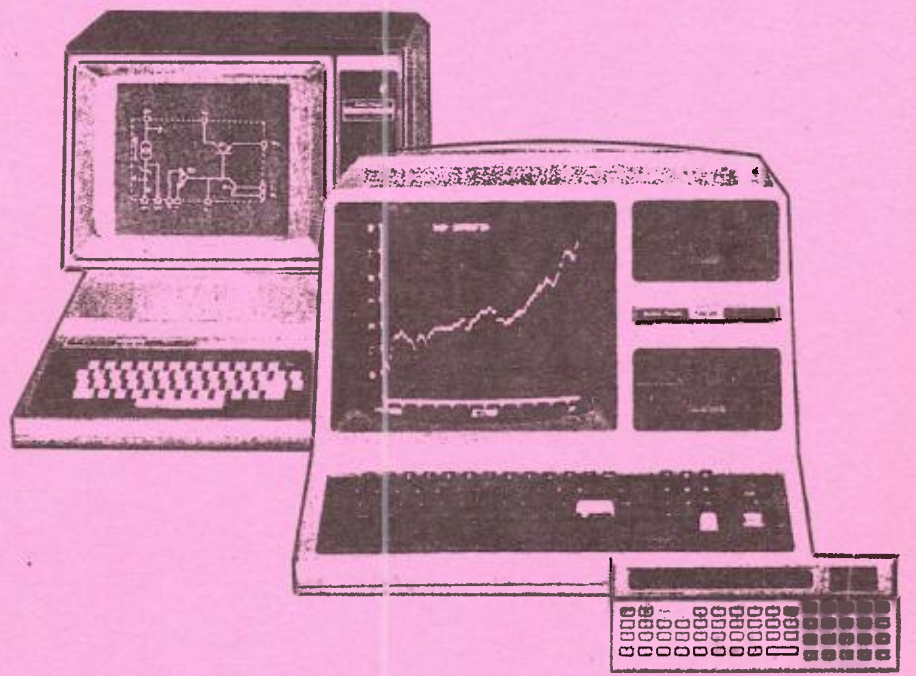
MULTIDOS

REM 80



The North West TRS 80 Users Group

Super Scripsit available on DISK ONLY

Volume 6 Issue 1

Jan/Feb 1984

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EDITORIAL

As yet another year of Newsletters dawns may I thank those of you who supported your Newsletter last year, and all the previous years and hope you continue with the good work throughout the comming year.

This months Newsletter is full of lots of interesting articles including one by dare I say a Female who has only owned a computer since Christmas and who only became interested in computing a few months ago, so, if she can make a contribution how about those of you who have been computing for years doing something, if only to solve a bruised male ego.

So keep those fingers tapping and the articles and programs flowing as we intend this years Newsletters to be the best we have ever had.

Till the next issue ....

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Any articles or programs for inclusion in this Newsletter must be addressed directly to the Editor, preferably on cassette, disk or uploaded, (all normal communication protocols are acceptable), at the following address :-

40, COWLEES,
WESTHOUGHTON,
BOLTON,
BL5 3EG
Tel ... 0942-812843

SECRETARY'S LETTER

I would just like to inform members who did not attend the recent group A.G.M., or those who did, but did not react to the fact that the group is now looking for a new Secretary. It was pointed out at the A.G.M. that I would not be standing for re-election as the group Secretary/Treasurer.

Those of you who were at the meeting already know also that Barry Steward did not stand for re-election as Colour Librarian, but since then we have had an offer from onother member to take over Barry's duties. So as you see we are in need of a new Secretary and someone out there MUST be interested in helping.

Members who did not attend the A.G.M. should be informed that concern was made about the group constitution and several proposals were made. For members who may be wondering where the group is going, these proposals do not actually change the group or it's structure at present.

If there are any group members who wish to air their views or ideas on anything that relates to the group and it's activities, write to the Newsletter and let us and other members know them.

I would like to thank all the members who have assisted me in the past and inform you all that even though I am intending to pass the Secretaryship to some elses control, I will not be dissappearing from sight. Carolyn and I intend to put all our efforts into producing an even better Newsletter for the future. So bearing that in mind, don't forget we need LOTS and LOTS of articles, programs and titbits, not forgetting complaints if you have any, or maybe you would like to compliment us, I can only hope the latter is the case.

One other thing I would like to mention is the presentation of the Costello Shield, which took place at the A.G.M.

As most members are aware we present at least a couple of trophies each year, these are destined for, what the committee deem the best article, or articles, program or programs written by a member, and published in the groups Newsletter.

Last year's awards went to the following. The best program award went to Dave Richards for his program on hash coding with an associated article. Dave's article and program was published as an addendum to the December 1983 Newsletter and we understand Dave is going to give us a lecture early this year relating to it.

The best article award went to Steve Ridall, for, not one, but several good, very well explained articles, published throughout the year, that related to various subjects. Steve it seems, noting his article in this issue, is still at it. Where are the rest of you prolific writers hiding, come forward and let's have an even better contest this year.

The last award, was an additional award this year, (Steve likes buying trophies, I sure, as long as they create more interest in the group and it's activities), for the most promising junior programmmer. The trophy was awarded to Adrian Bradshaw for his attempt at Dargon Attack, (no it is spelt right), published in Vol 5, Issue 6.

I would like to end by just giving the above members a vote of thanks for supporting their Newsletter and thanks to Steve, without whom, there would be no trophies to present.

Melvyn D. F. Franklin (Acting Secretary)

****
** ACTIVITIES PAGE **
** By Brian Disley **
****

I have recently come under some strong criticism about the chaotic Chrismas meeting from various members, I must appologise to the members who found this meeting as I did a little hectic (to say the least). I am very pleased to hear criticism and comments from anyone who feels they are not happy with the format and contents of the meetings as this is the only way I find out what you the members want and expect the group to provide at the meetings.

But I will not just sit back and take all the criticism myself for this and other meetings as it would appear that some members are not interested in the activities that are provided at the meetings they prefer to sit and talk amongst themselves which is very distracting for the members who are genuinely interested in the speaker, I am not trying to discourage members from exchanging ideas with each other or discussing problems, on the contary the groups aim is to encourage this but I must ask you to take into consideration the speaker who has to talk over this background noise and either find a corner to have your discusion quietly or wait until the speaker has finished his talk.

I propose to organise the meetings in the future with a subject for each month which will allow me to publish the subjects for the whole year in the newsletter and then I will be able to find a speaker as required this will allow me to let you know in advance of the subject but the speaker can be arranged at a later date.

****
** MEETING DATES FOR 1984 **
** AT BARTON AERO CLUB **
****

March 28th April 25th May 30th
June 27th July 25th August 29th
September 26th October 31st November 28th
December - to be arranged later.

oooo000oooo000oooo F O R S A L E oooo000oooo000oooo

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6809 FORUM

by Barry Steward

This month I am going to discuss the disk system for the Colour Computer. Many of you may be considering using disks for the first time and wondering what they can do for you, read on.

A disk system really earns its keep by taking the work out of file handling. If you want to use your computer mainly for games then a disk system may be of little value and may even be a disadvantage. The disk input/output functions alter the memory map of the Colour Computer and move the graphics start address at least 2K. higher in memory. Many cassette based machine language programs use these pages and will not run without modification.

If you have a need to use data files or are into programming then a disk system has a lot to offer. The read/write speed of 250,000 baud means no more waiting for that program to load and if the program then goes on to read a data file then it can load that in less time than it would take you to find the cassette.

Each diskette will hold up to 156K. The names of the files (everything stored on a disk be it programs or data is called a file) are written on the directory track and may be displayed on the screen using the DIR command. Everything written to the disk may be verified automatically so you know that it has been stored correctly. Writing a file to a disk with the same name as a file already on that disk will overwrite the old file with the new data, so if you are debugging your latest masterpiece you need not end up with a pile of cassettes containing earlier copies.

You can use direct access files, the structure and use of these files is outside the scope of this discussion but the size of these files is limited by the room available on the diskette and not by the size of R.A.M. so you could have a file size of 156K.

Speed, organization, and large data files are some of the advantages and there any disadvantages? Yes, the biggest of these is cost. Tandy are asking £460 for the first disk drive with the disk controller ROMPAK and £280 for each additional disk drive, for many people that must be the end of the story. Because Disk Basic eats up 2K. of your R.A.M. you will probably want to have 32K. That will cost you another £80 from Tandy. Disk Basic needs Extended Color Basic and that will cost you another £60. To upgrade a 16K. Non-Extended Colour Basic machine to 32K. Disk Basic will cost you £600!!! Where do Tandy get these prices from?

6809 FORUM

If you are still with me I will tell you of some other disadvantages. Disk Basic alters the memory map, it leaves the text screen memory in the same location as Extended Basic (400 hex) but uses R.A.M. following the text page for its own scratch pad area and input/output buffers. The size of these buffers may be changed by the user but the least memory used is 2K. The start of graphics screen memory is moved from the end of the text screen to the end of this buffer area. Basic keeps track of the start of the graphics screen in memory location BA hex. but if you have a machine language program that looks for the graphics screen 600 hex., the normal cassette location, then you will have problems unless you are able to re-write that section of the program.

The disk controller ROMPAK fits into the extension slot in the side of the computer just like any other ROMPAK, this means of course that if you wish to use any other ROMPAK you must first remove the disk controller. There are dangers in plugging and unplugging ROMPAK's whilst the computer is turned on by short curcuiting one or more of the tracks on the edge card. ALWAYS TURN OFF THE COMPUTER BEFORE INSERTING OR REMOVING A ROMPAK. The connections on the edge card of the expansion port are (like the Model I) not gold plated and after a time become oxidized. This gave more trouble on the Model I than just about anything else, and on the Model I you did not need to keep unplugging. The Colour Computer disk drives reset the read/write head over track 17 which is the directory track and if dirty contacts on the edge card cause a glitch it is the disk directory that gets clobbered. Without a directory track you cannot access anything on the disk and one popular pastime amongst Colour Computer disk users is to copy the directory track to another track so that it may be restored in the event of fialure.

After all that, is a disk system still worth it? Well, I use mine all the time and would not be without it. The disk system for the Colour Computer is vastly overpriced but it really does make life a lot easier and now I look forward to using OS-9 the new disk operating system.

The listing below I call DETACH. It enables you to disable Disk Basic and Use Extended Colour Basic without removing the disk controller from the expansion port. Run the program then press the reset button on the back of the machine to go from Disk Basic to Extended Colour Basic. Type POKE 113,0 and press the reset button to return to Disk Basic.

```
10 CLEAR 200, &H6FFF : POKE &H7000, &H12
30 FOR N = 1 TO 16 : POKE &H7000+N, PEEK(&HA073+N)
50 NEXT N
55 POKE &H7000+17, &H8E : POKE &H7000+18, &H7F
56 POKE &H7000+19, &HFE
57 FOR N = 20 TO 78 : POKE &H7000+N, PEEK(&HA073+N+12)
58 NEXT N
60 FOR N = 1 TO 167 : POKE &H7000+78+N, PEEK(&H8001+N)
80 NEXT N
90 POKE &H7000+246, &H7E : POKE &H7000+247, &H80
92 POKE &H7000+248, &HB0 : POKE &H72, &H70
94 POKE &H73, &H00 : PRINT "PRESS RESET TO DETACH DISK"
```

FURNISH THE 6809 HOUSE

After opening my lovely Christmas present,which was a Dragon 64 and turned out to be quite a surprise as I had dropped all the hints for a Dragon 32. I searched frantically for software to run, especially as it was Christmas Day, and I couldn't beg, borrow or steal anything so I searched the Newsletter and found lots of little routines, but the 6809 Forum article on Page 4, Vol 5 Issue 6 of REM 80 was the most interesting. If you did not enter the listing as published I suggest you do as this program is a very good demonstration of graphics and the "POKE 178" to give you various stripes for the Paint command and the additional lines and alterations to the above program (which you will find listed below) are something we found compulsive to add, and you will probably find the urge to alter the program to your own tastes, I suggest you let this program run for 15 minutes or so as it has a few surprises for you !.

As you must have guessed by now I couldn't possibly have done this on my own I only got my Dragon on Christmas Day so how did I become so clever over such a short period of time. I found the Dragon Manual very brief and not very explicit and the supplement for the Dragon 64 is only eight pages long and even less explicit, so I went to Tandy's and bought "Going Ahead with Extended Color Basic" and I found this a lot easier to understand, but in the end I had to ask Brian for help so if you get stuck with this program contact your Activities Secretary (he knows how its done).

Lady Penelope.

Additions and alterations to the program listed on pages 4 & 5, REM 80, Vol 5, Issue 6

```
35 LINE(0,0)-(256,192),PSET,B
60 LINE(0,192)-(95,157),PSET
70 LINE(148,144)-(200,144),PSET
80 LINE(102,117)-(102,24),PSET
100 LINE(80,145)-(95,138),PSET
110 LINE(148,136)-(204,136),PSET
175 LINE(230,133)-(256,133),PSET:PAINT(232,137),3,4
176 DRAW"BM230,128; R3U2R3U2R3D2R2D2R3U3R3D1R4U1R4D1"
201 DRAW"BM95,125;S35; D5R6U5L1D2L4U2L1U1R1U1R1U1R2D1R1D1R1D1"
202 CIRCLE(118,136),10,,.8
203 PAINT(118,132),2,4
204 POKE178,1
205 PAINT(96,126),,4:POKE178,105:PAINT(98,121),,4
206 POKE178,3
405 PAINT(149,143),2,4
602 DRAW"BM25,94;S6; U10L3U2L3U5L2; BM23,85;U5L2U3R3U2R2"
603 DRAW"BM27,94; U7R2U2R1U2R3U2"
604 DRAW"BM26,82; U2R1U2R1U2R3U2"
620 LINE(139,38)-(170,68),PSET,B
621 LINE(144,38)-(165,34),PSET,BF
622 LINE(149,34)-(160,32),PSET,BF
```

FURNISH THE 6809 HOUSE

```
623 LINE(144,68)-(165,72),PSET,BF
624 LINE(147,72)-(163,130),PSET,B
625 PAINT(142,40),,4
626 LINE(150,75)-(158,127),PSET,B
627 PAINT(148,73),,4
628 LINE(148,130)-(168,135),PSET,BF
629 LINE(148,135)-(172,149),PSET,BF
630 POKE178,56
670 POKE178,241
685 POKE178,207
900 POKE178,210:PAINT(232,110),,4
915 CIRCLE(155,53),15,2
931 POKE178,15:PAINT(232,132),,4
934 LINE(230,140)-(256,108),PRESET,B
935 COLOR3:LINE(0,0)-(256,192),PSET,B
936 CIRCLE(243,166),8,,.5
937 CIRCLE(227,170),15,,.4
938 PAINT(243,166),4,3:PAINT(227,170),4,3
939 COLOR4:CIRCLE(243,166),8,,.5:CIRCLE(227,170),15,,.4
940 CIRCLE(212,175),8,4,.5,.25,.75
941 DRAW"BM220,175;C4;S4;D2R1U2R1D2R7"
942 DRAW"BM233,174;D2R1U2R1D2R6"
949 GOTO970
956 IF TH>12 THEN TH=1
1024 PAINT(152,77),3,4
1025 DRAW"BM153,75;S3;C2;D50;S4;L2D1R4D1L5D1R6D1L6D1R5D1L4D1R3D1L2"
1030 PLAY"T101L150V5;A"
1074 PAINT(152,77),3,4
1075 DRAW"BM156,75;S3;C2;D50;S4;R2D1L4D1R5D1L6D1R6D1L5D1R4D1L3D1R2"
1080 PLAY"O1L150V5;F"
1100 FOR T=0 TO 330:NEXT T
1110 LINE(X,Y)-(X-9*SIN(F),Y-9*COS(F)),PSET:S=S+1:IF S=60 THEN S=0
1115 NEXT F
1120  LINE(X,Y)-(X-7*SIN(F1),Y-7*COS(F1)),PSET:TM=TM+1:IF  TM=60  THEN
TM=0
1121 IF TM=15 THEN GOSUB2050
1122 IF TM=30 THEN GOSUB2060
1123 IF TM=45 THEN GOSUB2070
1125 NEXT F1:FH=2*3.142:FM=FH:LINE(X,Y)-(X-5*SIN(F2),Y-5*COS(F2)),PSET
1130 TH=TH-1:IF TH=13 THEN TH=1:GOSUB2000:GOTO990
1140 GOSUB2000:NEXT F2
1150 GOTO990
2000 PLAY"O2T1V20L8;AFGCP5CGAFP5AGFCP5CGAF"
2005 FOR Z=0 TO 1000:NEXT
2010  FOR  Z=1  TO  TH:PLAY"O1V30T10L5;P9GV28GV27GV26GV25GV24GV23GV22G
V21GV20GV19GV18GV17GV16GV14GV12GV10GV8GV6GV4GV2G":NEXT Z:RETURN
2050 PLAY"O2T1V20L8;AFGC"
2055 RETURN
2060 PLAY"O2T1V20L8;AFGCP5CGAF"
2065 RETURN
2070 PLAY"O2T1V20L8;AFGCP5CGAFP5AGFC"
2075 RETURN
```

A LITTLE ON 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. Unlike popular opinion Pascal is not a difficult language to learn, in fact I would argue that learning PASCAL is easier to learn than BASIC. Some features of the language, ie, pointers can be a little daunting, but very effective use can be of the language without using them (pointers are similar to the VARPTR command in Basic. Subroutines (known as procedures) are very straightforward and can be nested within other procedures. Variables can be any length, depending on the compiler (usually 99 characters may be specified but only the first 8 or so are recognized, TOTALFORDAY is interpreted the same as TOTALFORWEEK). One rather strange terminology is the '=' sign, this is used to define constants as opposed to variable, i.e. in BASIC.... CT=A+B is the same as CT:=A+B in PASCAL. Remarks are enclosed in curly brackets '{...}' or '(*...*)' and the terminating symbol is ';' (in BASIC a similar symbol is ' :'). Perhaps the best way to give an idea of PASCAL is to show a small program.

```
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 must be assigned a value before use *)
   WHILE NOT FINISHED DO (* the loop BEGIN.......END will be executed
               until FINISHED is set to TRUE *)
   BEGIN
    WRITELN('CASH FLOW PROGRAM');
    WRITELN;(* Print blank line on VDU *);
    WRITELN('ENTER INCOME <ENTER 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 (ENTER 0 TO FINISH)');
    READ (CASH);
    IF CASH=0 THE FINISHED:=TRUE;
    EXPENDITURE:=EXPENDITURE+CASH;
   END;
   UNTIL FINISHED:= TRUE;
   WRITELN ('Total income is ',INCOME);
   WRITELN;
   WRITELN ('Total expences ',EXPENDITURE);
   TOTAL:=INCOME-EXPENDITURE;
   WRITE ('TOTAL = ',TOTAL);
END.(* all Pascal programes must end with full stop *)
```

A LITTLE ON PASCAL

Two different types of loops are demonstarated in the program above, the REPEAT and DO WHILE. You may notice that portions of the program are indented, this you will find with most Pascal programs so as to make them easier to read. This is not a requirement of Pascal, as long as a terminator (;) is used to separate statements then there is no reason why they could not be written in one continual stream

One or two points which 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 the keyboard (input) and VDU (output) are declared.
LINE 2 All variables must be declared at the beginning of the programe this can be beneficial since a glance at the top of the program makes it less likely for you to choose the same variable twice. Variables may be declared as integer/real/boolean/character or you may specify your own. Arrays of 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 you must use ':=' instead of '=' to re-assign variable

A list of BASIC vs PASCAL statements is listed below.

BASIC	PASCAL	COMMENTS
PRINT"Hello"	WRITELN ('Hello');	The LN at the end of WRITE 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(where X&Y INT)	X DIV Y	DIV used for integer division
IF..THEN..ELSE	IF..THEN.ELSE	
AND/OR/NOT	AND/OR/NOT	
+,-,*,/	+,-,*,/	Except for INT' DIV above
<,>,<=,>=,<>	<,>,<=,>=	
'For' loops		
FOR X=1 TO 10	FOR X:= 1 TO 10	If more than one statement is used, then
CO=CO+X	CO:=CO+X;	they must be enclosed in BEGIN.....END
NEXT X		FORX:=1 TO 10 BEGIN.....END;

A LITTLE ON PASCAL

One of the most useful features of Pascal is records which are a specification of the language. Any field may be accessed within the record and in fact records may be enclosed within one such field. They must be declared at the begining of the program with a TYPE statement.

```
TYPE  DETAILS = RECORD
        ACCOUNTNUMBER:INTEGER;
        MONTH:ARRAY(1..4) OF CHAR;
        YEAR:INTEGER;
      END;
```

Pascal is a very nice language and I have only covered a few of its merits, its one limitation is its string handling capability though the UCSD P system includes strings. A good PITMAN book on Pascal is 'PASCAL an introduction to methodical programming' written by Findley and Watt, and is available from most University type bookshops.

I would like to take this opportunity to thank Melvyn and Carolyn for all their work on producing the Newsletter which I am sure you will agree has been a useful and informative production.

oooo000oooo000oooo F O R S A L E oooo000oooo000oooo

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Contact :- John Taylor on Bacup (0706) 876532

Dragon 32 colour computer
£125.00 o.n.o.

Contact :- Laurie Bradshaw on Horwich (0204) 67023

LETTER HEADINGS ON THE MODEL 100

By Hugh Wyn-Griffith

The program listing below was supplied by Hugh and was written on and for the Model 100 for use on the Epson FX-80 printer but as we all know, we do don't we, most programs that run on the Model 100 are adaptable to run on most other Tandy machines.

```
10   ' FX-80 LETTER HEADING by Hugh Wyn Griffith
12   CLS : LPRINT CHR$ (27) ; CHR$(216/6) ;
13   ' 12 = Resets line spacing to 6 / inch
14   LINEINPUT " Business heading? -- Type Y/N
     -- then press ENTER  " ; A$
16   IF A$ = "N" OR A$ = "n" THEN GOTO 40
17   ' 16 = If no name heading then skip to address
18   IF A$ = "Y" OR A$ = "y" THEN BEEP : CLS : BEEP
     : GOTO 12
19   ' 18 = Error trap <> Y/N
20   LPRINT CHR$(27) ; CHR$(56) ;
21   ' 20 = Sets enlarged double print
30   LPRINT TAB(11) ; "HUGH WYN GRIFFITH" : LPRINT : LPRINT
     : LPRINT : LPRINT : LPRINT
40   LPRINT CHR$(27) ; "!" ; CHR$(0) ; : LPRINT CHR$(27)
     ; "p" ; CHR$(01) ; : LPRINT
41   ' 40 = Sets normal print face then proportional spacing
50   LPRINT TAB(50) "8 Kensington Court"
60   LPRINT TAB(50) "Boleyn Park"
70   LPRINT TAB(50) "WILMSLOW, Cheshire"
80   ' LPRINT : LPRINT TAB(50) "Phone Wilmslow 123456"
81   ' 80 = Line REM'D Until number known
85   LPRINT : LPRINT TAB(50) DATE$
86   ' 85 = Prints date
90   LPRINT : LPRINT : LPRINT
100  END
```

NOT A ROUTINE-ROUTINE

By Adrian Bradshaw

```
1    REM * FOR THE DRAGON 32/64/COCO
2    REM * DELETE LINE 5 IF YOUR COMPUTER CANNOT HANDLE
          THE HIGH SPEED POKE
5    POKE &HFFD7, 0
10   PI=3.1416 : PMODE4 : SCREEN 1,1 : PCLS
20   FOR X = 0 TO 2500 STEP 10 : Y = X / 10
40   LINE (B,A) - (Y,96 + FIX (50 * COS (X * PI /180))), PSET
50   A = Y : B = 96 + FIX (50 * SIN (X * PI /180))
60   NEXT X
65   POKE &HFFD6, 0
70   GOTO 70
```

LASERS MAKE AN ENTRY

Until recently, optical memory aimed at computer systems has been basically a laboratory project. But the Optimem 1000, a 1 Gigabyte, (thats 1,000,000 bytes), optical disk from the Optimem Division of the Shugart Corperation, is about to appear for systems in 1984.

The Optimem 1000 produces a 'write-once, read often' disk, it cannot be erased and rewritten like normal disks, since the laser permanently deforms the reflective material in the process of writing data onto it. This was viewed as a disadvantage when the technology was first investigated, but it is now seen as a way of creating archival computer records.

As most of us know magnetic records decay over time, and valuable data can be lost. However, the optical medium used in this system has a very long lifetime. Although no experience of time versus medium exists as yet, testing indicates that is should survive in a readable condition for several decades.

The system uses a gallium aluminum arsenide semiconductor laser operating at a normal wavelength of 830 nm and a peak power level of 15 to 20 mw, to write data on one side of a 12 inch optical disk. Data is written as circular or slightly elliptical bubbles in the reflective disk surface. Since the track width is, in effect, the width of a data bit, the BPI (bits per inch) and TPI (tracks per inch) are equal at 14.5K. Reading is done with the same laser, but at much lower power, 1 to 2 mw. Laser light is reflected form the disks surface and detected by a photodetector. Lack of signal, due to a dark area produced by a bubble in the surface, is interpreted as 1 bit.

Prices being qoted at the moment range from 6000.00 Dollars for large quantities to 10,000.00 Dollars for one offs.

Evaluation units are said to be scheduled for shipment by the spring of 1984.

Information noted in the above article was found in 'Computer Design', a American magazine for manufacturers of computers and peripherals.

****
* A Review of the Maplin *
* Modem 300 Baud CCITT tones *
* by Dave Sellwood *
****

The Maplin catalogue says that if you buy their modem then you will be able to communicate with thousands of other computer users, that it is easy to build using just 2 P.C.B.s, it uses CCITT tones, is easy to set up, can work in full duplex, the modem has a built in loop test facility (actually a simplex mode) and that it DIRECT connects to your phone line line through a B.T. approved (note) transformer.

The Maplin modem will cost you £39.95 for the basic kit of parts and another £9.95 if you want the rather nicely screen printed case, total cost £49.90. I got my modem from Maplins Manchester shop, which conveniently for me is right opposite work, I took it home with a little trepidation (and an empty wallet), I didn't like the sound of the "B.T. approved transformer" bit in the sales blurb, it turns out that even though the transformer is approved (a R.S. line isolating 1:1 transformer) the unit as a whole is most definitely NOT approved by B.T., although the word is that they are unlikely to prosecute you for its use, my phone bill QUADRUPLED at the last quarter thanks to my communications use.

The modem took me 2 evenings to carefully assemble, it could have been done faster, but the resistor values on the board for the Chebychev filters are critical (all 1%) and with so many similar values (2.0k 2.1k 2.2k in many places) a mistake would have been hard to find and would probably meant the unit would have worked but not too well. There are an awful lot of components (around 200) with most of the resistors being multiples (mainly parallel combinations), so really with a little care the construction is easy, a main board and the P.S.U. board.

So, having managed to come by a B.T. plug , it was time to set up the wee beastie, only 3 pots to adjust, 2 to set the centre frequencies of the phase locked loop decoder for the two different frequency sets used (980 & 1180 Hz originate, 1650 & 1850 Hz answer) and the last to match the impeadance of the unit to the line so that tones you send don't come back up the receive side of things. You really need a 'scope to set up the last pot but the, for once, well laid out instructions from Maplin tell you what to do if you haven't got access to one.

The loop back test facility connects the audio out to the audio in of the modem to test the coding and decoding processes. This position can also be used to monitor Simplex transmission.

In conclusion, apart from the garbage being produced by the modem when on line but not talking, the Maplin modem seems to work very well, never more than one or two characters lost during a half hour session.

If you are looking for a cheap way of getting into communications and can handle a soldering iron the Maplin modem is a good bet.

PROGRAM YOUR HOME

By John Taylor

One of the most exciting aspects of owning a home computer is the prospect of being able to use the computer to control the home enviroment and domestic machinery.

Interfacing is a posh word for connecting your computer to the outside world. Therefore, a conversion box, or interface, must be built to allow the logic levels asserted by your computer to control these large and unfriendly (in terms of electrical specification) machines.

If we limit our simple interface to output only, then it is possible to build an interface which will be almost universal in its applicability, and, extremely easy to drive from a software point of view.

Nearly all home computers are desisigned to have the capability of driving a parallel printer. We can exploit this fact to build an (almost) universal interface. All we have to do is make our interface box look like a printer to the computer. This means that if we are successful, the computers built in commands for sending data to the printer will work just as well as sending data to the interface.

In this rapidly changing world of computing, the parallel printer interface is one of the few reliable standards. This interface allows for an 8 bit data word to be transmitted to the outside world, accompanied by some simple handshaking. The signal levels on the interface are 0 to 5 volts, or standard TTL logic levels.

To fool the computer into thinking that the black box on the end of the printer cable really is a printer, and not our special interface, is a simple task. Essentially, all it consists of is an 8 bit data latch to grab and to hold on to the data on the interface pins of the connector, and a monostable to feed to feed back the acknowledge and busy signals.

Thus every time the computer strobes data-strobe low, the latch (IC1, 74LS374) latches the data on its input pins, which are connected to the computers output pins. This latching means that data will appear on the output pins of the latch, and will stay there, even when the data on the input pins has dissappeared.

PROGRAM YOUR HOME

IC3 is a 5 volt regulator to provide a steady supply for the logic gates from a higher unregulated supply.

The interface has two sorts of output, relay and LED. The relay outputs are for switching external signals and the LED's for simple prompts, and so on. The LED's can be driven directly from the outputs of the latch, whilst the relays a buffer transistor to drive them, the task of TR1-TR4. The diodes accros the relays stop the relay coils from blowing the transistors.

The interface can be constructed in a number of different ways, from breadboard to PCB

The relays are turned on by outputting a '1' to the latch. Thus, outputting a character with bit 0 set high will turn on relay one, and outputting with bit 2 set high will turn on relay two. The LED's are turned of by outputting a high bit. Thus outputting 10 Hex will turn the first LED off.

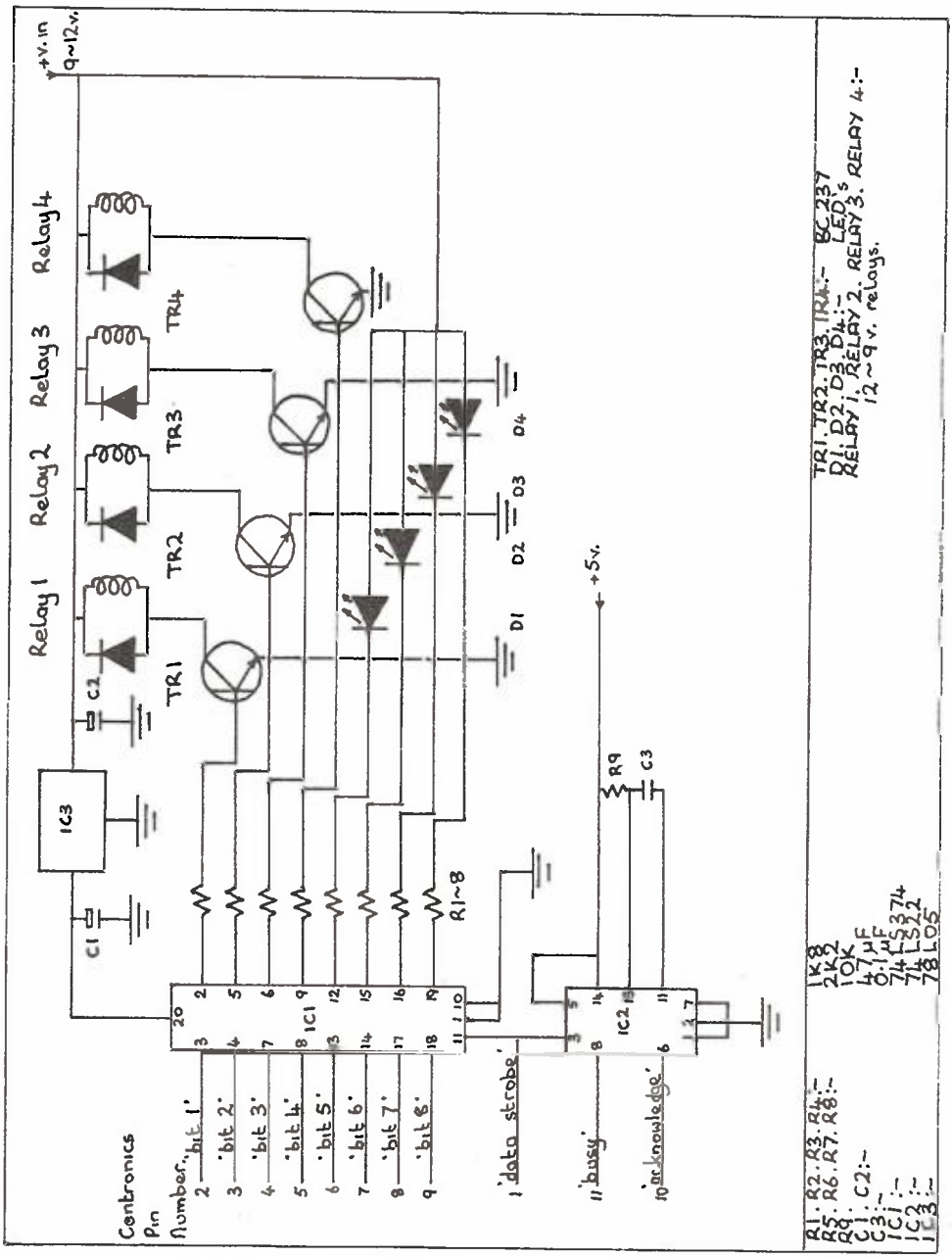
For example, suppose we want to turn relays one, two and four on, turn relay three off, turn LED's one and four on, turn LED's two and three off. The required bit patten is '01101011', or 103 decimal, or 67 Hex, or "g" in Ascii.

The interface is driven simply by using the printer output commands, LPRINT CHR$(103); or PRINT £-2, CHR$(103); would achieve the desired result. Use the semicolon to suppress the CR/LF that most Basic interpreters send out at the end of a print statement. If you forget them, then the interface will appear not to work, as it is responding to the last character the Basic sent it, i.e C/Return or L/feed.

The advantage of using relays is that they can be used to switch almost anything, either directly, or by connecting accross an existing switch, and the LED's being used as prompts.

This is just one small example. The uses are really limitless, so why not build the interface and have a go. If you are going to switch mains voltages then you must take every possible precaution.

IF YOU'RE BUILDING THE INTERFACE YOURSELF, ONLY PLAY WITH MAINS VOLTAGES IF YOU'RE SURE YOU KNOW HOW TO DO IT SAFELY !!!


+v. in 9~12v.
Relay 1
Relay 2
Relay 3
Relay 4
TR1
TR2
TR3
TR4
D1
D2
D3
D4
C1
C2
C3
IC1
IC2
IC3
R1~8
R9
+5v.
Centronics Pin Number.
2 'bit 1'
3 'bit 2'
4 'bit 3'
5 'bit 4'
6 'bit 5'
7 'bit 6'
8 'bit 7'
9 'bit 8'
1 'data strobe'
11 'busy'
10 'acknowledge'
R1. R2. R3. R4:- 1K8
R5. R6. R7. R8:- 2K2
R9. 10K
C1. C2:- 47µF
C3:- 0.1µF
IC1:- 74LS374
IC2:- 74LS22
IC3:- 78L05
TR1. TR2. TR3. TR4:- BC 237
D1. D2. D3. D4:- LED's
RELAY 1. RELAY 2. RELAY 3. RELAY 4:-
12~9 v. relays.

MULTIDOS

Re published from the Southern TRS-80 Newsletter

Multidos has three BIG advantages and several differences for the other Disk Operating Systems for the TRS-80, they are very Compact Code, Read/Write to any DOS and Debugging Basic.

DISK BASIC

Perhaps you are wondering what is so special about the Disk Basic on Multidos, well there are two Basics, this has been a common thing since Tandy's TRSDOS 2.3 with Basic and BasicR, the 'R' having a renumber built in, another system offering two Basics is DOSPLUS with Basic and TBasic the 'T' standing for Tiny.

The size of the Basic will not indicate it's power. Let us review some of the Basics on the TRS-80. If you load the Basic and PRINT MEM the resulting free memory is displayed, the following table shows the free memory is available for the programmer.

Level II Basic with Memory size	48340
Level II Basic with Mem. Size	xxxxx
TRSDOS 2.3 Disk Basic	38290
TRSDOS 2.4 Disk BasicR	37635
Newdos + Ver 2.1 Disk Basic	38491
Newdos + Ver 3.0 Disk Basic	38426
Newdos 80 Ver 2.0 Disk Basic	38263
LDOS 5.1.1 Disk Basic	37500
LDOS 5.1.3 Disk Basic	37515
LDOS 5.1.3 Disk Basic (Snapp)	36482
DOSPLUS 3.4 TBasic V 1.5	40004
DOSPLUS 3.4 Basic V 1.6	36993
DOSPLUS 3.4 DD TBasic V 1.5	38366
DOSPLUS 3.4 DD Basic V 1.6	35355
Multidos 1.2d BBasic V 1.2	38675
Multidos 1.2d Basic V 5.3	40036
Multidos 1.4s BBasic V 1.5	38670
Multidos 1.4s Basic V 5.4	39979
Multidos 1.5sk Basic V 7.0	40380
Model III Basic	48082
Model III TRSDOS Disk Basic	38200
Model III LDOS LBasic	37504
Model III Newdos 80 Basic	38261
Model III DOSPLUS TBasic	39983
Model IV TRSDOS 6.0 Basic	29424

You can see the only Disk Basic to compare with Multidos for small size is that of DOSPLUS, and only then without any file buffers opened, and yet Multidos Basic is more Feature packed than any other Disk Basic I have ever used.

MULTIDOS

CMD COMMANDS FROM BASIC

CMD"C"

Compress a program by removing linefeeds and spaces. This is a minimal compression utility. It does not remove REMark statements but is fairly intelligent. It will not compress text in quotes or data statements.

CMD"K"

Will zero the contents of an array.

CMD"M"

Moves a line of the Basic program to what ever line number you give , for example by typing CMD"M"100,500 <ENTER> will change the line number 100 into line number 500 and the program line number 500 will be put in the right place in the program.

CMD"N"

Will make a copy of a program line. for example by typing CMD"N"100,500 <ENTER> will duplicate the contents of line 100 into a new line numbered 500.

CMD"O"

Will allow you to reallocate the number of file buffers to be opened. This can be a basic command within a program, so that your program can open more file buffers if they are necessary.

CMD"Q"

Invokes a fast string sort of a one or two dimensional array. You need to designate which element of the array will be sorted first. The sort can be in ascending or descending order.

CMD"V"

Will print out a list of all the basic programs currently assigned variables and their values. This is not to be confused with the normal cross-reference feature that can be found in Newdos + 2.1.

CMD"X"

Will put you in Level II Basic with the Basic program still intact, by using BASIC £ after pressing reset you are able to shuttle back and forth between Level II and Disk Basic so you can debug Level II programs and then try them returning to Disk Basic to continue.

CMD"BASIC"

Will nest Basic within itself, so you could run, load and save any Basic program and return to the program where you left off with a CMD"S". This is better than chaining programs together because, not only are the variables intact with their values but the stack is left the same so that you could be in the middle of a loop or even in a GOSUB and be able to continue from where the second Basic was called.

MULTIDOS

Multidos also follows the TRSDOS way of Basic * to re-enter Basic with the Basic program still intact. Some extras are available with Multidos. BASIC ! will recover a Basic program left in memory by an alien Basic and BASIC £ will recover a Basic program left in memory by Level II.

Multidos basic supports the short hand commands introduced by Newdos +. The full stop for list current line, the comma for edit current line, up-arrow for list previous line, down-arrow for list next line, shift up-arrow for list first line, shift down-arrow for list last line, L for List, W for Edit and D for Delete.

In addition Multidos Basic adds / for list the last Break in line, P for list page of text, C for CONTinue, and R for RUN, also the H can be dropped from Hexidecimal and numerical calculations and display, e.g. ?&HFFFF can now be input ?&FFFF. One more enhancement is a Find command. F<STRING> will search your basic program for the first occurence of the string and list the line numbers it is found in. If the string occurs more than once in any line, you will be told how many times it was present in that line.

A global editor is also a feature not found in any other standard Disk Basic that I know of. By pressing '-' and then <ENTER>, you will invoke the global editor. Here is a brief example of what the global editor can be made to do.

If you have variables 'A', 'X' and 'AX' in your program and the program contains the line, 100 AX$ = "AX", you can tell the editor to change all the occurences of 'X' to 'Z', but only if it stands alone as a single letter. In this case the 'X' would be left alone anyway because it's contained in quotes, it is possible to change the letters in quotes but this has to be indicated. Also it is possible to change the left most or right most character only, or the second or third character only, or even quoted text only.

A good example of a global change that might be needed is to change all PRINT's to LPRINT's. This global change can be limited to a range of lines, so only the statements in that range of lines will be changed. When you have pressed the '-' and <ENTER> you will see displayed 'T=', this is expecting you to enter the characters you would like changed, if wanted the 'A' in line 100 of the previous example, you would just press A <ENTER>, If the Target was the A in quotes you would need to preceed the A with a Dollar sign. You will now be prompted for start line by the display '- Line A', you can enter a number to this request or by pressing enter it will default to the first line of the program. Similarly you will be asked for '- Line B' and the default would be the last line of the program. This is followed by a request for a replacement character 'R =' by entering <SHIFT> @ you will delete the characters selected in 'T =' because shift @ will be a null character, to change free standing characters only enter a single quote " ' " before and after the character or characters.

MULTIDOS

To change a keyword, for example a PRINT to LPRINT respond to 'T =' with '<PRINT>' then press the enter key and to the 'R =' respond with '<LPRINT>' again using the less than sign before the word and the greater than after it. This will allow the changes to keywords within your program.

It is possible to merge the preceeding program line to the current line, use '/' in answer to the 'T =' prompt, so to merge line 50 to the end of line 40, type '/50'. GOTO and GOSUB commands are not renumbered, also if the quotes are left open the line be incorrect. The same method can be used to split lines of text, but replacing the '/' with '-' and information of where the break should occur.

Renumbering your Basic program has been in Disk Basics since TRSDOS 2.3 with BasicR. With Multidos Basic renumbering of a program is invoked by ':', a colon. Entering just the colon will just check a program for errors, such as GOTO 500 with no line 500 in the program, an error will result. Another use for the colon is to undue the NEW command, if you have just typed NEW and would like your program back press ':' and hey presto its back. To renumber the program the colon can be followed by up to four parameters.

A command not used in TRSDOS 2.3 was NAME. Multidos Basic uses this spare command to chain Basic programs together. The NAME command will let you run a progam without re-initialising the variables set by a previous program. Type NAME and then either a filename or a string variable containing a filename and the Basic program with load and execute keeping the variables intact.

Graphics can be entered direct from the keyboard. This is useful for packing strings with graphics. Unlike any other Basic I have used, Multidos Basic will list the strings packed displaying graphics and not lot of jumbled keywords. The graphics have to be turned on from DOS, type in KEYBRD <ENTER> and the display will show what the current settings are, I will not go into them here, but it is well explained in the manual and the marvelous useful HELP library command.

If the graphics driver is turned on then go into Basic, now type 10 PRINT ", at this stage you can enter graphics directly into the PRINT ", press <SHIFT> and <CLEAR>, now using the normal keyboard enter graphics right into the PRINT command line. This makes graphics very easy to produce and very quick to debug any fualt in your graphic display.

MULTIDOS

BBasic contains the helpful Basic debugging aids. This Basic uses the @ key as a control key as does Scripsit, the keys used with the @ key are '1, 2, 3, 4, 5, 6, 7, up-arrow, down-arrow, N and O (not zero but the letter).

@1	Turns off the trace
@2	Turns on the trace, this can be done while the progam is in operation without breaking the program. This trace is not like the TRON on other Basics.
@3	Sends the trace of line numbers to the printer.
@4	Turns off the single step mode.
@5	Turns on the single step mode, you have to press a key to execute the next line.
@6	Turns a single step by statement mode.
@7	Automatic single step with user selected delay.
@ down-arrow	Slow down single stepping.
@ up-arrow	Speed up single stepping

Any review of a DOS could never cover the operating system completely, but this article perhaps gives you some idea of the power and ease of use of this very good and forgiving DOS.

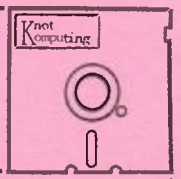
OUT OF THIS WORLD

By Adrian Bradshaw.

```
1   REM * DRAGON 32/64/COCO
10  CLS 0 : PCLS 1
20  PRINT @ 195, "INPUT A NUMBER ( .1 - .4 ) "; : INPUT R
30  A$ = ""
40  PMODE 3,1 : SCREEN 1,0 : PCLS 3
50  FOR W = 1 TO 20 : A = RND (253) : B = RND (192) :
    PSET (A,B,1) : PSET (A,B+1,1) : NEXT W
70  FOR X = 100 TO 70 STEP - 1
80  C = RND (3)
90  CIRCLE (126,94),X,C,R,1,.5
100 A$ = A$ + STR$ (C) : NEXT X
120 CIRCLE (126,94),50,4
130 PAINT (126,94),4,4
140 FOR X = 100 TO 70 STEP - 1
150 C = VAL (MID$ (A$,2 * (101 - X),1))
160 CIRCLE (126,94),X,C,R,1,.5
170 NEXT X
180 IF INKEY$ = "" THEN 180 ELSE RUN
```

Knot Komputing

Lambert House,
Brook Street, Glossop,
Derbyshire SK13 8BG
Phone Glossop 4748
VAT. 373 4223 63



PRICE LIST AS OF 1st February 1984.

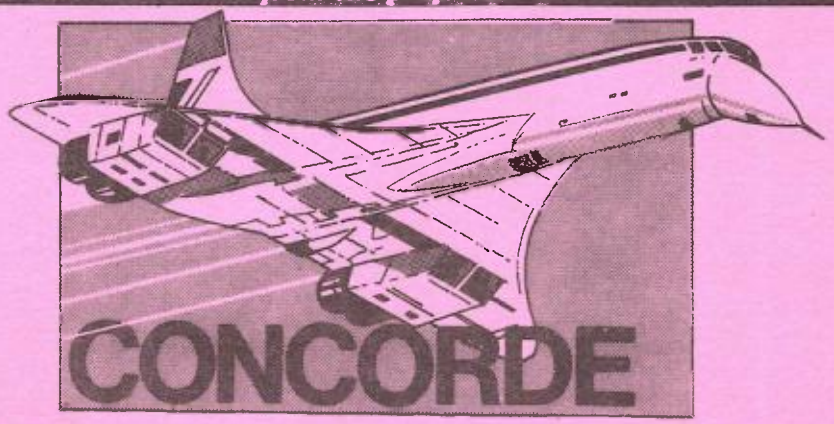
SPECIFICATION	Basic + VAT + Delivery :::	BASIC PRICE
N.E.C 8201 Portable Computer - 32K ROM,16K RAM standard, can be expanded to 64K ROM,64K RAM internally + extra 32K RAM plug in to give 96K RAM total. Screen 40x8, Ports incl, RS-232C, Centronics, Cassette, BCR etc. Your Ultimate Portable.	570.00	475.00.
KESTREL - 48K: Computer with two built-in 40 track double-sided ultra slim disk drives, with centronics printer port. Runs Tandy I programs, and housed in steel case designed to take either a printer or monitor on top.	983.00	825.00.
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Epson MX 100 FT/3 100 cps	594.00	499.00.
Shinwa CTI CP80 80 cps	344.00	289.00.
Star 510 100 cps	344.00	289.00.
Juki 6100 daisy-wheel 18 cps	475.00	399.00.
CANON 5.25" 40 track 2/3 height Disk Drive.		
Single, Single Side	217.00	179.00.
Double Side	265.00	219.00.
Twin, Single Side	412.00	340.00.
Double Side	490.00	405.00.
Disk & Printer Interface + Drive in one Unit.		
Single, Single Side	278.00	230.00.
Double Side	327.00	270.00.
Wizard Interface for Colour Genie	120.00	99.00.
DOS for above	43.00	35.00.
48k Expansion for tandy model I on keyboard	56.00	44.00.
48k Expansion for V G on keyboard	56.00	44.00.
fitting for above 48K onto your keyboard	+ post	11.50.
Disk & Printer Interface DP1000T (tandy)	104.00	86.00.
Disk & Printer Interface DP1000V (genie)	104.00	86.00.
Disk Drive & Cassette leads	various.	
Doubler for above Interface	84.00	72.00.
Splitter Cable for joystick, ROMs etc(T or G)	19.00	16.00.
Plug in feature ROMs	23.00	19.00.
* ROM A: keyboard invert, key repeat, single key commands, flashing cursor, M/c code Mon & Edit, System load & save.		
* ROM B: keyboard invert,line renumber,single key commands, cursor flash, basic program merge, basic program compress.		
Box of 10 Disks SS.SD	19.00	16.00.
Box of 10 Disks SS.DD	23.00	19.00.
Box of 9.5" Paper	17.00	12.00.
DRAGON Software	various.	

MULTIDOS

Software News

INNOVATIVE TRS 80·GENIE SOFTWARE

from the professionals



Concorde is the newest addition to our ever increasing stable of precise simulations. As its name implies, it is a simulation of flying the Concorde supersonic aircraft and it comes from the pens of John Taylor and Frank Avery who wrote Jumbo, which we published some year ago or so. Preceding Jumbo we published Shuttle, a simulation of the Columbia space flights, and after Jumbo we introduced Airbus. When we did the write-up on Airbus we indicated that, whereas Jumbo went the route of displaying maps in order to assist the user to progress from A to B, Airbus used radio navigation instruments and so, therefore, was somewhat more difficult to fly. Concorde follows the route that Messrs. Taylor and Avery took in Jumbo in providing a map — in this case essentially of the Atlantic in that airports are supplied at London, New York, Paris, Washington, Gander and Shannon. Indeed, it is fair to say that Concorde follows Jumbo in appearance quite closely. As may be expected from a supersonic aircraft, however, the feel and flying of the aircraft is entirely different.

Concorde follows the original aircraft just about as closely as it is possible to get. The famous droop snout is simulated as also is re-heat in the engines, which is necessary not only to get the aircraft off the ground, but also to progress from subsonic to supersonic flight. The authors have sent us screen printouts which show that it is possible, in the simulation, to fly from London to New York in about two hours fifty minutes. In order to achieve such an excellent result, however, Concorde has to be flown pretty well by the numbers and with a great deal of care. It is of the greatest importance in flying the aircraft that one progresses from subsonic to supersonic at the right time and that the re-heat facility is used correctly. Re-heat inserts raw fuel into the jet subsequent to the original combustion. It literally gulps fuel down. If you do not use it carefully, you could well arrive many miles short of New York and be out of fuel.

There is no doubt that flying Concorde requires a far lighter touch than did flying Jumbo and this, of course, as with all of our simulations, is a reflection of the real life situation. Consequently, Concorde includes not only the normal controls for the elevators, ailerons and throttle, but also provision for fine control. A list of the controls are as follows. Remember that those just mentioned have the additional facility of a fine adjustment:

Elevators	Elevators up	Elevators down	Elevators zero
Ailerons up	Ailerons down	Ailerons zero	Throttles increase
Throttles decrease	Auto throttle	Re-heat on	Re-heat off
Ground brakes & air brakes	Reverse thrust	Droop nose up	Droop nose down
Undercarriage up	Undercarriage down	Stop watch	Cruise climb selection
Map	Practice approach	Autocouple*	Abort flight
Time skip minutes	Time skip hours		

*Not yet incorporated. Expected release to registered owners late 1983.

The instruments provided on Concorde are as follows:

Distance to go	Bearing to destination	Time
Fuel remaining	Altimeter	Vertical speed indicator
Outside air temperature	Aircraft skin temperature	True airspeed
Nose position*	Undercarriage status*	Minimum permitted airspeed
Acceleration/Deceleration	Indicated airspeed	Maximum permitted indicated airspeed
Mach number	Elevator position†	Aircraft attitude†
Angle of attack of the wings	Turn indicator	Compass†
Aileron position indicator†	Power setting	Throttle indicator†
Auto throttle on/off indicator	Artificial horizon†	

†Graphical instrument representation.
*Replaced by other information after take off.

As is obvious from the above, Concorde is a mammoth program and for those customers who have already purchased Jumbo, provides a very interesting comparison.

Concorde is available for disk or tape for the Tandy Model I, III and 4 (in Model III mode), the Video Genie, Genie I and Genie II.

Concorde (Tape) ..... £15.00 plus VAT £17.25
Concorde (Disk) ..... £17.00 plus VAT £19.55
P & P 75p

TEL: [0424] 220391/223636

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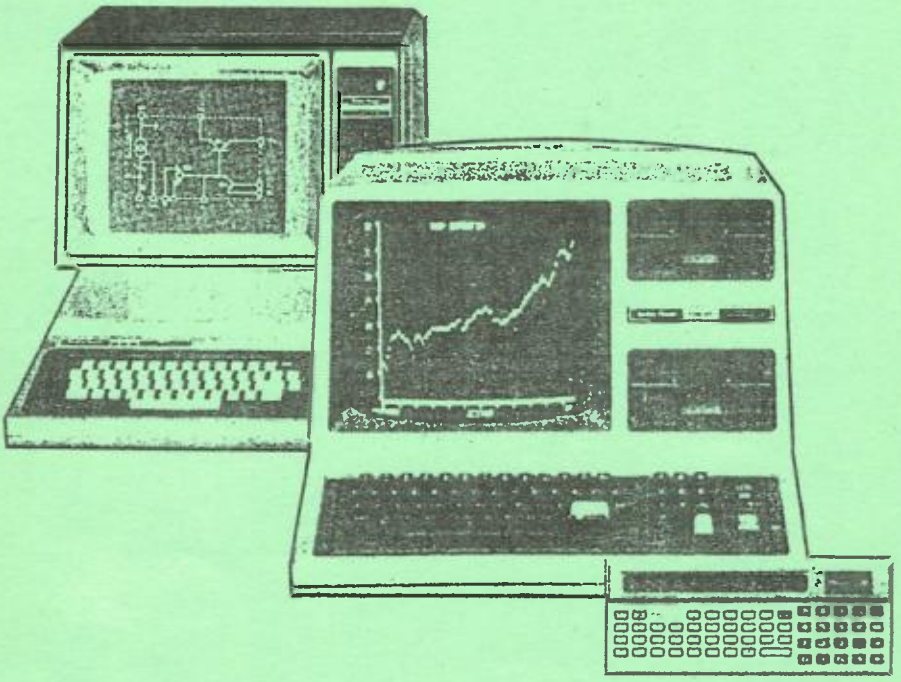
TRS-80 & VIDEO GENIE SOFTWARE CATALOGUE £1.00 plus £1 postage.

Excelsior Press Ltd., 1 Market Street, Westhoughton.

LIBRARIAN: Roy Williams.
93 Windermere Ave.,
Denton, Manchester.

Recd 1 April '84

REM 80



The North West TRS 80 Users Group

APRIL 1984

Volume 6 Issue 2

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EDITORIAL

You will notice from the contents that we don't seem to have very much to offer this month but despite the lack of number of articles their quality is extremelly high.

The only criticism I would make is that we are receiving articles which result in a lack of variety and a bias towards one machine. If I had sufficient material for several newsletters at once it may be several months before you see your name in print but I should be able to achieve a better balance.

I should like to thank both Peter Mooney and Barry Steward for their lectures at February & March meetings respectively and also for their continuation on a theme with the supporting articles in this issue for those of you who wish to try the project for yourselves.

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Any articles or programs for inclusion in this Newsletter must be addressed directly to the Editor, preferably on cassette, disk or uploaded, (all normal communication protocols are acceptable), at the following address :-

40, COWLEES,
WESTHOUGHTON,
BOLTON,
BL5 3EG
Tel ... 0942-812843

ACTIVITIES PAGE

By Brian Disley

>>>>>> GRAND AUCTION <<<<<<

The May 30th Meeting at Barton Aero Club will be in the form of an auction, We have been promised a lot of goodies to auction off by Adrian (our friendly Tandy manager) but I would like to appeal to any member who has anything (computer related!) they wish to dispose of, to bring it along to this meeting, I think this would be an excellent oportunity for you to rummage through your lofts, sheds, and garages and find those bits and bats of equipment, software & books etc. (no matter how large or small) that is surplus to requirements, I would suggest that you then attach a label to it with your name and any reserve price you may have in mind and bring it allong to the May meeting.

The group would of course charge 5% for this service which I hope no one has any objections to as it is only a token charge and will be ploughed back into club funds for the members benefit anyway. Should you decide you have something you wish to donate for nowt! then the group would be only too happy to accept.

I suggest you make a special effort to attend this meeting as you could no doubt pickup some real bargains so bring along your goodies and plenty of CASH and it should be a profitable meeting for all concerned.

MEETING DATES FOR 1984 AT BARTON AERO CLUB

May 30th, June 27th, July 25th, August 29th, September 26th, October 31st November 28th December - to be arranged later.

MODEM

**** COMUNICATIONS SOFTWARE FOR THE DRAGON/COCO ****

As I am now the proud owner of a Minor Miracles WS2000 modem, a Model I TRS-80 and a Dragon 64 I have been on the look out for some terminal software for the Dragon/CoCo, it seems that there is very little software of this kind available for these machines (they seem to be to busy using them for games), there is an abundance of very good public domain (no copyright) smart terminal software for the TRS-80 models I & III freely! available to any one who wishes to access bulletin boards etc. but as yet I have not got any for the Dragon, although I have been promised some from some very helpful users of the various bulletin boards I have contacted since I received my modem, I will keep you informed if and when I do get any but till then any help you can give me (and the group) would be apreciated.I have no complaints whatsoever with the WS2000 modem although I have had no experience with other modems or acoustic couplers, I understand that you can get spurious characters or none at all from time to time but as yet I have only experienced this on one occasion up to now and I found that to be a very noisy telephone line and so I can blame B.T. for that one and not my system I also believe the WS2000 to be the best value for money modem on the market and would recommend it to any body who is contemplating going on line

P.S. This page was downloaded to the Editor from the comfort of my own home. (not that Mel's house is uncomfortable or anything !!!)

6809 FORUM

by Barry Steward.

Rather a grab bag of hints and tips this month. Some we have heard before and some new ones but I will repeat a few for the benefit of the newer members.

If a disk drive will not perform a proper 'DSKINI' to format a disk, yet all other drive functions work, remove the drive cover and shine a fluorescent light on the drive wheel on the left side of the unit. With the drive running, the 50 cycle hashmarks on the drive wheel should appear to stand still. if not, adjust the yellow potentiometer to the lower left of the drive wheel until the hash marks appear to stand still.

EXEC 44539 has the same effect as: 10 A$=INKEY$:IF A$=""THEN 10

POKE'ing 359,0 eliminates all output to the screen. The cursor will move only for PRINT @ commands. POKE 359,126 returns you to normal operation.

POKE 65313,4 turns the cassette motor on and leaves it on. POKE 65313,52 will turn it off.

To keep the screen on text or graphics, POKE 359,57 and SCREEN 1,1 will show the graphics. You will still be able to type, but it will not show on the screen. POKE 359,126 returns to nornal operation. SCREEN 0,1 inverses the screen.

To convert HEX numbers to DECIMAL, try the following: 'PRINT &H(NUMBER). The result will be the HEX number printed in base 10."

If you get an I/O ERROR during a load, PRINT PEEK(129). If a '1' is returned, then it was the tape's fault. If a '2' is returned, it was a memory error.

To reset your computer, don't scramble in the back for the reset switch, simply: POKE 113,0:EXEC 40999

Location 282 tells the computer if it is in upper or lower case. If it contains 255, the keyboard is in upper case. If it contains a 0, it is in lower case.

Locations 52 and 53 contain the address in memory of the next data byte for a read command.

To prevent a casual observer seeing your listings, POKE 383, 158. After the program is RUN, any attempt to list will produce a screen full of garbage. To escape, POKE 383,0. This POKE can be hidden in the listing and will activate when the program is run.

To turn your cassette motor off in a hurry without having to type in the MOTOR-OFF sequence, just create a SYNTAX ERROR by pressing any key and then ENTER. The motor is off at once.

6809 FORUM

Have you ever wanted to write and use a simple "ODDS/EVEN" or "HEADS/TAILS" program? Try this:

```
10 RND(2)-1 '(YIELDS 0 OR 1)
20 RND(2)>1 '(YIELDS 0 OR -1)
30 ((RND(2)>1)*2+1) '(YIELDS 1 OR -1)
```

Ever wonder what your ROM number was, and what those numbers on a cold start meant? With Extended Basic, key in: EXEC 41175 <ENTER>. If you have the newer 'E' boards, the Extended Basic number to come up on the screen will be version 1.1 and non Extended Basic will give you a version 1.2.

Print your Disk Directory!!! Key in POKE 111,254:DIR <ENTER> and the entire directory will be on your printer, even if it is too long to fit on your screen!

Copy with only one Disk Drive? Not according to Tandy! they claim two drives are needed. Try this:

1. Put disk with program to copy in your drive 0.
2. Type COPY"FILENAME/EXT":0
3. Drive will run, beep will be heard, with notice to change to destination disk.
4. Change disks and press <ENTER>. This will copy any program; Basic, M-L, ASCII and even Data!

To move automatically into lower case, Type POKE 282,0. To return to upper case, type POKE 282,1.

You can clear all of your graphics pages, and thus create free memory, by entering this command: POKE 25,6:NEW. if you do this, you will lose your graphics capabilities, but you will have more memory. If you use this poke with a program in memory, it will be lost. * Not for use with DOS. *

Always totally erase a tape before doing any CSAVES on it. This will eliminate any bits of garbage that will cause I/O ERRORS. This is best done with a bulk eraser, but may also be done by placing the tape in a cassette unit and pressing PLAY and RECORD and typing "MOTOR ON". It takes a while, but it is worth it!

Find your M-L addresses this easy way: To find the start address, type in PEEK(157) * 256+PEEK(488). Find the end address by typing in PEEK (126)*256+PEEK(127)-1. You can get the execute address with PEEK(157)*256+PEEK(158) adding a question mark (?) before each command will make the computer print them to the screen. These commands can be from a program or from the keyboard.

6809 FORUM

Have an I/O ERROR and don't want to punch "SKIPF" until you come to the end of the bad save? Then type AUDIO ON and MOTOR ON, turn up the volume a little, and listen to the binary language until you come to a silent spot. then hit any key (do this while waiting) and ENTER to create your own I/O ERROR and stop the motor. You are now past the bad recording.

When doing a PAINT command, you must be accurate in your XY spot numbering. If you set your position on a line, you will not PAINT. Also, make sure your area is entirely closed or the PAINT will leak out and cover the entire screen.

To hear each key stroke, give each key stroke a sound.

```
10 FOR X=1536 TO 1551
20 READ A:POKE X,A
30 NEXT
40 POKE 360,6:POKE 361,0
50 DATA 52,86,198,1,134,4,61,253,0,141
60 DATA 189,169,86,53,86,57
```

This will not work with all colour computers, you will have to try it to see. Speed up your programing by 70%. Just POKE 65495,0. Before trying to save to tape or disk you MUST POKE 65494,0. Try it for those slow BASIC games.
After all that I think I need a litte rest, till next time, Barry.

INTEGERS

By David Ryder

Members may be interested in an old problem from the magazine 'Electronics Industry', to find a 4 digit integer of which the square ends in the same 4 digits; one has to try numbers ending in 1, 5 or 6 anyway.

It looks straight forward, if lengthy, but in Mbasic, problems arise if one asks for more than 7 digits. Below is a 'solution', I expect there are neater ones.

```
10  'SEARCH FOR A 4 DIGIT NUMBER WHOSE SQUARE ENDS IN
     SAME 4 DIGITS
20  FOR N = 100 TO 999
30  '(Or different range)
40  X = 10 * N + 6
50  '(Guessing that number end in 6)
60  P = X - 100 * INT (X/100) : Q = X - P
70  '(i.e.  P = X MOD 100)
80  Y = P * P + 2 * P * Q : YS = STR$ (Y) :
    Z$ = RIGHT$ (YS,4) : Z = VAL (ZS)
90  '(Y has same last 4 digits as X squared;
      Z$ extracts them)
100 IF N = 100 * INT (N/100) THEN PRINT N ; X ; Z
110 '(To see progress)
120 IF Z = X THEN 150
130 '(i.e. if answer found)
140 NEXT N
150 PRINT N ; X ; Y : END
```

WHO BY?

INTERFACING YOUR COMPUTER

Now I don't claim to know very much about the subject but I am willing to share what I've learned. I don't work in electronics and I've never been taught about it, but despite this most of my projects actually work!! If I can do it then anyone can, so dust off your soldering irons and lets get going.....

WHAT IS AN INTERFACE ?

Quite simply, an interface is a connection between the computer and the outside world. In practice this connection may be built into the computer from the start - such as a tape interface, or be added later so that it can perform a specific task - such as a modem interface.

WHY DO WE NEED AN INTERFACE ?

The computer handles data which is in Binary form. This means that it must be a series of electrical signals which are either at zero volts, which would be a binary '0', or about five volts, which would be a binary '1'. I say about five volts because the beauty of a Digital computer is that the size of the signal is not critical, it is its presence or absence which matters.

The digital coding of information can in itself be a problem when connecting the computer to the 'real world' because very few external devices work in an ON-OFF way. They use signals whose levels change in a smooth, continuous way. We call these Analogue devices. To overcome this difficulty there are a range of 'chips' which can convert Digital signals to Analogue signals and vice-versa.

A second difficulty is a direct result of the great speed at which computers can operate. The signals within the computer are changing so rapidly that it is often necessary to 'freeze' them for long enough to operate external devices. Once again there is a chip to do just this. It is called a Latch.

The final area to consider is how to ensure that only signals sent to the device actually reach it. This is the same problem that we must face whenever we store information in computer memory, and we tackle it in just the same way. Each memory location has a unique Address which can be used to identify it. Each external device can be given its address in a similar way. To the computer it will appear to be just like any other memory location and will occupy its own place in the 'memory map'. Most computers have an unused portion of the memory map which is reserved for Input and Output devices in this way.

INTERFACING YOUR COMPUTER

WHAT IS MEANT BY A USER 'PORT'

Many computer manufacturers call a memory mapped Input / Output interface a Port and generally the two terms are interchangeable. At least they are until you meet the Z-80 !! Let me explain.

I mentioned earlier that each I/O device would require a unique place in the memory map. If we are considering 8 bit micros then this might be any one of 65535 locations, and in order to address a particular location there must be 16 address lines in order to provide the necessary combinations. Any operation which uses 16 bits will take longer for the processor to handle and any user interface would need to decode all 16 lines of the address. The designers of the Z-80, however, provided an extra set of instructions which were specially designed to make interfacing simpler. They provided 256 special 'Port' addresses which use just 8 address lines and are not a part of the normal memory map. This can make interfacing much easier.

LET'S SEE HOW WE COULD DESIGN AN INTERFACE

If I begin with the Z-80 computers - the Models I, II and III, then the simplest method is to make use of the PORT addressing approach.

DECODING A PORT

The Model I already uses two of the 256 port addresses -

Port 255 is the normal cassette port and its address is decoded within the keyboard unit.

Port 254 is set aside for the second cassette, and the necessary decoding is performed in the expansion interface. There can be very few people who actually use two cassettes on their TRS-80 so there are a number of special modifications have also made use of Port 254. Among these is the Speed-Up Mod.

On the Genie machines a third Port has been reserved for the Printer - Port 253, and this is one of the differences between the Tandy and the Genie which can cause problems with Word Processing programs.

The choice of Ports 255, 254 and 253 rather than 1, 2 and 3 is rather interesting....

INTERFACING YOUR COMPUTER

The standard 'chip' used to decode the 8 address lines used by the Ports, is a 74LS30 - an 8 input NAND GATE. Now if this is where you start to throw your hands in the air and switch off - please don't! It really isn't difficult to understand. All that you need to appreciate is that this chip has 8 lines going IN and 1 line going OUT. The signal on the output line is usually a binary 1 (or High signal) unless ALL the 8 input lines carry a 1. When, and only when, all 8 inputs are 1's then the output will change to a binary 0 (or Low signal). The binary number which has 8 'ones' is 255 in decimal. That makes Port 255 the easiest to decode.

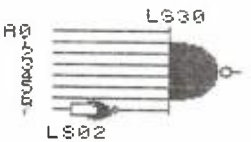
The number 254 is written as 11111110 in binary - just one bit is a zero. Remember that the 74LS30 is looking for all 1s and you will see that the circuit to decode this Port will have to first change the 0 to a 1. This can be done by a NOT GATE - which changes a zero to a one, and a one to a zero. We don't want to change all the bits, just the last - so we put the Not gate in that address line only.

In a similar way we can see that 253 in binary is 11111101 - again just one of the bits is changed so again a single Not gate can handle the change.

If we were to place a zero in each of the other 6 positions in turn then we could have...

11111011 which is Port 251
11110111 which is Port 247
11101111 which is Port 239
...and so on.

From the many possible combinations we could choose Port 127 which has this combination 01111111. And here is how our first part of the circuit might look.....



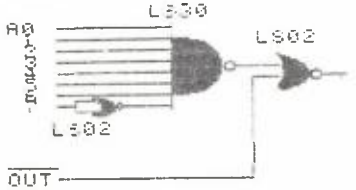
Notice the little circle on the output of the NAND gate, this makes the output into a 0 rather than a 1. In effect this chip will output a 0 whenever we send a signal to PORT 127. You will see the extra Gate on the address line 7 in order to change the 0 on this line to a 1. The gate that is required is a NOT gate - but you may be confused as to why I have not used the normal - - symbol. The symbol I have used is a NOR gate with its two inputs joined. This acts as a NOT gate and is used because there are four gates on each chip and we will need some of the other gates later. This way we can save on the number of chips.

INTERFACING YOUR COMPUTER

INPUT or OUTPUT ?

The next section of the circuit which we will need should decide whether the port is being used for input or output. To do this we must look for signals on the IN or OUT lines of the Expansion Edge Connector. These two lines will normally be holding a 1, but change to a 0 whenever there is a read or write to the Ports. (of course only one of them will have a 0 at any moment - we cannot be reading and writing at the same time). I will show you how we can decode the signal to allow us to send signals out through the port - an identical method is used to decode the port for input.

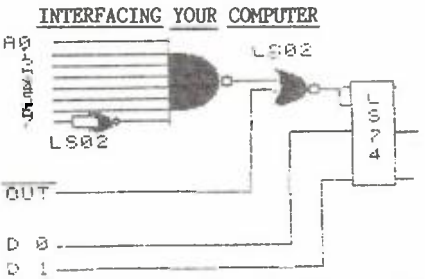
One more NOR gate is added to our circuit, to tie together the OUT and the PORT SELECT signals.....



Here the NOR gate (part of an LS 02) is looking for zeros on both its input lines so that it can produce a 1 on its output - normally it will show a 0. So now we have a 1 whenever the command OUT 127 is sent.

CATCHING THE DATA

The third part of the circuit is needed to 'catch' the data being sent out to the port so that it can be used by some external device. This is where a Latch is used - such as an LS 74. This is really two latches on one chip, so a single LS 74 can handle 2 data lines. If we needed to use all 8 data lines then we need four LS 74s or an LS 273 (8 latches), but the circuit design will be similar. The latch is like a camera which takes a snapshot of the data coming in. It does this whenever there is a 1 on the CLK input pin. It will hold this data pattern until the next time that a 1 appears on the CLK line. The outputs from the latch can either be an exact copy of the data coming in from the data lines or it can be Inverted, that is all the 1s become 0s, all the 0s become 1s. The normal output is from the Q pins of the chip, the inverted output is from the Q (Q Low) pins. Here is the circuit needed to decode two data lines.



If you are worried that this all looks a bit beyond you then let me just say that this is 3 chips which should cost you less than £1.20.

If you are still following this then you may want to check through the ideas I have covered so far before I look at ways in which we could use our port. But now it is time to devote some time to the Colour Computer users - and yes that means Dragons too !

INTERFACING THE CO-CO

When the Co-co appeared the reviews in the comics commented about how few chips there were inside. This is because it uses several very large modern chips which can perform the tasks of whole groups of chips in the Model 1. Among these are the 2 PIAs. That's Peripheral Interface Adapters to the un-initiated. Each PIA consists of a pair of fully decoded 8 bit ports which can be either set up as Inputs or Outputs. These are used to handle Keyboard, Cassette, Printer or RS232, Joysticks, Digital to Analogue converter, Sound port and the Screen display modes. All this from just 2 chips! These PIAs have memory addresses just like any other device, and are mapped to addresses &HFF00 - FF02 and &HFF20 - FF22. If we want to add our own port to the Co-co then we can use another PIA chip in exactly the same way that they are used inside the machine. The chip required is a 6821 from Motorola (cost is about £2.00).

The 6821 is a CMOS device so it needs careful handling - that means avoiding static electricity when you touch it. Other than simple precautions it is very easy to use. The cartridge port on the Co-co / Dragon has all the necessary addressing signals decoded for you so it would be unnecessary to consider this if you are going to plug into the cartridge port. You will need to know about the workings of the PIA registers in some detail - so here we go...

INTERFACING YOUR COMPUTER

There are two ports in a PIA and each has 3 registers.

1. The Data Direction Register (DDR) - this sets which of the 8 data lines will be Inputs and which Outputs.

2. The Peripheral Data Register (PDR) - which holds the data which is going in or out of the port.

3. The Control Register (CR) - this handles control operations such as timing, handshaking and interupts.

Each register has a place in the memory map....

At...	C000 hex	Port A Data Direction Register.
	C001 hex	Port A Control Register.
	C000 hex	Port A Peripheral Data Register.
At...	C002 hex	Port B Data Direction Register.
	C003 hex	Port B Control Register.
	C002 hex	Port B Peripheral Data Register.

You will see that the Data Direction Register and the Peripheral Register share the same addresses, this may be confusing, but unless we want to continually change the direction of the data using the port then we really only use the DDR once to set up the port. Once set then we use the same address to handle data. We decide which of the two registers we want by setting Bit 2 of the Control Register. If there is a 0 in the CR then we will be using the Data Direction Register. If there is a 1 in bit two of the CR then we are using the Peripheral Data Register. Sounds complicated, does it ? Well here is the sequence of events...

1. Send a 0 to bit 2 of the control register.

```
X=PEEK(&HC001):POKE &HC001,(X AND 251)
...this selects the DDR so we can set up the port
for Inputs or Outputs.
```

2. Set the data lines for outputs.(a 1=output, 0=input).

```
POKE &HC000,255
...this makes all 8 lines outputs.
```

3. Change to the Peripheral Data Register.

```
POKE &HC001,X
...this allows address C000 to be used for data
output.
```

To use the port for inputs we would replace step 2 with

```
....POKE &HC000,0
```

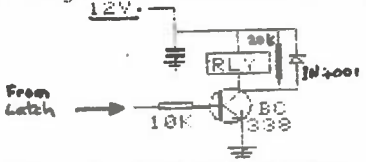
The same process can be used to set up Port B, using the addresses given above.

INTERFACING YOUR COMPUTER

USING THE PORT

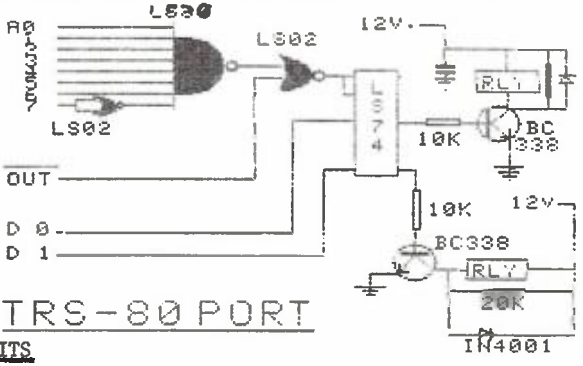
This section is similar for both the Model 1 or the Co-Co. To send data to the port we use the instruction OUT 127,N....on a Model 1 - or POKE &HC000,N....on the Co-Co. Where N is the pattern of data we want to use. The resulting pattern will then appear on the output lines from the port, and will remain until we send more data to the port.

The signal, as binary 1s and 0s will be too small to be useful so we need to amplify it so that it can turn on relays etc. A suitable circuit using a BC338 transistor looks like this.....



....and we need one of these for each Data line.

An alternative to relays is to use Opto Isolators if the devices to be switched on will use small currents. Here is the circuit for them..



BUILDING THE CIRCUITS

First some good news for Dragon and Co-Co owners. There is a kit of parts available from Maplin Electronics (they have a shop opposite the BBC on Oxford Rd. Manchester) for a Dragon Input/Output Port. It costs £13.95 and has all the bits you need.

For those with a Model 1, or those who prefer to design their own circuit boards you need to make a list of parts.

INTERFACING YOUR COMPUTER

MODEL 1 - 2 line output port

1 LS30 8 line Nand gate
1 LS02 Quad Nor gate
1 LS74 Dual D-type Latch
2 BC338 Transistors (or similar)
2 IN4001 Diodes (or similar)
2 12v. Mini-Relays (coil resistance 250 ohm or abouts)
2 10k Resistors
2 2k Resistors
3 0.1uf Disc Capacitors (for decoupling)
1 1uf Tantalum bead capacitor
2 LEDs Any flavour you fancy
1 Edge Connector (TRS-80 40 way, Genie 50 way)
+ some Vero Board and Ribbon Cable.

DRAGON 32 or COLOUR COMPUTER

1 6821 PIA
1 LS00 NAND gate
8 BC338 Transistors
8 12v. Mini Relays
10 IN4001 Diodes
8 2k Resistors
8 10k Resistors
2 0.1uf Capacitors
4 1uf tantalum caps.
8 LEDS
+ Vero or Tandy interface board and cable.

Lastly you may need a plan of the edge connectors so that you know where to find the various signals and power supply lines. Here they are....



INTERFACING YOUR COMPUTER

Well that's about it. I expect you are suffering from mental indigestion by now ! But seriously, whether you want to control your Trainset or whatever I hope you feel confident enough to make a start at interfacing. If you don't want to control the world with your TRS-80 then you can use the same basic port control to give you software control of a speed-up mod. or inverse video mod. If you want more information on building the circuits then give me a ring.

by Peter Mooney

In the next REM-80, if Melvyn can find space, I will explain a bit about the RS 232 interface and the workings of Modems. In the meantime have fun !!

WORD COUNTING

By Peter Tootill

051. 428. 2733

```
10  REM ***** Downloaded from Liverpool Mailbox *****
15  REM ***** Written by Peter Tootill          *****
20  REM ***** For NEC PC 8201/Tandy Model 100
30  GOSUB 150
40  A$=INPUT$ (10,#1)
50  P%=INSTR(%P+1,A$," "):IF P% THEN W%=W%+1:GOTO50
60  Z%=Z%+1:IF EOF(1)THEN 70 ELSE 40
70  PRINT"Length - ";10*Z%;" Words - ";W%
80  END
90  IF ERR=54 THEN RESUME 70 ELSE IF ERR=52 THEN RESUME 110 ELSE
    RESUME 120
100 ' **  Error handling routine
110 PRINT"File does not exist":FILES:GOTO170
120 PRINT"ERROR ";ERR;" at line ";ERL
130 STOP
140 ' **  Initial setting up, getting variables etc.
150 PRINT"* WORD COUNT * (c) P. Tootill 1984"
160 DIMZ%,W%,A$
170 INPUT"file name";FN$
190 ONERRORGOTO 90
200 OPEN FN$ FOR INPUT AS 1
210 Z%=0:W%=0:P%=0
220 RETURN
230 ' **  To determine file length only, delete line 50, and last
        part of line 70
240 ' **  The value of 10 in line 40 is a compromise between speed
        and accuracy. A value of 1 would give exact length but
250 ' **  slows execution down considerably. Values higher than 10
        speed things up a little.
```

MIX TEXT AND GRAPHICS

By Barry Steward.

The program listing below will allow you to mix text and graphics on the MODE 4 screen. It is written in assembly language using the EDTASM+ ROM PAK from Tandy but may be used with other assemblers. One peculiarity of the Tandy assembler is that you need to enter each FDB on a seperate line. To save space the listing below has been condensed and each four digits seperated by a comma. Please remember that each four digits requires a new FDB line.

The short Basic program shows how to use the program to print text (upper & lower case) and graphics on the same screen. The program has been tested and may be used on both the Tandy Colour and the Dragon 32.

If you would prefer not to tap the program in but to receive it on cassette it is available from the colour library.

TCOPY

```
100         ORG   0
110TCOPY    PSHS  Y
120         LDX   £5400              * TEXT SCREEN POINTER
130         STX   TPOS,PCR
140         LDX   $BA                * GRAPHICS SCREEN POINTER
150         STX   GPOS,PCR
160         LDA   £16                * ROW LOOP:16 LINES ON SCREEN
170         STA   ROW,PCR
180RLOOP    LDA   £32                * COLUMN LOOP:32 CHRS.A LINE
190         STA   COL,PCR
200                                  * GET TEXT CHARACTER
210CLOOP    LDX   TPOS,PCR
220         LDA   ,X
230                                  * CHR MUST BE LESS THAN 128
240         ANDA  £127               * 01111111 IN BINARY
250                                  * TRANSLATE 128 CHR TO 96 CHR
260         CMPA  £96
270         BLT   OK
280         SUBA  £64
290                                  * INCREMENT POINTER
300 OK      LEAX  1,X
310         STX   TPOS,PCR
320                                  * SET X REG TO TABLE ENTRY
330         LDB   £12
340         MUL                      * D=A*12
350         LEAX  TABLE,PCR
360         LEAX  D,X                * X=TABLE+D
370                                  * COPY 12-BYTE CELL TO SCREEN
380         LDY   GPOS,PCR
390         CLRB
400                                  * GET ENTRY FROM TABLE
410 LOOP    LDA   B,X
420                                  * EXC -OR- WITH GRAPHICS CELL
```

MIX TEXT AND GRAPHICS

```
430             ...     ,Y
440             STA     ,Y
450             LEAY    32,Y
460             INCB
470             CMP     £11
480             BLE     LOOP
490                                     * NEXT COLUMN
500             LDX     GPOS,PCR
510             LEA     1,X             * GPOS=GPOS+1
520             STX     GPOS,PCR
530             DEC     COL,PCR
540             BNE     CLOOP
550                                     * NEXT ROW
560             LDX     GPOS,PCR
570             LEA     352,X
580             STX     GPOS,PCR        * GPOS=GPOS+352
590             DEC     ROW,PCR
600             BNE     RLOOP
610                                     * RETURN
620             PULS    Y
630             RTS
640                                     * VARIABLE STORAGE
650                                     * Pointers
660 GPOS        RMB     2
670 TPOS        RMB     2
680                                     * Counters
690 ROW         RMB     1
700 COL         RMB     1
710                                     * CHARACTER TABLE
720 TABLE       EQU     *
730             FDB     $0000,$0020,$1008,$0000,$0000,$0000 * ACCENT GRAVE
740             FDB     $0000,$0000,$001C,$021E,$221D,$0000 * a
750             FDB     $0000,$0020,$202C,$3222,$223C,$0000 * b
760             FDB     $0000,$0000,$001E,$2020,$201E,$0000 * c
770             FDB     $0000,$0001,$011D,$2321,$211F,$0000 * d
780             FDB     $0000,$0000,$001C,$223C,$201C,$0000 * e
790             FDB     $0000,$000C,$1210,$3810,$1010,$0000 * f
800             FDB     $0000,$0000,$0000,$1C22,$221E,$021C * g
810             FDB     $0000,$0020,$202C,$3222,$2222,$0000 * h
820             FDB     $0000,$0008,$0018,$0808,$081C,$0000 * i
820             FDB     $0000,$0000,$0400,$0404,$0404,$1408 * j
830             FDB     $0000,$0020,$2024,$2830,$2824,$0000 * k
840             FDB     $0000,$0018,$0808,$0808,$081C,$0000 * l
840             FDB     $0000,$0000,$0034,$2A2A,$2A22,$0000 * m
850             FDB     $0000,$0000,$002C,$1212,$1212,$0000 * n
860             FDB     $0000,$0000,$001C,$2222,$221C,$0000 * o
870             FDB     $0000,$0000,$003C,$2222,$223C,$2020 * p
880             FDB     $0000,$0000,$001E,$2222,$221E,$0202 * q
890             FDB     $0000,$0000,$002C,$3220,$2020,$0000 * r
900             FDB     $0000,$0000,$001C,$201C,$023C,$0000 * s
910             FDB     $0000,$0010,$1038,$1010,$110E,$0000 * t
920             FDB     $0000,$0000,$0024,$2424,$241A,$0000 * u
```

MIX TEXT AND GRAPHICS

```
930       FDB   $0000,$0000,$0022,$2214,$1408,$0000 * v
940       FDB   $0000,$0000,$0022,$222A,$2A14,$0000 * w
950       FDB   $0000,$0000,$0022,$1408,$1422,$0000 * x
960       FDB   $0000,$0000,$0022,$2222,$221E,$023C * y
970       FDB   $0000,$0000,$003E,$0408,$103E,$0000 * z
980       FDB   $0000,$0004,$0808,$1008,$0804,$0000 * L. ELLIPSIS
990       FDB   $0000,$0008,$0808,$0008,$0808,$0000 * VERT. BAR
1000      FDB   $0000,$0010,$0808,$0408,$0810,$0000 * R. ELLIPSIS
1010      FDB   $0000,$0000,$122C,$0000,$0000,$0000 * TILDE
1020      FDB   $0000,$0014,$2A14,$2A14,$2A14,$0000 * DEL
1030      FDB   $0000,$0000,$0000,$0000,$0000,$0000 * BLANK
1040      FDB   $0000,$0008,$0808,$0808,$0008,$0000 * !
1050      FDB   $0000,$0014,$1414,$0000,$0000,$0000 * "
1060      FDB   $0000,$0014,$143E,$143E,$1414,$0000 * £
1070      FDB   $0000,$0008,$1E20,$1C02,$3C08,$0000 * $
1080      FDB   $0000,$0032,$3204,$0810,$2626,$0000 * %
1090      FDB   $0000,$0010,$2828,$102A,$241A,$0000 * &
1100      FDB   $0000,$0018,$1818,$0000,$0000,$0000 * '
1110      FDB   $0000,$0004,$0810,$1010,$0804,$0000 * (
1120      FDB   $0000,$0010,$0804,$0404,$0810,$0000 * )
1130      FDB   $0000,$0008,$2A1C,$1C2A,$0800,$0000 * *
1140      FDB   $0000,$0000,$0808,$3E08,$0800,$0000 * +
1150      FDB   $0000,$0000,$0000,$0000,$0808,$1000 * ,
1160      FDB   $0000,$0000,$0000,$3E00,$0000,$0000 * -
1160      FDB   $0000,$0000,$0000,$0000,$1818,$0000 * .
1170      FDB   $0000,$0002,$0204,$0810,$2020,$0000 * /
1180      FDB   $0000,$0018,$2424,$2424,$2418,$0000 * 0
1190      FDB   $0000,$0008,$1808,$0808,$081C,$0000 * 1
1200      FDB   $0000,$001C,$2202,$0C10,$203E,$0000 * 2
1210      FDB   $0000,$001C,$2202,$0C02,$221C,$0000 * 3
1220      FDB   $0000,$0004,$0C14,$243E,$0404,$0000 * 4
1230      FDB   $0000,$003E,$203C,$0202,$221C,$0000 * 5
1240      FDB   $0000,$000E,$1020,$3C22,$221C,$0000 * 6
1250      FDB   $0000,$003E,$0204,$0810,$2020,$0000 * 7
1260      FDB   $0000,$001C,$2222,$1C22,$221C,$0000 * 8
1270      FDB   $0000,$001C,$2222,$1E02,$0438,$0000 * 9
1280      FDB   $0000,$0000,$0000,$0800,$0800,$0000 * :
1290      FDB   $0000,$0000,$0000,$0800,$0808,$1000 * ;
1300      FDB   $0000,$0004,$0810,$2010,$0804,$0000 * <
1310      FDB   $0000,$0000,$003E,$003E,$0000,$0000 * =
1320      FDB   $0000,$0010,$0804,$0204,$0810,$0000 * >
1330      FDB   $0000,$001C,$2204,$0808,$0008,$0000 * ?
1340      FDB   $0000,$001C,$2202,$1A2A,$2A1C,$0000 * @
1350      FDB   $0000,$0008,$1422,$223E,$2222,$0000 * A
1360      FDB   $0000,$003C,$1212,$1C12,$123C,$0000 * B
1370      FDB   $0000,$001C,$2220,$2020,$221C,$0000 * C
1380      FDB   $0000,$003C,$1212,$1212,$123C,$0000 * D
1390      FDB   $0000,$003E,$2020,$3820,$203E,$0000 * E
1400      FDB   $0000,$003E,$2020,$3820,$2020,$0000 * F
1410      FDB   $0000,$001E,$2020,$2622,$221E,$0000 * G
1420      FDB   $0000,$0022,$2222,$3E22,$2222,$0000 * H
1430      FDB   $0000,$001C,$0808,$0808,$081C,$0000 * I
1440      FDB   $0000,$0002,$0202,$0202,$221C,$0000 * J
```

```
1450        FDB   $0000,$0022,$2428,$3028,$2422,$0000 * K
1460        FDB   $0000,$0020,$2020,$2020,$203E,$0000 * L
1470        FDB   $0000,$0022,$362A,$2A22,$2222,$0000 * M
1480        FDB   $0000,$0022,$322A,$2622,$2222,$0000 * N
1490        FDB   $0000,$001C,$2222,$2222,$221C,$0000 * O
1500        FDB   $0000,$003C,$2222,$3C20,$2020,$0000 * P
1510        FDB   $0000,$001C,$2222,$222A,$241A,$0000 * Q
1520        FDB   $0000,$003C,$2222,$3C28,$2422,$0000 * R
1530        FDB   $0000,$001C,$2210,$0804,$221C,$0000 * S
1540        FDB   $0000,$003E,$0808,$0808,$0808,$0000 * T
1550        FDB   $0000,$0022,$2222,$2222,$221C,$0000 * U
1560        FDB   $0000,$0022,$2222,$1414,$0808,$0000 * V
1570        FDB   $0000,$0022,$2222,$2A2A,$3622,$0000 * W
1580        FDB   $0000,$0022,$2214,$0814,$2222,$0000 * X
1590        FDB   $0000,$0022,$2214,$0808,$0808,$0000 * Y
1600        FDB   $0000,$003E,$0204,$0810,$203F,$0000 * Z
1610        FDB   $0000,$001C,$1010,$1010,$101C,$0000 *
1620        FDB   $0000,$0020,$2010,$0804,$0202,$0000 * SHIFT CLEAR
1630        FDB   $0000,$001C,$0404,$0404,$041C,$0000 *
1640        FDB   $0000,$0008,$1C2A,$0808,$0808,$0000 * UP ARROW
1650        FDB   $0000,$0000,$0810,$3E10,$0800,$0000 * BACK ARROW
6550        END   TCOPY
```

```
10 ' DEMO PROGRAM FOR USE WITH TCOPY
20 '  TO STOP BASIC FROM RETURNING TO THE TEXT SCREEN AS IT EXECTUES A
PRINT STATEMENT  *** POKE 359,57
30 ' TO RETURN TO NORMAL PRINT OPERATION  *** POKE 359,126
40 ' ************************************************************
50 CLEAR20,30000
60 CLOADM"TCOPY",30000:'FOR 32K
70 PMODE4,1:PCLS
80 DEFUSR0=30000
90 CLS
100 '
110 PRINT"CODES 0-255 POKED INTO MEMORY"
120 FOR I=0 TO 255
130 POKE&H420+I,I
140 NEXT I
150 '
160 PRINT@320,"USING THE CHR$-FUNCTION:"
170 FOR I=32 TO 127
180 PRINTCHR$(I);
190 NEXT I
200 'DISPLAY SOME GRAPHICS
210 LINE(0,0)-(255,191),PSET,B
220 SCREEN1,0
230 CIRCLE(127,85),30,1,.8046
240 PAINT(127,85),1
245 CIRCLE(127,85),80,1,.8046
260 'CALL TCOPY
280 X=USR0(0)
290 'FLIP BACK AND FORTH BETWEEN SCREENS
300 IF INKEY$<>""THEN SCREEN0,0 ELSE 300
310 IF INKEY$<>""THEN SCREEN 1,0 ELSE 310
320 GOTO 300
```

COLOUR LIBRARY NOTES - April 1984

Following the A.G.M. we have now taken over the Colour Library. We would like to thank Barry Steward for his help in this, and to put on record our pleasure in finding the library in such TRS80-pie order.

The Colour Library has not been well used of late, but at the A.G.M. there was clearly a strong feeling that it should not be allowed to die. As past customers of the library we can think of various reasons for this history. We think that £2.00 per tape borrowed does not seem to be great value, and that the library suffers from lack of variety. This is of course a chicken and egg situation - funds from hiring fees will provide the extra software, eventually. At last Tandy have uprated the Co-Co and got their pricing policy more or less on a par with Dragon. What's more, they are selling off the older models at bargain prices. (Mercifully, the MC-10 is being quietly buried.) Already this has resulted in more members with Tandy machines - and, we hope, more demand for a Colour Library.

The future health of the Colour Library is very much in the Members' hands - use it and it will flourish. We hope the following announcements will result in the hoped for increased level of activity:-

(a) For a trial period we are HALVING the hire charge to only £1.00 per tape.

(b) Where a Dragon program can be converted to Tandy format or vice-versa, we will supply the necessary conversion program FREE. This is the program written by Barry Steward and John Taylor.

(c) We now have in the Library, thanks to one or two generous members, fifteen high quality commercial programs, mainly arcade games.

On this last point, we would be DELIGHTED to receive more such donations, especially of Co-Co programs and,if possible, of a more serious nature than arcade games, so that we can offer the widest possible choice. We would also very much appreciate tapes of members' home-grown programs. If you have anything to offer please phone without delay!

One other request - we intend to spend library money on new software as soon as funds become available, and we would like to hear YOUR suggestions for additions to the library. Incidentally, supposing, for instance, Telewriter was purchased for £50 or whatever it costs, I hardly think it would make sense to hire it for a mere £1.00 per month.

Please direct your donations/requests/comments to:-

Laurie or Adrian Bradshaw on Horwich (0204) 67023 or
342 Manchester Road
Blackrod
BOLTON

DIRECT VIDEO INTERFACING

By John Taylor

It is becoming common practice for video tape recorders and home computer manufacturers to provide video output as well as RF output sockets on their equipment. Although the picture quality is reasonable using the RF output, a direct video output connection will give a far better definition.

By introducing a RF modulator into the computer the composite video signal can be superimposed onto a vision carrier and driven into the TV aerial socket. When the signal reaches the TV RF amp, a down conversion is carried out by the UHF tuner giving a 39.5Mhz IF signal. Further amplification is carried out, followed by a detector to re-extablish the original video signal. Processing the video signal in this way can give some undesirable side effects.

e.g.

1. Patterning due to intermodulation products in the RF modulator, and TV tuner.
2. Reduced definition as a result of bandwidth limitations in the signal processing and detection circuits.

Direct video interfacing can overcome these problems, so here is a simple modification for direct video and still maintain normal off air facilities. The modification is designed to be used on the Thorn TX9 chassis, but should run to any TV using the same, or similar processing circuits.

To convert the set to a video/sound monitor, the receiver must first be fitted with a mains isolating transformer, 240-240v MAINS ISOLATING TOROIDIAL TRANSFORMER. This can be fitted inside the cabinet, or the rear cover.

The video/sound interface board may be fitted to the spare blank panel in the receivers back cover. A bracket may be amde to support the PCB and to form a metal panel for mounting the input sockets.

Button 6 on the channel selector is already marked AV (audio/visual) and may be used to change over to video monitor. The normal function of the button, apart from channel selecting, is to switch a 12v supply via R207 to pin 9 of the TDA9503 sync IC. This alters the T/C providing sync correction for the VCR's. by using this 12v feed it is possible to electronically switch to video.

To maintain the VCR input facility with UHF input, spare AV contacts on button 5 should be wired as shown. This means that button 5 now takes on the previous function of button 6.

Sound is carried via the interface board to unused connections on the sound IF and audio output IC - TDA10355.

IT IS DANGEROUS TO PLAY WITH TV'S ANY QUESTIONS CONTACT JOHN. (ED)

DIRECT VIDEO INTERFACING

There are two versions of the TX9 chassis at present in production. The early version is fitted with a NEC Luma-Chroma processor - uPC1365C. This chassis is code 1001. The later version is fitted with a Mullard processor - TDA3560 and is coded 1040.

Interface details are given for both where differences occur. The complete circuit of the interface should be contained on a single PCB. Connections to the board are also shown, be sure to use 75R coax for interconnecting video, and screened cable for audio signals.

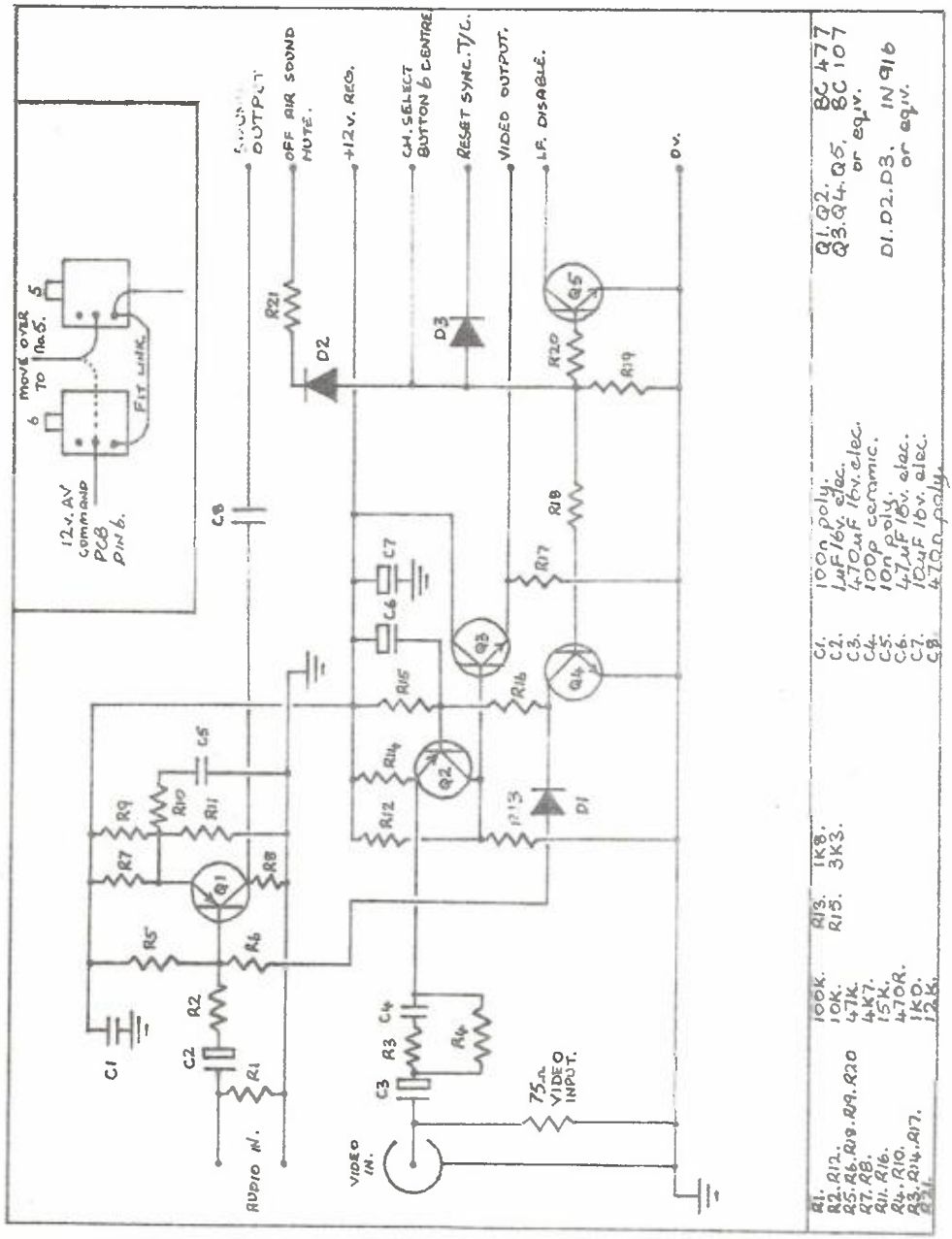
The modifications may proceed in the following order :-

1. Fit the mains isolating transformer.
2. Remove the wire from the centre pin of No.6 channel selector and connect it to the centre pin of the channel 5 button.
3. Fit a link wire between the rear of No.6 channel selector and the rear pin of No.5 channel selector, leaving the existing wire in place.
4. Attach suitable length leads to the PCB noting the colours used as an aid to identification.
5. Fit the PCB to the bracket and fit the assembly to the rear cover.
6. Connect board-pin 6 lead to the centre pin of No.6 channel selector.
7. Pin 3 of the sound IC (IC53) should be disconnected from ground, either cut the PC track, or unsolder and bend the pin out and clear of the PCB.
8. Connect the audio output cable to (IC53) pin 7. The braiding need not be connected at the IC end.
9. Connect the video output cable to SAW IF 4/8.
10. Connect all other leads to the receiver PCB as follows : Off air sound mute, (IC53) pin 2. Reset sync T/C AV, PL6.1 (1040), PL5.9 (1001). +12v regulated, PL5.8 IF disable, PL6.10 (1001), PL6.8 (1040). 0v to PL5.11 or other convenient point.
11. Dress the wires and clip them neatly together to form a cable loom. All leads which are connected to the underside of the RX PCB may be routed through an existing hole near to IC53.

To assist in wiring the channel select buttons, two screws may be remmoved from the rear of the front panel to allow the panel to drop out, making it easier to work on.

Acknowledgements :-
M.T.Crampton/J.L.Wood, British Amateur TV Club, & Thorn EMI Ferguson.

IT IS DANGEROUS TO PLAY WITH TV'S ANY QUESTIONS CONTACT JOHN. (ED)



R1.	100K.	R13.	1K8.	C1.	100n poly.
R2. R12.	10K.	R15.	3K3.	C2.	1μF 16v. elec.
R5. R6. R9. R10. R20	47K.			C3.	470μF 16v. elec.
R7. R8.	4K7.			C4.	100p ceramic.
R11. R16.	15K.			C5.	10n poly.
R4. R10.	470R.			C6.	47μF 16v. elec.
R3. R14. R17.	1KΩ.			C7.	10μF 16v. elec.
R21.	12K.			C8	470n poly.

Q1. Q2. BC 477
Q3. Q4. Q5. BC 107
or equiv.

D1. D2. D3. IN 916
or equiv.

BASIC PITFALLS

by Gag Halfrunt (Republished from REM 80 Nov 1980)

Here are a few mistakes various people have made on their TRS-80s over the period the Group has been in existence. Some of them are quite subtle, so don't get caught out.

Now for the problems , answer them all yes or no then check to see if you got them all right

1)a :

After this program has been run, the numbers 1-9 will be on the screen.

```
10 FOR X=1 TO 9
20 PRINT @ X,X
30 NEXT X
```

b :

After this program has run, the numbers 1-9 will be seen on the screen.

```
10 FOR X=9 TO 1 STEP-1
20 PRINT @X,X
30 NEXT X
```

2)a :

The program will print "DIFFERENT".

```
10 A$="A":B$="B"
20 IFA$=B$PRINT"SAME"ELSEPRINT"DIFFERENT"
```

b :

The program below will print "DIFFERENT".

```
10 A$="A"
20 IF A$="B"PRINT"SAME"ELSEPRINT"DIFFERENT"
```

3)a :

This program will print "SAME" for any letter, number or symbol you type.

```
10 PRINT"HI ANY LETTER,NUMBER OR SYMBOL"
20 A$=INKEY$:IFA$=""THEN20
30 K=ASC(A$)
40 IFA$=CHR$(K)PRINT"SAME"ELSEPRINT"DIFFERENT"
```

b :

This program will display any letter, number or symbol you type.

```
10 PRINT"HIT ANY NUMBER , LETTER OR SYMBOL"
20 A$=INKEY$:IFA$=""THEN20
30 K=ASC(A$)
40 PRINT"YOU HIT THE ";CHR$(K);" KEY"
```

4)

This program will print "SAME".

```
10 A$="5"
20 IFA$=STR$(VAL(A$))PRINT"SAME"ELSEPRINT"DIFFERENT"
```

5)

The program below will print "HI THERE".

```
10 CLS:PRINTCHR$(23)
20 PRINT @ 451,"HI THERE"
30 GOTO 30
```

SOLUTIONS TO BASIC PITFALLS

1)a : NO. Only "9" will be seen on the screen because each digit is printed with a leading blank representing the "+" sign. Each blank destroys the number printed previously. Conversion to string variables will fix this. Change line 20 to :-

```
20 PRINT @ X,RIGHT$(STR$(X),1)
```

b : NO. Only "1" will be seen as all numbers are printed with a trailing blank. The change in "a" could be used or simpler still would be :-

```
20 PRINT @X,STR$(X);
```

2)a : YES.

b : NO. Nothing will be printed. In order to make the program work a blank must be inserted after "B" in line 20 (inserting THEN will also work). It's the quotation mark that fouls things up not the print statement. The following program won't work either.

```
10 A$="A"
20 IFA$="B"GOTO40ELSEPRINT"DIFFERENT"
30 END
40 PRINT"SAME"
```

3)a : YES.

b : NO. The down, left and right arrows will not be printed (the up arrow will be). To correct this check the ASCII values below

Symbol typed	ASCII you get	ASCII you want
Left arrow	8	93
Right arrow	9	94
Down arrow	10	92
Up arrow	91	91

In order to get the correct characters displayed insert the following line 35.

```
35 IF K<11 THEN K=91+K-INT((K-1)/3)*3
```

4) NO. "DIFFERENT" will be printed. VAL(A$) puts a blank, representing the "+" sign in front of the 5. "SAME" will be printed if line 20 is changed to :-

```
20 IF " "+A$=STR$(VAL(A$))PRINT"SAME"
```

5) NO. Nothing will be printed. PRINTCHR$(23) shifts to the large character mode. In this mode you may use only even numbers for the location after PRINT@. To make the program work change 451 in line 20 to 450 or 452.

Now add up your score, 1 for each correct full answer.

Your Score	Your rating
0	I suggest you read your Level II manual again
1	Fair, but you could do some reading
2-3	Good
4	Very good
5	I think you aught to call Melvyn and become our resident program problem specialist.

COCO RAM-ROM

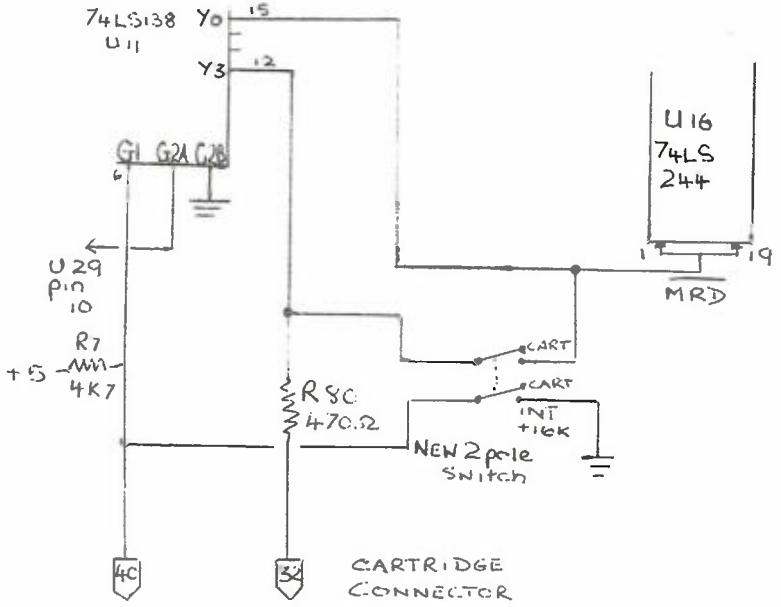
By Paul Naggs

I was toying with the idea of a plug in RAM pack for the TRS-80 Colour Computer, when an idea struck me. If one has a 32K Colour Computer with 64K RAM devices, it should be possible to use the cartridge addresses, Hex C000 - FF00, when a cartridge is not in use to access the unused portion of the RAM chips at these addresses.

A circuit idea is shown below, but I must stress that I have not tried this idea out, as I haven't got 64K chips yet. This is just a suggestion for the adventurous experimenter!! If anyone does get it to work I'd be glad to hear from them.

Obviously, the new switch must be returned to the CART position before using a ROM pack, but once this is removed, throwing the switch should make a total of 48K available without software drivers.

I hope it works!!!



Knot Komputing

Lambert House,
Brook Street, Glossop,
Derbyshire SK13 8BG
Phone Glossop 4748
VAT. 373 4223 63

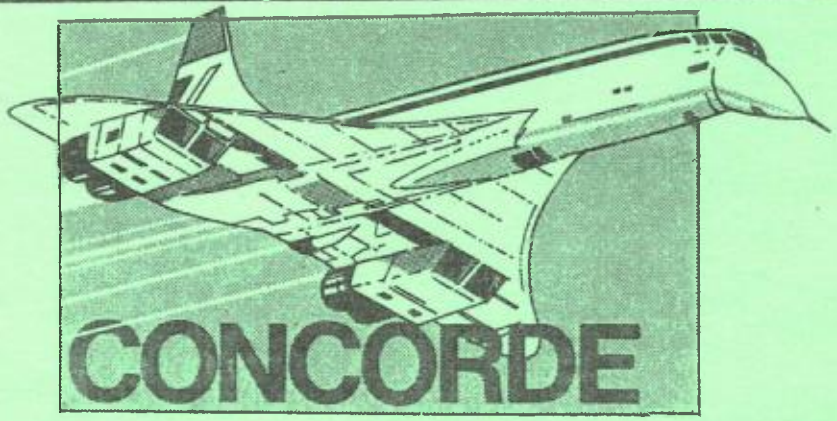
PRICE LIST AS OF 1st February 1984.

SPECIFICATION	Basic + VAT + Delivery :::	BASIC PRICE
N.E.C 8201 Portable Computer - 32K ROM,16K RAM standard, can be expanded to 64K ROM,64K RAM internally + extra 32K RAM plug in to give 96K RAM total. Screen 40x8, Ports incl, RS-232C, Centronics, Cassette, BCR etc. Your Ultimate Portable.	570.00	475.00.
KESTREL - 48K: Computer with two built-in 40 track double-sided ultra slim disk drives, with centronics printer port. Runs Tandy I programs, and housed in steel case designed to take either a printer or monitor on top.	983.00	825.00.
Epson FX 80 160 cps	521.00	438.00.
Epson MX 100 FT/3 100 cps	594.00	499.00.
Shinwa CTI CP80 80 cps	344.00	289.00.
Star 510 100 cps	344.00	289.00.
Juki 6100 daisy-wheel 18 cps	475.00	399.00.
CANON 5.25" 40 track 2/3 height Disk Drive.		
Single, Single Side	217.00	179.00.
Double Side	265.00	219.00.
Twin, Single Side	412.00	340.00.
Double Side	490.00	405.00.
Disk & Printer Interface + Drive in one Unit.		
Single, Single Side	278.00	230.00.
Double Side	327.00	270.00.
Wizard Interface for Colour Genie	120.00	99.00.
DOS for above	43.00	35.00.
48k Expansion for tandy model I on keyboard	56.00	44.00.
48k Expansion for V G on keyboard	56.00	44.00.
fitting for above 48K onto your keyboard	+ post	11.50.
Disk & Printer Interface DP1000T (tandy)	104.00	86.00.
Disk & Printer Interface DP1000V (genie)	104.00	86.00.
Disk Drive & Cassette leads	various.	
Doubler for above Interface	84.00	72.00.
Splitter Cable for joystick, ROMs etc(T or G)	19.00	16.00.
Plug in feature ROMs	23.00	19.00.
* ROM A: keyboard invert, key repeat, single key commands, flashing cursor, M/c code Mon & Edit, System load & save.		
* ROM B: keyboard invert,line renumber,single key commands, cursor flash, basic program merge, basic program compress.		
Box of 10 Disks SS.SD	19.00	16.00.
Box of 10 Disks SS.DD	23.00	19.00.
Box of 9.5" Paper	17.00	12.00.
DRAGON Software	various.	

Software News

INNOVATIVE TRS 80-GENIE SOFTWARE

from the professionals



Concorde is the newest addition to our ever increasing stable of precise simulations. As its name implies, it is a simulation of flying the Concorde supersonic aircraft, and it comes from the pens of John Taylor and Frank Avery who wrote Jumbo, which we published some year ago or so. Preceding Jumbo we published Shuttle, a simulation of the Columbia space flights, and after Jumbo we introduced Airbus. When we did the write-up on Airbus we indicated that, whereas Jumbo went the route of displaying maps in order to assist the user to progress from A to B, Airbus used radio navigation instruments and so, therefore, was somewhat more difficult to fly. Concorde follows the route that Messrs Taylor and Avery took in Jumbo in providing a map — in this case essentially of the Atlantic in that airports are supplied at London, New York, Paris, Washington, Gander and Shannon. Indeed, it is fair to say that Concorde follows Jumbo in appearance quite closely. As may be expected from a supersonic aircraft, however, the feel and flying of the aircraft is entirely different.

Concorde follows the original aircraft just about as closely as it is possible to get. The famous droop snout is simulated as also is re-heat in the engines, which is necessary not only to get the aircraft off the ground, but also to progress from subsonic to supersonic flight. The authors have sent us screen printouts which show that it is possible, in the simulation, to fly from London to New York in about two hours fifty minutes. In order to achieve such an excellent result, however, Concorde has to be flown pretty well by the numbers and with a great deal of care. It is of the greatest importance in flying the aircraft that one progresses from subsonic to supersonic at the right time and that the re-heat facility is used correctly. Re-heat inserts raw fuel into the jet subsequent to the original combustion. It literally gulps fuel down. If you do not use it carefully, you could well arrive many miles short of New York and be out of fuel.

There is no doubt that flying Concorde requires a far lighter touch than did flying Jumbo and this, of course, as with all of our simulations, is a reflection of the real life situation. Consequently, Concorde includes not only the normal control for the elevators, ailerons and throttle, but also provision for fine control. A list of the controls are as follows. Remember that those just mentioned have the additional facility of a fine adjustment.

Elevators	Elevators up	Elevators down	Elevators zero
Ailerons up	Ailerons down	Ailerons zero	Throttles increase
Throttles decrease	Auto throttle	Re-heat on	Re-heat off
Ground brakes & air brakes	Reverse thrust	Droop nose up	Droop nose down
Undercarriage up	Undercarriage down	Stop watch	Cruise climb selection
Map	Practice approach	Autocouple*	Abort flight
Time skip minutes	Time skip hours		

* Not yet incorporated. Expected release to registered owners late 1983.

The instruments provided on Concorde are as follows:

Distance to go	Bearing to destination	Time
Fuel remaining	Altimeter	Vertical speed indicator
Outside air temperature	Aircraft skin temperature	True airspeed
Nose position*	Undercarriage status*	Minimum permitted airspeed
Acceleration/Deceleration	Indicated airspeed	Maximum permitted indicated airspeed
Mach number	Elevator position†	Aircraft attitude†
Angle of attack of the wings	Turn indicator	Compass†
Aileron position indicator†	Power setting	Throttle indicator†
Auto throttle on/off indicator	Artificial horizon†	

†Graphical instrument representation.
* Replaced by other information after take off.

As is obvious from the above, Concorde is a mammoth program and for those customers who have already purchased Jumbo, provides a very interesting comparison.

Concorde is available for disk or tape for the Tandy Model I, III and 4 (in Model III mode), the Video Genie, Genie I and Genie II.

Concorde (Tape) ..... £15.00 plus VAT £17.25
Concorde (Disk) ..... £17.00 plus VAT £19.55
P & P 75p

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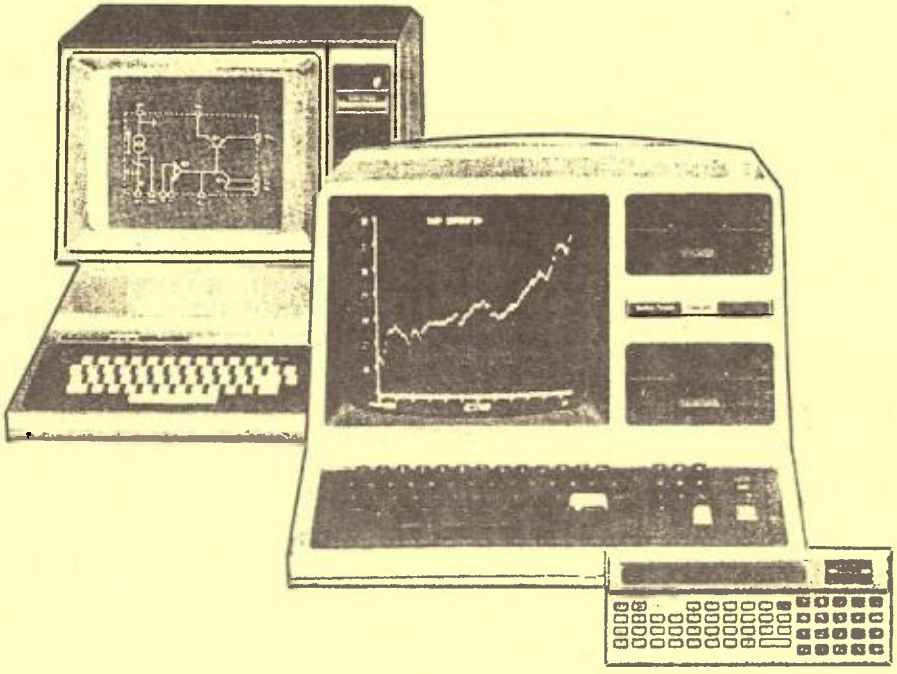
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TRS-80 & VIDEO GENIE SOFTWARE CATALOGUE £1.00 plus £1 postage.

Excelsior Press Ltd., 1 Market Street, Westhoughton.

DECIMAL POINTS BEEB PSEUDO-RANDOM NUMBER GENERATOR JULY 1984

REM 80



The North West TRS 80 Users Group

Read 5 July '84

Volume 6 Issue 3

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EDITORIAL

I should like to remind members that there are only three more issues of this years newsletter, so to ensure your entry into this years Costello Shield awards please let me have your programs and articles as soon as possible, especially for the next issue of the newsletter as it is the holiday period and we may have to go to press earlier than normal.

I should like to thank ALL those who have contributed to this months newsletter.

Till next time ....

Carolyn

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Any articles or programs for inclusion in this Newsletter must be addressed directly to the Editor, preferably on cassette, disk or uploaded, (all normal communication protocols are acceptable), at the following address :-

40, COWLEES,
WESTHOUGHTON,
BOLTON,
BL5 3EG
Tel ... 0942-812843

) instead of REM takes 2 bytes more.

****
** ACTIVITIES PAGE **
** By Brian Disley **
****

I would like to thank everyone for participating in the SALE OF THE CENTURY! at the last meeting I am sure most of you found it very enjoyable as I did, I hope the members who purchased goodies are happy with them, I am sure most of you will agree there were some real bargains almost given away by our super salesman Mr. plus VAT Costello. (Your cheque is in the post Steve!)

>> Systems Meeting and Problem Clinic JULY 25th <<

Members are invited to bring along their systems to this meeting so that they can show off a particular program or bit of hardware or even if you are a beginner bring your system along and get some help from our many expert members. If you do require any help with anything I will be only to happy to help you get the help you need, I would like to ask our expert members to be available at this meeting to help with any problems.

I would like to remind members intending to bring along their systems to bring extension leads and adaptors as there are a limited number of 13Amp outlets available.

>> August 29th Interfacing <<

Peter Mooney has again been voluntered to continue his very interesting chat about interfacing, as Peter so well explained in his last chat it is easier than you might expect, and with a bit of luck and persuasion we hope to follow this up with an article in the newsletter issued at this meeting. I would suggest you attend this meeting even if the thought of interfacing frightens you! as I am sure you will come away with plenty of confidence and ideas as we did at Peter's earlier meeting this year.

****
** MEETING DATES FOR 1984 **
** AT BARTON AERO CLUB **
****

July 25th August 29th September 26th October 31st
November 28th December - to be arranged later.

6809 FORUM

by Barry Steward.

In the last year the computer press has been talking about a major shakeup in the number of firms dealing in either hardware, software or both. There has been good reason to believe that there were just too many different computers in the home/hobby market. Many of them having been rushed onto the supermarket shelves in time for two bumper computer christmases in a row.

Sales of home/hobby computers this year have slumped and several well known makers have dropped out of the market. Texas Instruments and Atari are the best known names. Both lost large amounts on home computers and no longer make or sell them whilst at the cheap end of the business market the Osborne One has made it's producer bankrupt.

Nearer to home our own Dragon has seen troubled times and now under the G.E.C. banner we hear that new models are soon to be announced. (We have heard, since Barry wrote this article, that GEC have called the receivers into Dragon Data. Ed.). Tandy took so long to sell of existing stocks of the series one Colour Computer even at greatly reduced prices that it became an embarrassment. Timex have dropped the Sinclar Spectrum in the States and what became of the Colour Genie?

The shakeup has reached the software side as well only here the blame is laid on piracy rather than a slump in the market. The problems of the software publisers are the point of what is written above.

A few months ago I listed some of the American magazines for the Colour Computer and where they may be obtained. Since then there have been a number of changes which I shall now try to tell you about.

Elkan Electronics of Prestwich no longer supply American magazines either single copies or by subscription. Microdeal supply CoCo Cassette a monthly tape magazine for the Color Computer and this is now the only American magazine for the Colour Computer that can be obtained from a source in the country.

Colour Computer News ceased to publish in the autumn of 1983 and Cload who publish Chromassette are to cease trading with April 1984 being the last month for the publication of Chromassette.

6809 FORUM

The three remaining monthly American magazines devoted to the Colour Computer are - The Rainbow, which costs $65 per year from P. O. Box 209, Prospect, KY 40059. Colour Computer Magazine, costing $34 per year from Highland Mill, Camden, ME 04843. Hot Coco, which is the colour spin off from 80-Micro, costs $45 per year from P. O. Box 975, Farmingdale, NY. 11737.

After all that allow me to tell you a fairy story! Many years ago in a far off land lived a king who was having trouble with a nagging queen and riotous peasants. He commanded the courts wizard to build a device with which he could control both. The wizard spent many hours bent over his Colour Computer (or was it a Dragon) to find a solution and save himself from the kings dungeons. The program listed below shows the results of his labour and the consequences of its use. A fun graphics program for either the Tandy Colour or the Dragon.

Have fun till next time, Barry.

```
10 CLS4:PRINT@128,"COLOUR CAD"
15 PRINT@224,"THE IMPOSSIBLE OBJECT"
20 FOR X=1 TO 999:NEXT X
30 CLS3:PRINT@192,"GOOD THINGS..."
40 PRINT@256,"COME IN SMALL BOXES":FOR X=1 TO 999:NEXT X
50 PMODE 4,1
60 GOTO 730
70 PCLS0:SCREEN 1,1
80 FOR Z=1 TO 8
90 IF Z=8 THEN FOR Z=8 TO 4 STEP -1
100 PCLS0
110 S$="S"+STR$(Z)+";"
120 DRAW S$+";BM100,100 U30 NR30 E15 R30 NG15 D30 G15 NU30 L30
130 FOR X=1 TO 120:NEXT X
140 NEXT Z
150 FOR X=1 TO 400: NEXT X
160 PCLS:DRAW"BM100,100 U30 NR30 E20 R30 G20 D30 NL30 F20 L30 H20"
170 LINE(100,100)-(70,95),PSET
180 LINE-(70,65),PSET
190 LINE-(100,70),PSET
200 LINE(70,95)-(40,65),PSET,B
210 LINE(130,100)-(160,95),PSET
220 LINE-(160,65),PSET
230 LINE-(130,70),PSET
240 FOR X=1 TO 600:NEXT X
250 CLS8:PRINT @ 224,"       KA-BOOM!!!":FOR X=1 TO 200:NEXT X
260 PCLS0:SCREEN 1,1
270 FOR N=1 TO 101 STEP 5:CIRCLE(126,95),N:NEXT N
280 FOR N=101 TO 1 STEP -5:CIRCLE(126,96),N,0:NEXT N
```

6809 FORUM

```
290 PCLS:FOR N=1 TO 50:S=RND(255):SOUND
    S,1:LINE(126,95)-(S,RND(195)),PSET:NEXT N
300 CLS0:PRINT@192,"AS THE DUST SETTLES,"
310 PRINT@256,"THE WIZARD'S WORK IS REVEALD."
320 PRINT@320,"THE ULTIMATE POWER DEVICE!!!":FOR X= 1TO 2000:NEXT X
330 PCLS:DRAW"BM 55,156;R150 U10 BH40 BL10 L140 D10 R125 F20 L125 U10
    R105 F10;BM55,156;U10 R140 BR10 U78 D10 BL10 D68 H40 U28 D28 F40
    BR10 U68 BL10;"
340 CIRCLE(55,151),3,5,2
350 CIRCLE(35,131),3,5,2
360 CIRCLE(15,111),3,5,2
370 DRAW"BM55,78;R140 BR10 U10 H40 L150 D10 R125 F20 L125 U10 R105
    F10;BM55,78;U10 R150
380 DRAW"BM 205,156;U40 C0 U10 C5 R20 H19 F19 U38 R10 L10 H40 D18 U18
    R10 F40 D90 L10 H19 F19 U42 L20;"
390 CIRCLE(55,73),3,5,2
400 CIRCLE(35,53),3,5,2
410 CIRCLE(15,33),3,5,2
420 SCREEN 1,1:PMODE 4,5:PCLS0
430 POKE 65495,0
440 PI=3.14159:Q=1
450 A=-4*PI:B=4*PI:N=360:R=20
460 IF Q>=1 THEN R=R+Q
470 X=(B-A)/N
480 F=255/(B-A)
490 FOR I=A TO B STEP X
500 Y=I*F:Y=R*SIN(I+Q)
510 PSET((X+140),(80+Y),1)
520 NEXT I
530 Q=Q+7
540 CLS0:IF Q=8 THEN PRINT@224,"BEGIN WAVE FORM GENERATION":FOR X=1 TO
    900: NEXT X
550 SCREEN 1,1
560 IF Q>56 GOTO 580
570 GOTO 450
580 POKE 65494,0
590 CLS0:PRINT@224,"WARNING-EXCESSIVE ENERGY LEVEL":FOR X=1 TO 900:
    NEXT X
600 CLS4:PRINT@96,"     ALERT! ALERT!"
610 FOR X=1 TO 5:SOUND 156,3:SOUND 92,2:NEXT X
620 PRINT@128,"THERMAL RUNAWAY CONDITIONS!"
630 PRINT@192,"DEVICE OVERLOAD!!"
640 PRINT@256,"SPONTANEOUS EMISSIONS EXPECTED!"
650 PRINT@320,"DISINTEGRATION ALERT!!!":FOR X=1 TO 2500:NEXT X
660 FOR S= 1 TO 100
670 PMODE 4,1:SCREEN1,1:FOR X=1 TO 50: NEXT X
680 IF S=50 THEN PCLS0:GOSUB 720
690 PMODE 4,5:SCREEN1,1:FOR X=1 TO 50: NEXT X
700 NEXT S
710 GOTO 10
720 FOR N=1 TO 191 STEP 5:CIRCLE(126,95),N:NEXT N:RETURN
730 PCLEAR8:GOTO 70
```

ALIGN YOUR DECIMAL POINT

by J.G.Peasmold.

Many programs, especially those for accountancy purposes, require columns of figures in the output to have the decimal points in line. I have found the following routine to serve the purpose quite well. Be careful, and ensure that you have typed it in with ALL the brackets, one of the normal programming mistakes we all suffer from.

```
10 REM **  'N' IS THE VALUE TO BE PRINTED **
20 REM **  'T' IS TAB POSITION ON LINE    **
30 '
40 IF ABS(N)<1 THEN 70
50 PRINT TAB(T-INT(LOG(ABS(N))/LOG(10)));N
60 GOTO 80
70 PRINT TAB(T);N
80 REM **  CONTINUE REST OF PROGRAM HERE  **
```

The routine works by calculating the characteristic of the normal logarithm of the number and thus the number of places to the left of the decimal point. The value calculated is then subtracted from the normal print position to ensure decimal point alignment.

The ABS function is necessary as you cannot calculate the logarithm of a negative number. The computers LOG function calculates logarithms 'to the base e' ('e' being 2.71, which is mathematcally a very useful number). Division by LOG(10) converts the logarithm to base 10 and INT extracts the characteristic. Line 40 takes care of numbers less than one.

Their negative characteristics move the point to the right column if they enter line 50. Line 40 also deals with the case of 'N' being zero, which would cause an error when an attempt to evaluate LOG(10).

Since positive numbers are printed with leading spaces, there is no need to allow for the space taken by the minus sign required by negative numbers.

The routine is suitable for numbers printed in a normal format, it will not work for numbers in the 'E' format (Exponential) but this should not cause any problems unless you are playing with very very large or very very small numbers.

TALKING TO THE BEEB

Re-printed from the National TRS-80 Users Group Newsletter.
by Andrew Donald.

The Model B BBC microcomputer has as standard an RS423 port. This is compatible with RS232-C. Consequently communication between the TRS and BEEB is easily arranged.

The connections should be as follows :-

TRS-80(RS232)	RTS (36)	CTS (32)	RD (22)	SGND (20)	TD (18)
BEEB (RS423)	RTS	CTS	DATA OUT	SGND	DATA IN

The numbers in brackets are the TRS-80 edge connections on the RS232 port. The BEEB connections are to be found on page 406 of the BEEB manual.

With a terminal program in each computer and the configurations of each set to :- 300 Baud, 8 bit words, no parity and one stop bit, communication is straight forward. Page 24 of Acorn User number one has a suitable terminal program for the BEEB.

Rather more interesting is the small loader program on the same page. This intercepts the BEEB's keyboard routine and replaces it with characters from the RS423 port. With a smart terminal program in the TRS-80, program transfer is easily arranged and control is entirely from the TRS-80's keyboard.

The routine interested me sufficiently to write an equivalent routine for the TRS-80.

Enter the folowing code at address FF00H onwards and then dump to disk (or tape) as BEEBCMD/CMD from FF00H to FF12H with the start address at FF00H.

```
FF00    21 06 FF 22 16 40 DB EA CB 7F 20 02 AF
        C9 DB E8
FF10    E6 7F C9
```

Running this program will pass control to RS423 issuing from the BEEB. This may be from the terminal program, but very much better is to arrange for all video output from the BEEB to go to the RS423. No special program is then required. The following BEEB commands arrange this :-

```
*FX 5,2          Enable serial port
*FX 8,3          300 Baud output
```

Control B now enables output of video to RS423. Control C deactivates the routine.

TALKING TO THE BEEB

To set up this system, first we make sure the TRS-80 RS232 port is properly configured. My program will not set it. It may be done by the port switch settings or by running and program which allows software setting and then taking an exit to DOS. The port will not be reset. Now run BEEBCMD.

Enter the BEEB comands above, hit control B, and start typing. Remember that you now have simultaneous control of both computers.

To issue a command to just one computer requires skill. The BEEB delete key will work on it's video but does not transmit. Watch out for the cursor character appearing on the TRS-80 screen, this must be deleted. To delete on the TRS-80, hit control H on the BEEB. Use control C to write to the BEEB only. It sounds complicated but it is not as bad as it sounds. Just ensure the command you want is on the right computer before hitting RETURN.

To transfer a Basic program from the BEEB to the TRS-80. Make sure there is no cursor from the BEEB on the TRS-80 and with control B active, use the BEEB to enter Basic protected at 65000. Hit control C to isolate the BEEB. Do whatever is necessary to get the program loaded into the BEEB. Type LIST with a control B before the RETURN.

The listing that appears on the TRS-80 will be accepted as keyboard input and will have been transfered to memory. save this program by issuing the save instruction from the BEEB. Now reboot the TRS-80 and in the directory you should find the new program. There may be some alteration needed due to the different use of ASCII codes. for example '?', which is an indirection operator on the BEEB, will be translated to PRINT. It will save hours of typing.

If corruption occurs due to lost characters, slow down the Baud rate to 150. Some Basic character input routines have a lot to do.

Getting somewhat carried away with the process, I tried reversing the situation to give the TRS-80 control of the BEEB using video ouput.

Setting up video output to the serial port is not quite so simple on the TRS-80. A small program to intercept the video driver is required. The following code does the job :-

TALKING TO THE BEEB

```
FF00    E5 2A 1E 40 22 27 FF 21 11 FF 22 1E
        40 E1 C3 2D
FF10    40 DB EA CB 77 28 FA 79 FE 08 09 FE
        5B 20 03
FF20    3E 7F 4F D3 EB AF C3 FF FF
```

Dump this to disk as CMDBEEB/CMD start FF00H, end FF28H and transfer address FF00H. This routine could be of interest by itself, to those who use a serial printer and would like a video print routine.

To set up this system. Reset the BEEB and run the Acorn User loader program previously mentioned. Configure the TRS-80 RS232 port to the parameters given above. Run CMDBEEB. Hit user key 9 on the BEEB to enable the RS423 input and away you go on the TRS-80 with control of both.

The transfer of extraneous information is increased is increased under this set up, the TRS-80 prompt READY is taken by the BEEB to mean READ Y. Being unable to do this it will give an out of data error. Take no notice. (PET users will feel at home.)

To give a delete arrangment similar to the one for the previous system, I have arranged in the driver intercept routine that the TRS-80 delete character (backspace), is not passed to the BEEB. The Up-Arrow will now delete on the BEEB but also prints an extraneous character on the TRS-80. The character could be removed but it would mean interupting the keyboard driver as well as the video and I could not be bothered. It is deletable with backspace.

To transfer a Basic program from the TRS-80 to the BEEB. BREAK the BEEB to stop RS423 input and make ready for program input. With CMDBEEB operating on the TRS-80, go into Basic protected at 65000, and load the program for transmission. It doesn't have to be in ASCII. Type LIST on the TRS-80 and hit key 9 on the BEEB before RETURN. When listing is completed , hit BREAK and give command OLD on the BEEB to recover the program.

(Editors note.)

Would members please note the Newsletter Editor has no knowledge of the BEEB machine and cannot answer questions on this article. We suggest that you contact one of the members who has a BEEB and has the know how required to utilise the information in this article.

DRAGON TO EPSON SCREEN DUMP

```
00100 *SCREEN DUMP FOR EPSON PRINTERS & DRAGON32
00110 *Program sets PMODE4 screen display starting on page1
00120 *All you need do is clear 32500, load the program
00130 *then 'exec' the program whenever your graphics are
00140 *ready to dump.
00150 *PMODE3 graphics will also be printed correctly
00160 *with shading for colours.
00170 *-----------------------------------------------
```

```
                        00180
7F60                    00190           ORG     $7F60
7F60 86   F0            00200 START     LDA     #$F0
7F62 B7   FF22          00210 MODE      STA     $FF22
7F65 B7   FFC3          00220           STA     $FFC3
7F68 B7   FFC5          00230           STA     $FFC5
7F6B B6   FFC7          00240 OFFSET    LDA     $FFC7
7F6E 86   1B            00250 LPINIT    LDA     #27
7F70 BD   7FEF          00260           JSR     PROUT
7F73 86   41            00270           LDA     #'A
7F75 BD   7FEF          00280           JSR     PROUT
7F78 86   08            00290           LDA     #8
7F7A BD   7FEF          00300           JSR     PROUT
7F7D 20   03            00310           BRA     PROG
7F7F      00            00320 CHAR      FCB     0
7F80      20            00330 COL       FCB     32
7F81      00            00340 BIT       FCB     0
7F82 8E   0600          00350 PROG      LDX     #$600
7F85 86   1B            00360 NEWLIN    LDA     #27
7F87 BD   7FEF          00370           JSR     PROUT
7F8A 86   4B            00380           LDA     #'K
7F8C BD   7FEF          00390           JSR     PROUT
7F8F 86   00            00400           LDA     #0
7F91 BD   7FEF          00410           JSR     PROUT
7F94 86   01            00420           LDA     #1
7F96 BD   7FEF          00430           JSR     PROUT
7F99 86   20            00440           LDA     #32
7F9B B7   7F80          00450           STA     COL
7F9E 86   80            00460 NXTCHA    LDA     #128
7FA0 B7   7F81          00470           STA     BIT
7FA3 C6   80            00480 NXTBIT    LDB     #128
7FA5 7F   7F7F          00490           CLR     CHAR
7FA8 A6   84            00500 NXTROW    LDA     ,X
7FAA B4   7F81          00510           ANDA    BIT
7FAD 27   0A            00520           BEQ     NOTYET
7FAF B6   7F7F          00530           LDA     CHAR
7FB2 34   04            00540           PSHS    B
7FB4 AB   E0            00550           ADDA    ,S+
7FB6 B7   7F7F          00560           STA     CHAR
```

DRAGON TO EPSON SCREEN DUMP

```
7FB9 30   88 20     00570 NOTYET  LEAX   32,X
7FBC 54             00580         LSRB
7FBD 26   E9        00590         BNE    NXTROW
7FBF B6   7F7F      00600         LDA    CHAR
7FC2 43             00610         COMA
7FC3 BD   7FEF      00620         JSR    PROUT
7FC6 30   89 FF00   00630         LEAX   -256,X
7FCA 74   7F81      00640         LSR    BIT
7FCD 26   D4        00650         BNE    NXTBIT
7FCF 30   01        00660         LEAX   1,X
7FD1 7A   7F80      00670         DEC    COL
7FD4 26   C8        00680         BNE    NXTCHA
7FD6 86   0D        00690 LNEFD   LDA    #13
7FD8 BD   7FEF      00700         JSR    PROUT
7FDB 30   89 00E0   00710         LEAX   224,X
7FDF 8C   1E00      00720         CMPX   #$1E00
7FE2 26   A1        00730         BNE    NEWLIN
7FE4 86   1B        00740 FINISH  LDA    #27
7FE6 BD   7FEF      00750         JSR    PROUT
7FE9 86   40        00760         LDA    #'@
7FEB BD   7FEF      00770         JSR    PROUT
7FEE 39             00780         RTS
7FEF 34   10        00790 PROUT   PSHS   X
7FF1 BD   BCF5      00800         JSR    $BCF5
7FF4 35   10        00810         PULS   X
7FF6 39             00820         RTS
          7F60      00830         END    START
00000 TOTAL ERRORS

BIT      7F81
CHAR     7F7F
COL      7F80
FINISH   7FE4
LNEFD    7FD6
LPINIT   7F6E
MODE     7F62
NEWLIN   7F85
NOTYET   7FB9
NXTBIT   7FA3
NXTCHA   7F9E
NXTROW   7FA8
OFFSET   7F6B
PROG     7F82
PROUT    7FEF
START    7F60
```

CHIPS ??

re-printed from the North East User Groups Newsletter

Mr Frier was the owner of the local fish and chip shop, and in these days of economic gloom, trade was very poor. It was obvious to Mr. Frier that something new and exciting was needed. So one day, whilst cutting chips, he had a brilliant idea, 'why not' he thought, 'cut the potatoes in a new and different shape', so he experimented with various shapes and sizes.

After some weeks of experimentation, he found the best shape by far was a conical shape, which when fried, was crispy at the thin end and fluffy at the thick end. This gave a rather unusually shaped chip but one bite and you were hooked.

Mr. Friers business boomed, and people form far and wide came to sample the delights of his chips, and would look in amazement at the strange offerings and exclaim 'What strange cone shaped chips !'.

Mr. Friers competitors laughed at him and said 'These silly chips will never last', however, Mr. Friers fame spread and soon he had export orders from all over the world. He soon became a multi-millionaire, and his company, 'CONED CHIPS LTD.' was so profitable, that in order to avoid paying heavy taxes, decided to buy 'The World' newspaper organisation.

This so angered the rival newspaper that they attacked Mr.Frier with the headline :- "SILLY CONED CHIPS TAKE OVER THE WORLD".

Note from the Editor :-

If you wrote more articles we wouldn't have to publish this sort of rubbish.

ON ERROR GOTO

In the last newsletter, I am informed, several copies had a fault on page 15, where the top line was not printed legibly.

It should have been as follows :-

```
430       EORA      ,Y
```

We are sorry if it caused any problems.

NEWS TITBIT

If any members owning a Dragon 32 is looking for an upgrade to make it a 64 then contact Melvyn as he has some details on a product by Microcare, 1 Oakwood Road, Rode Heath, Stoke-on-Trent.

NEWS TITBITS

Tandy is now looking for a bigger slice of the business computer market following their recent launch of the IBM-PC challengers, the Model 2000 and the Model IV P.

Both machines have been available in the States for a while but have yet to cause a stir I'm told.

The Model 2000 is the first Tandy micro that does not carry the TRS-80 emblem. It will also run under MS-DOS rather than Tandy's own TRS-DOS. Both the new products suggest that Tandy is looking for a new business computer image so as to keep theirs and possibly get some of other companies shares of the microcomputer market.

The Model 2000 should catch some buyers with it's high resolution graphics, larger memory capacity and greater power, so we are told, than the IBM-PC.

The Model 2000 is based on the Intel 80186 16 bit chip which is claimed to triple the speed of the Model 2000 in respect to other IBM-PC look alikes.

Memory is 128K standard and expandable to 768K, the system uses two double sided 5.25 floppy drives, giving 720k on each drive, and of course you can add a 10Meg Winchester if you have the bread.

Prices as far as we know start at £1,999.00 for the Model 2000 and £1,303.00 for the Model IV P, but at this time what you actually get for your money we are unsure.

LETTERS

Jorgen Christiansen,
Stenlosevej 98
DK-2700 Bronshoj
DENMARK.

Dear Sir,
We are a Danish TRS-80 group, that would like to get in contact with other TRS-80 users in England.
We hope to exchange experiences and perhaps software, because information and software you normally get through magazines has been almost impossible to get, since Tandy stopped producing our computer.
We are also very interested in exchanging information about hardware modifications and so on.
I hope you will contact me soon, and I am looking forward to exchanging information with your groups members.

Yours Faithfully

Jorgen Christiansen.

CONVERT ASSEMBLER FILES TO ELECTRIC PENCIL

The following program was written by Melvyn in 1980 when we were using Electric Pencil to publish the Groups Newsletter. We thought that it may be of use to some of you or maybe you could just pick up some hints or routines.

```
100 '    **** PROGRAM NAME EDTASM/PEN ****
110 '    **** SOURCE TO PENCIL CONVERTER ****
120 '    ****   COPYRIGHT 1980 <C>   ****
130 '    **** BY MELVYN D. F. FRANKLIN ****
140 CLS : CLEAR 300 : CLEAR : DEFINT A-Z
150 PRINT : PRINT : PRINT : PRINT
160 PRINT TAB(12) "THIS PROGRAM WILL CONVERT EDITOR ASSEMBLER"
170 PRINT TAB(12) "SOURCE FILES SO THAT THEY ARE COMPATIBLE"
180 PRINT TAB(12) "WITH ELECTRIC PENCIL.
190 PRINT : PRINT : PRINT TAB(16);
200 PRINT "ENTER FILESPEC TO BE CONVERTED :-- "
210 PRINT : PRINT TAB(20); : INPUT FF$
220 X=1
230 ON ERROR GOTO 540
240 OPEN "I",1,FF$
250 OPEN "O",2,"NEWFILE/PCL"
260 PRINT : PRINT : PRINT
270 PRINT TAB(12); :INPUT "DO YOU REQUIRE A HARDCOPY <Y/N>";HC$
280 IF HC$="Y" THEN F=1 ELSE F=0
290 CLS : PRINT TAB(12) "FILE BEING CONVERTED IS > "FF$" <"
300 H=8:LINE INPUT £1,A$
310 IF X=1 THEN IF INSTR(A$,"ORG") THEN A$=RIGHT$(A$,LEN(A$)-7)
315 ON ERROR GOTO 380
320 FOR C=1 TO 64 : X$=MID$(A$,C,1) : X2=ASC(X$)
330 IF X2>132 AND X2<192 THEN X2=X2-128
335 IFX2=59THEN:MID$(A$,C,1)=CHR$(X2):C=C-1:H=35:GOSUB500:GOTO390
340 IF X2=9 H=H+6:GOSUB500:ELSEMID$(A$,C,1)=CHR$(X2)
350 NEXTC
380 RESUME 390
390 X=X+1
400 IF EOF(1) THEN 450
410 PRINT £2,A$
420 PRINT A$
430 IF F=1 LPRINT A$
440 GOTO 300
450 PRINT £2, CHR$(0)+"    "
460 CLOSE : PRINT : PRINT
470 PRINT TAB(12) "FILE NOW CONVERTED AND SAVED ON DISK"
480 PRINT:PRINT TAB(12) "CONVERTED FILESPEC IS > NEWFILE/PCL <"
490 END
500 A3$="" : FOR GG=1 TO H-C : A3$=A3$ + CHR$(32) : NEXT
520 A$=LEFT$(A$,C-1) + A3$ + RIGHT$(A$,LEN(A$)-C) : RETURN
540 CLS : PRINT : PRINT : PRINT : PRINT
550 PRINT TAB(12) "THE FILESPEC YOU ENTERED DOES NOT EXIST"
560 PRINT TAB(17) "OR YOU HAVE CAUSED AN ERROR"
570 PRINT : PRINT : PRINT TAB(22) "PROGRAM RESTARTING"
580 FOR GG=1 TO 2500 : NEXT : RESUME 140
```

THIS MONTHS COMPUTER TRADE GOSSIP

Downloaded from BBS London.

No guarantees about the accuracy of the information in this section, but it is all current gossip, news releases or unofficial / official leaks.

Lotus 1-2-3 is now coming out on a lap-held portable. This is not a joke but true, the machine is the Hewlett Packard HP110.

ACT is launching another computer soon. It is supposed to be compatible with the Apricot/Sirius line, but below them in cost. The machine is code-named RASCAL.

Acorn has made a successful take over bid for Torch Computers (Cost was about 5 million pounds)

W.H.Smith has signed an exclusive deal with Advance for sales of the Advance 86 Micro for the next year in the UK.

Epson's Lapheld PX8 is being promoted like mad - Still it seems nice CP/M (well sort of anyway) in a battery portable for about 800 quid isn't too bad.

Laugh of the Year Dept.

BABT who approve all BT and other telephone equipment have found that BT's own new modular plug and socket systems don't meet the B.S.I. Standards of safety when tested with a standard test finger. This combined with the EEC directive about the same subject may cause trouble for the 25 million newly installed BT sockets in Britain.

Rumours of a new add on box for the BBC called the Graduate. It is a bit like the torch but it runs MSDOS like an IBM and has 16 bit processor power. The adverts will probably also say it gives white whites when washing. No hints of price yet.

New for Kaypro II and 4 users is an add in board to give an 8088 processor and up to 256K of memory. MSDOS and CP/M86 are included.

Have you an old Superbrain ? KGB Micros are buying 2nd hand ones to use as spares. They will use this to give you 400 or 500 off a Sanyo or Sirius machine. Not a bad deal when a 16 bit Sanyo might cost 800 before the trade in.

I have just seen the nicest machine of the year! The Commuter from Visual Technology Inc. Visual have made a range of VDU's for some time. The Commuter is a portable computer with two 5.25" Floppy drives, IBM compatibility (including 1-2-3 and Flight Simulator etc.) It comes with 128 K of memory (512K max). It has a built in 80x16 Liquid Crystal Display in the lid. You may undo this and plug in a conventional monitor. Then you use have IBM compatible monochrome and colour graphics. Cost is only £1995. If you ask why I haven't got one it is only because no-one I know is selling them in the UK and servicing them.

BUGHUNT (FULL OF EM)

The following program is one of the good ideas that came from CLOAD's producers in the States. Due to the current position that CLOAD is now in we have decided to publish some of their good program ideas. The idea is that the listing, when typed in will run but has an amount of bugs built into it, and it's your job to find and correct them.

We hope you like the idea, if so let us know and we'll do some more in the future. The totally Bug free copy will be published in the next group newsletter, just in case you have gone insane trying to get it to run.

```
5 'COPYRIGHT (C) CLOAD 1981
10 '  BASIC BUGS : A PROGRAMER'S TREASURE HUNT
20 '   BY S.W.HAWKINSON    6106 LILLYWOOD LANE   KNOXVILLE, TN. 37921
30 CLEAR 50:ON ERROR GOTO 1090 :DIM U(6),V(6)
40 CLS:PRINTTAB(18)"B A S I C   B U G  H U N T":PRINT:PRINT
50 PRINTTAB(5)"This is a game which gives basic programers a chance to
   goon a  'B U G H U N T'. There are 'bugs' in this program whichcan
   (and must) be found.  After all have been exterminated, you"
60 PRINT"will be able to see the completed object of the program.
      Remember to  reload the original program  (with errors) whenyou
want to give someone else a chance to kill some 'bugs'."
70 B$=CHR$(164)+CHR$(26)+STRING$(7,24)+CHR$(140)+CHR$(183)
   +STRING$(2,179)+CHR$(157)+CHR$(174)+CHR$(179)+CHR$(157)+CHR$(26)
   +STRING$(7,24)+STRING $(3,138)
80 PRINT@960,"That was easy to find!   Press any key to continue
   . . .";
90 I=I+2:IF(I>50)THENI=0
100 PRINT@712+I,B$;:FORT=OTO100:NEXTT:PRINT@712+I," ":PRINT
110 A$="":A$=INKEY$:IFA$=""THEN90
120 CLS:PRINT@87,"B A S I C  B U G S"
130 '  DRAW HEAD
140 N=34:ON ERROR GOTO 1130
150 DATA 20,57,72,21,52,57,21,72,77,22,50,51,22,78,79,23,80,81
160 DATA 23,48,49,24,80,81,24,48,49,25,46,47,25,82,83,26,46,47
170 DATA 26,82,83,27,46,47,27,82,83,28,48,49,28,80,81,29,50,51
180 DATA 29,78,79,30,50,51,30,78,79,31,52,53,31,76,77,32,52,53
190 DATA 32,76,77,33,54,55,33,74,75,34,56,57,34,72,73,35,56,57
200 DATA 35,72,73,36,58,59,36,70,71,37,60,69
210 FOR I=1 TO N
220   READY,X1,X2:FORX=X1TOX2:SET(X,Y):NEXTX
230 NEXT Y
240 '  DRAW ANTENNAE
250 ON ERROR GOTO 1170
260 FOR I=1 TO 9:SET(58-I,20-I):SET(71+I,20-I):NEXT I
270 FOUR I=1 TO 4;SET(49-I,11+I):SET(80+I,11+I):NEXT I
280 '  DRAW EYES AND MOUTH
290 ON ERROR GOTO 1210
300 FOR I=1 TO 4:SET(55+I,24):SET(69+I,24)
310 SET(53+I,25+I):SET(62-I,25+I):SET(67+I,25+I):SET(76-I,25+I)
```

BUGHUNT (FULL OF EM)

```
320 NEXT I
330 SET(55,25):SET(60,25)
340 SET(69,25):SET(74,2555)
350 ON ERROR GOTO 1250
360 FOR I=1 TO 4
370 SET(58+I,31+I):SET(71-I,31+I):SET(62+I,-35)
380 NEXT I
390 '  DRAW BODY
400 V=65:N=100
410 ON ERROR GOTO 1290
420 '  SET VALUE OF TWO PI = 8.0 * ARCTANGENT(1.0)
430 TP=8.0*ATN(1/0)
440 FOR I=40 TO N+11
450 IF I>75 THEN V=64
460 X=V+INT(19.6*COS(TP*I/N)+0.5)
470 Y=35-INT(9.2*SIN(TP*I/N)+0.5)
480 SET(X,Y)
490 NEXT I
500 '  DRAW LEGS
510 ON ERROR GOTO 1330
520 S%=STRING$(10,176):F$=STRING$(3,176)
530 PRINT@653,S$;:PRINT@682,S$;
540 FOR I=1 TO 5:SET(22+I,33):SET(101+I,33)
550 IF(I<5)SET(20+I,34):SET(103+I,34)
560 IF(I<4)SET(19+I,35):SET(106+I,35)
570 NEXT I
580 PRINT@900,F$;:PRINT@954,F$;
590 FOR I=1 TO 8:SET(20-I,35+I):SET(108+I,35+I)
600 SET(21-I,35+I):SET(109+I,35+I):NEXT I
610 PRINT@907,F$;:PRINT@947,F$;
620 FOR I=1 TO 6:SET(39+I,37):SET(83+I,37):NEXT I
630 FOR I=1 TO 4:FOR J=1 TO 4
640 SET(88+(I-1)*3+J,37+I)
650 SET(36-(I-1)*3+J,37+I):NEXT J:NEXT I
660 FOR I=1 TO 2:FOR J=1 TO 2
670 SET(100+I-1+J,41+I)
680 SET(26-I+1+J,41+I):NEXT J:NEXT I
690 PRINT@915,F$;:PRINT@939,F$;
700 FOR I=1 TO 7:SET(44+I,41):SET(77+I,41):NEXT I
710 FOR I=1 TO 2:FOR J=1 TO 2
720 SET(43-I+1+J,41+I)
730 SET(83+I-1+J,41+I):NEXT J:NEXT I
740 '  SET IN A FRAME
750 FOR I=0 TO 127:SET(I,0):SET(I,47):NEXT
760 FOR I=1 TO 46:SET(0,I):SET(1,I):SET(126,I):SET(127,I):NEXT
770 '  MOVE THINGS . . . .
780 ON ERROR GOTO 1370
790 DIM U(6),V(6)
800 U(1)=25:U(2)=26:U(3)=27:U(4)=27:U(5)=26:U(6)=25
810 V(1)=58:V(2)=59:V(3)=58:V(4)=57:V(5)=56:V(6)=57
```

BUGHUNT (FULL OF EM)

```
820 I=6:L=-1:J=0
830 RESET(V(I),U(I)):RESET(V(I)+14,U(I))
840 I=I+1:IF I>6 THEN I=1
850 SET(V(I),U(I)):SET(V(I)+14,U(I))
860 ON ERROR GOTO 1410
870 IF I=6 GOTO 910
880 PRINT@149,"G O O D   H U N T I N G";
890 GOTO 830
900 '  END OF MAIN PROGRAM - SUBROUTINES FOLLOW
910 J=J+1:IF J>3 THEN J=1
920 IF J<3 THEN RETURN
930 L=-L:IF L<0 THEN 1010
940 FOR K=1 TO 6
950 RESET(61+K,35):SET(61+K,33)
960 NEXT K
970 RESET(60,33):RESET(69,33)
980 RESET(59,32):RESET(70,32)
990 SET(60,35):SET(69,35)
1000 RETURN
1010 ON ERROR GOTO 1460 :FOR K=1 TO 6
1020 RESET(61+K,33):SET(61+K,35)
1030 NEXT K
1040 RESET(60,35):RESET(69,35)
1050 SET(60,33):SET(69,33)
1060 LSET(59,32):SET(70,32)
1070 RETURN
1080 '  ERROR TRAPPING ROUTINES AND EXTENDED ERROR MESSAGES
1090 PRINT"----------------":PRINT
1100 PRINT"Out of string space in line 70"
1110 PRINT"Hint: CLEAR statement needs to have larger value"
1120 PRINT:END
1130 PRINT:PRINT"----------------":PRINT
1140 PRINT"NEXT without FOR in line 230"
1150 PRINT"Hint: The variables in FOR and NEXT statements must match"
1160 PRINT:END
1170 PRINT:PRINT"----------------":PRINT
1180 PRINT"Syntax error in line 270"
1190 PRINT"Hint: Check spelling of basic keywords and punctuation"
1200 PRINT:END
1210 PRINT:PRINT"----------------":PRINT
1220 PRINT"Illegal function call in line 340"
1230 PRINT"Hint: Check for valid parameters in functions called"
1240 PRINT:END
1250 PRINT:PRINT"----------------":PRINT
1260 PRINT"Another illegal function call in line 370"
1270 PRINT"Hint: Fix this bug like the last one"
1280 PRINT:END
1290 PRINT:PRINT"----------------":PRINT
1300 PRINT"Division by zero in line 430"
```

BUGHUNT (FULL OF EM)

```
1310 PRINT"Hint: None"
1320 PRINT:END
1330 PRINT:PRINT"----------------":PRINT
1340 PRINT"Type mismatch in line 520"
1350 PRINT"Hint: A non-string variable was assigned to a string"
1360 PRINT:END
1370 PRINT:PRINT"----------------":PRINT
1380 PRINT"Redimensioned array in line 790"
1390 PRINT"Hint: Check for earlier use of DIM statement"
1400 PRINT:END
1410 PRINT:PRINT"----------------":PRINT
1420 PRINT"RETURN without GOSUB in line 920"
1430 PRINT"Hint: Check for GOTO which should be GOSUB"
1440 PRINT:PRINT"Extra! Extra! Extra! This is the last bug!"
1450 PRINT:END
1460 PRINT:PRINT"----------------":PRINT
1470 PRINT"Disk BASIC feature in line 1060"
1480 PRINT"Hint: Never trust programs that claim to be bug free!"
1490 PRINT:END
```

BULLETIN BOARD NEWS

We have heard recently that a new Board has sprung up in Manchester. The telephone number is 061-427-3711.

We also have been asked to note that it is restricted for use within the following times, and asked to inform members that calling the number outside these times can cause the operator problems, so please stick to the rules.

Board times are as follows :-

Sunday to Thursday	22:30 till Midnight
Friday	23:30 till 01:00
Saturday	22:30 till 01:00

If there are any more Boards being started out there please let us know so we can inform everybody through the Newsletter and on the current BBS network.

Board numbers should be sent for the attention of the Editor with any restriction on there use clearly stated.

THE DRAGONS RESISTANCE

by Adrian Bradshaw.

This program is for those of you who, like me, do a little electronics as a hobby. So now you needn't remember the resister colour code, using this program. All you have to do is put in the colours in order, starting from the left, with the metalic colour on the right, do NOT enter the metalic colour.

One of the problems with this program is that the Dragon can't generate certain colours, i.e. brown and grey, but this problem has been got round by using Cyan for grey and Cursor (dark green/black) in screen 0,1, for brown. You might have to adjust your monitor to get the best display though.

```
1 '*** RESISTOR COLOUR CODE ***
2 '*** CALCULATOR :-        ***
3 '*** BY adrian bradshaw...***
4 '*** 10TH JUNE 1984.      ***
10 CLS0
20 FOR X=0 TO 9:PRINT@5+(X*2),X;:NEXTX
30 FOR X=5 TO 25STEP2:PRINT@X,"*";:PRINT@X+64,"**";:NEXTX
40 FOR X=5 TO 26 STEP2:PRINT@X+32,"*";:NEXTX
50 PRINT@90,CHR$(128);
60 POKE1064,32
70 PRINT@42,CHR$(143+48);:PRINT@44,CHR$(143+112);:PRINT@46,CHR$(
143+16);:PRINT@48,CHR$(143);:PRINT@50,CHR$(143+32);:PRINT@52,CHR
$(143+96);:PRINT@54,CHR$(143+80);:PRINT@56,CHR$(143+64);
80 SCREEN 0,1
90 PRINT@128,"0 - BLACK      1 - BROWN          2 - RED        3 -
ORANGE         4 - YELLOW     5 - GREEN          6 - BLUE       7 -
VIOLET         8 - GREY       8 - WHITE"
100 FOR B=1 TO 4:IF B=4 THEN 200
110 PRINT@320,"BAND";B;"?";
120 SCREEN 0,1
130 A$=INKEY$:IFA$="" THEN 130 ELSE:IF ASC(A$)>57 OR ASC(A$)<48
THEN 130
140 SOUNDB*50,1
150 ON B GOTO 170,180,190
160 GOTO 200
170 J=VAL(A$):NEXTB
180 K=VAL(A$):NEXTB
190 L=VAL(A$):NEXTB
200 V=((J*10)+(K))*(10^L)
210 PRINT@384,V;"OHMS";:PRINT@416,V/1000;"KILOHMS (K)";:PRINT@44
8,V/1000000;"MEGOHM (M)";
220 PRINT@480,"HIT ANY KEY FOR ONOTHER GO ...";
230 SCREEN 0,1
240 IF INKEY$<>"" THEN RUN ELSE 240
```

COLOUR LIBRARY NOTES - June 1984

By the time you read this the new Colour Library List should be available, showing numerous additions to the stock, and giving details of our continuing "Special Offer" regarding hiring charges.

After a shaky start to this year, there does now seem to be some increase in business, and this has already enabled us to buy a few new programs.

Other additions have been donated by members, and we would be grateful for any further contributions! An interesting idea has been suggested to enable us to purchase expensive, major programs such as a good word processor or spread sheet or any other program for which there may be a healthy demand.

Some ideas are at present with the committee for evaluation. We would be pleased if other members could perhaps come up with some ideas that could assist the library to expand with new software, legal ones I mean, so that members could then borrow in the normal way new good quality software for the Dragon and the Tandy CoCo.

If anyone would like to join in on these ideas please would they please contact me at a meeting or by phone with their thoughts on it. I already have some of my own.

Tel No. for the above or other Colour Library Matters:-

Horwich (0204) 67023 - Laurie or Adrian Bradshaw.

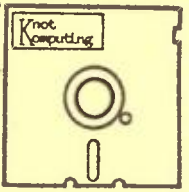
COMPUTER FAX

If there had been a computer in 1872 and some Victorian computer nut had turned it on, it would have predicted that within a hundred years there would have been so many horse drawn vehicles clogging the roads, that the surface of the world would be six feet deep in horse manure.

RUBBISH IN ..... RUBBISH OUT ???

Knot Komputing

Lambert House,
Brook Street, Glossop,
Derbyshire SK13 8BG
Phone Glossop 4748
VAT. 373 4223 63



PRICE LIST AS OF 1st October 1983.

SPECIFICATION	Basic + VAT + Delivery	BASIC PRICE
Dragon 32K, Colour, Hi-Res	185.00	153.00.
Genie 1	347.00	287.00.
Genie 2	315.00	260.00.
KESTREL - 48K: Computer with two built-in 40 track double-sided ultra slim disk drives, with centronics printer port. Runs Tandy I programs, and housed in steel case designed to take either a printer or monitor on top.	983.00	825.00.
Epson FX 80 160 cps	521.00	438.00.
Epson MX 100 FT/3 100 cps	594.00	499.00.
Shinwa CTI CP80 80 cps	344.00	289.00.
Star 510 100 cps	344.00	289.00.
Juki 6100 daisy-wheel 18 cps	475.00	399.00.
CANON 5.25" 40 track 2/3 height Disk Drive.		
Single, Single Side	217.00	179.00.
Double Side	265.00	219.00.
Twin, Single Side	412.00	340.00.
Double Side	490.00	405.00.
Disk & Printer Interface + Drive in one Unit.		
Single, Single Side	278.00	230.00.
Double Side	327.00	270.00.
Wizard Interface for Colour Genie	120.00	99.00.
DOS for above	43.00	35.00.
48k Expansion for tandy model I on keyboard	56.00	44.00.
48k Expansion for V G on keyboard	56.00	44.00.
fitting for above 48K onto your keyboard	+ post	11.50.
Disk & Printer Interface DP1000T (tandy)	104.00	86.00.
Disk & Printer Interface DP1000V (genie)	104.00	86.00.
Disk Drive & Cassette leads	various.	
Doubler for above Interface	84.00	72.00.
RS-232 for above Interface	1983	
Hi Res. Board for Tandy or Genie	1983	
Colour Board for Tandy or Genie	1983	
Splitter Cable for joystick, ROMs etc(T or G)	19.00	16.00.
Plug in feature ROMs	23.00	19.00.
* ROM A: keyboard invert, key repeat, single key commands, flashing cursor, M/c code Mon & Edit, System load & save.		
* ROM B: keyboard invert,line renumber,single key commands, cursor flash, basic program merge, basic program compress.		
Box of 10 Disks SS.SD	19.00	16.00.
Box of 10 Disks SS.DD	23.00	19.00.
Box of 9.5" Paper	17.00	12.00.
DRAGON Software	various.	



Software News



INNOVATIVE
TRS 80·GENIE SOFTWARE

from the professionals

Info~Scan

Info-Scan is an information reference and retrieval utility. It combines the features of a data base manager, a word processor and display utility.
Each information record is composed, using the word processing feature, in any format that is meaningful to the user.
It is no longer necessary to sculpt your data to the requirements of the data base. The information can be stored in a record in almost any format required. Indeed, forms themselves can be used. A utility in Info-Scan allows the operator to compose a form and file it on disk, recalling it for completion as and when required.
Each record is allocated a key phrase or word, so that it can be re-called at will.
About 1,800 characters may be entered per record, and 350 records may be held to a file. Any number of files may be maintained. Info-Scan is written in machine language for high speed operation.
As with all data bases, the contents of the records may be changed at any time. They may also be deleted and have information added to them. The record contents may be printed out to any standard line printer.
In addition to the above, Info-Scan features a full screen editor, extremely comprehensive error trapping and recovery, plus a demonstration file to get you going.
Info-Scan removes the shackles from the data base user. No longer does he have to abide by the format rules of the data base. Information is entered, retained and displayed in a form chosen by the user and one which is uniquely meaningful to him.
Info-Scan is compatible with TRS-80 Model I, III and Model 4 in mode III, plus compatible Genie machines. Info-Scan will operate with any TRSDOS compatible disk operating system including LDOS, Dosplus and Multidos.

INFO-SCAN (disk) ... ... £39.00 + VAT = £44.85
VAT inclusive, 75p P & P

TEL: [0424] 220391/223636

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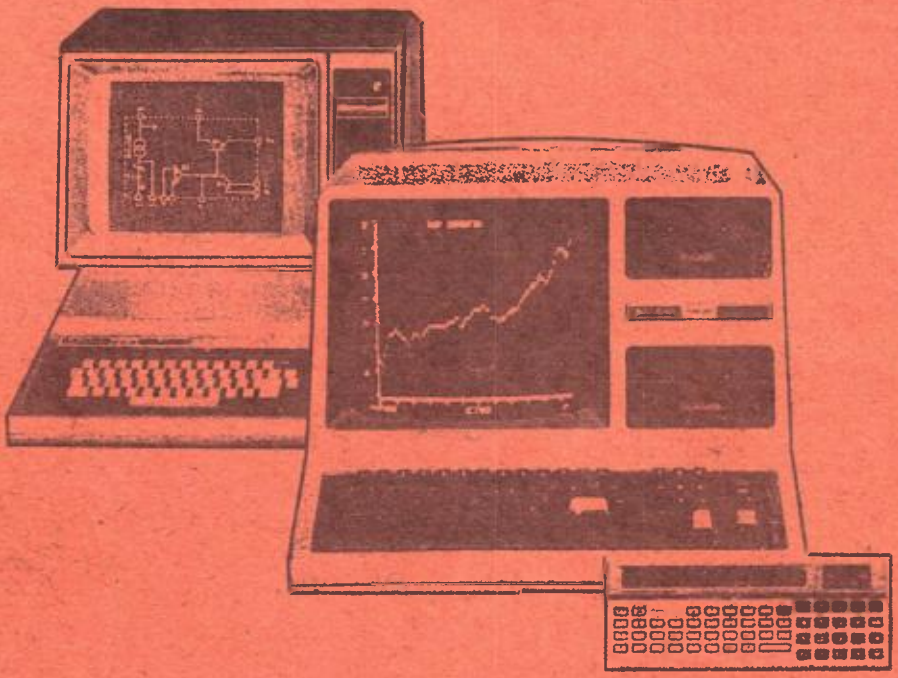
TRS-80 & VIDEO GENIE SOFTWARE CATALOGUE £2.00 plus £1.00 postage (postage refundable on order).

Excelsior Press Ltd., 1 Market Street, Westhoughton.

Disk Directory
Manchester sub Group

Rec'd 4th Sept '84

REM 80



The North West TRS 80 Users Group

Volume 6 Issue 4

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EDITORIAL

Welcome to our latest offering and notice it is yours, if all the people who moaned actually did something we would not have the trouble we have every time a newsletter is due. Anyway enough of that.

I have been informed that a new Tandy store is opening in Blackpool on the 30th August and they have an opening offer on their colour printer/plotter, its only 99.99. The man to contact is Steve Hudson, the new Manager. The shops telephone number is 0253-35345 but I understand Steve can be contacted after hours on 0524-61525. I understand there are only a limited quantity, so if your interested I should act now

On another point we recently heard, via the national press, that Eurohard s.a of Spain are in fact not only taking over Dragon data home computers, but are in fact moving the production of the Dragon 32/64 to Spain although we are informed they still intend to ensure the British Market has a satisfactory supply of machines.

I should like to thank ALL those who have contributed to this month's newsletter.

Till next time ....

Carolyn

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Any articles or programs for inclusion in this Newsletter must be addressed directly to the Editor, preferably on cassette, disk or uploaded, (all normal communication protocols are acceptable), at the following address :-

40, COWLEES,
WESTHOUGHTON,
BOLTON,
BL5 3EG
Tel ... 0942-812843

****
** ACTIVITIES PAGE **
** By Brian Disley **
****

As yet I have been unable to secure a speaker for our September 26th meeting but I can assure you that we will have someone who will be prepared to chat to us by then but if you know of anyone including yourself who would be willing to give a chat at this meeting then please don't hesitate to contact me. Please don't be frightend of making a hash of it but we have already had one chat on this subject, I realy would like to have some new faces giving chats at the meetings as I find I have to keep imposing on a small few of our members who I am sure are running out of ideas and like you and me they joined the group to pick other peoples brains and even though they are willing and able to help the group and its members in any way they can I feel they have earned the right to sit back and let someone else have a go. It isn't dificult to speak at our meetings as we are all hobbyists and so we don't expect a university lecture more of an informal chat on whatever subject you feel you are good at
So please do not hesitate to contact me if you can help to keep the group meetings active as I hope you have found them in the past, I do feel that this is one of the reasons that our user group has been so successfull and has not broken up as others have. So it's up to YOU! Please lets keep it that way my phone No. is 061 723 5033 PLEASE HELP!!

The October 31st meeting will include a chat from Barry Steward, I have no doubt this will be for the colour computer/dragon users but this does not mean others are excuded.
Roy Williams has voluntered to give us a chat on the subject of the open university at the November 28th meeting this all sounds over my head but I am assured by Roy that this is not the case and so I sugest you don't miss this one as you don't have to be a genius to take a university course but hopefully you will be one afterwards!.

This only leaves the December meeting to round off this year and as before I will try to arrange a Sunday meeting just before Christmas and the next issue of REM 80 will carry details

****
** COCO Comunications? **
****

We have a lady member in London who has a tandy color computer and an acoustic coupler, she seems to be able to access the bulleten boards ok but is having problems comunicating with other computer users such as myself, I suspect the problem is she requires some good terminal software with the facility to download programs and then be able to save and run them.
If you can help Please contact me on 061 723 5033 or Joan on 01 731 2574

H E L P . . . . . H E L P

Melvyn is looking for, would you believe a four hole paper punch, the type that punches holes in paper. He is also is looking for an old desk. Anyone out there want to help, he may even be convinced to pay something for them, you never know.

6809 FORUM
by Barry Steward.

I do not intend to dwell on the problems of Dragon Data but in the light of events since the last RNW 80 I must just say that though the future of Dragon Data is still less than clear it seems that no more of the Dragons that we know (32 & 64) will be produced. There are still some being offered for sale and we can draw comfort from the fact that the chips are standard off the shelf type and if a Dragon should need repair (perish the thought) then the parts will be readily available.

And now to 64K. and the Colour Computer. I have been asked on a number of occasions at meetings how do you get at the other 32K. in a 64K. machine. Also the later 32K. grey case Colour Computers have the 64K. inside them and you can get at it without any hardware mods you do not even need to open the case.

The listing below will do the trick for you!! What the program does is copy the Basic and Extended Basic Roms, and also the Disk Basic Rom if it is present, into the bottom 32K. on RAM. It then stores new values into the SAM registers that carry the map type. This has the effect of turning off the Basic Roms and turning on the top 32K. of RAM. The program then copies the code for the Basic Roms from where it has just put them in the low RAM to the locations that they occupy when they are in the Roms. The progam then prints a message on the screen and return control to Basic. With Basic in RAM the code may now be modified, but more importantly the locations above the Basic code where there was nothing before now contain RAM and can be used to hold your machine language routines or anything else you may wish to put there. Remember not to alter the top 256 bytes as these are reserved for system use.

Have fun till next time, Barry.

ROM - MOVE FOR 64K COLOUR COMPUTER.

```
10 'PROG. FROM FRANK HOGG INC.
100 'ROM-MOVE
110 CLEAR 256,&H7EFF
120 GOSUB 410:SA=H
130 GOSUB 410:EA=H
140 GOSUB 410:EP=H
150 'SA=STARTING ADDRESS
160 'EA=END ADDRESS
170 'EP=ENTRY POINT 0
180 FOR A=SA TO EA
190 GOSUB 410
200 POKE A,H
210 NEXT A
```

6809 FORUM

```
220 DEFUSR0=EP
230 X=USR0(0)
240 PRINT"BASIC IS NOW IN ROM"
250 PRINT"ROM IS DISABLED"
260 PRINT"MEMORY MAP TYPE 1 INSTALLED"
270 POKE 41045,12 'STOPS BASIC FROM CHANGING MAP TYPE"
280 END
290 DATA 7F00,7F19,7F00
300 DATA 1A,50
310 DATA 8E,80,00
320 DATA A6,84
330 DATA B7,FF,DF
340 DATA A7,80
350 DATA B7,FF,DE
360 DATA 8C,FF,00
370 DATA 26,F1
380 DATA B7,FF,DF
390 DATA 1C,AF
400 DATA 39
410 READ A$
420 LZ=LEN(A$)
430 H=0
440 IF LZ<=0 THEN RETURN
450 C$=LEFT$(A$,1)
460 FOR I=0 TO 15
470 IF (I=0) AND (C$="0") THEN 510
480 IF C$=HEX$(I) THEN 510
490 NEXT I
500 RETURN
510 H=H*16+I:LZ=LZ-1
520 A$=RIGHT$(A$,LZ)
530 GOTO 450
```

WOTSIT

Q. Wots the difference between single density and double density disks?

A. This is a reasonably easy question to answer. Single density disks have 35 or 40 tracks, each track containing 10 sectors. On a double density disk, 35 or 40 track, there are 18 sectors to each track. A sector contains, on the Tandy that is, 256 bytes, therefore you can work out how many bytes can be stored on the disk.

Single density 40 track = 40 * 10 * 256 = 102,400 bytes.

Double density 40 track = 40 * 18 * 256 = 184,320 bytes.

Remembering that the Directory and Boot system on the disk takes some of the storage area, usually around 2 tracks, one for the Boot system and one for the Directory. Also we must remember that the amount of space used for the Directory and Boot are dependent on the DOS being used. Some use 2 tracks for the Directory others only use one track.

THE TRS-80 DISK DIRECTORY Newsdos+

A reprint of Cliff Ogdens award winning article from May 1980
An attempt to unravel some of its mysteries.

I originally set out to explain to another Superzapper how to modify the Tandy 35 track DOS to 38 tracks, (or 40 tracks on "Percom" drives). The thing got so confused, mainly because of the obscurity of the NEWDOS manual, that I decided to try to explain the disk directory function.

I was about to say "in simple terms", but perhaps "less complicated terms" would be more appropriate. Because the system used by the computer seems to us to be very complicated and tedious, but for the machine it is just another of the jobs it has been programmed to do.

Well then here goes. First, I am using a printout of a NEWDOS+ system disk, track 11H, which hopefully you will be able to refer to. Otherwise use your video display via Superzap. Second, I don't profess to know all about the system, but I know enough to find my way around the innards of my disk system. I only hope I can explain it satisfactory.

The disk directory occupies the whole of track 11H of every disk which has been formatted. The layout of the sectors on the disk as I shall describe them is as follows:

Each line begins with a six digit display.
These are :

First digit = drive no. (0 - 3).
Next two digits indicate track no. (Hex 0 - 27), 27 is for 40 tracks.
The fourth digit gves the sector no. (0 - 9).
The last two (Hex) digits refer to the relative number of the first byte on each line.

For example :
0112E0 is drive 0, track 11H, sector 2, byte E0.

Following the six digit display are the actual contents of the locations, arranged in eight pairs of two-digit bytes. The arrangement in pairs has no special significance it is merely for convenience. On the last line there is a 7th digit, this is the system error code, 6 = sector is read protected, but was read by Superzap.

Sector 0 is the 'GAT sector' and contains the granule allocation table.

THE TRS-80 DISK DIRECTORY

Starting at byte 60, each track on the disk is represented by a one-byte code which indicates if a granule is allocated to file, or if it is available for use.

Byte value	1st granule	2nd granule
FF	allocated	allocated
FE	free	allocated
FD	allocated	free
FC	free	free

If the NEWDOS dump which you are referring to is different from the one which I am using, then the details of free/assigned granules will be different.

My sector 0 shows that all the bytes are FF except for bytes at 0E and at 0F.
Byte at 0E = FE which indicates 1st granule free.
Byte at 0F = FD indicates that 2nd granule is free.

What use is this information? Well I found it invaluable when copying disk sectors from 35 track disks to 40 track disks. By using the GAT sector, I did'nt have to copy over those granules which did'nt contain file data. I was also able to zero those free sectors with Superzap, to tidy up my NEWDOS working copy.

Starting at byte 60 of the GAT sector, is the track lockout table. This indicates the tracks which have either been locked out as faulty during formatting, or have been deliberately locked out by the user. FC indicates track not locked out, and FF indicates track locked out.

When changing from 35 tracks to 38, or 40 tracks, after the sectors are copied to a formatted disk the extra tracks will not become available until the relative bytes in the HIT sector have been changed to track-free status.

Bytes CE and CF of the GAT sector contain the code for the disk master password. The byte at CB is set to 21, but I don't know why. I just leave things like that alone!

Bytes D0 to DF contain the disk name, and the date.

Bytes E0 to FF are used by the system to store DOS auto commands. When there is no auto command, byte E0 contains the value 0D. The rest may be either all FF, or all 20.

That is the 'GAT sector'.

THE TRS-80 DISK DIRECTORY

Sector 1 is known as the 'HIT sector' as it contains the 'Hash Index Table'.

Each file which is active (i.e has not been killed) has a one byte entry in the HIT sector. The value of the hash code as it is called, is based on the filename and extensions in the directory sectors (2 to 9). As there are thousands of ways in which the hash code may have been generated, it is not possible to decode it.

The location in the HIT sector of a file's hash code is very important, because the 'value' of it's relative position is known as the 'DEC' of the file. The DEC is the directory entry code, and it is used to find the location of the directory entry of a file. That sounds complicated, but there's more to come. An example here will perhaps help.

In my HIT table there is an entry at relative position A7 the hash code at this position is 89 (unimportant).

Now:-

A7 Hex = 1010 0111 binary. We use the 3 digits at either end for our calculation. The middle 2 are not used.

So we have:

101 (00) 111

Take the value of 111 binary, ie 7 decimal. Add 2 to this giving 9. This is the sector in the directory which contains our file's entry.

Now take the value 101 binary, ie 5 decimal. This gives us the number of our entry in sector 9. So our file directory entry is the fifth entry in sector 9 of the directory track. Remember when you get to sector 9 and start counting the entries to begin with entry no. 0 I always forget! In fact the fifth entry on my disk directory sector 9 is the EDTASM file.

So after all that I now know that the hash code for the editor assembler program is 89, so, to locate a directory entry, or, more important, to know where to put the hash code and directory entry when re-building a damaged file, or recovering a killed file (TRSDOS 2.2 destroys the directory entry completely when a file is killed!). We use the relative position in the HIT sector, of the file's hash code thus:-

R R R 0 0 S S S + 2

Where R R R is the relative entry in the sector (start at 0), and where S S S + 2 is the number of the sector in the directory track.

THE TRS-80 DISK DIRECTORY

Sectors 2 to 9 each contain space for eight file entries, 64 in all. Each file which is active on the disk, (i.e. Has not been "Killed"), has a 32 byte entry allocated to it somewhere in these 8 sectors. This entry is known as the "File Primary Directory Entry", or F.P.D.E. The fun really begins now as we examine the FPDE byte by byte, even bit by bit in some parts!

Byte 00

Each bit of this byte is used to indicate a different condition thus :

Bit 7 (leftmost bit)
In each FPDE allowance is made for up to four pointers to areas of the disk where parts of the file are located. If the file needs further space beyond the four areas, then the directory entry has to be extended.

This is achieved by using a second 32 byte directory entry. This second entry is known as a 'File Extended Directory Entry', or FXDE. Bit 7 is Set(1) if the entry is an FXDE, or it is Reset(0) if the entry is an FPDE.

Bit 6. set(1)
If the file is a system file, otherwise it is reset(0).

Bit 5. not used.

Bit 4. set(1)
If the entry is allocated to a file. reset(0) if the entry is available for allocation to a file.

Bit 3. set(1)
If the file has invisible attribute otherwise reset(0).

Bits 2,1,& 0.
Indicate the protection level:

Binary	Decimal	Protection Level
111	7	No Access
110	6	Execute Only
101	5	Read/Execute
100	4	Write/Read/Execute
011	3	Not used
010	2	Rename/Write/Read/Execute
001	1	Kill/Rename/Write/Read/Execute
000	0	No restrictions

THE TRS-80 DISK DIRECTORY

Bytes 01 & 02 :-

Not used in an FPDE. If the entry is an FXDE then byte 01 is the 'DEC' pointing back to the FPDE.

Byte 03 :-

Gives the relative position of the 'EOF' byte in the last sector of the file (i.e. Where the program ends).

Byte 04 :-

Not used.

Bytes 05 to 0F :-

Filename and extension (padded with blanks as required).

Bytes 10 & 11 :-

Code for access password. 9642 is a 'Blank' password.

Bytes 12 & 13 :-

Code for update password. 9642 is 'Blank'.

Bytes 14 & 15 :-

Give the number of sectors used by the file. Byte 14 is used for up to 255 sectors, both are used for more than 255 sectors.

Bytes 16 & 17, 18 & 19, 1A & 1B, 1C & 1D

These pairs of bytes are used to indicate the size and location of contiguous areas of disk allocated to the file. They are known as 'Extent Elements'.

They are decoded as follows:

The first byte of the pair indicates the track number.
The second byte is a bit record.
The right five bits are the number of contiguous granules assigned to this extent plus one.
The three bits on the left give the offset of the start of the file in granules.

An example :-

Extent 07 18

Track number is 07 Hex. 18 Hex = 000 11000

000 indicates that start is at sector zero of track seven, and 11000 = 18 Hex indicates that there are 18 minus one ie. 17 (Hex) contiguous granules starting in track 07 sector 0. :-

Extent 1A 29

Track number is 1A Hex. 29 Hex = 001 01001

001 indicates that start is offset by one granule from the start of the track. ie the extent starts at relative sector 5,and 01001 = 9 Hex indicates that there are 9 minus 1 (8) granules starting at sector 5 of track 1A.

The end of the extent elements is indicated by the remaining pairs of bytes being filled with FF.

In the event of more than four extents being needed, as mentioned above, a further directory entry is allocated to the file known as an FXDE. When this occurs, bytes 1E & 1F are used. Byte 1E will contain FE, and byte 1F will contain the 'DEC' (directory entry code) of the FXDE.

Byte 00 of the FXDE is a bit record identical to the FPDE. byte 01 contains the 'DEC' pointing back to the FPDE.

Bytes 16 to 1D are extent elements.

BUGHUNT (All gone)

Well, after all those hours of confusing bug hunting, and I know there are quite a few people who have tried to find them all. Here is a completely bug free copy of the program as promised.

It seems there was more interest in debugging programs than I thought, going by the amount of people who contacted us over certain problems. Lets hope we all learnt something from the experience.

```
5 'COPYRIGHT (C) CLOAD 1981 - SOLUTION VERSION
10 '  BASIC BUGS : A PROGRAMER'S TREASURE HUNT
20 '   BY S.W.HAWKINSON    6106 LILLYWOOD LANE   KNOXVILLE, TN. 37921
30 CLEAR250:ON ERROR GOTO 1090
40 CLS:PRINTTAB(18)"B A S I C   B U G  H U N T":PRINT:PRINT
50 PRINTTAB(5)"This is a game which gives basic programers a chance to
goon a 'B U G H U N T'. There are 'bugs' in this program whichcan (and
must) be found.  After all have been exterminated, you"
60 PRINT"will  be able to see the  completed object of the program.
Remember to  reload the original program (with errors) whenyou want to
give someone else a chance to kill some 'bugs'."
70
B$=CHR$(164)+CHR$(26)+STRING$(7,24)+CHR$(140)+CHR$(183)+STRING$(2,179)
+CHR$(157)+CHR$(174)+CHR$(179)+CHR$(157)+CHR$(26)+STRING$(7,24)+STRING
$(3,138)
80 PRINT@960,"That was easy to find!    Press any key to continue  . .
.";
90 I=I+2:IF(I>50)THENI=0
100 PRINT@712+I,B$;:FORT=0TO100:NEXTT:PRINT@712+I," ":PRINT
110 A$="":A$=INKEY$:IFA$=""THEN90
120 CLS:PRINT@87,"B A S I C   B U G S"
130 '  DRAW HEAD
140 N=34:ON ERROR GOTO 1130
150 DATA 20,57,72,21,52,57,21,72,77,22,50,51,22,78,79,23,80,81
160 DATA 23,48,49,24,80,81,24,48,49,25,46,47,25,82,83,26,46,47
170 DATA 26,82,83,27,46,47,27,82,83,28,48,49,28,80,81,29,50,51
180 DATA 29,78,79,30,50,51,30,78,79,31,52,53,31,76,77,32,52,53
190 DATA 32,76,77,33,54,55,33,74,75,34,56,57,34,72,73,35,56,57
200 DATA 35,72,73,36,58,59,36,70,71,37,60,69
210 FOR I=1 TO N
220   READY,X1,X2:FORX=X1TOX2:SET(X,Y):NEXTX
230 NEXT I
240 '  DRAW ANTENNAE
250 ON ERROR GOTO 1170
260 FOR I=1 TO 9:SET(58-I,20-I):SET(71+I,20-I):NEXT I
270 FOR I=1 TO 4:SET(49-I,11+I):SET(80+I,11+I):NEXT I
280 '  DRAW EYES AND MOUTH
290 ON ERROR GOTO 1210
300 FOR I=1 TO 4:SET(55+I,24):SET(69+I,24)
310 SET(53+I,25+I):SET(62-I,25+I):SET(67+I,25+I):SET(76-I,25+I)
320 NEXT I
330 SET(55,25):SET(60,25)
```

BUGHUNT (All gone)

```
340 SET(69,25):SET(74,25)
350 ON ERROR GOTO 1250
360 FOR I=1 TO 4
370 SET(58+I,31+I):SET(71-I,31+I):SET(62+I,35)
380 NEXT I
390 '  DRAW BODY
400 V=65:N=100
410 ON ERROR GOTO 1290
420 '  SET VALUE OF TWO PI = 8.0 * ARCTANGENT(1.0)
430 TP=8.0*ATN(1.0)
440 FOR I=40 TO N+11
450 IF I>75 THEN V=64
460 X=V+INT(19.6*COS(TP*I/N)+0.5)
470 Y=35-INT(9.2*SIN(TP*I/N)+0.5)
480 SET(X,Y)
490 NEXT I
500 '  DRAW LEGS
510 ON ERROR GOTO 1330
520 S$=STRING$(10,176):F$=STRING$(3,176)
530 PRINT@653,S$;:PRINT@682,S$;
540 FOR I=1 TO 5:SET(22+I,33):SET(101+I,33)
550 IF(I<5)SET(20+I,34):SET(103+I,34)
560 IF(I<4)SET(19+I,35):SET(106+I,35)
570 NEXT I
580 PRINT@900,F$;:PRINT@954,F$;
590 FOR I=1 TO 8:SET(20-I,35+I):SET(108+I,35+I)
600 SET(21-I,35+I):SET(109+I,35+I):NEXT I
610 PRINT@907,F$;:PRINT@947,F$;
620 FOR I=1 TO 6:SET(39+I,37):SET(83+I,37):NEXT I
630 FOR I=1 TO 4:FOR J=1 TO 4
640 SET(88+(I-1)*3+J,37+I)
650 SET(36-(I-1)*3+J,37+I):NEXT J:NEXT I
660 FOR I=1 TO 2:FOR J=1 TO 2
670 SET(100+I-1+J,41+I)
680 SET(26-I+1+J,41+I):NEXT J:NEXT I
690 PRINT@915,F$;:PRINT@939,F$;
700 FOR I=1 TO 7:SET(44+I,41):SET(77+I,41):NEXT I
710 FOR I=1 TO 2:FOR J=1 TO 2
720 SET(43-I+1+J,41+I)
730 SET(83+I-1+J,41+I):NEXT J:NEXT I
740 '  SET IN A FRAME
750 FOR I=0 TO 127:SET(I,0):SET(I,47):NEXT
760 FOR I=1 TO 46:SET(0,I):SET(1,I):SET(126,I):SET(127,I):NEXT
770 '  MOVE THINGS . . . .
780 ON ERROR GOTO 1370
790 DIM U(6),V(6)
800 U(1)=25:U(2)=26:U(3)=27:U(4)=27:U(5)=26:U(6)=25
810 V(1)=58:V(2)=59:V(3)=58:V(4)=57:V(5)=56:V(6)=57
820 I=6:L=-1:J=0
830 RESET(V(I),U(I)):RESET(V(I)+14,U(I))
840 I=I+1:IF I>6 THEN I=1
```

BUGHUNT (All gone)

```
850 SET(V(I),U(I)):SET(V(I)+14,U(I))
860 ON ERROR GOTO 1410
870 IF I=6 GOSUB910
880 PRINT@149,"G O O D   H U N T I N G";
890 GOTO 830
900 '  END OF MAIN PROGRAM - SUBROUTINES FOLLOW
910 J=J+1:IF J>3 THEN J=1
920 IF J<3 THEN RETURN
930 L=-L:IF L<0 THEN 1010
940 FOR K=1 TO 6
950 RESET(61+K,35):SET(61+K,33)
960 NEXT K
970 RESET(60,33):RESET(69,33)
980 RESET(59,32):RESET(70,32)
990 SET(60,35):SET(69,35)
1000 RETURN
1010 ON ERROR GOTO 1460 :FOR K=1 TO 6
1020 RESET(61+K,33):SET(61+K,35)
1030 NEXT K
1040 RESET(60,35):RESET(69,35)
1050 SET(60,33):SET(69,33)
1060 SET(59,32):SET(70,32)
1070 RETURN
1080 '  ERROR TRAPPING ROUTINES AND EXTENDED ERROR MESSAGES
1090 PRINT"----------":PRINT
1100 PRINT"Out of string space in line 70"
1110 PRINT"Hint: CLEAR statement needs to have larger value"
1120 PRINT:END
1130 PRINT:PRINT"----------":PRINT
1140 PRINT"NEXT without FOR in line 230"
1150 PRINT"Hint: The variables in FOR and NEXT statements must match"
1160 PRINT:END
1170 PRINT:PRINT"----------":PRINT
1180 PRINT"Syntax error in line 270"
1190 PRINT"Hint: Check spelling of basic keywords and punctuation"
1200 PRINT:END
1210 PRINT:PRINT"----------":PRINT
1220 PRINT"Illegal function call in line 340"
1230 PRINT"Hint: Check for valid parameters in functions called"
1240 PRINT:END
1250 PRINT:PRINT"----------":PRINT
1260 PRINT"Another illegal function call in line 370"
1270 PRINT"Hint: Fix this bug like the last one"
1280 PRINT:END
1290 PRINT:PRINT"----------":PRINT
1300 PRINT"Division by zero in line 430"
1310 PRINT"Hint: None"
1320 PRINT:END
1330 PRINT:PRINT"----------":PRINT
1340 PRINT"Type mismatch in line 520"
1350 PRINT"Hint: A non-string variable was assigned to a string"
```

BUGHUNT (All gone)

```
1360 PRINT:END
1370 PRINT:PRINT"----------------":PRINT
1380 PRINT"Redimensioned array in line 790"
1390 PRINT"Hint: Check for earlier use of DIM statement"
1400 PRINT:END
1410 PRINT:PRINT"----------------":PRINT
1420 PRINT"RETURN without GOSUB in line 920"
1430 PRINT"Hint: Check for GOTO which should be GOSUB"
1440 PRINT:PRINT"Extra! Extra! Extra! This is the last bug!"
1450 PRINT:END
1460 PRINT:PRINT"----------------":PRINT
1470 PRINT"Disk BASIC feature in line 1060"
1480 PRINT"Hint: Never trust programs that claim to be bug free!"
1490 PRINT:END
```

HELP...HELP...HELP

Is there anyone in the group who wishes to part with or have extra copies of 80 Microcomputing.

We have two members at present looking for back issues and I believe they are willing to part with cash to aquire them.

The copies being sought are for Roy Williams to support the Z80 library tapes are :

March 1980, April 1980, May 1980, April 1981, August 1981

Contact Roy on : 061-336-8983

Copies being sought by John Redgate are :

All copies prior to November 1982

Also John would like to know if any member has attempted to make the following projects and had any success :

Port mapped A/D - 80 Micro June 1983
Ultimate Speech Synth - March/April 1984 Electronics & Computing
Eprom Programmer - Everyday Electronics June 1983

Contact John on : 061-790-9067

MANCHESTER SUB-GROUP

Over the past year the sub-group attendance has dwindled until we have a small group of stalwart, dedicated followers of Model I Level II, with some Level III owners.

As we all have disks and have all been in the North West Users Group for some time the discussions tend to be disk related and varies from the relative merits of DOS A as against DOS B to a moan about system failure ... which largly comes down to human error, but thats another story ....

WE'VE MOVED

The Manchester Sub-group has moved to South Manchester as that is more accessible to our members, and now meet on the first and third Mondays of each month at :

The Three Crowns
Heaton Moor
Stockport

For exact details of how to get there, ring
Roy Williams on : 061-336-8983

The main point of the meetings are that we discuss things of mutual interest to our highly specialised requirements. Not for us the problems of Dragons probable demise. Not for us the problems of portability of the Model 100 or what do you do when the colour T.V. is being used to watch the Olympics?

It is more technical, like "Why do I keep on getting 'DIRECTORY READ ERRORS?'" or can you remember what to do when the disk drive wont stop spinning?

If you feel like attending, remember "Whats Yours?" means what system, not what brew.

EXTRA DEFINABLE KEYS FOR YOUR DRAGON/COCO

By Adrian Bradshaw.

The following simple contraption enables one to provide a Dragon or CoCo with up to 256 extra keys! We will assume that three will be enough for now.

The extra keys are wired through a joystick port as shown in the diagram. The computer distiguishes between the keys by reading the voltage returned via a resistor of chosen value through the analogue-to-digital convertor. In a basic program, a key press can be detected by checking the value returned by the JOYSTK (0) command. Each joystick port has two inputs each having 64 steps. So if 64 resistors of different but not too high values can be found, 4*64 keys are possible. The following program shows how the system works.

```
1  REM Values for A in lines 20-65 depend on the resistors used.
10 CLS0
15 PRINT@9," ";:PRINT@12," ";:PRINT@15," ";
20 A=JOYSTK(0):IF A=63 THEN 15
30 IF A=38 OR A=39 THEN 100
35 IF A=41 THEN 110
40 IF A=31 THEN 120
45 IF A=28 THEN 130
50 IF A=22 THEN 140
55 IF A=23 OR A=24 THEN 150
60 IF A=18 THEN 160
70 GOTO 20
100 PRINT@9,"A";:PRINT@12," ";:PRINT@15," ";
105 GOTO 20
110 PRINT@12,"B";:PRINT@9," ";:PRINT@15," ";
115 GOTO 20
120 PRINT@15,"C";:PRINT@9," ";:PRINT@12," ";
125 GOTO 20
130 PRINT@12,"B";:PRINT@9,"A";:PRINT@15," ";
135 GOTO 20
140 PRINT@15,"C";:PRINT@12," ";:PRINT@9,"A";
145 GOTO 20
150 PRINT@9," ";:PRINT@12,"B";:PRINT@15,"C";
155 GOTO 20
160 PRINT@9,"A";:PRINT@12,"B";:PRINT@15,"C";
165 GOTO 20
```

The three extra keys are labled A,B and C, and provision is made for more than one of them being pressed at once. The above program simply demonstrates that one or more of the keys has been depressed by printing A,B or C on the screen. Clearly, the pressing of a key could be used to call a sub-routione or whatever.

In the diagram, the pins of DIN socket are viewed from the outside of the joystick port.

DIRECT VIDEO INTERFACING

A follow up by John Taylor

Due to the great response from an earlier article, our Editor recieved many phone calls and enquiries from members asking the same question :-

WHY DO WE HAVE TO USE AN ISOLATING TRANSFORMER, AND WHAT SORT IS IT ?

I will try to give you a simple answer.

Firstly, isolating transformers are used to physically remove an appliance from the mains supply. Years ago this was the norm, not for that reason alone, it was also the only way known to give the Television set all its secondary voltage supplies, both above and below normal mains voltages.

Now technology gives us far more stable and better regulated power supplies, but in some instances the televisions chassis no longer has zero volts potential but 120 volts.

Connection of computer chassis and television chassis(with a P.D. of 120 volt) is not reccomended.

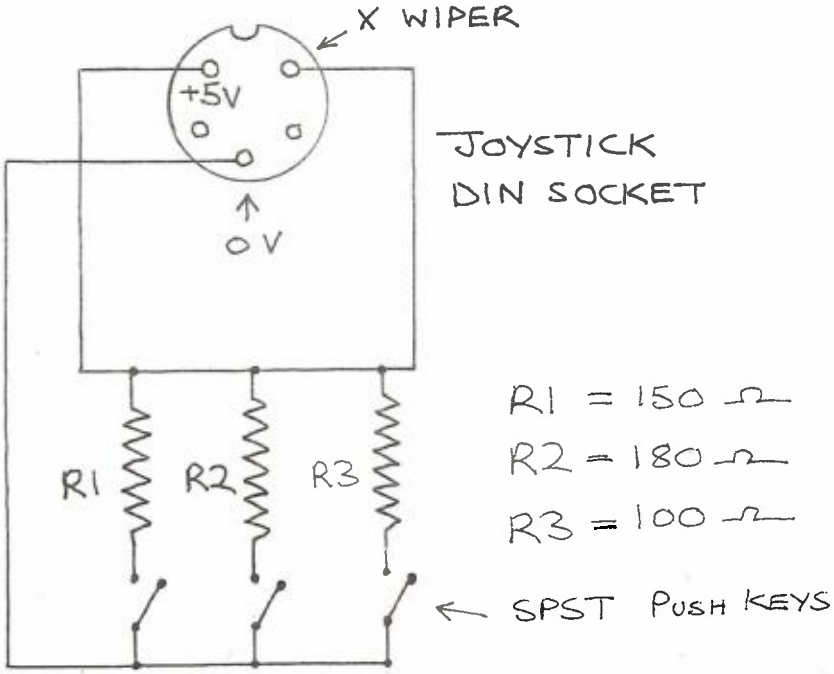
Secondly, on my modification I used a :-

240v-240v, 80va Toroidial transformer.

Why Toroidial? The only reason was the small physical size.

I hope this will help the members who put forward the queries on the article.

CIRCUIT DIAGRAM FOR DEFINABLE FUNCTION KEYS



TIMELOCK

The following source code was, yet again, originally written by Melvyn in 1981, where did he get the time in them days. It is one of several short machine code programs that Melvyn wrote to improve disk operating systems and the like.

I understand from Melvyn that he intends to publish most of them in future newsletters, which should please the machine code dabblers amongst us.

I think the reasons he has agreed to publish these small routines are that we still are not receiving articles or programs for the newsletter in any quantity, and he's the only one I know that has hundreds of these little gems hidden away.

It is a very useful utility to have if you use the date and time facility of the TRS-80 within your own programs. The utility ensures that even after a disk is rebooted the date and time stay as previously set.

The program compensates for the time taken to reload the DOS but I sorry to say does not compensate for excessive disk drive interupts.

The utility must be resident on every disk you are going to reboot, this you may think wasteful at first but considering that it's size is tiny the problem of wasting disk space is not realy serious. It must also be loaded by the AUTO DOS command so as to intercept the keyboard scan prior to operator gaining control.
i.e Copy the utility on to each disk required and whilst that disk is in drive 0 type AUTO TIMELOCK.

You must also remember that upon pwering up your system you must correct the date and time using the DOS commands.

The facility therefore gained is to only have to enter the date and time once upon power up.

```
00100          ORG  0FE99H
00110 TIMLCK   LD   HL,TITLE
00120          CALL 4467H
00130          LD   HL,TITLE2
00140          CALL 4467H
00150          JP   START
00160 TITLE2   DEFB 206
00170          DEFM '** SOFTWARE THAT LOADS FROM DOS OR **'
00180          DEFB 10
00190          DEFB 206
00200          DEFM '**  POKES FROM BASIC, ABOVE HIGH **'
00210          DEFB 10
```

TIMELOCK

```
00220          DEFB 206
00230          DEFM '**   MEMORY WILL CORRUPT DOS   **'
00240          DEFB 10
00250          DEFB 206
00260          DEFM '-:  HIGH MEMORY IS SET AT 65502  :-'
00270          DEFB 10
00280          DEFB 13
00290 TITLE    DEFB 28
00300          DEFB 31
00310          DEFB 206
00320          DEFM '    -*- TIMELOCK/CMD -*-'
00330          DEFB 10
00340          DEFM ' '
00350          DEFB 10
00360          DEFB 206
00370          DEFM '    AUTO-CLOCK BOOT LOCKER'
00380          DEFB 10
00390          DEFB 206
00400          DEFM '     COPYRIGHT <C> 1981'
00410          DEFB 10
00420          DEFB 206
00430          DEFM '      BY ALUCARD INC.'
00440          DEFB 10
00450          DEFM ' '
00460          DEFB 13
00470 START    LD  HL,CLOCK-1
00480          LD  (4049H),HL
00490          LD  HL,(4016H)
00500          LD  (SCAN+1),HL
00510          LD  HL,CLOCK
00520          LD  (4016H),HL
00530          LD  A,(OFFF9H)
00540          ADD A,6
00550          LD  (OFFF9H),A
00560 CLOCK    LD  A,(4044H)
00570          CP  0
00580          LD  HL,OFFF9H
00590          LD  DE,4041H
00600          JR  Z,NUMB1
00610          EX  DE,HL
00620 NUMB1    LD  B,6
00630 NUMB2    LD  A,(HL)
00640          LD  (DE),A
00650          INC  HL
00660          INC  DE
00670          DJNZ NUMB2
00680 SCAN     JP  0000H
00690          END  TIMLCK
```

6809 WRINKLES and WANGLES.

By Adrian Bradshwaw.

Some of the following may already be known to you, but I don't think they have appeared in Rem-80 before.

By now I am sure you will know that POKE &HFFD7,0 puts a Dragon or CoCo into high speed mode and that POKE &HFFD6,0 restores it normal.

But note, if you forget to cancel the high speed mode before you CSAVE a program, which is all too easy to do, you can still CLOAD it providing you POKE &HFFD9,0 first. There is a slight problem here in that this POKE causes a loss of display, so you have to type CLOAD without being able to check for typing errors such as CLOAF etc! Once the program has loaded, type POKE &HFFD8,0 to get the display back. Interestingly, this means you have CSAVEd at 3000 Baud!

Some Dragons won't support high speed mode, but most seem to, and the only CoCo I've tried it on behaved itself. Did you know that there is an even higher speed mode? POKE &HFFD9,0 is the command for super high speed, and POKE &HFFD8,0 cancels it. This mode also causes a loss of display, but can be useful for heavy number-crunching sessions which would otherwise be too time-consuming. (Yes, this POKE is the same as the one in the previous paragraph.)

If you fancy disabling the BREAK key, and some people do, then the following series will appeal to you:-

POKE411,228:POKE412,203:POKE413,4:POKE414,237:POKE415,223

.....this series of POKES achieves initialisation and then :

POKE410,236 disables the BREAK key, and POKE410,57 re-enables.

You can also disable LIST with the following sequence:-

POKE383,158:POKE157,125:POKE158,0.

To re-enable, type this collection of POKES:-

POKE383,57:POKE157,3:POKE158,2.

On the DRAGON 32, there is no auto-repeat when using the INKEY$ function. However, you can get auto-repeat for the keys indicated by using the values shown in the table below.

6809 WRINKLES and WANGLES.

Key	Locations 337	338	339	340	341	342	343	344	345
Up-arrow	223				223				
Down-arrow	223					223			
Left-arrow	223						223		
Right-arrow	223							223	
Space bar	223								223
Clear	191		191						
Enter	191	191							

Under normal circumstances (i.e. no key pressed) all these locations contain 255. Only those values which change from 255 when a key is depressed are shown in the table. The following routine demonstrates how to make use of this.

```
1 REM AUTO REPEAT FOR SPACE BAR
10 CLS:PRINT@195,"PRESS SPACE BAR"
20 IF PEEK(337)=223 AND PEEK(345)=223 THEN 30 ELSE 40
30 PRINT@259,"WHEN RELEASED":GOTO 20
40 PRINT@259,"             ":GOTO 20
```

To conclude this random mix, here are a further couple of wheezes.

As you know, LISTing on the Dragon is much too fast for comfort, but POKE 359,60 slows it down quite nicely. To return to normal LISTing speed, POKE 359,57.

For Reverse Video, POKE 329,0. POKE 329,255 unreverses it. This is really the equivalent of SHIFT 0.

DRAGON GOES ABROAD ???

For those of you who didn't see the announcements, it appears that Dragon Data may be about to be taken over by a Spanish Company called Eurohard SA.

Tandy definitely seem to have pulled out, apparently because they wanted no part of the hardware manufacturing side at Port Talbot. Eurohard claim to be interested in continuing manufacture, but not necessarily in Welsh Wales.

I'll believe it when I see it.

SOUND PROGRAM

Reprinted from REM 80 January 1980

This program although very simple can be used to produce a wide variety of interesting sounds. After typing in the program, save it on disk or cassette, then run it. After running the program, LIST it, line 10 should appear to be garbage, in fact this is the sound program. Delete lines 27 and 40, the program is now ready for use.

```
10 M$="THIS IS WHERE THE SOUND GOES!"
20 I=VARPTR(M$)
25 J=PEEK(I+1)+256*PEEK(I+2)
27 FOR X=J TO J+27:READ A:POKE X,A:NEXT
30 DEFUSR0=J:POKE 14303,0:REM FOR DISK PEOPLE
30 POKE 16526,PEEK(I+1):POKE 16527,256*PEEK(I+2):REM NON-DISK PEOPLE
40 DATA 205, 127, 10,77, 68, 72, 1, 105, 211, 255, 45, 32, 253, 60,
   105, 211, 255, 45, 32, 253, 13, 16, 238, 175, 211, 255, 201, 34
```

In order to be able to listen to the sound, the AUX lead which normally goes to the tape recorder is connected to the input of any small amplifier. Here are a few lines to test the program.

```
100 L=USR(0):REM A WHOOPING SOUND
200 FOR X=1TO200:L=USR(3E3+RND(255)):NEXT:REM R2-D2 MOVE OVER
300 FOR I=4000 TO 2069 STEP-1:L=USR(I):NEXT
400 FOR I=1TO50:L=USR(1111-I):NEXT
```

Below we have supplied an assembly listing for the machine code dabblers.

```
100             CALL   0A7FH
110             LD     C,L
120             LD     B,H
130             LD     A,01H
140             LD     L,C
150             OUT    255,A
160  LOOP       DEC    L
170             JR     NZ,LOOP
180             INC    A
190             LD     L,C
200             OUT    255,A
210  AGN        DEC    L
220             JR     NZ,AGN
230             DEC    C
240             DJNZ   $-10H
250             XOR    A
260             OUT    255,A
270             RET
```

A.E. SHEIL — Ref Melvyn Franklen. — Sept '84 155-7

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Software News



INNOVATIVE
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from the professionals

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Info-Scan is an information reference and retrieval utility. It combines the features of a data base manager, a word processor and display utility.
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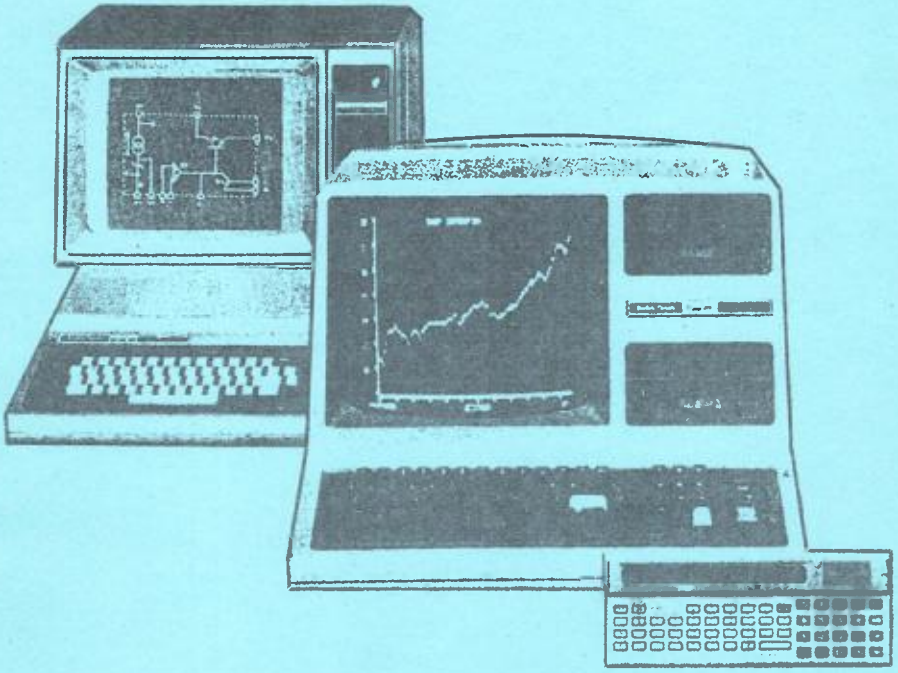
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Read from 12 Nov 84

REM 80



The North West TRS 80 Users Group

Volume 6 Issue 5

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EDITORIAL

Hello and welcome to Peter Mooneys Newsletter as apart from your committee he was virtually the only member to submit anything.

To say that I am disgusted with the lack of response, especially from those of you who moan despite the great amount of work we all put into the group, is to put it very mildly.

So instead of critisizing you can do something. I should be grateful, as the next Newsletter has to be ready to go to the printers by the 30th November and if there is nothing, you will not get a Newsletter at all. Melvyn no longer has the time to write three quarters of it under pseudonyms to try to spare your feelings.

See you all at the Christmas meeting .....

Carolyn

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Any articles or programs for inclusion in this Newsletter must be addressed directly to the Editor, preferably on cassette, disk or uploaded, (all normal communication protocols are acceptable), at the following address :-

40, COWLEES,
WESTHOUGHTON,
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BL5 3EG
Tel ... 0942-812843

****
** ACTIVITIES PAGE **
** By Brian Disley **
****

Well dear readers we are getting close to the end of another fruitfull year (I hope I hear you say!). Despite the non eventfull meetings during this year which I appologise for once more, at least the next three meetings are (I hope!) taken care of.

November the 28th is as I said in the last issue on the subject of the Open University with our friendly librarian Mr. Roy Williams, an expert on the subject I'm told.

December, as before will not have a meeting on the last Wednesday of the month, but wait for it .... YES there will be a SUNDAY meeting on DECEMBER the 16th but (and here's the snag!) it will NOT be at Barton, instead Dave Sellwood who is likely to be the next Director general of the B.B.C (or so I've heard!) has procured the Club room of the aforesaid Bee Bee Cee on Oxford Road in Manchester City Centre no less for the exclusive use of our members.

This meeting will similar to our previous Christmas meetings but without the chaos as at the last meeting (I hope). There will be plenty to keep you occupied during the course of the day I will arrange demonstrations of buletin boards and communications, chats on various subjects there will be a raffle, perhaps we can arrange an auction, anyone out there wish to help arrange it please contact me now, and of course there will be refreshments and buffet available.

Admission to this meeting will be £1.00 for members and £1.50 for non-members, and you will notice, yet again we have not increased our charges.

Full details of the venue and how to get there as supplied by Dave Sellwood are on page 2 of this Newsletter.

January is of course the A.G.M. and details will be suplied in the December Newsletter.

If you have any ideas or suggestions for the December meeting or infact any meeting please don't hesitate to contact me on 061 723 5033.

Don't forget, NOW is the time to think about renewing your membership for next year. Members rejoining before 31st December get a reduction of a £, so act now and save money.

THE ALL-DAY CHRISTMAS MEETING
at THE BBC CLUB CHARLES STREET MANCHESTER

This year the Aero club is not available for the all day Christmas meeting, so Melvyn telephoned me and said, "O.K. Dave you haven't done much on the committee front this year, go and find somewhere to have a Christmas meeting", so with my venue-finding head on I thought long and hard. Then it struck me as one of the Beeb club committee men gave me a friendly clout on the back of my head, why not have it at the B.B.C. Club? Its got a bigger hall than the room we use at Barton, the beer is a bit cheaper, its got suave decor and it will be really cheap (or so I thought).

So with it finally arranged, these are the details so far :-

The venue - B.B.C. Club, Charles St., Manchester.

The times - 10 a.m. to 10 p.m. (do not arrive earlier as the security men will not have arrived and you will feel a right wally standing in the cold), 10.15 is probably about the best time to arrive, this will give the security men time to unlock all doors and turn the alarms off and get the heating going, the bar will be open 12 noon till 2 p.m. and again 5 p.m. till 9 p.m., lunch will be a buffet style affair served early in the afternoon.

How to get there - If you are coming in from the Stockport side (east) of Manchester then head for the University and the N.C.C., that takes you on to Oxford Rd., turn right by the B.B.C. at the traffic lights into Charles St., down to the bottom past the Beeb, the club is the new building at the bottom on the right (red paintwork and sandstone coloured brickwork). If you are coming in from the west side, take either the M62/M602 in to Manchester then the Mancunian way (A57M) and take the UMIST turn off heading round to the right at the Y in the road, down to the pub on the left, turn left to go down by the multi-storey car park across the lights at the bottom and into Charles St. (club is on the left) or use the East Lancs Rd. (A580) heading for Salford, onto the Crescent, then continue past Salford Royal Infirmary, you go through 2 sets of lights after the end of the crescent and turn right at the third set under the railway bridge for Salford station (a bed shop is diagonally to the right at these lights) onto Princess Way, straight ahead at the next lights (heading for Albert Sq.) and basically follow the road for another 3 sets , then turn right at the next set into Charles St. (The Old Gaiety pub is on the left just before this turning).

Please bring your own mains extension leads if you are bringing your system as the club is not providing any mains leads and please also note that there will only be 18 tables in the main hall area and systems will not be allowed upstairs in the bar.

Anyone requiring further help can always 'phone me, Dave Sellwood on Leigh 670604.

Heres to a successful Christmas meeting, see you there.

6809 FORUM

by Barry Steward

I do like short listings - they do not take very long to tap. I also like the graphics of the Colour Computer so this month I will present not one but TEN short graphics programs. They need no explanation just type them RUN they and alter them as you please. Most of all have fun, Barry

LISTING ONE

```
10 CLSO:A=143:B=31
20 A=A+RND(16):IF A>=256THEN70
30 B=B+1:IF B=256 THEN B=31:GOTO 20
40 PRINT@B,CHR$(A);
50 PRINT@479-B,CHR$(A);
60 GOTO 30
70 A=143:GOTO 30
```

LISTING TWO

```
10 CLSO:Z=143:Y=159:GOTO60
20 FOR A=0 TO 510 STEP 2
30 PRINT@A,CHR$(Z);:NEXT
40 FOR A=0 TO 510 STEP3
50 PRINT@A,CHR$(Y);:NEXT:RETURN
60 Z=Z+16:IF Z>=256 THEN Z=143
70 Y=Y+16:IF Y>=256 THEN Y=159
80 GOSUB 20:GOSUB60
```

LISTING THREE

```
10 PMODE 4,1:PCLS1:SCREEN1,1
20 FOR A=70 TO 184 STEP 2
30 LINE(0+A,50)-(254-A,150),PRESET
40 IF A<=250 THEN NEXT
50 FOR A=50 TO 151 STEP 2
60 LINE(70,200-A)-(185,0+A),PRESET
70 IF A<=190 THEN NEXT
80 PAINT(2,2),0,0
90 FOR A=80 TO 90
100 CIRCLE(128,100),A,1
110 NEXT
120 GOTO 120
```

6809 FORUM

LISTING FOUR

```
10 PMODE 4,1:PCLS1:SCREEN 1,1:X=X+2:GOTO30
20 LINE(126,96)-(A,B),PRESET:RETURN
30 A=A+X:GOSUB 20:IF A>=255 THEN 40 ELSE 30
40 B=B+X:GOSUB20:IF B>=191 THEN 50 ELSE 40
50 A=A-X:GOSUB 20:IF A<=0 THEN 60 ELSE 50
60 B=B-X:GOSUB 20:IF B<=0 THEN 70 ELSE 60
70 Q=Q+1:IF Q>=3 THEN 70 ELSE 10
```

LISTING FIVE

```
10 PMODE 4,1:PCLS1:SCREEN 1,1:X=90:PLAY"P1
20 FOR Y=.0001 TO 1 STEP .04
30 CIRCLE(126,96),X,0,Y
40 NEXT:PLAY"P1P1
50 FOR Y=1 TO .0001 STEP-.02
60 CIRCLE(126,96),X,1,Y:NEXT:GOTO10
```

LISTING SIX

```
10 PMODE 4,1:PCLS1:SCREEN 1,1
20 X=0:Y=Y+3
30 LINE(255,191)-(X,0),PRESET
40 LINE(0,191)-(255-X,0),PRESET
50 LINE(0,0)-(255-X,191),PRESET
60 LINE(255,0)-(0+X,191),PRESET
70 X=X+Y:IF X>=250 THEN 80 ELSE 30
80 X=0
90 LINE(255,191)-(X,0),PSET
100 LINE(0,191)-(255-X,0),PSET
110 LINE(0,0)-(255-X,191),PSET
120 LINE(255,0)-(0+X,191),PSET
130 X=X+Y:IF X>=250 THEN 20
140 IF X=Y>=253 THEN 150 ELSE 90
150 PCLS1:Y=0
160 Y=Y+3:CIRCLE(126,96).Y,0
170 IF >=90 THEN 180 ELSE 160
180 Y=Y-3:CIRCLE(126,96),Y,1
190 IF Y<=3 THEN 190 ELSE 180
```

LISTING SEVEN

```
10 PMODE4,1:PCLS1:SCREEN 1,1:A=-1:X=X+4:DRAW"BM126,0;COD5
30 CIRCLE(126,96),X,0,1,.25,.75
40 CIRCLE(126,100),X,0,1,.75,.25
50 IF X>=95 THEN 60 ELSE 20
60 PAINT(126,94),0,0
70 A=A+1:IF A>=4 THEN A=A+3
80 IF A>=189 THEN A=A-3
90 LINE(0,A)-(255,A),PRESET
100 IF A>=191 THEN 110 ELSE 70
110 GOTO110
```

6809 FORUM

LISTING EIGHT

```
10 CLSO
20 A=A+9:IF A=>63 THEN A=0:X=X+2:IF X>=6 THEN X=3
30 SET(A,0,X):SET(63,A-A/2,X)
40 SET(0,32-A/2-1,X):SET(63-A,31,X):GOTO20
```

LISTING NINE

```
10 CLSO:A=143
20 A=A+16:IF A>=256 THEN A=143
30 B=B+1:IF B>=32 THEN B=0
40 PRINT@B,CHR$(A);
50 PRINT@31-B,CHR$(A);
60 PRINT@479-B,CHR$(A);
70 PRINT@448+B,CHR$(A);
80 C=C+32:IF C>=479 THEN C=0
90 PRINT@448-C,CHR$(A);
100 PRINT@0+C,CHR$(A);
110 PRINT@31+C,CHR$(A);
120 PRINT@479-C,CHR$(A);
130 GOTO20
```

LISTING TEN

```
10 DRAW"BM7,15;":A$="C2E10F10G10H10;":PMODE1,1:PCLS3:SCREEN1,0
20 A=A+1:IF A<13 THEN DRAW A$:DRAW"BM+20,0;":GOTO 20
30 DRAW"BM-20,0"
40 A=A+1:IF A<23 THEN DRAW A$:DRAW"BM+0,+20;":GOTO40
50 DRAW"BM+0,-17"
60 A=A+1:IF A<36 THEN DRAW A$:DRAW"BM-20,0;":GOTO 60
70 DRAW"BM+6,-20"
80 A=A+1:IF A<45 THEN DRAW A$:DRAW"BM+0,-20;":GOTO 80
90 PAINT(2,2),1,2:PAINT(20,22),4,2:GOTO 90
```

COMPUTER FACTS

Did you know Lockheed-Getex of the USA has just produced a small device which shows the direction of Mecca from two hundred pre-programmed cities throughtout the world. It also gives out a beep five times a day when the faithful should be praying. Whatever will they think of next, devices that tell the time that fit on your wrist or computers that can carried in a handbag or pocket.

Have you any true computer facts, or even fiction?

M I C R O - W O R D

This puzzle is intended to be none-too-easy. However, what I thought subtle and elegant may seem obvious to you! Most clues and/or solutions are computer oriented.

CLUES ACROSS

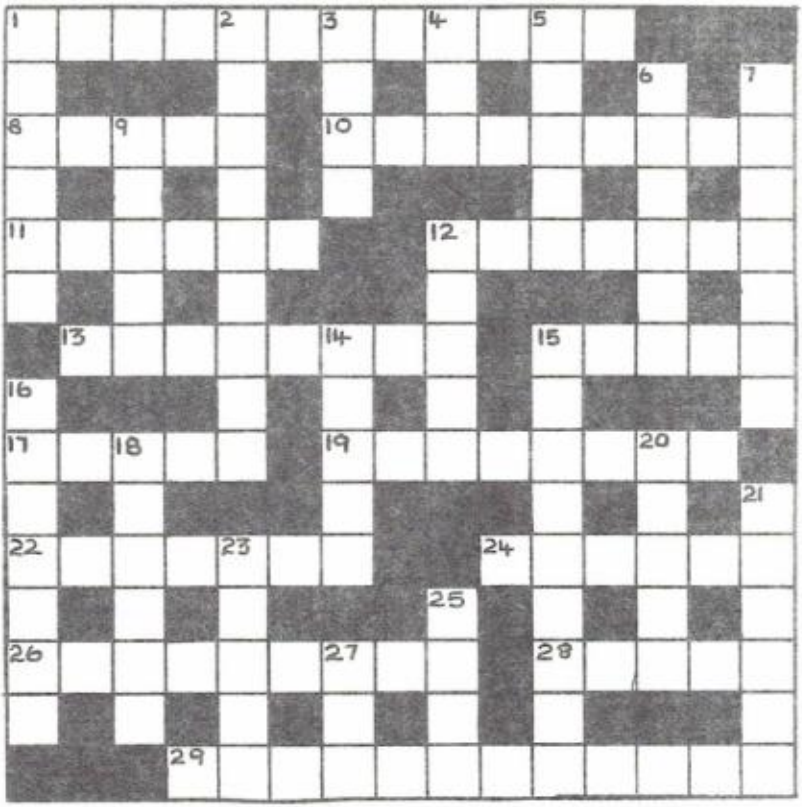
1. Interference starts with micro. (12)
8. Zero success and little George is now due. (5)
10. Don't upset a truckload of micros! (9)
11. Not for FOR-NEXT loops but loops for necks! (6)
12. Disassemble the joint. (5,2)
13. Outlandish Oric with toes. (8)
15. One crazy game on the Vdu. (5)
17. Kind of acid point for reusable power. (5)
19. True PSET makes troublemaker. (8)
22. Refuse, in and out. (6)
24. Micro will last and last, we hear. (6)
26. Blower at the end of the line. (9)
28. As far as one can REPEAT. (5)
29. Delegates in Herts held in reserve. (6,6)

CLUES DOWN

1. Alternating current with alternative poles can be micros.(6)
2. In bits like worms and oranges. (9)
3. Detect sound to sound like this place. (4)
4. Reverse through a small republic. (3)
5. Obvious there's nothing on the screen. (5)
6. Ace RAM creates images. (6)
7. Walk through motor. (7)
9. Lisa's 14 acrosses. (5)
12. Tandy clowns? (5)
14. True zero makes way. (5)
15. Break up true print. (9)
16. Logical device as well as football cash. (3,4)
18. Basically round. (6)
20. Binary 1000 converted to hex. (6)
21. Not digital. (6)
23. Me and a pal are quite enough. (5)
25. Get data about publicity. (4)
27. Move inside igloo outside. (1,1,1)

Yes, you guessed it, it's a prize Micro-Word for full group members only. The first members copy, correct of course, to be received and opened will win, wait for it, £5.00's worth of libray use, Z80 or 6809.

So get your thinking caps on and lets see exactly what you can do. I'm told it's not so easy as it first seems. We would also like to hear from members as to whether they would like some more Micro-Words in future newsletters, as I think we've got a Micro-Word building addict amongst us.



COLOUR LIBRARY NOTES

Prelonged involvement with crosswords forces me to be very brief this month.....

The library continues to be pleasantly busy, however we love to see yet more use made of it. Many worthwhile additions have been made since the last list was printed, and it is now fair to say that a transformation has taken place. Come and see us at the next meeting, or give Adrian or myself a ring on this number ..... 0204-67023.

Incidentally, British Telecom are going to change this phone number in near future. As soon as the date is certain, the new number will be printed in REM-80.

COMPUTER LANGUAGES

by Peter Mooney.

Fed up with tired old BASIC? Are your programs just too slow? Fancy trying another language?.....

Well why not? After all there are few micros that can offer a wider choice. I have just checked through my discs and counted 7 different languages just waiting to be used. So why not get out of the rut of Basic programming and try a new flavour. By way of a tasting sample, here is a quick introduction to just a few...

The computer language that we are most familiar with is of course BASIC. BASIC is an INTERACTIVE language. This means that the user can communicate with the computer directly, jumping from entering a program to running it, and then debugging, without it needing translation or reloading. Interaction is impossible unless the user has direct access to the computer - something which may be difficult to arrange on a Mainframe. But interaction is made easier because BASIC is INTERPRETED and not COMPILED. What is the difference?

An Interpreted language has the program stored in the form of text. As the program is run, so each instruction is first translated into machine code and then executed, before moving on to the next instruction. This translation takes place WHILE THE PROGRAM IS RUNNING and slows down the processing - but it has the advantage that the original text is always in memory if it needs altering.

An INTERPRETER is a special program which HAS to be in the computer in order to translate and run the main program. Because it occupies a large chunk of memory there will be less room for the main program - this can be a big disadvantage on a microcomputer.

A Compiled language is rather more complex. A program written in a compiled language exists in TWO forms....

First the program is written out in text form and perhaps stored on tape or disc. This is called the SOURCE CODE. It cannot be run on the computer yet because it needs translating. This is the job of the COMPILER - a special program which takes the SOURCE CODE text, and converts it to machine code.

The complete program is translated, and a second version of the program - this time in machine code - is produced. The machine code version is called the OBJECT CODE. It is this code which will later be run on the computer.

Because the translation is done BEFORE the program is run there will be no need for the translation program to share the memory with the main program. This leaves room for bigger programs. However if an error is found then debugging is more difficult. First the compiler is reloaded, then the original text, then alterations are made and the whole program recompiled to give the new object code.

COMPUTER LANGUAGES

The main advantage of a Compiled language is that it produces a complete machine code program which will run very fast and save processing time. The compiling can even be done on a different kind of computer.

BASIC is now one of the older languages (it began in 1964 - about the same time as the Beatles) so it lacks some of the features of the newer STRUCTURED languages such as PASCAL. A program in a structured language is written in such a way that it is easy to understand and follow the flow of the program - something that is difficult to do in Basic. Because of this weakness of Basic there have been attempts to improve it by adding new commands which allow structured programming, but these are not part of the standard language. This is a feature of BBC basic, which has structures such as Procedures, and Repeat...Until, which were copied from Pascal.

BASIC is not a particularly good language, but it is versatile. It is able to cope with quite complex Maths - like FORTRAN. It can handle files and business programs in a reasonable fashion - like COBOL. And it is quite easy to learn, so it is used as a teaching language - like PASCAL. But of these languages only Basic is interpreted.

There are of course many other possible languages used today, and a programmer would choose the language best suited to the job he was working on. However to highlight some of the differences between languages we will look at BASIC, FORTRAN, COBOL, PASCAL and ASSEMBLER. To help you get the feel of the language I have written a program using each of them in turn. The program specification is the same in each case.....

To Find The Average Of A Set Of Numbers.

To begin with BASIC.....

BASIC PROGRAM TO FIND AVERAGE

```
10  REM THIS PROGRAM FINDS THE AVERAGE OF N NUMBERS
20  REM N = NUMBER OF ITEMS
30  REM V = PRESENT ITEM BEING READ
40  INPUT N
50  LET SUM = 0
60  FOR I = 1 TO N
70  INPUT V
80  LET SUM = SUM + V
90  NEXT I
100 LET AV = SUM/N
110 PRINT "THE AVERAGE IS "; AV
120 END
```

COMPUTER LANGUAGES

Although this looks a very simple Basic program it shows some of the features of the language.

1. Looping..using FOR/NEXT.
2. The INPUT statemant
3. Assignment statements....LET and =.
4. Arithmetic... + and /.
5. Output....using PRINT.

Now let's turn to PASCAL. This language began in 1970, but it uses many of the features of an earlier language called ALGOL. Algol was the first structured language and has led to many other languages as well as Pascal.

PASCAL has less than 40 key words (BASIC may have over 100) - but they allow a wide variety of program designs. To try to show you some of its features I have written the program in two different ways. The first is intended to be as near BASIC as possible.

PASCAL PROGRAM TO FIND AVERAGE 1

```
PROGRAM AVERAGE (INPUT, OUTPUT);
   (* THIS PROGRAM FINDS THE AVERAGE OF N NUMBERS *)
   (* N = NUMBER OF ITEMS *)
   (* V = PRESENT ITEM BEING READ *)
VAR I , N : INTEGER ;
   SUM , V , AVERAGE : REAL ;

BEGIN
READ (N) ;
I := 1; SUM := 0;
  WHILE I <= N DO
    BEGIN
      READ (V) ;
      SUM := SUM + V ;
      I := I + 1;
    END ;
  AVERAGE := SUM/N ;
WRITELN ('THE AVERAGE IS ', AVERAGE) ;
END
```

The program has the same features as the Basic version.

1. Looping..using WHILE....END
2. Input using READ ( )
3. Assignment statements... I := 1
4. Arithmetic... + and /.
5. Output using WRITELN.

COMPUTER LANGUAGES

One difference is that all the variables being used must be defined at the start of the program. This is common in most compiled languages. Here the statemant used is VAR..
...and the type of variable must also be decided. Some are Integers (whole numbers only) and others Real (may have decimal points). Variable names can be any length.

You can also see some Remark statemants.. (* *). It would have been possible to make the program even more like Basic by using a FOR NEXT loop instead of WHILE END but Pascal has a much wider choice of loops. Notice also that there are no line numbers. Parts of a PASCAL program have names instead of numbers - this is best shown by rewriting the program.

Here is a second version using procedures. These are like subroutines in Basic but much more powerful. The main program structure is at the top, then the procedures follow. The main program calls up each of them in turn.

PASCAL PROGRAM TO FIND AVERAGE 2

```
PROGRAM  AVERAGE (INPUT, OUTPUT);
   (* THIS PROGRAM USES PROCEDURES *)
VAR  N : INTEGER ;
     AVERAGE : REAL ;

BEGIN
   READHOWMANY ;
   ADD'EMUP ;
   PRINTAVERAGE ;
END ;


PROCEDURE READHOWMANY ;
   BEGIN
    READ (N) ;
   END ;


PROCEDURE ADD'EMUP ;
   VAR V, SUM : REAL ;
       I : INTEGER ;
   BEGIN
    I := 1; SUM := 0;
    WHILE I <= N DO
     BEGIN
      READ (V) ;
      SUM := SUM + V ;
      I := I + 1 ;
     END ;
    AVERAGE = SUM/N
   END ;
```

COMPUTER LANGUAGES

```
PROCEDURE PRINTAVERAGE ;
   BEGIN
    WRITELN ('THE AVERAGE IS ',AVERAGE) ;
   END ;
```

How did you find that? It isn't really all that hard to follow is it. The program is perhaps better written the first way, but this version gives you more of an idea of the structure of Pascal.

Now for a bit more history because the next program is written in FORTRAN.

FORTRAN is short for FORmula TRANslator, and is one of the earliest languages. It was the main language of the '50s and '60s when most computers were used in science or research. There are literally millions of FORTRAN programs and this explains its popularity even though there are often more suitable languages.

FORTRAN was designed to deal with Maths, so you would expect it to make the Average program easy. Here it is....

FORTRAN PROGRAM TO FIND AVERAGE

```
C    THIS PROGRAM FINDS THE
C    AVERAGE OF N NUMBERS
     READ (5,10) N
10    FORMAT (I2)
     SUM = 0
     DO 30 I = 1, N
     READ (5,20) V
20    FORMAT (F5.0)
30    SUM = SUM + V
     AVERAG = SUM/N
     WRITE (6,40) AVERAG
40    FORMAT (16H THE AVERAGE IS , F6.2)
     END
```

This is quite easy to follow so here are the features as before..

1. A Loop statement... DO 30 I = 1, N... This means DO all the statements down to 30 using values for I from 1 to N.

2. An input statement..READ (5,10) N... This means READ from device number 5 (a card reader), the value of N, and expect it to take the FORMAT given in line 10. The FORMAT says.. an Integer with 2 figures. (so we couldn't average more than 99 numbers). There is a second READ to get the values of V. This time the FORMAT to use is a Floating point number of 5 figures and perhaps a decimal point (.)

COMPUTER LANGUAGES

3. The assignment statement does not need a word like LET, just SUM=0.

4. Arithmetic uses + and / as before.

5. The output statement is WRITE (6,40) AVERAG ... you probably guessed Device 6 is a printer and the FORMAT is in line 40.

Variables in FORTRAN are a bit strange. Any that start with letters from I to N will only hold Integers. They must start with a letter (like Basic) and they can not be more than 6 letters long. Now you can see why I have had to call one of the variables AVERAG - it isn't bad spelling.

There are not actually line numbers in FORTRAN but statements can be numbered to direct the program to the correct place. The 'C' means that this statement is a Comment (like REM) and can be ignored by the compiler.

And now for something much more difficult.
The same program written in COBOL.

COBOL stands for Common Business Oriented Language and was designed in the late '50s. Like FORTRAN there are thousands of COBOL programs already written and it is still the most common commercial language in use. Its great strength is in handling files of data, especially where there is lots of Input/Output processing. Remember also that COBOL was never designed to perform Maths. The fact that it is possible to write this program at all shows that it is capable of the sort of simple arithmetic found in business reports and files.

COBOL PROGRAM TO FIND AVERAGE

```
IDENTIFICATION DIVISION.
PROGRAM-ID.  AVERAGE.
PROGRAMMER E.P.MOONEY

ENVIRONMENT DIVISION.
CONFIGURATION SECTION.
SOURCE-COMPUTER.     TRS-80.
OBJECT-COMPUTER.     TRS-80.

INPUT-OUTPUT SECTION.
FILE-CONTROL.
    SELECT INPUT-FILE, ASSIGN TO INPUT "AVERAGE/DAT".
    SELECT PRINT-FILE, ASSIGN TO PRINT "AVERAGE/TXT".

DATA DIVISION.
FILE SECTION.
FD   INPUT-FILE
    LABEL RECORDS ARE OMITTED
    DATA RECORD IS NUMBERS-IN, NUMBERS-IN2.
01   NUMBERS-IN.
    02 ITEM          PIC  999.
```

COMPUTER LANGUAGES

```
FD   PRINT-FILE
     LABEL RECORDS ARE OMITTED
     DATA RECORD IS ANSWER-OUT, ANSWER-OUT2.
01   ANSWER-OUT.
     02 NUM-OUT          PIC  999.
01   RECORD-OUT.
     02 AVERAGE-OUT      PIC  9999V999.

WORKING-STORAGE SECTION.
77   TOT-SUM            PIC  999 VALUE 0.
77   FLAG               PIC  9  VALUE 0.
77   TOT-ITEMS          PIC  999.

PROCEDURE DIVISION.
     OPEN INPUT INPUT-FILE, OUTPUT PRINT-FILE.
     READ INPUT-FILE AT END MOVE 9 TO FLAG.
     MOVE ITEM TO TOT-ITEMS.
     READ INPUT-FILE AT END MOVE 9 TO FLAG.
     PERFORM PROCESS-NUMBERS UNTIL FLAG = 9.
     DIVIDE TOT-ITEMS INTO TOT-SUM GIVING AVERAGE-OUT.
     WRITE ANSWER-OUT.
     CLOSE INPUT-FILE, PRINT-FILE.
     STOP RUN.

PROCESS-NUMBERS.
     MOVE ITEM TO NUM-OUT.
     WRITE RECORD-OUT.
     ADD ITEM TO TOT-SUM.
     READ INPUT-FILE AT END MOVE 9 TO FLAG.
```

Where shall we start??? I'm sure you will agree that COBOL makes a real job of our simple task. It would hardly be worth writing a program in COBOL just to find an average simply because it takes so long to type out!!

Just to help you follow some of the program I must explain that every COBOL program is in 4 parts or divisions, and that these are named in the program. The first is the IDENTIFICATION division, simple enough. The second is the ENVIRONMENT division, telling the compiler which computer and filing systems to use. The most complex division is DATA. Which explains in great detail exactly where the data is, where it is going to be stored, and what its format is.

The calculation of the average is in the PROCEDURE division and takes the form of statements which look more like ordinary English than a computer language. For instance, look at the arithmetic - there are no + or / signs to be seen in COBOL. Incidentally you have probably spotted a section like a Subroutine - its called PROCESS-NUMBERS.

COMPUTER LANGUAGES

All COBOL programs look longwinded compared to BASIC, especially in the DATA division, but it is this complexity which makes it so useful when dealing with file structures such as fields and records.

Finally, to give a complete contrast to a High-Level language like COBOL, let us look at a Low-Level language.

This is ASSEMBLY LANGUAGE, a language made of short instructions each of which represent a single MACHINE CODE command. You will see LD meaning LOAD a register, INC meaning increase a register by 1, ADD which means just what it says.....and so on. You will not find DIVIDE or MULTIPLY because these cannot be done in a single machine code instruction - but there is a section of this program which divides the total SUM by the number of items. It requires much more thought to write in a Low level language because EVERYTHING has to be written from scratch - there is no Print routine to call up, for instance, so each character has to be moved individually to the correct place on the screen at the right time.

Although an Assembly Language program is not exactly machine code, it is still hard to follow. I shall not attempt to explain the program structure, but you will notice the the listing is in columns...

The lefthand column shows the memory location in which each instruction will be stored. The next column is the machine code itself - produced by the ASSEMBLER and placed directly into the computer's memory. The code is shown here in HEXADECIMAL, simply because it is easier to read than Binary. The third column is for line numbers used by the Assembler to help in writing the program. The last two columns are the OP-CODE and OPERAND which form each instruction. The fourth column is for labels which are used to control jumps and loops.

Incidentally the Op-Codes and the machine codes produced are different for each make of CPU. This for a Z-80 that is found in a TRS-80 MODEL I/III or most small business microcomputers. Those for the Co-Co and Dragon machines would be different but the program design would be almost identical.

Can you spot the key statements?

1. Looping using JP and JR which are jumps - not to line numbers though, but to sections of the program which are labelled.

2. Input using LD BC,(ITEMS).

3. Assignment statements DEFM, DEFW and EQU.

4. Arithmetic using ADD, ADC, SBC, INC, DEC and RL.

COMPUTER LANGUAGES

```
0100                            ;Z-80 ASSEMBLER PROGRAM BY E.P.MOONEY
0110                            ;TO FIND THE AVERAGE OF N NUMBERS
0120        ORG   7D00H         ;THIS IS WHERE ITS PUT
0130 ITEMS  EQU   7000H         ;1ST ENTRY IS NUMBER N
0140 SCREEN EQU   3C00H         ;SCREEN ADDRESS
0150 CONVRT EQU   0FAFH         ;A SUBROUTINE TO USE.
0160 START  LD    HL,ITEMS      ;FIRST DATA ITEM IS N.
0170        LD    B,(HL)        ;FIND HOW MANY NUMBERS
0180        LD    IX,ITEMS+2    ;POINT TO FIRST NUMBER
0190        LD    A,(IX)        ;AND PUT IT IN ACCUMULATOR.
0200 READ   LD    HL,SUM        ;NOW ADD IT TO THE SUM.
0210        ADD   A,(HL)
0220        LD    (HL),A        ;STORE IT AGAIN
0230        LD    A,(IX-1)      ;DO THE SAME FOR TOP BYTE
0240        INC   HL
0250        ADC   A,(HL)
0260        LD    (HL),A        ;AND STORE THAT TOO.
0270        INC   IX            ;EACH NUMBER TAKES TWO BYTES
0280        INC   IX            ;SO INCREASE POINTER TWICE.
0290        DEC   B             ;ADJUST COUNT OF NUMBERS
0300        JP    NZ,READ       ;AND GET THE NEXT.
0310 DIVN   LD    A,(ITEMS)     ;GET THE NUMBER N
0320        LD    D,A           ;INTO REGISTER D.
0330        LD    E,0
0340        LD    HL,(SUM)      ;GET SUM TO DIVIDE.
0350        LD    B,8           ;SET AN 8 BIT COUNTER.
0360 DOIT   XOR   A             ;CLEAR CARRY BIT.
0370        SBC   HL,DE         ;REPEATED SUBTRACTION
0380        INC   HL            ;ONE MORE SUBTRACT DONE
0390        JP    P,OK          ;OK IF ANSWER IS PLUS.
0400        ADD   HL,DE         ;IF NOT THEN UNDO SBC
0410        DEC   HL            ;AND ADJUST ANSWER.
0420 OK     ADD   HL,HL         ;SHIFT REMAINDER LEFT 1
0430        DJNZ  DOIT          ;AND REPEAT TILL B=0
0440                            ;ALL DONE. ANSWER IS NOW IN L REGISTER
0450                            ;AND REMAINDER IN H. BUT THEY ARE BINARY
0460                            ;NEED TO CONVERT TO PRINTABLE DECIMALS.
0470        CALL  CONVRT
0480                            ;CONVERTS ANSWER IN HL INTO ASCII DECIMAL
0490                            ;AND PRINTS IT ON THE SCREEN
0500        LD    IX,MESSGE     ;POINT TO MESSAGE.
0510        LD    HL,SCREEN     ;POINT TO SCREEN.
0520 GETNXT LD    A,(IX)        ;GET A LETTER AND TEST
0530        CP    '*'           ;FOR * AT END OF MESSAGE
0540        JP    Z,PRTANS      ;IF * THEN PRINT ANSWER
0550        LD    (HL),A        ;IF NOT THEN PRINT LETTER
0560        INC   IX            ;AND GET NEXT LETTER
0570        INC   HL            ;AND MOVE CURSOR ON.
0580        JR    GETNXT
0590 SUM    DEFW  0             ;STORE FOR SUM 16 BITS.
0600 MESSGE DEFM  '...IS THE AVERAGE OF THE NUMBERS'
0610        DEFB  '*'           ;END OF MESSAGE.
0620        END   START         ;THATS ALL FOLKS!!
```

COMPUTER LANGUAGES

....well if you have stayed with me through all that, thanks for making the effort. Oh, and please don't tell me about any errors that you found in the programs, I expect there may be one or two..... the object was only to illustrate some of the features of each language. If you really do want to go further then I can recommend a few books and programs.....

TEACH YOURSELF PASCAL - this is a relatively new title and is easy to follow, as well as being reasonably priced.

TINY PASCAL - this tape based compiler offers some of the features of the language but has some major limitations - still you may want to try it.

PASCAL-80 - altogether much more useful. This compiler offers most of the standard PASCAL features and is simple to use. It does need discs however.

UCSD PASCAL - cross Melvin's palm with silver and he may let you try this version. It is a 'full house' version of the UCSD compiler..... but it needs 3 disc drives!

TRS80 COBOL - by Robert Grauer (Prentice Hall). If any book can show you how to write Cobol on the TRS-80 then this will. I have a copy if you get desperate.

RS COBOL - this is the Tandy editor/compiler and library file package for model I or model III. Needs 2 discs or a double sided drive.

FORTRAN-80 - the FORTRAN compiler, uses a single disc.

TRS-80 ASSEMBLY LANGUAGE - Bill Barden's book and its sequel are the standard if somewhat dull introduction to machine code programming. Still they are quite cheap.

EDTASM+ - this is the Microsoft improvement to the original Edtasm from Tandy. It has every feature that you could want - including its own debugging package (Z-BUG).

....I think that's about it for now. I don't suppose any of you have used FORTH have you? If you have, then what about writing a piece for the newsletter so that I can use my disc copy.....I still haven't figured out how to get it started!!

ALTERNATIVE CHARACTER SET

by John Storey

Model I owners who have adapted their machines to lower case by the method that gives them a hardware switch between the standard 'Caps Only' mode and full lower case, will have noticed that their ROM's contain a set of distinctly unusual characters in addition to the standard upper/lower case sets.

Under normal circumstances, however, this set is useless, as it does not contain alphabetic characters and will not display alongside the standard sets. Several of the unobtainable characters could be quite useful in games, though, and in any case, it seems a wast to have those little men and not be able to use them in programs.

I decided to find a way to use them and it was simple, not to say obvious. (You probably already know this, in which case please stop here and help me with my "Memory Sidecar" instead.)

My favourite DOS is Newdos-80 v 2.0, and the method works fine with this and will probably do so with other DOS's with their own lower case drivers, but I haven't tried it with them.

I. Enter the short demonstration program below.

II. Boot your system with the lower case switch turned off. (Caps Only).

III. Turn the switch on (upper/lower case), and RUN.

If you set up the alphabetic parts of the screen display first, then disable the lower case driver, the new characters can be animated without losing the alpha display. The new set includes numbers, so games scores can be displayed alongside the little men without repeated disk accesses.

```
 5 REM ' BOOT WITH LC SWITCH OFF, TURN IT ON BEFORE RUNNING
10 CLS : CMD "LCDVR,Y"
20 PRINT@30,"LETTERS";
30 CMD "LCDVR,N"
40 PRINT@400,"";
50 FOR X = 32 TO 128 : PRINT CHR$(X); : NEXT
60 CMD "LCDVR,Y"
70 PRINT@600,"more letters"
```

HELP - WANTED - HELP - WANTED - HELP - WANTED

Can any one help me with a few trifling problems?

1/ The Memory Sidecar :

An article by Dennis Kitsz in 80 Microcomputing, February 1981), described the construction of a slice of almost 2K of memory that fits in the gap between 3000 and 37DF (Hex) on the Model I. This sounds great, as the hardware suggested is switchable between RAM and EPROM and also has switchable write to the RAM as read only RAM.

I built it, but can't get to to perform. When I power up the system with the new memory in place, the original computer works OK until I switch the new RAM to READ/WRITE (the usual set up). Then the display begins to jitter and locks up after the first key press.

Can anyone suggest a diagnosis, or better a solution.

2/ Can anyone tell me the correct patches to enable PENCIL to read and kill a directory under Newdos-80 v 2.0.

3/ Has anyone tried to gold plate their Expansion Interface card edges with success.

4/ Has anyone any experience on Tandy version of the Hi-Res board on the Model I.

5/ I will pay #1.00 per copy for 80-Micro, Feb - June 1983.

If you can assist with any of the above, contact John Storey at the address or telephone number below :

John Storey
Beechcroft
Town Lane
Mobberley
Cheshire
Tel ... Mobberley (056-587) 2337 (after 6pm)

WANTED - WANTED - WANTED - WANTED - WANTED

There must be someone out there that wants something, let us know and we'll put a request in the newsletter for you.

In the meantime I know of several people who are looking for disk drive interfaces for the Video Genie and also people who are looking for Tandy Expansion Interfaces. There must be some knocking around somewhere. If you have something you wish to sell or something you want let the Editor know and we'll publish your request.

WOTSITS - WOTSITS - WOTSITS - WOTSITS

(Q.) Wotsit cost to set up my system so that I can communicate with other members of the group via a bulletin board.

(A.) Well thats a heavy Wotsit, but I think I can answer it to some extent. Firstly I must assume you have a computer without an RS232 interface. Therefore it is a necessity to purchase one of those. The cost depends of course on which computer you have.

If you have a Model I then getting hold of an RS232 could be a problem, the last ones that were available Melvyn got hold of at £50.00 each, whether he can get any more I not sure. There is, as far as I know plenty of them available for the Model III/IV but these are priced at around £69.00, and this is just the start of the expense, but is some cases the dearest piece of equipment to buy.

The colour computer is a different beast, as far as I know the RS232 for the CoCo is a plug in unit which is sold buy Tandy. The cost of this one is around £70.00, but that includes some dumb terminal software with it.

Once you have an RS232 life gets a little easier, I'm joking of course. You then need a modem and there's plenty on the market to chose from. They start around £40.00 for a build it yourself unit to just under $1000.00 for the Rolls Royce units. To my mind the best unit available for members would be the Minor Miracles WS2000, which has just got approval but lost the American standards feature. The WS2000 costs £129.95 + the dreaded VAT. If your interested ask Melvyn he may be able to help you on these.

There are of course, what might be called the middle of the range type modems, costing somewhere between £200.00 and $500.00, an expensive road that one. These are the inteligent modems that can autodial your calls and even answer that phone for you, assuming your computer is on and connected. Auto Answer modems are mostly used by the bulletin boards that have sprung up throughout the UK.

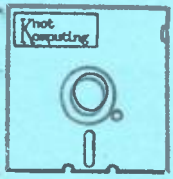
Once you have mortgaged your house and have an RS232 and a modem you then need to get hold of some software so you can use them. For the Model I/III/IV this is quite easily done as there is a piece of very good public domain software available from almost any bulletin board operator of user group library. The one I'm thinking of is called STERM and was originally downloaded from the States by Fred Brown in Hull, the grandfather of British club bulletin boards. Ask around and you will locate it very quickly.

CoCo owners are not so lucky, as to date I have no knowledge of a good piece of terminal software, even if your willing to pay for it. If anyone out there does know let us know because there's a lot of people shouting for it.

As a footnote to the Wotsit, I beleive you can actually get going with communications for as little as £90.00 if you ask around and don't expect to end up with the ultimate system.

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KESTREL - 48K: Computer with two built-in 40 track double-sided ultra slim disk drives, with centronics printer port. Runs Tandy I programs, and housed in steel case designed to take either a printer or monitor on top.	983.00	825.00.
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Disk Drive & Cassette leads	various.	
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RS-232 for above Interface	1983	
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Box of 10 Disks SS.SD	19.00	16.00.
Box of 10 Disks SS.DD	23.00	19.00.
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DRAGON Software	various.	



Software News



INNOVATIVE
TRS 80·GENIE SOFTWARE

from the professionals

Info~Scan

Info-Scan is an information reference and retrieval utility. It combines the features of a data base manager, a word processor and display utility.
Each information record is composed, using the word processing feature, in any format that is meaningful to the user.
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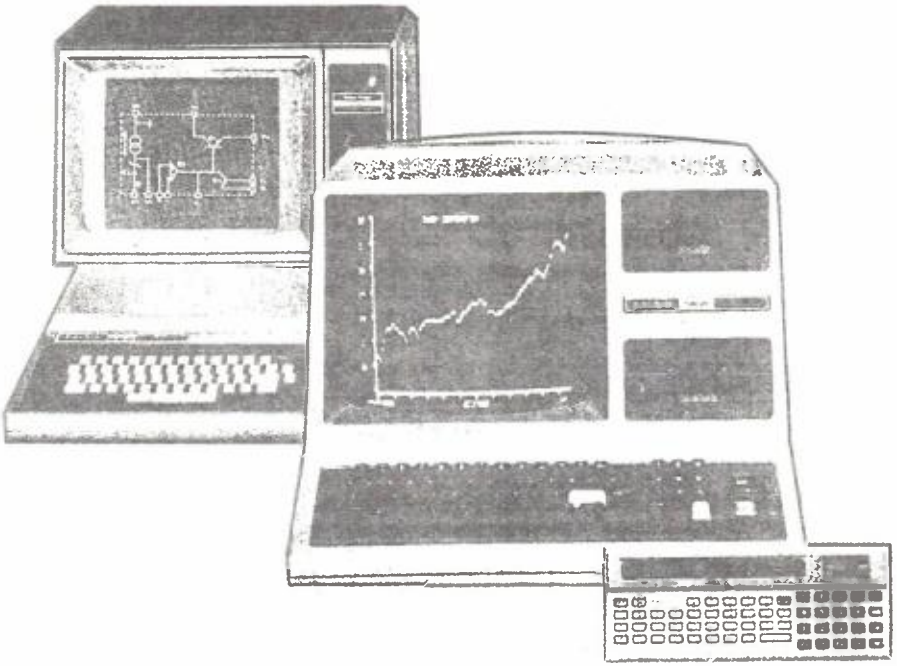
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REM 80



The North West TRS 80 Users Group

Volume 6 Issue 6

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EDITORIAL

May I take this opportunity to wish all members a Merry Christmas and a happy New Year and give a big thank you to those of you who have given me their support I needed to produce the past years Newsletters.

For once you have really done well and this issue is the biggest ever, so don't stop now, keep tapping. One note, if you are a Model IV owner it would be easier if you could supply copy in Model III Scripsit format, as we have to hunt around for a Model IV with printer in hand, so we can print out the files.

As this is the last Newsletter of 1984 you will realise that your 1985 **SUBSCRIPTIONS ARE NOW DUE** and if you wish to save £1.00, as ever, renew before 31st December 1984, subscriptions will, yet again, only be £7.00 for existing members. We have already received some renewals from members who don't seem to read the Newsletter and they sent £8.00. Those members may collect their overpayment at any group monthly meeting.

See you all at the A.G.M. .....

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Any articles or programs for inclusion in this Newsletter must be addressed directly to the Editor, preferably on cassette, disk or uploaded, (all normal communication protocols are acceptable), at the following address :-

40, COWLEES,
WESTHOUGHTON,
BOLTON,
BL5 3EG
Tel ... 0942-812843

****
** ACTIVITIES PAGE **
** By Brian Disley **
****

Well we are now at the end of the group's seventh ??? year and we're still going strong! and there aren't many other computer clubs who can better that!

I don't know why we have been so successfull in the past, I can only assume that the TRS 80 Users are an enthusiastic lot, as we certainly owe some of our success to the members of our group who have devoted a lot of time and effort into the activities and running of the group, and I for one am looking forward to another year as an officer of the group (if I am ellected at the A.G.M. that is!) to do my bit in making 1985 as good if not better than this year, I am sure most of you who have played an active part in the group in the past will be happy to help in the future as I am but let's have some new faces and suggestions for the comming year as well, I'm always open to suggestions (don't take that the wrong way) and criticism so PLEASE don't hesitate to contact me on 061-723-5033.

Well there you have it many, many thanks from me to members who have helped make the meetings instructive and entertaining and I am looking to make 1985 even better but I can't do it without your help, so PLEASE get your thinking caps on and lets all pull together for 1985!

Now for the dates of meetings at BARTON AERO CLUB during 1985

JANUARY 30th ----- FEBRUARY 27th ----- MARCH 27th ----- APRIL 24th

MAY 29th ----- JUNE 26th ----- JULY 31st ----- AUGUST 28th

SEPTEMBER 25th ----- OCTOBER 30th ----- NOVEMBER 27th

DECEMBER as always will be arranged later.

******** JANUARY 30th ANNUAL GENERAL MEETING ********

As usual the January meeting is completely taken up by the A.G.M. but don't let that deter you from attending as the future of the group and its activities is in the hands of ALL THE MEMBERS and you are expected to attend if the group is to continue to support its members in the way you have become to expect and demand in return for your measly membership fee!

6809 FORUM

by Barry Steward.

The last REM 80 of another year and an excuse for Melvyn to ask us all for next years subs. But a chance for me to wish you all a Merry Christmas and a Happy New Year.

What better way to send these wishes than in software? The listing below combines graphics and music to give us seasonal pictures and tunes. It is totaly modular and each section will run alone or combined with one or more of the other modules.

A last line of 10000 RUN should be added if you wish a continous diplay.

till next year then,
Barry.

The first part :--

```
10 SCREEN 0, 1
20 CLS 4
30 PRINT @ 226,"* A COLOURFUL CHRISTMAS ! *";
40 FOR X=1 TO 255 STEP 5
50 SOUND X, 1
60 NEXT X
70 PCLEAR 4
80 CLEAR 1000
90 PMODE 3, 1
100 COLOR 5, 6
110 PCLS
120 SCREEN 1, 1
130 CIRCLE(128, 151), 43, 5
140 PAINT(128, 150), 5, 5
150 CIRCLE(128, 82), 35, 5
160 PAINT(128, 84), 5, 5
170 CIRCLE(128, 27), 25, 5
180 PAINT(128, 27), 5, 5
190 CIRCLE(128, 27), 3, 8
200 PAINT(128, 27), 8, 8
210 CIRCLE(128, 27), 15, 7, 1, 0,.50
220 CIRCLE(122, 21), 3, 7
230 CIRCLE(134, 21), 3, 7
240 PAINT(122, 21), 7, 7
250 PAINT(134, 21), 7, 7
260 CIRCLE(128, 72), 7, 7
270 CIRCLE(128, 92), 7, 7
280 PAINT(128, 72), 7, 7
290 PAINT(128, 92), 7, 7
300 FOR X=1 TO 300
310 PSET(RND(256), RND(192), 5)
320 NEXT X
330 A$="T4;L2;G;L4.;E;L8;F;L4;G;L2; O4;C; O3;L8;B; O4;C;L4;D;C;
    O3;B;L8;A;G;L2.;G;L8;B; O4;C;L4;D;C; O3;B;L8;AA;G;L4; O4;C;
    O3;L4.;E;L8;GA;L4;GFE"
```

6809 FORUM

```
340 B$="F;L2.;G;P8"
350 C$="L4;D;L2.;C;L4;C;AA; O4;CC; O3; BAGEFAGF; L2.;E;L8;EE;L4;
    DDGGBB; O4;D;L8;D; O3;B; O4;L4;DC; O3;BA;L2;GG"
360 PLAY A$+B$
370 PLAY A$
380 PLAY C$
390 PLAY A$+"L4;D;L2.;C;P8"
```

then add this :--

```
1010 PCLS 3
1020 PMODE 3, 1
1030 COLOR 1, 3
1040 PCLS
1050 SCREEN 1, 0
1060 LINE(80, 192)-(128, 0), PSET
1070 LINE(128, 0)-(176, 192), PSET
1080 LINE(80, 192)-(176, 192), PSET
1090 PAINT(128, 96), 1, 1
1100 GOSUB 1190
1110 FOR E=1 TO 300
1120 X=RND(255)
1130 Y=RND(192)
1140 IF PPOINT(X, Y)=3 THEN PSET(X, Y, 2)
1150 IF PPOINT(X, Y)<>1 THEN NEXT E: GOTO 1400
1160 PSET(X, Y, RND(8))
1170 NEXT E
1180 GOTO 1400
1190 FOR Y=20 TO 100
1200 PSET(40, Y, 2)
1210 NEXT Y
1220 FOR X=20 TO 60
1230 PSET(X, 40, 2)
1240 NEXT X
1250 CIRCLE(40, 40), 10, 2
1260 COLOR 4, 3
1270 LINE(190, 192)-(200, 172), PSET
1280 LINE(200, 172)-(210, 192), PSET
1290 LINE(190, 192)-(210, 192), PSET
1300 PAINT(200, 180), 4, 4
1310 COLOR 2, 3
1320 LINE(200, 192)-(210, 162), PSET
1330 LINE(210, 162)-(220, 192), PSET
1340 PAINT(210, 180), 2, 2
1350 COLOR 1, 3
1360 LINE(210, 192)-(220, 152), PSET
1370 LINE(220, 152)-(230, 192), PSET
1380 PAINT(220, 180), 1, 1
1390 RETURN
1400 A$="T4; O2;L8;EG; O3;L4;CC; O2;BB;A;L2;E; L8;EG; L4;AA;G;
     L8;G;O1;B; L1;B;O2; L4;BB; L4.;B; L8;A; L4;GG; L4.;G; L8;E;
     L4;GGF"
1410 B$="L8;GE;L2.;E"
```

6809 FORUM

```
1420 C$="L4;D;L1;C;L2; O3;C;L4.; O2;A; O3;L8;C; O2;L4;B;G; L2;G;
     L4;AFFA; L1;G; L2;F; L4.;D; L8;F; L4;EA;L2;A; L4;DDE;F+; L2.;G
1430 D$="L4;B;O3;L2.;C"
1440 PLAY A$+B$
1450 PLAY A$+C$
1460 PLAY A$+D$
```

and then a third part :—

```
3010 COLOR 1, 1
3020 PMODE 4, 1
3030 PCLS
3040 SCREEN 1, 1
3050 DRAW" BM68,116 ;E20; BE20;E20;F20; BF20;F20;L40; BL40;L40;
     BU40;R40; BR40;R40;G20; BG20;G20;H20; BH20;H20; BM128,96
     ;NU40;ND40;NE20;NF20; NG20;NH20;NL40;R40"
3060 FOR Y=1 TO 200
3070 PSET(RND(256), RND(192))
3080 NEXT Y
3090 A$="O1;T1;L8.;G;L16;A;L8;G;L4.;E"
3100 A$=A$+A$
3110 A$=A$+"O2;L4;D;L8;D;L4.; O1;B;L4; O2;C;L8;C; O1;L4.;G"
3120 B$="L4;A;L8;A; O2;L8.;C; O1;L16;B; L8;A; L8.;G; L16;A;
     L8;G;L4.;E"
3130 C$="O2;L4;D;L8;D;L8.;F;L16;D; O1;L8;B;L4.; O2;C;E; L8.;C; O1;
     L16;G; L8;F; L8.;G; L16;F; L8;D; L2.;C"
3140 PLAY A$
3150 PLAY B$
3160 PLAY B$
3170 PLAY C$
```

the 2000 line numbers were lost in a RENUM command :—

```
4010 PMODE 1, 1
4020 PCLS 3
4030 SCREEN 1, 1
4040 COLOR 1, 0
4050 LINE(72, 168)-(200, 72), PSET,B
4060 LINE(72, 71)-(136, 36), PSET
4070 LINE(200, 72)-(136, 36), PSET
4080 LINE(120, 168)-(152, 100), PSET,B
4090 LINE(152, 60)-(168, 36), PSET,BF
4100 LINE(165, 128)-(191, 100), PSET,B
4110 LINE(178, 128)-(178, 100), PSET
4120 LINE(165, 114)-(191, 114), PSET
4130 LINE(85, 128)-(111, 100), PSET,B
4140 LINE(85, 114)-(111, 114), PSET
4150 LINE(98, 100)-(98, 128), PSET
4160 PAINT(83, 112), 4, 1
4170 PAINT(83, 69), 5, 1
4180 PAINT(125, 155), 2, 1
4190 PSET(127, 137, 3)
4200 LINE(0, 169)-(256, 169), PSET
```

6809 FORUM

```
4210 PAINT(1, 170), 1, 1
4220 CIRCLE(20, 20), 15, 5
4230 PAINT(20, 20), 5, 5
4240 LINE(15, 168)-(30, 100), PSET
4250 LINE -(45, 168), PSET
4260 PAINT(30, 167), 1, 1
4270 COLOR 5, 7
4280 FOR U=1 TO 300
4290 X=RND(256)
4300 Y=RND(180)
4310 PSET(X, Y)
4320 NEXT U
4330 PLAY"O2;T3; L1;E;L4;FED+;E; L1;F;L4;F+; L2.;G;L2;A;
     L4;B;O3;CDC;O2;BA; L1.;G; L4;CD; L2;EE;L4;E; L2;A;L4;G;
     L2;CC;L4;C; L2;G;L4;F; L1;E"
4340 PLAY"L4;FEDC; L1..D;L1;E; L4;FED+;E;L1;F; L4;F+;L2.;G;
     L2;A;L4;B;O3;CDC;O2;BA; L1.;G;L4;CD; L2;EE;L4;E; L2;A;L4;G;
     L1.;O3;C;O2; L4;CD;L2;EE; L4.A;O1;L8;B; L4;BB;O2;L1..;C"
```

by now you should be getting the idea :--

```
5010 CLS RND(8)
5020 PRINT @ 224, STRING$(64," ");
5030 PRINT @ 228,"DASHING THROUGH THE SNOW"
5040 PLAY"T4 O2 L4DBAG L2.D"
5050 PRINT @ 227,"IN A ONE HORSE OPEN SLEIGH"
5060 PLAY"L8DD L4DBAG L2.E"
5070 PRINT @ 227,"  O'ER THE FIELDS WE GO"
5080 PLAY"L4EE O3C O2BA L1F#"
5090 PRINT @ 229,"LAUGHING ALL THE WAY"
5100 PLAY"O3 L4DDC O2A L1B"
5110 PRINT @ 229,"BELLS ON BOBTAIL RING"
5120 PLAY"L4DBAG L2.D"
5130 PRINT @ 229,"MAKING SPIRITS BRIGHT"
5140 PLAY"L8DD L4DBAG L2.E"
5150 PRINT @ 224," OH WHAT FUN TO RIDE AND SING A   SLEIGHING SONG
     TONIGHT!"
5160 PLAY"L4EEO3CO2BAO3DDDDEDCO2A L2.GP4
5170 PRINT @ 224,"   JINGLE BELLS! JINGLE BELLS!    JINGLE ALL THE
     WAY!"
5180 PLAY"L4BB L2B L4BB L2B L4BO3DO2 L4.G L8A L1B"
5190 PRINT @ 224," OH WHAT FUN IT IS TO RIDE IN A   ONE HORSE OPEN
     SLEIGH-EIGH !"
5200 PLAY"O3 L4CC L4.C L8C L4CO2BB L8BB L4BAAB L2AO3D
5210 PRINT @ 224,"   JINGLE BELLS! JINGLE BELLS!    JINGLING ALL THE
     WAY!"
5220 PLAY"O2 L4BB L2B L4BB L2B L4BO3DO2 L4.G L8A L1B"
5230 PRINT @ 224," OH WHAT FUN IT IS TO RIDE IN A    ONE HORSE OPEN
     SLEIGH!"
5240 PLAY"O3 L4CC L4.C L8C L4CO2BB L8BB"
5250 PLAY"O3 L4DDCO2 L4A L1G"
```

6809 FORUM

one more and you have finished :—

```
6010 SCREEN 0, 1
6020 CLS 0
6030 PRINT @ 224,"   MERRY CHRISTMAS TO YOU ALL  AND A HAPPY, HEALTHY
     NEW YEAR! ";
6040 PRINT @ 369,"FROM 6809 FORUM";
6050 FOR T=1 TO 2
6060 PLAY"T3 O2L4G O3CL8CDC O2BL4AAP32A O3DL8DEDC O2L4BGP32G
     O3EL8EFEDL4C O2AP32L8GGL4A O3C O2B O3CP4"
6070 NEXT T
```

do not forget — 10000 RUN

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USING THE NEW MANCHESTER BULLETIN BOARD SYSTEM

TBBS SYSTEM PROTOCOL

This section explains how TBBS handles the following features: Auto-logon, file uploading and downloading, and message entry and retrieval. If you have never used a TBBS system before you should print or save to disk a copy of these instructions. They will help answer some of the more common questions asked about how to use TBBS.

1. AUTO LOGON
****

For Auto-Logon, TBBS sends your terminal a decimal 5 (Control-E) at the "First Name?" question. Your terminal software should respond to this by sending your log on in the following format:

Firstname;Lastname;City,State

(Note the semi-colons separating the different portions with no spaces before or after them.)

2. UPLOADING PROGRAMS
****

TBBS supports four different upload methods (protocols). These are:

1. Prompted mode. The prompt character is the '>' (greater than) character. The reason for utilizing a prompt character is to allow a delay to occur when the system is writing to the disk. The prompt will not reappear until the system is ready to receive the next line of text. To use this mode your terminal software must stop sending after each <CR> (carriage return) until it receives the next '>'. You terminate the upload by typing 'END'. No input data line may be more than 255 characters long in this mode.

2. X-ON after <CR>. This mode is very similar to the prompted mode. Your terminal program must stop sending after each carriage return and wait for an X-ON (Ctrl-Q) to be sent by TBBS before continuing. You terminate the upload by typing 'END' on a new line. The 255 character maximum line length still applies in this mode. Again, you terminate by typing END after a carriage return.

3. X-OFF/X-ON. In this mode your terminal program sends characters until it receives an X-OFF (Ctrl-S) from TBBS. Your terminal program then waits for an X-ON (Ctrl-Q) to resume sending. It must ignore any other characters (except to display them if desired) while waiting for an X-ON. In this mode, there is no limitation on line length. You still terminate this mode by entering END after a carriage return.

4. CP/M MODEM Protocol. This is a public domain file sector transfer protocol first used by the CP/M community. Any terminal program which supports this protocol may be used. This is by far the most secure file transfer method since the data is checked for integrity and re-transmitted automatically if a bad character is received.

USING THE NEW MANCHESTER BULLETIN BOARD SYSTEM

3. DOWNLOADING PROGRAMS

TBBS supports three protocols for program downloading:

1. ASCII with Buffer Control Codes. To use this mode your terminal program must recognize a Ctrl-R as a code for opening it's buffer. That is, when your terminal program receives the Ctrl-R it should start spooling all incoming data to a memory buffer. Upon receipt of a Ctrl-T it should stop spooling to the buffer. You then should have some method of dumping your memory buffer to a disk or tape file. Any non-ASCII software which appears in a download section will be sent as an ASCII Hex representation of the machine language program. It is then necessary to convert this hex code back to the standard '/CMD' type file. Programs to do this are available as public domain software from many sources. Some terminal software packages have it included either as a separate program or built into the buffer mode.

2. ASCII only, no control codes. In this mode TBBS just sends the file data only. You must capture it as best you can. A non-ASCII file will still be converted to an ASCII hex data format as in method 1.

3. CP/M MODEM protocol. This is the same error checking protocol described above in UPLOAD but with TBBS on the sending end. It is compatible with the public domain MODEMx.x series of CP/M programs.

4. X-ON, X-OFF Flow Control

TBBS supports X-ON, X-OFF flow control at all times when it is sending you data. At any time you may transmit the X-OFF (Ctrl-S) character and TBBS will instantly stop sending you output. Send X-ON (Ctrl-Q) to resume data flow to you. This allows your terminal program to stop character flow while it spools to disk anything you are saving. It also provides a means of manually stopping in Menus and other areas where the 'P' for pause feature will not work.

5. FULL DUPLEX OPERATION

TBBS operates in a full duplex configuration and is always looking for command input when it is sending output to you. This means that you do not have to wait for a menu to finish listing to give your next command. The command will be acted on after the next letter is printed on output. During Message or Text file output (such as this) the 'P' key will halt after the next character transmitted. When in this pause state a carriage return <CR> will resume with the next character, and an 'S' will abort the rest of the printout. Menu commands are always one character and do not require a <CR>.

USING THE NEW MANCHESTER BULLETIN BOARD SYSTEM

6. HELP IN HIGHER LEVELS

When you initially log onto the system you are in the beginner user level. In this level the system supplies many helpful explanations and lengthy prompts. Also each command menu is fully displayed. If you set your user level higher the prompts become much shorter to save transmission time. If you need help, however it is close at hand. At the Command: prompt press '?' at any time to get a full menu listing. A <CR> will give you the intermediate display in Expert and Super Expert modes or the beginner display if you are in the intermediate mode.

7. MESSAGE ENTRY METHODS

TBBS supports three forms of message entry. These are the line mode, prompted block mode, and unprompted block mode. The line mode is intended for manually typed in messages (the most common type). It prompts for each line with a line number and the count of characters left in the message buffer. The two block modes are intended to allow uploading of messages which were prepared off-line and are transmitted in a block by a smart terminal program. The prompted block mode supplies a '>' prompt for each line and behaves much as the prompted upload described above. The major difference is that instead of typing 'END' on a line to stop, a null line (<CR> after the prompt character) will terminate message entry. The unprompted block mode is for terminal programs which do not support prompted upload. In this mode the echo is shut off and characters may be sent in a continuous stream (even at 1200 baud) until either two <CR>'s in a row (equivalent of a null input line) or the buffer limit of 2048 characters is reached. The most usual problem area in block message input to TBBS is when you wish to include a blank line in your text. You must put at least one space in the line or it will be interpreted as the end of the message being entered. When you have entered your message you will be given a set of options as follows:

<L>ist, <C>ontinue, <E>dit, <S>ave, or <A>bort?

<L>ist displays your entered text without word wrap and with each line numbered. The numbers are used for editing if you wish. Remember that TBBS will word wrap your message when it finally displays it so the lines may not come out exactly as you expect them.

<C>ontinue will place you in the line mode at the end of your message so you may add onto it.

<E>dit will ask you for a line number. Enter the number of the line you wish to change (as shown by <L>ist) and the current line will be displayed. You then re-type just this line as you want it to be.

<S>ave will save your message to the system's disk message base and exit back to the menu.

USING THE NEW MANCHESTER BULLETIN BOARD SYSTEM

<A>bort will give up on entering this message. All text will be thrown away and you will be returned to the menu as if you had never done the enter message command.

8. MESSAGE RETRIEVAL METHODS
****

TBBS supports a variety of retrieval methods to allow you to quickly access the messages you wish. The methods are split into forward and reverse based on message numbers, and selective which is based on the Subject or who the message is to or from. In addition you may elect to pause after each message and be given an option to reply to each message or if you are after speed (say you are calling long distance and spooling the messages to disk for later reading) you may elect to have all messages displayed with no pauses. In either case you may pause with either a CTRL-S or the "P" key. The retrieval options are:

1. Forward. You are asked for a starting message number and all messages on the selected board(s) with numbers equal to or higher than the specified one will be displayed.

2. Reverse. Same as forward except the display proceeds in reverse from the number you specify towards the first message in the system.

3. New messages. This causes a forward retrieval of messages which have been left since your last time on the system.

4. Marked messages. This causes a display of any messages which have been marked in ascending numerical order. A message may be marked by either using the Mark option on a scan, or by the automatic message waiting notification at logon. Marks remain for the entire logon and go away when you log off.

5. Individual message. You specify a single message number and if the message exists on the selected board(s) then it will be displayed.

6. Selective retrieval. You are asked if you wish to select by <F>rom, <T>o, or <S>ubject. After you pick one, you will be asked for a text string to match. This string may be a partial one and any message which contains the specified string in the specified field will be displayed. Example: If you specify <S>ubject and a text string of TRS-80 then the following subject fields would all match:

TRS-80 USER'S GROUP ALL TRS-80 MOD I OWNERS TRS-80/COCO OWNERS

The string will be searched for anywhere in the specified field.

USING THE NEW MANCHESTER BULLETIN BOARD SYSTEM

Pause between messages:

On all retrievals except individual, you will be asked:

Pause After Each Msg(Y/N)?

If you enter Y then after the text of each message is displayed the prompt :

<N>ext msg, <R>eply, or <S>top?

is displayed. Pressing either N or <CR> will display the next message in the retrieve. Pressing S will abort the retrieve. Pressing <R> will allow you to enter a Reply to the message you have just seen displayed. This reply will be chained to the message for future retrieves.

If you answer N to the Pause question, then the above prompt will not be given **after** each message. You will be prompted for a reply, however, if the message is addressed to you and you have not read it at least once before. Also if a message is either from you or to you, you will be given a chance to delete it every time you read it. This is to remind you to not leave old messages on the system after their time as they take up valuable disk space.

Reply chain reading:

When you are retrieving messages (except individual or reverse modes), if a message has replies you will be prompted with:

Message has replies, read now(Y/N)?

If you enter a Y, the reply chain will be displayed at once. This allows you to read all messages in a given discussion in order so the train of thought is not lost. After the last reply is read, the retrieval will continue with the next message in order. The replies which were displayed as a result of the chain read will not be displayed again during this retrieval. If you enter a N to this question, then the display will proceed in order and replies will be displayed in their numerical position as they are encountered.

Occasionally, a reply will have been deleted but the original message is left. In this case when you read the reply chain the system will display the message:

Reply has been deleted.

BENEATH THE DRAGON'S SCALES - BY E.P.MOONEY

Now that the dark evenings are back I expect you have dusted off the old computer and are tapping away at the keyboard. You're not ? Well I'm sure it can't be the repeats on the television that have kept you enthralled. Perhaps you were just short of programs to try.

Here are a couple of ideas to use - and they are all mercifully short !!

I was browsing through the page zero addresses some time ago, looking for some information, when I came across &HB6. This location contains the current graphics mode which as you know will be PMODE 0, 1, 2, 3, or 4. Those are the values that the Basic Interpreter puts into &HB6. Now you remember the Striped Paint that we got by Poking numbers into &HB2 and &HB3 ? Those weren't values supported by the interpreter but they worked with the graphics commands as usual. I wondered what would happen if I Poked some values into &HB6 in a similar way.....and BINGO !!! something new !!

If you POKE &HB6,0...you will not get PMODE 0 as I expected. Instead you will find that the screen graphics are confined to the top left corner. The drawings become exactly 1/4 of the normal size - as if the page is reduced in size. It is still effectively 256 X 192 pixels as before, so you will not need to recalculate positions....Magic !!

To use the new MODE, you will first select one of the normal PMODES in order to get colours or resolution, then you select a SCREEN set as usual. Then as the last command POKE &HB6,0...and away you go. The reason that this must come last is because the Interpreter will reset the value of &HB6 when a PMODE and SCREEN are chosen.

You will find that you can produce an instant Zoom effect by first drawing on this small page then redrawing on the normal full screen - it can look very effective.

It may occur to you that the other 3 sections of the screen might be drawn on in the same way..... at least it did to me!!....and the answer is yes quite easily !! Read on....

The CoCo and Dragon keep a pointer that holds the address of the graphics screen being used. This is at &HBA and &HBB - a 2 byte number so that the graphics pages can be anywhere in memory. Normally the 1st page is at address &H0600 for a cassette system and &H0C00 for a Disk system. So the pointer is set like this....&HBA contains 06 (or 0C for Disks) and &HBB contains 0 (in both systems). There is no reason why you should not change these - provided you do not set them to overlay your programs - and this is simple to do.

BENEATH THE DRAGON'S SCALES - BY E.P.MOONEY

I did some thinking, and a bit of experimenting and came up with the values that will readdress the screen to the 3 quadrants that I wanted. It is easier to understand a diagram so here it is.....

```
!----------------!----------------!
! To draw here.. ! To draw here.. !
! POKE &HBA,06   ! POKE &HBA,06   !<- or 12 for Disks
! POKE &HBB,00   ! POKE &HBB,16   !
!----------------!----------------!
! To draw here.. ! To draw here.. !
! POKE &HBA,18   ! POKE &HBA,18   !<- or 24 for Disks
! POKE &HBB,00   ! POKE &HBB,00   !
!----------------!----------------!
```

....this is provided you have first done the &HB6 poke..... Now its up to you to try it, but I know you want a demonstration so here goes. Nothing fancy mind! You can do better for yourself.....

```
10 'NEW PAGES - BY E.P.MOONEY
20 PI=3.142
30 PMODE 4,1 : ' FIRST SELECT A MODE
40 SCREEN 1,1: ' THEN A SCREEN COLOR SET
50 COLOR 0,1 : ' SET BACKGROUND TO WHITE, DRAW IN BLACK
60 PCLS    : ' CLEAR THE SCREEN
70 POKE &HB6,0 : ' REDUCE TO 1/4 SIZE
80 FOR N=2 TO 5 : ' SET SOME SIDES FOR SHAPES
90 IF N<4 THEN POKE &HBA,06: ' SELECT TOP 2 PAGES ( for    Disk POKE
   &HBA,12
100 IF N>3 THEN POKE &HBA,18: 'NOW THE BOTTOM 2 PAGES ( for Disk POKE
    &HBA,12
110 IF N=2 OR N=4 THEN POKE &HBB,0 :' LEFT PAGES
120 IF N=1 OR N=3 THEN POKE &HBB,16 :' RIGHT PAGES
130 FOR R=95 TO 2 STEP -4 :' SET RADIUS
140 X=R+127 : Y=96 :' SET ORIGIN
150 FOR A=0 TO 2*PI STEP PI/N
160 X1=X : Y1=Y
170 X=COS(A)*R+127
180 Y=SIN(A)*R+96
190 IF X1=0 OR X1=127 THEN NEXT
200 LINE(X,Y)-(X1,Y1),PSET
210 NEXT :NEXT :NEXT
220 GOTO 220
.........................
```

BENEATH THE DRAGON'S SCALES - BY E.P.MOONEY

Now here's another little program - nothing to do with the last topic - but it uses graphics again.

I was messing about with some SIN and COS functions to draw pretty patterns on the screen and printer when I somehow produced a pattern like a bird's wing. I wondered if I could simulate a flapping bird using the same sort of ideas. I knocked it about a bit and here is the result - not very fancy but that keeps it short - see if you can add some improvements....

```
10 'EAGLE BY E.P.MOONEY
20 POKE 65495,0 :' the Speed Up Poke (not vital)
30 PMODE 4,1
40 SCREEN1,1
50 COLOR 0,1 :' leave this out and it's a Seagull !!
60 PCLS
70 S=2 :' this sets the Size of the Bird (up to 10 at max)
80 ANGLE=0 :' changing angles move the Bird and its Wings
90 REM MAIN LOOP STARTS HERE
100 IF S<11 THEN S=S+.04 :' sets speed of approach
110 ANGLE = ANGLE + 0.3 :' wing movement step
120 OX=127+60*COS(ANGLE/12) :'sets origin of Birds body...
130 OY=96-40*SIN(ANGLE/8) :'the /12 and /8 improve the path
140 X0=OX-5*S :X1=OX-3*S :X2=OX+3*S : X3=OX+5*S :'These are the wing
    joint positions
150 Y1=3*S*COS(ANGLE-.8)+OY :' Wing tip Y coordinate
160 Y2=2.5*S*COS(ANGLE)+OY :' Elbow joint coordinate
170 PCLS:' You may wish to remove this later
180 LINE(X0,Y1)-(X1,Y2),PSET
190 LINE-(OX,OY),PSET:' This is line is CORRECT!!
200 LINE-(X2,Y2),PSET
210 LINE-(X3,Y1),PSET
220 GOTO100
```

.....I hope you are going to type this out - I'm quite pleased with the results! It shows what a cheap micro can do...and there is plenty of scope for additions.

Incidentally, did you notice lines 190 - 210 ? There is no starting point given for the lines. The interpreter merely uses the last point visited - this works like the MOVE and DRAW commands on some other machines.

BENEATH THE DRAGON'S SCALES - BY E.P.MOONEY

Now for some more serious items.....

Got a Disk system ? If you have then this may be of use to you.

The Disk Directory is one way of seeing what is on a Disk - but it doesn't show you just where on the Disk the programs are. A program like SUPERUTILITY for the Model 1 is much more useful for scanning the tracks. I wanted a similar utility for the Dragon so I wrote out this. It is very crude - not even Machine Code - and I will be adding features to alter the data on the Disk etc.... but you might find it useful even now.

```
10 'DISKVIEW - BY E.P.MOONEY
20 CLEAR 1000:CLS
30 PRINT"    DISK VIEW PROGRAM"
40 PRINT STRING$(32,"=")
50 PRINT:PRINT"ARROWS MOVE THROUGH THE DISK"
60 PRINT"SPACE BAR SHOWS THE OTHER HALF OF EACH SECTOR"
70 INPUT"STARTING TRACK (0-39)";T
80 INPUT"SECTOR (1-18)";S
90 IF T<0 OR T>39 OR S<1 OR S>18 THEN GOTO70
100 SREAD1,T,S,A$,B$
110 T$=A$: PAGE=1:GOTO 140
120 T$=B$: PAGE=2
130 REM SHOW PAGE
140 PRINT0,"";
150 P=1
160 PT$="":PH$="":FOR PT=P TO P+7
170 P$=MID$(T$,PT,1)
180 PV=ASC(P$):IF PV<16 THEN PZ$="0"+HEX$(PV) ELSE PZ$=HEX$(PV)
190 IF P$<CHR$(32) THEN P$=CHR$(32)
200 PH$=PH$+PZ$: PT$=PT$+P$
210 NEXT
220 PRINT PT$;TAB(10)PH$;
230 P=P+8: IF P<129 THEN PRINT:GOTO160
240 PRINT@27,"T="T;
250 PRINT@59,"S="S;
260 PRINT@91,"P="PAGE;
270 K$=INKEY$:IFK$="" THEN 270
280 IF K$=CHR$(94) THEN T=T+1: IF T>39 THEN T=39
290 IF K$=CHR$(10) THEN T=T-1: IF T<0 THEN T=0
300 IF K$=CHR$(8) THEN S=S-1:IF S<1 THEN S=1
310 IF K$=CHR$(9) THEN S=S+1:IF S>18 THEN S=18
320 IF K$=CHR$(13) THEN GOTO 110
330 IF K$=CHR$(32) THEN GOTO 120
340 IF K$="N" THEN CLS: GOTO 70
350 GOTO 100
```

BENEATH THE DRAGON'S SCALES - BY E.P.MOONEY

.....I believe that for a CoCo the line at 100 should be changed to DSKI$....

Incidentally if anyone out there understands the workings of the Dragon Disk directory - I mean how is the file allocation table organised, how can I find the loading address for a machine code program etc.....indeed any information, please let me know. We all need to share our knowledge - no matter how trivial, it may be of use to other people.

...and talking of sharing - where are your contributions to the magazine?...

...there must be some of you out there using your machines....

...well just one of you then?...

...otherwise you will get more of my scribbles...

.....or else Melvyn's !!!!

Indcedentally I would like to see a program from someone in the group that would help members with a Dragon/CoCo use a bulletin board. I know that Dave Sellwood has done something on this - could we have an article Dave?

COLOUR COMPUTER CASSETTE TIPS

by Eric Craven.

A simple yet very effective idea that many members may not have seen, is to provide a switch on a cassette recorder which overides the remote facility and enables tapes to be rewound or the start of programs found without laboriously typing MOTOR ON.

This is achieved by mounting a neat push on/off switch at a convenient place on the case and connecting two thin wires to each side of the remote jack.

At the same time a resister of about 150ohms can be connected accross the break jack on the earphone socket, this makes it possible to hear the program at a fixed low level and saves typing AUDIO ON when trying to locate a program. It also provides a rough check that the volume level is correct for loading.

These two mods are really worth doing and can be carried out by anybody whao can use a soldering iron. If however any member does not feel confident enough to try them then I will do the soldering for them. See me at the monthly meetings or ring me on 061-748-7736.

RANDOM JOTTINGS FROM THE USA

Hugh Wyn Griffith

Just back from the USA, here is some Tandy news.

AFTER THE 2000 NOW THIS

The big surprise is the marketing of the TANDY 1200 HD Personal Computer which is, they say, an absolute IBM PC XT clone at $1400 less. Here is what the Tandy leaflet says, plus some verbals from my friendly Computer Store.

It is not only "compatible with virtually all software and hardware for the IBM XT" but it is plug compatible as well and takes IBM/clone add-on boards. It runs at the same speed as the XT and not at the higher 2000 speed. It come standard with 256k, expandable to 640k. Parallel interface is standard.

What is interesting is a further change in Tandy policy to third party suppliers. Tandy has been supplying third party software for some time (and now have Express Order Software service to bring in third party software that may not be in stock in the store) but now they are selling third party hardware such as Tecmar (that I see advertised in the UK for PC's) Graphics Master and also Captain, a multifunction board that adds 384k RAM, RS-232 clock/calendar with battery back-up and software to provide RAM spooler, RAM disk, appointment alert etc. So what began with Tandy approved user-installable memory add-ons for the 2000 is growing.

Now the bad news -- the 1200 may not be marketed in the UK because the IBM PC is made here and Tandy might not be able to compete in price. This surprises me but then there is a rumour that Tandy get chunks of the 1200 from IBM!

STOP PRESS

If The Times, and PCW are to be believed there is also a TANDY 1000 which has 128k and a single disk at $1200 which is very Model 4 priced and is aimed at the Apple price barrier of $1000 for the small business market. When I asked how long the Model 4 could continue between the 4P and the 2000 I was told that the Educational market would support the Model 4 for a long time -- I wonder ?

MODEL 4/4P

Apart from printers, there is not much new on the hardware side except a padded vinyl carrying case for the 4P. (When is the UK going to get the hard fitted case for the Model 100 with room for casette recorder, portable modem, cables etc that has been available in the USA for a year at least at the attractive price of $49.95 ?) But at last, some new software is here, or would be if it wasn't running late.

RANDOM JOTTINGS FROM THE USA

PROFILE 4 PLUS was due out 15th October but should be out in late November or December or January ..... It has some good new features including up to 99 line reports instead of the 2 lines in Model 3. There are improved sorting facilities and sorting "extends over all available disk space, not just RAM."

DoubleDuty Utility lets you load two programs at once and switch from one to the other. You could have Superscripsit in one bank and a data base in the other and then break off to look up some information you need without closing files and loading and reloading programs. It requires the 128k upgrade. I understand it is soon to be available in the UK.

The Model 4 Superscripsit Dictionaryis out both sides of the Atlantic but unfortunately uses US spellings except for some strange exceptions like "fiber" and "fibre" both being OK but "color" OK and "colour" not. I was told that fiber and fibre are both used in the US but not the "our" endings. MEMDISK is a blessing with the Dictionary because it gives you three drives -- for SuperScripsit, the Dictionary and the Document -- instead of having to squeeze the Document onto the SuperScripsit or the Dictionary disks which do not have much spare space on them.

TRSDOS 6.2 Utilities is new -- and third party I think but I'm too lazy to check 80 Micro to see who supplies the Basic Program converter called 324 -- and I want it. It includes Quick Format and Backup that lets you make a backup in less than a minute, BASIC Answer that lets you use labels instead of line numbers (just like HP Basic that I cut my teeth on). It's nice to have a line: GOTO Total, instead of GOTO 999.

Mod 324 simplifies conversion of Model 3 to Model 4 programs. UNKILL does that to killed programs. BSORT sorts from BASIC with tag variables, whatever they are, and COMP compares two disks or files for a match.

TK!Solver Electronic Worksheet is a maths problem solver with add-on Paks for Finance, Science and Mechanical Engineering at present. Given a model and known values of variables, it solves for "as many unknown values as is possible."

MODEL 100

Due out 30 December 1984 -- well that's what they say -- is Multiplan in a ROM at $150.

There are 7 new software packages scheduled (which means in the shops, in the catalog or hopefully about somewhere):

SPECTACULATOR is a minispreadsheet in machine language. (It didn't work on my Model 100 until Adrian fitted the Version B ROM -- thank you Adrian). Requiring a minimum of 16k -- more if you want the HELP program in RAM -- it has most of the usual features such as variable column width, row and column formulae, insert rows and columns etc. It looks very nice indeed, but I've only played with it so far.

RANDOM JOTTINGS FROM THE USA

DATA MANAGER is a personal filing system.

SCRIPSIT 100 is just that and includes formatting, headers and footers etc. I wonder if they will ROM it in due course.

BUSINESS DECISIONS includes lots of things I've never heard of but may have done, like Inventory Replenishment Analysis, Financial Ratios, Break-even Analysis, Linear Programming and Pricing Table.

BUSINESS FINANCE is a set of 12 programs for business and personal finance.

EXPENSE/GRAPH PLUS creates finacial reports and graphs. The Graph program creates pie, bar or line graphs from the Expense reports.

DATA/SORT PLUS is a management system for entering, updating, merging, and listing information as well as organizing files alphabetically or numerically. It also allows fast entry with the Bar Code Reader.

Third party software such as the Travelling Software T-base is available from Tandy. They are even using the original literature that describes it as suitable for the NEC, Olivetti or TRS 80 Model 100. Yes folks, there is a real world outside Fort Worth. (By the way, many Americans light-heartedly refer to the DOS as TRASH 80)

There is a TRP 100 portable AC/battery printer at $300 and rumour had it that there is to be a 32k add-on memory unit but I do not know if it will piggy-back like the Holmes unit or plug in like the NEC. Logic would suggest the latter.

Having scrapped Microcomputer News, Tandy now have ANSWERS but it is pure sales with none of the technical contents of Microcomputer News. Tandy trades as Radio Shack in the US, as you know, but the Computer Store people are envious of our use of TANDY on the stores here.

So that's the news -- what Fort Worth does a few weeks late, Walsall may do even later. Where we come from it's " What Manchester does today, London does tomorrow".

And a bit of UK gossip

Miracle Technologies WS2000 modem is highly thought of, I understand (I'm not into modems yet). But getting Telcom approval has knocked off the Bell system function. However it is still there on the front panel and in the switching so perhaps a stop peg has been added onto the switch ? After all there is an export market.

MAKEDO/BAS FROM 80 MICROCOMPUTING

Model 4

The following program was tapped in by one of our members from the June 1980 80 Microcomputing magazine and has been updated from the debug pages in later issues. You will need to look at the article that supported it, which is on page 84 of the same issue.

Yet another piece of info that proves 80 Micro was worth buying, although, as we have noticed of late, it has become rather thinner but still contains a lot of good stuff for a variety of the Tandy machines.

If you don't wish to tap it in it will be available from the Library in the near future.

```
5 ' corrected with Oct 84 80 Micro debug page 32 lines 230 245 260 275
   390 900
10 '
20 '
30 '  DO FILE CREATION AND EDIT PROGRAM
40 '  RAYMOND E WILSON
50 '  TRS 80 MODEL 4  OCT 01 1983
60 '
70 '
80 '  PROGRAM ID =  MAKEDO/BAS + USER FILES
90 '
100 CLEAR : DE$ = STRING$ (50, ".") : LA$ = CHR$(24) : CLS
110 FC$ = CHR$(129) + CHR$(130) + CHR$(131) + CHR$(11) + CHR$(10) :
    ' <F1> + <F2> + <F3> + UP ARROW + DOWN ARROW
120 COF$ = CHR$(15) : CON$ = CHR$(14) : DEF FN UC$(AQ$) = CHR$ (( ASC
    (AQ$) - 32 )) ' COF$=CURSOR OFF - END UNDERLINE : CON$ = CURSOR ON
    - START UNDERLINE
130 DEFFNSS$(VAR$)=LEFT$(VAR$ + "    ", INSTR (VAR$ + "  " , "  ") - 1)
140 DATA JAN,FEB,MAR,APR,MAY,JUN,JUL,AUG,SEP,OCT,NOV,DEC
150 OPTION BASE 1 : DIM DT$(12),A$(200) : FOR I = 1 TO 12 : READ
    DT$(I): NEXT I
160 DT$ = DT$( VAL ( DATE$ )) + " " + MID$ ( DATE$ ,4,2) + " 19" +
    RIGHT$ ( DATE$ ,2)
170 IF MID$(DT$,5,1) = "0" THEN MID$(DT$,5,1) = " "
180 CL$ = CHR$(30): CS$ = CHR$(31): X1$="####" : X2$= STRING$(79,"-"):
    X3$= STRING$(79,"="): X4$=STRING$(79,"_"): X8$= CHR$(124):
    X9$="$$####.##"
190 GOTO 480 : ' **** SUBROUTINES START HERE ****
200 FOR J% = 1 TO 1000: NEXT J%: RETURN ' TIME DELAY ROUTINE
210 ' **** FILE HANDLING ANND ERROR ROUTINES ****
220 ON ERROR GOTO 230: FLAG%=0: OPEN "I",1,FL$: ON ERROR GOTO 0:
    RETURN
230 IF ERR = 53 THEN FLAG%=1: RESUME 245 ELSE IF ERR = 64 THEN
    FLAG%=2: RESUME 245
240 ON ERROR GOTO 0: STOP
245 RETURN
250 ON ERROR GOTO 260: FLAG%=0: OPEN "O",1,FL$: ON ERROR GOTO 0:
    RETURN
```

MAKEDO/BAS FROM 80 MICROCOMPUTING

```
260 IF ERR = 64 THEN FLAG%=2: RESUME 275
270 ON ERROR GOTO 0: STOP
275 RETURN
280 ' ***** BEGIN INKEY$ ROUTINE ****
290 DUM$= INKEY$ : VAR$= MID$(DE$,1,IL%): FC=0: ED=0: GOTO 310
300 DUM$= INKEY$ : ED=1: VAR$=ED$: VAR$=VAR$+ STRING$ (IL%- LEN
    (VAR$)," "): FC=0
310 W=1: PRINT COF$;VAR$; : FOR LA% = 1 TO IL% : PRINT LA$;: NEXT LA%:
    PRINT CON$;
320 IK$ = INKEY$ : IF IK$="" THEN 320
330 IF W > IL% THEN 370 ELSE IF IK$ = > " " AND IK$ < = "}" THEN 430
340 IF IK$ = CHR$(25) THEN IF W <= IL% THEN PRINT MID$(VAR$,W,1);:
    W=W+1: GOTO 440
350 IF IK$ = CHR$(9) THEN IF W <= IL%  THEN MID$(VAR$, W+1, IL%-W) =
    MID$(VAR$, W, IL%-W): MID$(VAR$,W,1)=" ": GOTO 450
360 IF IK$ = CHR$(4) THEN IF W <= IL% THEN MID$(VAR$,W,IL%-W) =
    MID$(VAR$,W+1,IL%-W): MID$(VAR$,IL%,1)=" ": GOTO 450
370 FC = INSTR (FC$,IK$): IF FC <> 0 THEN IK$= CHR$(13): GOTO 410
380 IF W=1 THEN 410 ELSE IF IK$=CHR$(8) THEN PRINT IK$;"."; CHR$(24);:
    W=W-1: MID$(VAR$,W,1)=" ": GOTO 320
390 IF IK$ = CHR$(27) THEN FOR LA% = 1 TO W - 1: PRINT LA$;: NEXT LA%
    : ON ED + 1 GOTO 290,300
400 IF IK$ = CHR$(24) THEN PRINT IK$;: W=W-1: GOTO 320
410 IF IK$ <> CHR$(13) THEN 320 ELSE IF ED=0 THEN VAR$= MID$(VAR$, 1,
    W-1) ELSE VAR$= FNSS$(VAR$)
420 PRINT COF$;:  FOR LA% = 1 TO W-1: PRINT LA$; : NEXT LA% : PRINT
    VAR$; SPC(IL% - LEN(VAR$));: RETURN
430 MID$(VAR$, W, 1) = IK$: W = W + 1: PRINT IK$;
440 IF IL%=1 THEN GOSUB 460: IK$=CHR$(13): GOTO 410 ELSE 320
450 PRINT COF$; : FOR LA% = 1 TO W - 1 : PRINT LA$ : NEXT LA% : PRINT
    VAR$; : FOR LA% = 1 TO IL% - W + 1 : PRINT LA$; : NEXT LA% : PRINT
    CON$;: GOTO 320
460 IF VAR$ => "a" AND VAR$ <= "z" THEN VAR$ = FN UC$ (VAR$): RETURN
    ELSE RETURN
470 ' **** END INKEY$ ROUTINE *****
480 CLS: PRINT " MARI-RAY ASSOCIATES"; TAB(34)"FILE EDITOR";
    TAB(68)DT$: PRINT X4$
490 PRINT : PRINT : PRINT : PRINT TAB(30)"Press <C> to Create
    file": PRINT : PRINT TAB(30)"Press <P> to Print file": PRINT
500 PRINT TAB(30)"Press <E> to Edit file": PRINT : PRINT TAB(30)"Press
    <F1> to Exit TRSDOS": PRINT
510 PRINT : PRINT TAB(30)"Your Selection: ";: IL%=1: GOSUB 290: IF
    FC=1 THEN 530
520 IF VAR$="C" OR VAR$="E" OR VAR$="P" THEN B$ = VAR$: GOTO 540 ELSE
    480
530 PRINT @(2,0),CS$: PRINT @(11,20),"* * * * * * * ALL THROUGH! * * *
    * * * *":PRINT @ (20,0),;: SYSTEM
540 PRINT @ (14,0),CS$: PRINT @(18,20),"ENTER FILE NAME: ";: IL%=12:
    GOSUB 290
550 SR%= INSTR(VAR$,"/"): SC%=INSTR(VAR$,":"): IF SR%=0 AND SC%=0 AND
    LEN(VAR$)<9 THEN FL$=VAR$+"/JCL:0": GOTO 580
```

MAKEDO/BAS FROM 80 MICROCOMPUTING

```
560 IF SR%=0 AND SC% >0 THEN FL$=MID$(VAR$,1,SC%-1)+"/JCL"+
    MID$(VAR$,SC%): GOTO 580
570 IF SR% >0 AND MID$(VAR$,SR%+1,1) < "A" THEN FL$ =
    MID$(VAR$,1,SR%-1)+ MID$(VAR$,SR%+1) ELSE FL$=VAR$
580 IF B$="E" OR B$="P" THEN 590 ELSE 980
590 PRINT @(2,0),CS$: PRINT @(2,31),"EDIT: ";FL$: PRINT X2$: PRINT
600 FLE$="Loading "+FL$+".....": PRINT @(11,( INT((80-
    LEN(FLE$))/2))),FLE$;: PRINT COF$
610 GOSUB 220: IF FLAG%=0 THEN 670
620 PRINT @(11,0),CL$: ON FLAG% GOTO 630,650
630 PRINT @(11,33),FL$;" DOES NOT EXIST!": PRINT @(12,35),"TRY AGAIN."
640 GOSUB 200: GOTO 480
650 PRINT @ (11,23),FL$;" IS IMPROPER FILE SPEC": PRINT @(12,35),"TRY
    AGAIN."
660 GOSUB 200: GOTO 480
670 C=1:X=0:V=5:VS=20:MS=23:LN=21
680 IF EOF(1) THEN C=C-1: GOTO 700
690 LINE INPUT #1,LNE$: A$(C)=LNE$: C=C+1: IF C > 200 THEN PRINT
    "ERROR - FILE TOO LONG!";: CLOSE 1: GOSUB 200: GOTO 10 ELSE GOTO
    680
700 CLOSE 1: PRINT @(V,0),CS$;: IF B$="P" THEN 1240 ELSE PRINT
    @(LN,0),X3$;: FOR I=1 TO C
710 PRINT @(V,0),I;: PRINT @(V,10),A$(I);: V=V+1
720 IF V > VS THEN PRINT @(MS,25),"Press <ANY KEY> to continue ";:
    IL%=1: GOSUB 290: V=5: PRINT @(V,0),CS$;: PRINT @(LN,0),X3$;:
    PRINT @(MS,0),CL$;
730 NEXT I
740 PRINT @(MS,0),"Enter line number to change [<F1> to Exit]: ";:
    IL%=3: GOSUB 290
750 PRINT @(MS,0),CL$;: IF FC=1 THEN 870
760 X%= VAL(VAR$): IF X% < 1 OR X% > C+1 THEN PRINT @(MS,0),"INVALID
    NUMBER!";: GOSUB 200: PRINT @(MS,0),CL$;: GOTO 740
770 IF X% > C AND C < 200 THEN C=C+1
780 PRINT @ (MS,0),X%;: PRINT @(MS,10),;: IL%=50: ED$=A$(X%): GOSUB
    300
790 A$(X%)=VAR$: IF FC = 0 THEN 700
800 ON FC GOTO 870, 810, 830, 850, 860 ' <F1>-<F2>-<F3>-<UP ARW>-<DN
    ARW>
810 FOR IN%=C+1 TO X%+1 STEP -1: A$(IN%)=A$(IN%-1): NEXT IN%:
    A$(X%)="": 'INSERT A LINE
820 C=C+1: GOTO 780
830 FOR DL%=X% TO C-1: A$(DL%)=A$(DL%+1): NEXT DL%: A$(C)="": '
    DELETE CURRENT LINE
840 C=C-1: GOTO 700
850 IF X% > 1 THEN X%=X%-1: GOTO 780 ELSE 780 ' MOVE BACK 1 LINE
860 IF X% < C THEN X%=X%+1: GOTO 780 ELSE 780 ' MOVE FORWARD 1 LINE
870 PRINT @(5,0),CS$: PRINT @(11,19),"Press <ENTER> to save file -
    <F1> to abort ";
880 IK$= INKEY$ : IF IK$="" THEN 880
890 IF ASC(IK$)=13 THEN 900 ELSE IF ASC(IK$)=129 THEN 10 ELSE 880
900 FLAG3%=0: FOR CHK%=1 TO C: IF A$(CHK%)="" THEN FLAG3%=FLAG3%+1
905 NEXT CHK%
```

MAKEDO/BAS FROM 80 MICROCOMPUTING

```
910 IF FLAG3%=0 THEN 930
920 PRINT @(15,20),"THERE ARE ";FLAG3%;" EMPTY LINES - YOU MUST FILL
    OR DELETE!";: GOSUB 200: GOTO 700
930 GOSUB 250: IF FLAG3%=0 THEN 970 ELSE CLOSE
940 PRINT @(V,0),CS$: PRINT @(D11,0),"THERE IS A FILE NAME ERROR IN
    ";FL$
950 PRINT @(13,0),"PLEASE RE-ENTER: ";: IL%=14: ED$=FL$: GOSUB 300
960 FL$=VAR$: GOTO 930
970 FOR RE%=1 TO C: PRINT #1,A$(RE%): NEXT RE%: CLOSE : GOTO 100
980 PRINT @(2,0),CS$: PRINT @(2,29),"CREATE: ";FL$: PRINT X2$: PRINT
990 C=0:X%=1:V=5:MS=23:LN=21
1000 PRINT @(V,0),CS$: PRINT @(LN,0),X3$;
1010 PRINT @(V,0),X%;: PRINT @(V,10),;: IL%=50: IF A$(X%) > "" THEN
     ED$=A$(X%):  GOSUB 300 ELSE GOSUB 290
1020 A$(X%)=VAR$: IF X% > C AND A$(X%) >"" THEN C=X%
1030 IF FC=0 THEN 1210
1040 ON FC GOTO 870, 1050, 1080, 1110, 1160 : ' <F1>-<F2>-<F3>-<UP
     ARW>-<DOWN ARW>
1050 IF X% < C THEN FOR IN%=C+1 TO X%+1 STEP -1: A$(IN%)=A$(IN%-1):
     NEXT IN%: A$(X%)="" ' INSERT A LINE HERE
1060 C=C+1: TMP=V: FOR II=X% TO X%+(20-V): PRINT @(V,0),II;: PRINT
     @(V,10),A$(II);: V=V+1: NEXT II
1070 V=TMP: GOTO 1010
1080 IF X% > 0 THEN FOR II=X% TO C-1: A$(II)=A$(II+1): NEXT II:
     A$(C)="" '   DELETE A LINE HERE
1090 C=C-1: TMP=V: FOR II=X% TO X%+(20-V): PRINT A(V,0),II;: PRINT
     @(V,10),A$(II);: V=V+1: NEXT II
1100 V=TMP: GOTO 1010
1110 IF X% > 1 AND V > 5 THEN X%=X%-1: V=V-1: GOTO 1010
1120 IF X% < 2 THEN GOTO 1010
1130 PRINT @(5,0),CS$: V=5: PRINT @(LN,0),X3$;: FOR II=X% TO X%+14
1140 PRINT @(V,0),II;: PRINT @(V,10),A$(II);: V=V+1: NEXT II
1150 V=5: X%=X%-1: GOTO 1010
1160 IF X% < C AND V < 20 THEN X%=X%+1: V=V+1: GOTO 1010
1170 IF X%=C THEN 1010
1180 PRINT @(5,0),CS$: PRINT @(LN,0),X3$;: V=5: FOR II=X%+1 TO X%+16
1190 PRINT @(V,0),II;: PRINT @(V,10),A$(II);: V=V+1: NEXT II
1200 V=5: X%=X%+1: GOTO 1010
1210 IF X% < 200 THEN X%=X%+1: V=V+1: IF V < 20 THEN 1010
1220 PRINT @(5,0),CS$: PRINT @(LN,0),X3$;: V=6
1230 PRINT @(5,0),X%-1;: PRINT @(5,10),A$(X%-1);: GOTO 1010
1240 PRINT @(2,0),CL$;: PRINT @(2,31),"PRINT: ";FL$;: PRINT
     @(11,20),"STANDBY - printing in progress";COF$
1250 GOSUB 1260: GOTO 1280
1260 LPRINT "Mari-Ray Associates"; TAB(34)"FILE EDITOR"; TAB(68)DT$:
     LPRINT X4$
1270 LPRINT : LPRINT TAB( INT((80- LEN(FL$)) /2))FL$: LPRINT : LPRINT
     X3$: LPRINT : LC%=0: RETURN
1280 FOR II=1 TO C: LPRINT USING "####";II;: LPRINT TAB(10)A$(II)
1290 LC%=LC%+1: IF LC% > 50 THEN LPRINT CHR$(12): GOSUB 1260
1300 NEXT II: LPRINT CHR$(12): GOTO 100
```

THE DRAGON DISK DIRECTORY

(or what the manual doesn't say)
by Peter Mooney.

It has been a great disappointment to some of us to find that the differences between the DRAGON and the COCO are more then just skin deep. The differences between the two interpreters are by now well documented. That there should be differences is I think obviously in order to avoid copyright claims from Tandy.

We have overcome problems when passing Basic programs on tape from one machine to the other, but machine code programs which make calls to the ROM have been a real challenge.

The Disk Operating Systems for the two machines are also different - and here the differences are just as important. A Dragon will not be able to read a CoCo Disk - and vice versa.

I have been using Dragon Dos for some time now and, despite its limitations, I find it very useful. I can't speak of the Premier Delta Dos or other more exotic offerings such as Flex but I have been able to make some comparisons with the Tandy Dos as used on the CoCo. The great strength of the CoCo has always been that there is plenty of Technical information available whereas the Dragon user is often left in the dark.

The Tandy Color Computer Disk System Manual is everything that one might expect - the Dragon manual is dismal !!! I especially missed the sort of information that enables me to recover Killed files and decifer the directory.... so I've been doing some work to decode the system. Here are some of the discoveries. There are still lots of points that leave me puzzled but perhaps you can help with that...

The Dragon Dos will accept the usual range of Disk drives available today for small micros - whether 35, 40 or 80 track - single or double sided. The Disk Controller is the Western Digital WD1793, as used on the CoCo, and uses Double Density format.

The common configuration is 40 track single sided drives. The drives are numbered 1 to 4, whereas the CoCo numbering is 0 to 3. The tracks are numbered 0 to 39 and there are 18 sectors per track (numbered 1 to 18).

This is the same as the CoCo - although that machine only uses 35 track drives. (a crafty move by Tandy - to get you to buy more drives) When the Dragon uses Double Sided drives, the second side sectors are considered as part of the same track and are numbered 19 to 36.

THE DRAGON DISK DIRECTORY

TRACK ORGANISATION

Each track is divided into two granules of 2304 bytes each - as on the Tandy - and this is the minimum size of Disk space that can be allocated to a file. This gives a maximum of 80 files on a single sided Disk - compared with 70 on the CoCo. The sectors contain 338 bytes but only 256 are for data, the rest are for system use (track number, sector number, CRC etc).

The organisation of the tracks is as follows....

	TRACK	SECTOR	GRANULE	RELATIVE SECTOR	
*	0	1 - 9	0	00 00 (in hex)	
D	0	10-18	1	00 0A	
A	1	1 - 9	2	00 12	
T	1	10-18	3	00 1B	
A	:	:	:	:	
*	15	10-18	31	01 31	
	16	1 - 9	32	01 44	This is one of
	16	10-18	33	01 4D	the Directories.
*	17	1 - 9	34	01 56	
DATA:		:	:	:	
*	19	10-18	39	01 83	
	20	1 - 9	40	01 8C	This is the 2nd
	20	10-18	41	01 94	Directory.
*	21	1 - 9	42		
		.....data tracks follow ... and so it continues to track 39.			
*	39	10-18	79		

You will notice that there are in fact TWO Directories. Both are identical, they will both contain the same information - this is used for security so it is very unlikely that you will destroy both directories and you will be able to repair the Disk.

Each directory track is organised as follows....

SECTOR	CONTENTS
1	Granule Allocation Table
2	Extension to the GAT for 80 track double sided drives. The last 4 bytes hold system information on the number of tracks and number of sectors per track.
3-18	Directory entries - filenames and sector addresses are held here.

THE DRAGON DISK DIRECTORY

The directory entries are 25 bytes long - giving 10 per sector. There are 6 free bytes at the end of each sector. Sectors 3 to 18 are reserved for entries, but a 40 track drive will only use sectors 3 to 11. Any unused sectors will not be allocated to files. The 25 byte entry is as follows.....

BYTE	CONTENTS (all numbers are in Hexadecimal)
0	STATUS BYTE...can be either 00 = file entry is active,..or 81 = file entry killed and now free,...or 89 = free and as yet unused,...or 02 = protected.
1-8	FILE NAME ....left justified and padded with blanks.
9-1	EXTENSION ....either BAS, BIN or BAK.
12-13	STARTING SECTOR...sector at which the file starts. ie 00 46 shows a file starting in the seventieth sector of the Disk.
14	NUMBER OF SECTORS..the number of sectors occupied in this block.
15-16-17	...as for 12 to 14 where a file is in several blocks.
18-19-12	" " "
21-22-23	" ..there can be a maximum of 4 blocks, each of up to 36 sectors (more than enough for any file !!)
24	RELATIVE BYTE ... this shows the last byte used in the final sector of the file.

THE GRANULE ALLOCATION TABLE

This table is used to keep a record of the granules, and hence sectors, which are free or occupied by data. There is a byte allocated to each granule (9 sectors) with a 'house-keeping' byte after every 8 granules. Each byte can be considered as being addressed according to the relative sector number where the granule begins on the Disk. The Dos uses the GAT to help it to assign Disk space when it is needed as well as reusing space which has been released by killed files.

There are 90 bytes in the table for a 40 track Disk. The organisation is as on the following page .....

THE DRAGON DISK DIRECTORY

RELATIVE BYTE		GRANULE	STARTING SECTOR	TRACK
0	0	00 00	0	
1	1	00 09	0	
2	2	00 12	1	
3	3	00 1B	1	
4	4	00 24	2	
:	:	: :	:	
7	7	00 3F	3	
8	This is a housekeeping byte - perhaps for lockouts			
9	8	00 48	4	

.....and so on.

In each location the entry may be.....
FF = free... 00 = completely used
...other figures relate to the amount of the granule that is used.

Where possible a file will be allocated a continuous block of sectors, but this is not always possible - particularly when the file is a long one or the Disk is nearly full. The Dos starts by working down from the directory so as to allocate lower tracks first and then works upwards in a similar fashion.

FILE STRUCTURE

There are three types of files which are recognised by the Dragon Dos :- Data Files, Basic Files and Machine Code Files.

A Data file has no header and is stored in ASCII format. Commas in the file creat sixteen spaces as they do on the screen.

A Basic file has an 8 byte header...

55 01 start length 8B8D

.. The first number is always 55 hex. The second will be 01 if the file is in Basic. The start and length are two bytes each. The start address will be 2401 for Disk systems - this is the hex address for the start of Basic text. The last two bytes are the execution address when there is a machine code file, but for Basic this is set to point to the entry point in the ROM that signals a Function Call ERROR (at 8B8D), this is a neat way of preventing a Basic file from being EXECuted.

A Machine Code File is almost the same - except that the second byte becomes 02 and the execution address is now that which was specified when the file was SAVEd....ie..

55 02 load address length execute address

THE DRAGON DISK DIRECTORY

A Basic file will be in tokenised form, just as it is in memory. In each case the file follows directly after the header bytes.

Those who have a CoCo will recognise some of the changes from the Dragon in the layout of the directory - the CoCo directory is on track 17, makes different use of the sectors and handles granule allocation in a different way. From this you may conclude that reading a Dragon Disk will be impossible. Indeed just reading the directory is a major task, but there is a useful command that can be used to load individual sectors into memory. This is the DSKI$ command that reads a sector as two strings. In a later article I hope to show you how to use this to read Disks from either machine.....in the mean time why not take a look at your own Disks. You may find my DISKVIEW program helpful.

BACKUP SYSRES JOB CONTROL FILE

by Hugh Wyn Griffith.

The following file listing was produced to install the backup sysres's on the Model IVp and is a much faster way of doing it without the System disk in the drive.

```
.BUPSYS/JCL INSTALLS SYSRES 2, 3, 10, 12 for
.BACKUP without SYSTEM Disk
.
.Source Disk should be in drive :1
.
.-- you will be instructed when to place
.destination Disk in drive 0
.
SYSTEM (SYSRES=2)
SYSTEM (SYSRES=3)
SYSTEM (SYSRES=10)
SYSTEM (SYSRES=12)
.
.When 'Job done' and 'TRSDOS READY' appear, type
.
.BACKUP :1 :0 (MOD,X) or (NEW,X)  then <ENTER>
.
.Follow instructions for removing system Disk
.and placing destination Disk in drive 0
.
.end of BUPSYS/JCL  -- 12 9 84 Version 3
//EXIT
```

ADDRESS LIST PROGRAM

by Bernard Coffman.

```
5 REM ** ADDRESS LIST     PROGRAM **
6 REM ** WRITTEN BY B.COFFMAN     **
7 REM ** TO RUN ON TANDY MODEL I LII **
8 REM
9 REM
10 CLEAR2000:CLS
15 GOSUB5000
30 N=N+1:READN$:IFN$<>"["THEN30
40 RESTORE:DM=(N-1)/6
45 PRINT"NUMBER OF ENTRIES = ";DM:FORT=1TO1000:NEXT:CLS
50 DIMA$(DM),B$(DM),C$(DM),D$(DM),E$(DM),F$(DM)
60 FORN=1TODM:READA$(N),B$(N),C$(N),D$(N),E$(N),F$(N):NEXT
65 B$(0)="NOT IN LIST"
70 K=0:CLS:PRINT"TO LOCATE ENTRY ENTER SURNAME OR FIRST LETTER OR SO
   OF SURNAME":PRINT:INPUT"REFERENCE";R$
80 FORN=1TODM:IFR$=LEFT$(A$(N),LEN(R$))THENK=K+1:RN(K)=N
90 NEXT
93 IFK=0THEN100
95 IFK>1THENPRINT:FORN=1TOK:PRINT"<";N;">",C$(RN(N)):PRINT:NEXT
   ELSEK=1:GOTO100
96 PRINT"PRESS NUMBER REQUIRED"
97 K$=INKEY$:IFK$=""THEN97ELSEK=VAL(K$)
100 CLS:PRINTA$(RN(K)):PRINTB$(RN(K)):PRINT:PRINTC$(RN(K)):
    PRINTD$(RN(K)): PRINTE$(RN(K)):PRINTF$(RN(K)):PRINT
105 IFK=0THENFORT=1TO1000:NEXT:GOTO70
110 PRINT:INPUT"ENTER 'P' TO PRINT OR 'R' FOR NEW REFERENCE";W$
120 IFW$<>"P"THEN70
200 LPRINTTAB(15)C$(RN(K)):LPRINTTAB(15)D$(RN(K)):
    LPRINTTAB(15)E$(RN(K)):L PRINTTAB(15)F$(RN(K))
205 FORN=1TO10:LPRINT:NEXT
210 INPUTW$:GOTO120
1000 DATACOFFMAN,061 773 6146,BERNARD AND ROCHELLE COFFMAN,THORNLEA,
     ST ANN'S ROAD,PRESTWICH  MANCHESTER,FRANKLIN,0942 812843,
     MELVYN D.F. FRANKLIN,40 COWLEES,WESTHOUGHTON,BOLTON BL5 3 EG
2000 DATA[
5000 PRINT"THIS IS A PROGRAM SIMILAR TO CASSETTE MAIL":PRINT"BUT MORE
     SUITABLE WHERE INDIVIDUAL ADDRESSES ARE REQUIRED":PRINT:PRINT:
     PRINT"STORE NAMES AND ADDRESSES ETC. CONSECUTIVELY IN DATA"
5010 PRINT"STATEMENTS STARTING AT LINE 1000 USING SIX DATA ITEMS
     FOR":PRINT"EACH ENTRY.   LEAVE BLANKS IF NECESSARY":PRINT"THE
     FIRST ITEM MUST BE THE SURNAME AND SECOND ITEM THE TEL NO"
5015 PRINT:PRINT"FOR EXAMPLE":PRINT"1000 DATACOFFMAN,061 773
     6146,BERNARD AND ROCHELLE COFFMAN,THORNLEA,ST. ANNE'S
     ROAD,PRESTWICH  MANCHESTER"
5020 PRINT:PRINT:PRINT"PRESS 'ENTER' TO CONTINUE":INPUTW$:CLS:RETURN
```



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