliseconds to allow the drive to get up to speed but I feel it is probably not worth the extra complication.

EXTRA MEMORY ON THE MODEL 4.

Many Model 4 users will have read the review of the Alpha Technology Supermem board in 80 Micro. This allows up to about a megabyte of banked ram to be added to the model 4. In a subsequent issue Roy Soltoff of Misosys offered the patches to TRSDOS 6.2 to allow the operating system to take advantage of the extra memory.

I have obtained a copy of these patches from MISOSYS and as Roy stated they may be published in club magazines etc. I am including them here for interested readers. I received the patches in printout form and hope I have not made any slips in copying them in. If you think I have please let me know.

Roy Barber, 44 Dallin Road, Bexleyheath, Kent DA6 8EJ. 01 304 3856.

Patches in patch file format follow courtesy of Roy Soltoff:

```
.BOOTAT/FIX -07/18/85
.Copyright 1985 Roy Soltoff, All rights reserved
```

```
.Patch to BOOT/SYS (TRSDOS 6.2) for Alpha Tech board

.Apply via: PATCH BOOT/SYS.LSIDOS BOOTAT (O=N)

.
.Patch low memory pointer at 206H
D00,06=19 10
.
.Patch byte I/O handler at 65EH
D04,5E=88
.Patch byte I/O handler at 67DH
D04,7D=88
.
.Patch KCK@ routine at 7F6H
D05,F6=2F
.Patch KCK@ routine at 7F9H
D05,F9=81
.The following patch line is temporary !!!!
D05,F8=57
.
.Patch ENADIS DO RAM and @BANK routines at 817H
D06,17=CD 4A 08 21 03 0C 39 30 09 E1 ED 73 74 08 31 40
D06,27=03 E5 21 55 08 E3 E5 21 7F 08 23 C5 0E 43 ED 40
D06,37=23 70 47 3A 78 00 30 02 E6 7F 77 E6 FC F6 82 ED
D06,47=41 18 1C F3 22 7C 08 F5 E1 22 77 08 AF C9 CD 4A
D06,57=08 2A 2F 08 7E CB 7F CB FF 2B C5 0E 43 46 2B 22
D06,67=2F 08 32 78 00 D3 84 ED 41 C1 20 03 31 00 00 21
D06,77=00 00 E5 F1 21 00 00 FB C9 00 00 00 00 00 00 00
D06,87=00 E6 7F FE 1F 30 15 05 FA CB 08 0E 86 28 1D 0E
D06,97=46 05 28 18 05 28 0E 05 3A 02 02 C8 C3 ED 0D E5
D06,A7=21 14 04 18 0B CD B3 08 C0 78 0E C6 E5 21 10 04
D06,B7=CD 10 10 78 E6 07 07 07 07 B1 32 C8 08 AF 3E 08
D06,C7=CB 46 E1 C9 E5 21 05 80 39 E1 38 D0 C5 0E 46 CD
D06,D7=A6 08 78 C1 20 C6 CD F4 0F E6 7F 32 02 02 A9 B0
D06,E7=4F CB 79 06 00 C8 E3 BF C9
.
.Patch video driver at 0C8FH
D0A,8F=2F
.
.Change pointer in FDC driver to account for patch at 0E3FH
D0C,3F=18 10
.Add code at end of FDC driver for @BANK and TASKER at 0FF4H
D0D,F4=B7 28 01 3C D3 43 3A 02 02 47 79 C9 21 77 00 CB
D0E,04=F6 21 02 02 C9 32 02 02 21 77 00 C9 47 0F 0F 0F
D0E,14=E6 03 85 6F C9
.EOP


.SYS1AT/FIX - 07/17 85
.Copyright 1985 Roy Soltoff, All rights reserved
. Patch to SYS1/SYS (TRSDOS 6.2) for Alpha Tech board
.Apply via: PATCH SYS1/SYS.LSIDOS SYS1AT (O=N).
.
.Patch cleanup routine at 1E77H and 1E7AH
D00,9C=7F
D00,9F=2F
```

```
.
.Patch restoral of bank 0 at 1EC0H
D00,E5=88
.EOP


.SYS0AT/FIX - 09/10/85
.Copyright 1985 Roy Soltoff, All rights reserved
.Patch to SYS0/SYS (TRSDOS 6.2) for Alpha Tech board
.Apply via: Patch SYS0/SYS.LSIDOS SYS0AT (O=N)
.
.Patch the SVC table at 1CCH
D08,6E=88
.
.Patch the disk I/O handler at 19FDH
D09,5B=88
.
.Patch the TASKER at 1C06H
D08,8C=CD 00 10 7E F5 DB 43 F5 AF 77 D3 43
.Patch the TASKER at 1C3DH
D0B,C3=D3 43 F1 CD 09 10 CB B6
.Patch the TASKER at 1C91H
D0C,17=F1 E3
.
.Patch system initialisation routines at 1E3FH
D0C,CD=D3 84 26 FF 56 01 43 1F 71 C5 48 0D 06 03 3E 66
D0C,DD=EF C1 ED 41 5E 34 00 00 00 7E BB 00 00 00 73 28
D0C,ED=09 C5 48 0D 06 01 3E 66 EF C1 10 DD CD 47 21
.
.Patch system initialisation routines at 2147H
D0F,E1=ED 41 72 6C 22 0E 04 22 1C 00 21 10 04 CB 86 11
D0F,F1=14 04 0E 04 ED B0 3A 6F 00 C9
.EOP
```

(Thats it ! What does the (O=N) parameter do ? , Roy Barber).

MIX - A veratile editor

Mix is a general purpose text editor - plus. It has all the usual editing functions expected of any good word processor plus:-

control key commands which can be configured to your personal taste,
split screen editing and ability to edit two files at the same time, optional line numbering, and auto line numbering
auto-indent ,
user defined macros
- and an almost free-ware price tag.

It is available for both CPM and MS DOS and we have the CPM version for our 4P.

Before using Mix for the first time it must be configured for the terminal it is to be used with. For Tandy users this just involves selecting the appropriate number (for Montezuma or Tandy's CPM) from a long list of options presented by the configuration programme,SETEDIT. This automatically puts the correct screen codes into a setup .TXT file which can be saved as an Ascii or binary file. The binary file is used by Mix to configure itself when loaded. The .TXT file is the one you use to change key assignments and macros.

Mix comes set up with Wordstar control codes but the authors appreciate that these are not universally loved and changing them is simply a matter of including TK (translate Key) commands in the Setup.TXT file. Defining macros to load automatically with the editor is also done by including appropriate MK commands in the setup file. The TK and MK command can be used while editing too, to produce temporary key assignments and macros. As part of the documentation MIX demonstrates how to create quite complex macros, which can use up to 10 integer variables so that, for example, you can specify the height and width of a box when entering the command to draw it. The examples include macros for drawing lines and boxes, changing case, moving text between windows and automatic line numbering for BASIC

Do you use more than one programming language? You can have a MIX setup file for each. For example we have a PASCAL.EDT file which produces PROCEDURE from @P, BEGIN for @B etc and a dBASE.EDT which writes DO WHILE .NOT. EOF when @D is pressed.

The MIX programme files are actually named EDIT (.COM and .OVL) so to use MIX enter EDIT and it loads and configures itself with the default setup file SETUP.EDT and opens a buffer for text entry. To edit an existing file enter EDIT filename and to use a non-default setup file enter EDIT (filename), your-setup-filename

MIX starts with only one text buffer, to give maximum memory for text entry. Opening a second 'window' opens another buffer into which you can enter text, load another file, or another part of the file in buffer 1. To view the buffer contents you can either toggle between two full screens or see both together by splitting the screen horizontally or vertically. Macros allow scrolling and paging of the non-active screen and let you move text easily

between them. Obviously with two active buffers the amount of text which can be in memory will not be large but MIX pages easily through files, writing the output to temporary disk files which are renamed on exiting, leaving the original as backup. You can also go directly to any part of the file which is not in the buffer by using its line number.

Like many word processors MIX has EDIT and COMMAND modes. Most of the things you are likely to want to do can be done from either. In EDIT mode the editor responds to control key sequences, like Wordstar (except that you can decide which commands to assign to which keys). In command mode the commands are fixed but mnemonic two key sequences. Although any available command can be mapped to control keys the key assignments take up memory and things that are not done very often, like disk I/O or switching line numbering on and off, are probably better left as COMMAND mode commands.

Mix comes with a set of Help files for Wordstar control codes but making up your own version is easy - Mix appears to use the public domain CPM HELP system and the help file is just a text file. This is what ours looks like and it gives some idea of the range of functions available.

```
ESC(BREAK)   - Command Mode              ©U       - cancel CM

 (©CC - hold CTRL for both chars        <>CC - command mode )
+------------------------------+!+------------------------------+
!©QA  - append from file       !!<>HE - help                     !
!©PP  - page through large file!!<>SF filename - show file       !
!©QQ  - repeat last command    !!©QD - DIR                       !
!©QU  - restore line as was    !!©QS - status                    !
!<>LN - show lines numbered tog!!<>AL/AUTO - auto line number    !
+------------------------------+!+------------------------------+
<>MK  "key"  "full $/commands" - define  macro for string or series
of CMs

+------------------------------+!+------------------------------+
!©V - insert toggle             !!©<- (©G) - deletes char under !
!<>IR - auto CR line insert     !!©DW - delete word              !
!©N  - insert line              !!©DL /©Y - delete line          !
!©QN - insert nn lines          !!©DE - delete to e o line       !
!©QO - open line                !!©DF - delete file              !
!©QJ - join line                !!                               !
!©DU - dupl line above cp       !!©U - undelete line (at cp)     !
!©PP - page through large file  !!©QW - undelete word            !
+------------------------------+!+------------------------------+
```

```
+------------------------------+------------------------------+
!©QP - prev cursor position    !!©O - other window            !
!                              !!                             !
!<-  -> (©H ©L) - char move    !!<>SS r c - split at r/c       !
!v © arrows (©J ©K) - line move!!<>SS 0 0 - rejoin screen     !
!Sh <- (©A)     - start of line!!©SH - split horizontally     !
!Sh -> (©F)     - end of line  !!©SV - split vertically       !
!Sh v © arrows(©C/©R) pg up/dn !!                             !
!©S©->/©<- - scroll ->/<-      !!©S © arrows - scroll alt w'dow!
!©ES/F/G/B- end of screen file !+-----------------------------+
!©TS/F/G/B- top global file/blk! ©TL Xfer line (©QQ 1st if many)
!©PP - page through large file ! ©TP Xfer para (between blanks)
!<>PU PD - para up down        !
!<>WR WL - word R L            ! <>CD - chg dsk (rst) not ramdsk
!<>WU WD - window up down      !    ©W - Write (n lines)
!<>PO - goto row col           !+-----------------------------+
!<>GO nnnn - go to line no     !!©S©E save & empty buff,no exit!
! (10000 - eof, buffer empty)  !!©S©X save & exit              !
!    (-1 -eof, text remains)   !!©Q©C cancel - no exit         !
!<>+/- - scroll dn/up nn lines !!©X - Exit no save  ©SA - save !
+------------------------------+------------------------------+


+------------------------------+------------------------------+
!©BS - block start mark        !!©QF - find string            !
!©BE - block end mark          !!©QG - global find/replace    !
!©BC - block copy              !!©QR - replace with query     !
!©BM - block move              !!©Q->- next string (find)     !
!©BD - block delete            !+-----------------------------+
!©BH - hide block              !+-----------------------------+
!©BO - output (hold) block     !!©QI - auto indent            !
!©BI - read (unhold)output blk !! ©I - tab ->                 !
!©BP - print marked blk        !!                             !
!©BW - write marked blk to file!!<>TD - delete tabs            !
!©BR - read blk (fil/start/end)!!<>TS/TC - set/clear tab at cp !
!©BU/©BL - Upp/Low case block  !!<>TB n(1,n2,n3) - set tab    !
!                              !!          every n/at n1,n2,n3 !
!<>FI - fill block             !+-----------------------------+
!<>JU - fill with justify       ! <>CN - centre line
+------------------------------+ <>CLU/CLL - change to U/L case

<>BC - blank compression toggle <>VS/HS - change scroll defaults
<>SV N "value" -assigns value to $ var N (0-9)
```

MACROS etc.

```
Parameters -: INTs - separate with blanks
              STRING - " "s or not if single BUT all except last
              in " "s if multiple
              un "'d chars literal BUT "#nn" is Hex,"=cc" is CM,
              "©c" is CTRL
              to use literally in quoted $ use as ##,==,#5E

TRANSKEY (TK) allocates a single CM or char to key(s)
              TK "©X" "=QT"   TK "!" "#7C" (! prints !)
```

```
MACKEY (MK) allocates a string or series of CMs to key(s)
            MK "@P" message string    OR just MK & answer prompts
            CM lists start with "=CM   and end with =NL"
               OR must spec each param separated by =NL
MACNAME (MN) as MK but to <>CM
            MN "CM" "=commands"

SETVAR (SV) assigns value to string var 0-9 (eg SV 0 "11" )
            used as CMs - "=0 in macros
GETVAR (GV) gets value into var from keyboard with prompt
            "=GV5=NL'prompt '=NL=.......
```

Mix is a large programme, by CPM standards - 22 K and a 27 K Overlay file. Like its Wordstar parent its many functions involve a lot of overlay activity and this can be a bit slow unless you have 128 K and run the programme from the Ramdisk. It is no more unacceptable than any other overlay based programme though and with a Ramdisk the 'disk accesses' are of course not noticeable.

In summary, Mix does everything that anyone is likely to want from a text editor and at #40 (from Grey Matter or $29 direct from the US) it will probably tie with Turbo Pascal as our software Bset Buy of this year.

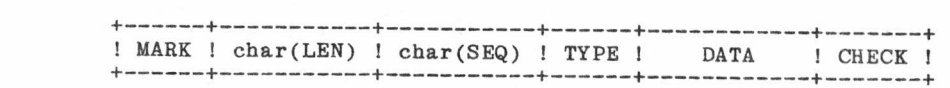
Ariela Taylor

(© represents the control key in the above text - Ed)

KERMIT PART III.

Last month we had a look at the design features of the ingredient at the heart of the communication protocol - The Packet. This month we will look in detail at the nitty-gritty of packet structure.

KERMIT packets have the general format:



where all fields consist of ASCII characters, and the char function converts a number in the range 0-94 to a printable ASCII character by adding 32 (20H).

The fields of a KERMIT packet are as follows:
MARK -- Start-of-packet character, normally SOH (ASCII 1).

LEN -- The number of ASCII characters, including quoting characters and the checksum, within the packet that follow this field, in other words the packet length minus two. Since this number is expressed as a single character via the char function, packet character counts of 0 to 94 are permitted, and 96 is the maximum total packet length.

SEQ -- The packet sequence number, modulo 64. The sequence numbers "wraps around" to 0 after each group of 64 packets.

TYPE -- The packet type, a single printable ASCII character, one of the following:

D Data
Y Acknowledge (ACK)
N Negative Acknowledge (NAK)
S Send Initiate (Send-Init)
R Receive Initiate
B Break Transmission (EOT)
F File Header
Z End of file (EOF)
E Error
G Generic Command. A single character in the DATA field, requesting host independent remote execution of the specified command. The single data character may be :
  L Logout, Bye.
  F Finish, but don't logout.
  D Directory query.
  U Disk usage query.
  E Erase file.
  T Type file.
  Q Query server status.

C Host Command.
X Text display header.

DATA -- The "contents" of the packet. If contents are required in the given type of packet, they are interpreted according to the packet type. Nonprintable ASCII characters are prefixed with quote characters and then "uncontrollified". Characters with the 8th bit set may also be prefixed, and a repeated character can be prefixed by a count. A prefixed sequence may not be broken across packets.

CHECK -- The block check sequence, based on all the characters in the packet between, but not including, the mark and the check itself, one, two, or three characters in length as described last month, each character transformed by char. Normally, the single-character checksum is used.

The packet may be followed by any line terminator required by the host, carriage return (ASCII 15) by default. Line terminators are not part of the packet, and are not included in the count or checksum. Terminators are not necessary to the protocol, and are invisible to it, as are any characters that may appear between packets. If a host cannot do single character input from a TTY line, then a terminator will be required for that host.

Here are four KERMIT data packets:

```
©AE"D No celestial body has required J
©AE#Das much labor for the study of its#
©AE$D#M#Jmotion as the moon. Since ClaA
©AE%Dirault (1747), who indicated a way7
©AE&D of#M#Jconstructing a theory conta5
```

The "©A" represents the SOH (or Control-A) character. In the final packet shown, "E" is the length. The ASCII value of the "E" character is 69 , less 32 (the unchar transformation, which is the opposite of char) gives a length of 37. The next character tells the packet sequence number, in this case 6 ("&" is ASCII 38). The next is the packet type "D" for Data. The next characters, " of#M#Jconstructing a theory conta", form the data; note the prefixed carriage return and line feed. The final character, "5" is the checksum, which represents the number 21 : ie. the character "5" has an ASCII value of 53 which when "unchar'd" = 21 (all numbers in this paragraph are in decimal).

Effects of Packet Corruption

What are the consequences of transmission errors in the various fields? If the SOH is garbled, the packet will be treated as inter-packet garbage, and lost. If any other character within the packet is garbled into SOH, the current packet will be discarded, and a new (spurious) packet detected. If the length is garbled into a smaller number, then a character from the data field will be misinterpreted as the checksum; if larger, then the program will probably become stuck trying to input characters that will not be sent until one side or the

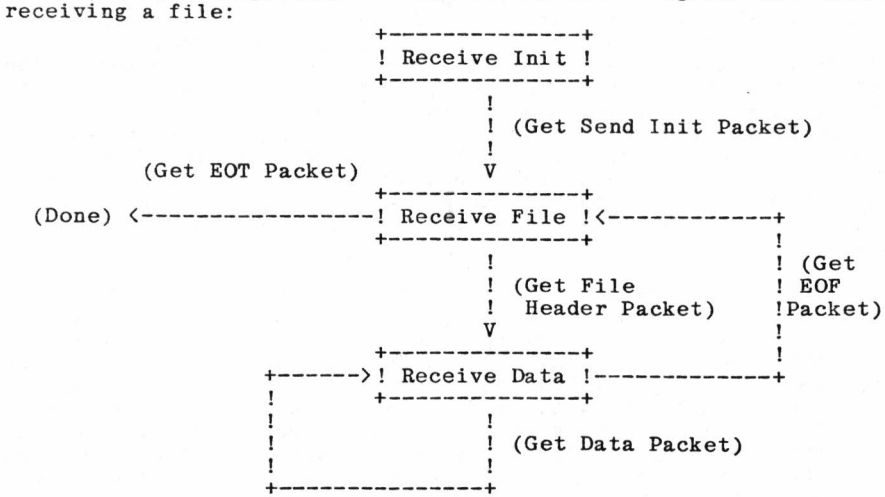
other times out and retransmits. If the sequence number, type, any of the data characters, or the checksum itself is garbled, the checksum should be wrong. If characters are lost, there will most likely be a timeout. If noise characters are spontaneously generated, they will be ignored if they are between packets, or will cause the wrong character to be interpreted as the checksum if they come during packet transmission.

Most kinds of errors are caught by the checksum comparison, and are handled by immediate retransmission. Timeouts are more costly because the line sits idle for the timeout period. The packet design minimizes the necessity for timeouts due to packet corruption: the only fields that can be corrupted to cause a timeout are the SOH and the packet length, and the latter only half the time. Lost characters, however, can produce the same effect (as they would with a fixed-length block protocol). Had a distinguished end-of-packet character been used rather than a length field, then there would be a timeout every time it was corrupted. It is always better to retransmit immediately than to time out.

Operation of the Protocol

The KERMIT protocol can be described as a set of states and a set of transitions that define, for a given event, what action to take and what new state to change to. The inherent simplicity of the design, particularly the requirement that each packet must be acknowledged, reduces the number of states and actions, and the amount of state information that must be maintained, to a minimum.

Here is a simplified version of a state diagram for KERMIT receiving a file:



For simplicity, some transitions are not shown in the diagram:

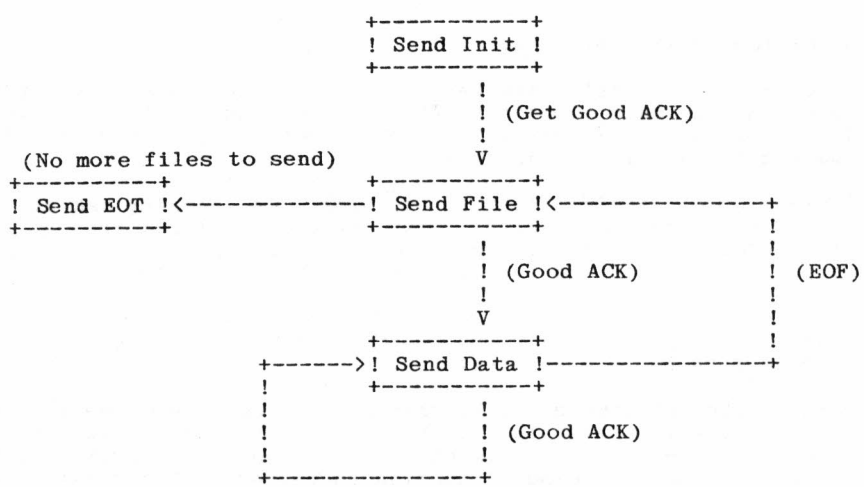
- If in any state a bad packet is received or a timeout occurs, a null transition back to the same state occurs, with a NAK for the expected packet.

- In any state an error may occur that can cause the transfer to terminate. For instance, the target disk might fill up. The side that encountered the error sends an error packet, containing an informative error message, and quits. Upon receipt of the error packet, the other side displays the message on the screen (if it is in control of the screen) and also quits.

- Actions that are taken on each transition, such as opening a file when a File Header packet is received, are not shown; in particular each packet successfully received is ACK'd.

The receiver starts out in Receive Init state and waits for the other side to send a Send-Init packet. If any other kind of packet is received, or the Send-Init does not arrive within the timeout interval, a NAK is sent. Timeouts or NAKs can occur up to a threshold which, when exceeded for a particular packet, causes the protocol to assume that the connection has become unusable, and to give up. After the Send-Init arrives, the state becomes Receive File; KERMIT waits for a File Header packet containing the name of the file which is to come. When the file header arrives, KERMIT opens a new file using the name provided (perhaps transformed to suit local naming conventions, or to avoid a name collision), and switches to Receive Data state. KERMIT then receives the contents of the file, until an EOF (End Of File) packet arrives. At that point KERMIT switches back to Receive File state. If another file is to be sent, another File Header packet will follow, otherwise an EOT (End Of Transmission) packet will terminate the transfer. The distinction between EOF and EOT, plus the File Header itself, allows files to be sent in groups. EOF marks the end of a file, EOT marks the end of a group. This distinction also allows the two sides to disconnect cleanly: the EOF must be ACK'd before the sender will believe the file has been transmitted correctly; the EOT will follow, but if the ACK which is sent in response is lost, no harm will be done since both sides are terminating anyway.

The state transitions for a sending KERMIT are similar. In each state, instead of waiting for particular packet types, KERMIT sends the appropriate packet and waits for an ACK. If the ACK does not arrive within the allotted time, or a NAK appears instead of an ACK, the same packet is retransmitted. A send operation begins with a Send-Init packet, includes one or more files, each starting with a File Header, followed by one or more data packets, followed by EOF. When all the specified files have been sent, an EOT packet closes the connection and terminates the operation.



The INITIAL connection.

To allow a diverse group of computers to communicate with one another, an exchange takes places during initial connection in which the two sides "configure" each other. The sending KERMIT includes setup parameters in its Send-Init packet and the receiving KERMIT responds with an ACK packet containing the corresponding parameters as they apply to itself. The Data field of the Send-Init packet looks like this:

1	2	3	4	5	6	7	8	9	10
MAXL	TIME	NPAD	PADC	EOL	QCTL	QBIN	CHKT	REPT	CAPAS...

The fields are as follows (the first and second person "I" and "you" are used to distinguish the two sides). Fields are encoded printably using the char function (ASCII value + 32) unless indicated otherwise:

MAXL -- The maximum length packet I want to receive, a number up to 94 . You respond with the maximum you want me to send. This allows systems to adjust to each other's buffer sizes, or to the condition of the transmission medium.

TIME -- The number of seconds after which I want you to time me out while waiting for a packet from me. You respond with the amount of time I should wait for packets from you. This allows the two sides to accomodate different line speeds or other factors that could cause problems.

NPAD -- The number of padding characters I want to precede each incoming packet; you respond in kind. Padding may be necessary for a half duplex system that requires some time change the

direction of transmission.

PADC -- The control character I need for padding, if any, XOR'd with 40H to make it printable. You respond in kind. Normally NUL (ASCII 0), some systems use DEL (ASCII 177). This field is ignored if the value NPAD is zero.

EOL -- The character I need to terminate an incoming packet, if any. You respond in kind. Most systems that require a line terminator for terminal input accept carriage return for this purpose. (Can you see the Catch-22 here?)

QCTL -- The printable ASCII character I will use to quote control characters and prefix characters, normally "#". You respond with the one you will use.

QBIN -- The printable ASCII character I want to use to quote characters which have the 8th bit set, for transmitting binary files when one or both systems cannot use the parity bit for data. Since this kind of quoting increases both processor and transmission overhead, it is normally to be avoided.

CHKT -- Check Type, the method for detecting errors. "1" for single-character checksum (the normal method), "2" for two-character checksum, "3" for three-character CRC-CCITT. If your response agrees, the designated method will be used; otherwise the single-character checksum will be used. Other check types may also be added.

REPT -- The prefix character I will use to indicate a repeated character. This can be any printable character other than blank (which denotes no repeat count prefix), but "¢" is recommended. If you don't respond identically, repeat counts will not be done. Groups of 4 or more identical characters may be transmitted more efficiently using a repeat count, though an individual implementation may wish to set a higher threshhold.

CAPAS -- An extendable bit mask encoded printably, to indicate whether certain advanced capabilities, such as file-attribute packets, are supported.

RESERVED FIELDS. The next four fields are reserved for future use. Sites wishing to add their own parameters to the initial connection exchange should start at the fifth field after the capability mask in order to remain compatible with other KERMIT programs.

Naturally, the three prefix characters must be distinct and should be chosen to be uncommonly used printable characters, to minimize further overhead from having to prefix them when they are found in the data.

Trailing fields within the DATA field may be omitted, in which case they will assume appropriate defaults. Defaults for intermediate fields can be elected by setting those fields to blank. Every parameter has an appropriate default, and in fact

the entire data field of the Send Init packet or its ACK may be left empty to accept all defaults. The more exotic paramaters are at the end, and reflect more recent developments in the KERMIT protocol; earlier implementations can still communicate with newer ones, since there will not be agreement to use these options. The Send-Init mechanism preserves compatibility from the very earliest KERMIT to the very newest.

There is no protracted negotiation; everything must be settled in a single exchange. Some parameters, however, are outside the scope of this exchange and must be set even before the very first packet is sent. For instance, if the receiving computer can only read characters with odd parity but the sending computer sends them with even parity, the Send-Init packet will never arrive successfully. In cases like this, the user may have to issue some preliminary commands to inform one or both KERMITs about the vagaries of the other system. Another example is the packet terminator (EOL) mentioned above -if the receiving KERMIT requires one that the sending KERMIT doesn't know about, the Send-Init will never get through. For these reasons, most implementations of KERMIT provide SET commands for all the parameters listed above, and some others as well.

Next month should see us through to the end of this series (Thank God I hear some cry !) where we will look at some of the rules and heuristics (inductive reasoning from past experience) that Kermit uses to increase the efficiency of transfer and look at the user interface (A trendy phrase for command set).

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