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# FORMAT

FOR SPECTRUM AND SAM USERS



**FUN PACKED  
CHRISTMAS ISSUE**

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ISSN 0963-8598.

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# NEWS ON 4

## NEW FILING PROGRAM

It is nice to see a new Spectrum product appearing on the market, especially when it comes from the S.D. Software stable. Called SPECFILE+ it is described as a powerful but very easy to use Database/Filing system which will work on any Spectrum fitted with either DISCiPLE, PLUS D or DISCOVERY disc systems.

It comes complete with all the features you would expect but space has been deliberately left so that you can add extra functions to the program by following the simple instructions given in the manual.

SD correctly call SPECFILE+ a filing program, where many would incorrectly use the term Database (which really means something very different - I have never seen a real database on any machine below a IBM PC).

SPECFILE+ costs £12.95 (INDUG price £9.95) on 3.5 or 5.25 disc and a review will be found elsewhere in this issue.

## AMSTRAD IN 0898 RIP-OFF

Got a problem with an Amstrad product? Well if you have then Mr Sugar may end up laughing all the way to the bank. As a total contrast to the normal concern for customer support shown by most companies AMSTRAD now make you pay through the nose if you want technical support over the telephone. Yep, you now have to pay 45p per minute by using one of those dreaded 0898 numbers if you want to find an answer through Amstrad's Technical department.

Ringling 0272-230222 (the number published in most of Amstrad's manuals, will just get you through to a recorded message. Here you are directed to call one of a long list of numbers, mostly 0898, depending on which of Amstrad's products you are having problems with. One last insult, the Spectrum is not even mentioned in the list.

## ADVENTURE AWARDS

The 2nd annual 'Adventure Probe' Convention took place in Birmingham on October 26th and the Spectrum and Sam Coupé had a strong presence.

During the convention Tom Frost and Mandy Rodrigues from PROBE magazine presented the 1991 Adventure awards balloted for by their readers. The awards included the following:

1. Most Helpful Software Company - FRS Adventures (Prop. Larry Horsfield).
2. Most Promising Adventure Author - Bob Adams.
3. Most Amusing Bug (8 bit): Robin Of Sherlock.\*
4. Most Helpfull Adventurer: Barbara Gibb.
5. Best Text Only Adventure (8 bit): Axe Of Kolt\* by Larry Horsfield.
6. Best Graphics & Text Adventure (8 bit): Blood of Bogmole\* - John Lemmon.
7. Best Role Play Adventure (8 bit): Hero Quest\*
8. Promotion of Adventuring: John Pancott.

Programs marked \* are available for Spectrum. Other awards included 16 bit games.

## IMPROVED SAMDISK

A new version of the SAM Coupé program SAMDISK has been released by LERM Software. SAMDISK2 offers extra features in the COPY mode and the ability to REPAIR, FORMAT or UNFORMAT any single track. Another nice utility allows you to reorganize your disc, moving files from one position to another, and SQUASHing files so that each file is in one block with no 'holes' between them. This could really speed up loading on a disc where files have become fragmented by repeated erase and save operations.

The new SAMDISK2 is available from LERM at £11.99 and works on 256k and 512k Sams. Existing users can upgrade by sending £7.99 plus original disc.

News Credits: Nev Young, Bob Bates.



Ho, Ho, Ho, and a VERY MERRY CHRISTMAS to all our readers.

I've tried to pack in as much as I can to keep you occupied over the Christmas break. Back by popular demand is our Wordsquare, there were lots of moans when it didn't appear last year, so I made special effort to produce one for this issue. Just in case you are a real wordsquare addict I have also included a program to compile your own.

From your letters and telephone calls I know how much many of you enjoyed the long running Adventure Corner written by Paul Rigby. I'm sorry to say that I've lost contact with Paul so I'm now looking for someone to take on the monthly task of producing an Adventure page (or two). If you are really into adventures then give me a ring and let's talk things over.

It is becoming more and more difficult for us to reach the general public who may be interested in what FORMAT has to offer. The high-street magazines, what few are left that cover the Spectrum and Sam scene, are not disposed to promote FORMAT (they would loose too many readers if they did). While our Summer Membership Drive was successful, and our new Winter Drive is already producing results, there are still thousands of users out there that have never heard of us. So our problem, put simply, is: HOW DO WE CONTACT MORE PEOPLE?

After long periods of thought, and much consultation, we believe we have found the answer - to open INDUG to a wider group by creating ASSOCIATE MEMBERS.

As you are reading this you are a FULL member - unless you borrowed (or otherwise acquired) this copy that is. As a full member you enjoy all the benefits of membership including our technical hotline, special discounts from several companies, special products from our Readers Service page and of course the most important thing of all - your monthly copy of FORMAT.

Over the next few months we will be publishing and promoting Associate Membership of INDUG in many ways including press releases to mainstream magazines and attending as many shows as we can. So what does Associate Membership mean. An Associate Member will have only limited access to technical support (9 hours per week instead of the 30 hours you get as a full member) and of course they will not receive FORMAT. He or She will receive four mail-shots a year with advertising and promotional material all of which will also be sent to full members so you wont be missing out. Our hope is of course to convert large numbers of Associate Members into FULL Members as soon as possible.

As I've already said you, as a full member, will continue to have many advantages over the Associate Members and I believe that the growth in overall membership of INDUG will allow us at Format Publications to promote the interests of Spectrum and SAM users in a much bigger way.

Well, thats all for this year, by the time we next meet it will be 1992. Have a wonderful Christmas and a very happy and prosperus New Year.

Bob Brenchley. Editor.

# Software for the SAM COUPE

£12.50

## SC ASSEMBLER

### MAIN FEATURES

99% Machine code, 64 col friendly autotab editor for ease & Speed. Recognises all the set of opcodes. Data compressed allowing:-  
 96K Source, 20K Ass code (256K Sam)  
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 Full listing to screen and printer  
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SC\_ASSEMBLER is a very easy to use editor Assembler, just type in the text even with no spacing and SC\_ASSEMBLER will reposition and do a comprehensive check, if any errors displays in clear english what is wrong, easy enough for the beginner, yet powerful enough for top programmers who have already used my Assembler to program Top Sam games. With Source Files to get you started and a professional written 45 page Manual you can't go far wrong.

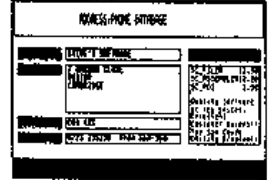
£12.50

## SC\_FILER

A POWERFUL SAM COUPE DATABASE

### MAIN FEATURES

99% Machine code, Data compressed allowing Massive capacity storage 128K(256K Sam) and 384K(512K Sam). Display 4 different Mode 3 layouts you define fields of any size, col, position, and charset. Auto sorting on any field, search buffer finds records you want, Lprint upto 4 different layouts.



SC\_FILER the Database program, is a very easy to use, yet powerful and flexible enough to keep any type of information you need, from a simple Address file to business files for Clubs and small Companies. From a touch of a key you can add, edit, insert, wipe, list and Search, also SC\_FILER can be used as a mini word processor with its word wrap, justify editing features. SC\_FILER comes with a 25K demonstration 280 MG database and a 20 Page professional Manual. I can also convert your GM\_BASE and LERM Address Manager files to use on SC\_FILER.

## SC MONITOR

**WATCH THIS SPACE**  
 COMING SOON FEBRUARY 1992  
 ANOTHER POWERFUL UTILITY PROGRAM  
 TO DEBUG AND EXAMINE MACHINECODE

£12.50

## SC AUTOBOOT

SC\_AUTOBOOT is a new chip to fit in and replace the Sams Rom. When you now turn on the Sam Coupe there is no long wait for Sam to reset, no need to press F9 to boot up the system Dos. Just switch on the Coupe and in a split of second the Coupe is reset and does an automatic Auto-boot like the Amiga and Atari ST.



Have you got an old Rom still fitted in your Coupe then here is an excellent way to upgrade to my New chip with fast reset and Automatic autoboot and remains 100% compatible with most update Rom 3.0 chip which Software companies guarantee Software to work with 100%. Type on your Sam PRINT PEEK 15 if the number printed on the screen is not 30 then you have an old Rom. The chip is easy to fit with easy to follow instructions all you need is a small cross-head and flat-head screwdriver you probably got in your garage.

£1.50

## SC PD1

**SC SPECLONE** Spectrum Emulator  
 Turn the Sam Coupe into a Spectrum 48K  
 Extra Sam keys like DELETE etc work  
 Save to Sam Disc from Spectrum programs  
 Load in Plus D Snapshot files  
 Outputs to printer work.  
 Includes a copy of Spectrum 48K Rom)  
**SC COMPRESSOR 1** The Disc Directory Utility  
 Screen/Code compressor  
 All 3 utilti come with 14 page Manual.



## DISCS

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**QUALITY SOFTWARE** At low prices you can afford. Full technical Customer care support, can even Telephone in the evenings when your at home from college/work, at cheap rate directly with the programmer. Excellent low cost Update service.

STEVE'S SOFTWARE is a member of TEAM SAM

# SHORT • SPOT

By:- John Wase.

Welcome, and Season's Greetings. Now you're on the run-up to Christmas, have fun, and after the Dinner, think of some nice, short, snappy items for next year's "Short-spot". Please.

"Bunglers" time again. I've had letters from a number of contributors about their problems with Malcolm Perry's graphpaper program, which has proved surprisingly popular. Actually, if you're careful, it does work. Grant Dixon of Peterstow, Ross on Wye, writes to say that with his Panasonic KX-PI081, the graph paper came out with rectangles rather than squares. He first tried to alter the line-feed value in line 60 (POKE @7,6 was altered to POKE @7,5 and even POKE @7,4) but all this poking around apparently made no difference. He therefore put a line in to send the correct code to the printer. He also altered line 50 to use ESC \* 5 instead of ESC \* 6. (i.e. POKE @44,5 instead of POKE @44,6). With the Panasonic, in graphics mode 5 you get equal dot spacings in the x and y directions. However, mode 5 suffers from the disadvantage that you get only 576 dots per line instead of 720, so the grid is somewhat enlarged. With this new setting, you can only get 7 large squares in the x direction and 8 in the y direction. You therefore need to amend line 10 to LET L=8: LET W=7: and line 900 to "DEFAULT 1 7x8 GRID". Finally, Grant wrote a line to put the specification on the top of the paper.

Here are Grant's amended lines.

```
10 PAPER 6: INK 1: BORDER 4: GOSUB 9
00: LET L=8: LET W=7: LET sx=10: LET s
y=10 50 POKE @42,27: POKE @43,42: POKE
@44,5
60 POKE @5,100: POKE @9,0
900 CLS: PRINT AT 0,3;"PRINT GRAPH PA
PER""ALTER THE DEFAULT SETTINGS?" ''
```

```
''ENTER' = No. / 'Any Key' =YES'' DE
FAULT = 7x8 GRID ""subdivisions = 10
": RETURN
```

And his additional lines.

```
65 LPRINT TAB 32;W;" x ";L;"....";sx
; " divisions
66 POKE @6,1: LPRINT CHR$ 27; "A"; C
HR$ 8: POKE @6,0
```

A word of warning, though. A "standard" printer which emulates the Epson FX80 is often anything but standard. Two features where there are often differences between supposedly standard Epson-emulating printers are the graphics modes and the line feed: indeed, the bog-basic FX80 differs from its close relative the RX80 in respect of graphics capabilities. So read your instruction book, as like as not written in Japlish, carefully. Mostly, Japlish printer manuals assume that you know how to operate the printer. They put in lots of information about how to turn the mains switch on, then launch straight into a catalogue of escape code functions without explaining what escape codes are, how they work and what they do. If you don't understand these, then, if there is someone near you who does, ask: it's often at the root of many of your problems. It's often very little use writing to "Short Spot" or even to Nev Young unless they also have the actual printer manual in question.

In this connection, I have a very ungrunted letter from D.W.Stokes of Launceston, Cornwall, who is having problems with this graph-printing program, and with "logo", and with "mini calendar". He complains bitterly that either he's thick, or no-one else bothers to type in the programs. The problems with the graph program arise from two causes. First, the

variability of printers. And secondly, Malcolm has committed the sin of using lower case "L" as a variable. This gets confused with the digit "one".

Now here's a nice one, and it's suitable for all the Spectrum and SAM family. Nev Young sent it to me. It's a simple one-liner that'll give hours of fun for the kids, particularly when they're tired, fidgetty, overfull, sick and fed up with Christmas. Here it is...

```
1 INPUT A$: CLS: FOR N=LEN A$ TO 1
STEP -1: PRINT A$(N);: NEXT N: GOTO 1
```

Good, innitt! Thanks, Nev.

And now some more for the Spectrum. L.G.Baumann, of Cowies Hill, South Africa, who frequently appears in this column, has sent an interesting and seasonal little teaser. 'Twill again work either on Speccy or SAM. Type it in and see.

```
10 CLS : LET z$="": LET a=0
20 REM By L.G.B.
30 LET a$="j*b*o*o*v#u*#j##1#p"
40 FOR f=1 TO 20
50 LET z$=z$+CHR$(CODE a$(f)-29)
60 NEXT f: POKE 23689,3
70 POKE 23692,201: INK 0
80 FOR m=1 TO 14
90 FOR g=1 TO 20
100 PRINT INVERSE a;z$(g);
101 REM note semi-colon in line 100
110 BEEP .04,m+32: NEXT g: INK m/2.9
120 PRINT : NEXT m
130 PAUSE 50: LET a=1: GOTO 70
```

SAM now. Robert Brady of Evington, Leicester has been at it again. Here's a little game called "Leaky roof" which he's done. It all works from Basic - catch the drips from the roof by sliding the bucket up and down. You can't win....or can you?

```
10 REM Leaky roof
20 GOSUB 9000: LET hi=0,z=3,hi$="Hi
there",Le$="z",ri$="x"
25 GOTO 190
30 GOSUB 8000
40 GOSUB 7000
50 LET p=RND(26)+1,d=d+1: PRINT AT
0,25;"Drip ";d
```

```
60 FOR L=6 TO 18
70 PRINT AT 20,v; PEN 6;" ";CHR$(13
3;CHR$(132;" "; AT 21,v;" ";CHR$(
130;CHR$(130;" "
80 PRINT AT L,p; PEN 5;" "; AT L+1
,p;CHR$(132;CHR$(133; AT L+2,p;C
HR$(134;CHR$(135
90 IF L+3=20 AND v+1=p+1 OR L+3=20
AND v+2=p+1 OR L+3=20 AND v+2=p
THEN LET sc=sc+1: PRINT AT 0,0;"
SCORE ";sc: FOR n=4 TO 1 STEP -.
5: BEEP 0.01,n: NEXT n
100 IF Z=1 THEN LET v=v+(INKEY$=ri$
AND v<28)-(INKEY$=Le$ AND v>0)
102 IF Z=3 THEN LET v=v+(INKEY$="7"
AND v<28)-(INKEY$="6" AND v>0)
105 IF Z=2 THEN LET v=v+(p>v+1)-(p<v
+1): PRINT AT 1,0; PAPER 2;; PEN
7;"DEMO mode
"
110 NEXT L
120 PRINT AT L,p;" "; AT L+1,p;" "
130 IF d=30 THEN GOTO 150
140 GOTO 50
150 PRINT AT 5,11;"GAME OVER"
160 PRINT """" You scored
";sc
170 IF z<>2 THEN IF sc>hi THEN LET h
i=sc: INPUT "Your name "; LINE h
i$
180 PRINT ""Highest score today ";
hi'"By ";hi$
190 PRINT #1;"Press any Key to Conti
nue"
200 PAUSE 0
210 GOSUB 8000: GOSUB 7000
220 PRINT ""1-Keys"
230 PRINT ""2-Demo"
235 PRINT ""3-Joystick"
237 PRINT ""4-Redefine Keys"
240 GET z: IF z=1 OR z=2 OR z=3 THEN
GOTO 30
250 IF z=4 THEN redefkeys
260 GOTO 210
270 DEF PROC redefkeys
280 INPUT "Left key "; LINE Le$
290 INPUT "Right key "; LINE ri$
300 END PROC
7000 CLS
7010 PRINT "SCORE ";sc
7020 PRINT PAPER 13; PEN 2;STRING$(16
,CHR$(131+CHR$(130)
7030 PRINT PAPER 13; PEN 2;STRING$(16
,CHR$(130+CHR$(131)
7040 PRINT PAPER 13; PEN 2;STRING$(16
,CHR$(131+CHR$(130)
7050 PRINT PAPER 13; PEN 2;STRING$(16
,CHR$(130+CHR$(131)
```



```

7990 RETURN
8000 MODE 4: BORDER 0: PAPER 0: PEN 1
      5: CLS : BRIGHT 0: CSIZE 8,8: BL
      OCKS 0
8010 LET sc=0
8020 LET v=15
8030 LET d=0
8990 RETURN
9000 FOR A=UDG CHR$ 130 TO UDG CHR$ 1
      35+7
9010 READ user: POKE a,user
9020 NEXT a: RETURN
9030 DATA 255,255,255,255,255,255,0,0
9040 DATA 252,252,252,252,252,252,0,0
9050 DATA 0,0,0,0,0,1,3,7
9060 DATA 0,0,0,0,0,128,192,224
9070 DATA 7,7,15,15,15,7,7,3
9080 DATA 224,224,240,240,240,240,224
      ,224,192
9090 DATA 0,0,127,63,95,11,119,59
9100 DATA 0,0,254,254,253,251,251,246
9110 DATA 62,63,63,63,31,31,31,31
9120 DATA 14,254,254,254,254,252,252,
      252,252
9999 RETURN

```

Type it in for Christmas; keep everyone amused. And you can follow this up with Robert's absolutely super SAMgame of hangman. Fill the data statement at the end with a couple of thousand words and alter the variable "word" in line 1010 to 2,000, and you're away.

```

10 MODE 4: PALETTE : CSIZE 8,8: PAP
      ER 15: PEN 0: BORDER 15: CLS
20 GOSUB 1000
30 GOSUB 2000
40 IF won OR lost=1 THEN GOTO 80
50 GOSUB 3000
60 IF correct=0 THEN GOSUB 7000
70 GOTO 40
80 IF won THEN GOSUB 4000
90 IF lost THEN GOSUB 5000
100 GOSUB 6000
110 GOTO 10000
1000 REM selectword
1010 LET word=4
1020 RESTORE
1030 LET choice=INT (RND*word+1)
1040 FOR L=1 TO choice
1050 READ w$
1060 NEXT L
1070 LET Lengthv=LEN w$,d$=w$
1080 RETURN
2000 REM title
2010 CLS

```

```

2020 FOR L=5 TO 10: GOSUB 7000+L*100:
      NEXT L
2030 PAPER 15: PEN 0: PRINT AT 5,8;"H
      A N G M A N"
2040 PRINT AT 21,5;"Press ENTER to st
      art": INPUT a$
2050 CLS : PRINT AT 2,2;"Letters Chos
      en"
2060 PRINT AT 3,2;STRING$(14,"_")
2070 PRINT AT 12,2;"The computer's"
2080 PRINT AT 14,2;"word is"
2090 PEN 2: PRINT AT 17,2;
2100 FOR L=1 TO Lengthv: PRINT "*"";:
      NEXT L
2110 PEN 0: PRINT AT 20,0;"Please cho
      ose"
2120 PRINT AT 21,4;"A letter"
2130 LET won=0,lost=0,life=0,score=0
2140 RETURN
3000 REM chooseletter
3010 INPUT c$
3015 BEEP .1,20
3020 PAPER 15: PEN 0: PRINT AT 5,life
      ;c$
3030 IF c$>CHR$ 96 THEN LET c$=CHR$ (
      CODE c$-32)
3040 LET correct=0
3050 FOR p=1 TO Lengthv
3060 IF c$<>w$(p) THEN GOTO 3110
3070 LET correct=1,score=score+1
3080 LET w$=w$(1 TO p-1)+"?" +w$(p+1 T
      O Lengthv)
3090 PEN 2: PRINT AT 18,p+1;c$
3110 NEXT p
3120 LET won=score=Lengthv
3130 RETURN
4000 REM win
4010 CLS
4020 FOR L=1 TO 10: GOSUB 7000+L*100:
      NEXT L
4030 PEN 0: PAPER 15: PRINT AT 1,4;"W
      ell done! Your execution"
4040 PRINT AT 2,4;"has been postponed"
4047 FOR s=0 TO 40: BEEP .05,s: NEXT
      s
4050 RETURN
5000 REM lose
5010 PAPER 15: PEN 0: CLS
5020 FOR L=1 TO 10: GOSUB 7000+L*100:
      NEXT L
5030 PEN 2: PAPER 15: PRINT AT 10,2;"
      Knavish fool!"
5040 PRINT AT 12,2;"You lost!"
5050 PRINT AT 14,2;"The word was";: P
      RINT AT 16,5;d$
5051 FOR s=40 TO 0 STEP -1: BEEP .05,
      s: NEXT s
5060 RETURN

```

```

6000 REM play again
6010 PRINT AT 20,1;"Do you wish"
6020 PRINT AT 21,1;"to play again?"
6030 GET a$
6040 IF a$="y" OR a$="Y" THEN GOTO 10
6050 CLS : PAPER 15: PEN 2: PRINT AT
      10,10;"B Y E   B Y E"
6060 RETURN
6070 LOAD ""
7000 REM hangman
7010 LET Life=Life+1: IF Life=10 THEN
      LET Lost=1
7020 GOTO 7000+Life*100
7100 REM gallows1
7110 PEN 0: FOR r=0 TO 21: FOR c=19 T
      O 20
7120 PRINT AT r,c;CHR$ 143
7130 NEXT c: NEXT r
7140 RETURN
7200 REM gallows2
7210 FOR r=0 TO 1: FOR c=21 TO 30
7220 PRINT AT r,c;CHR$ 143
7230 NEXT c: NEXT r
7240 RETURN
7300 REM gallows3
7310 PEN 0
7320 FOR r=100 TO 105
7330 PLOT 155,r: PLOT 60,60
7340 NEXT r
7350 RETURN
7400 REM rope
7410 PEN 0: PLOT 227,135: DRAW 0,25
7420 RETURN
7500 REM face
7510 PEN 0: CIRCLE 227,119,15: FILL P
      EN 7,227,119
7520 PRINT AT 6,27; PAPER 7; PEN 1;"+"
7530 PLOT 227,115: DRAW 0,7
7540 PLOT 220,110: DRAW 10,0
7550 RETURN
7600 REM body
7610 PAPER 2
7620 FOR r=9 TO 14: PRINT AT r,27;"
      ": NEXT r
7630 PEN 15
7640 PRINT AT 10,28;"O": PRINT AT 12,
      28;"O"
7650 RETURN
7700 REM arm1
7710 PAPER 2: PEN 15
7720 FOR r=9 TO 14: PRINT AT r,26;" "
      : NEXT r
7730 PLOT 215,56: DRAW 0,35
7740 PAPER 15: PEN 0: CIRCLE 210,50,4
7750 RETURN
7800 REM arm2
7810 PAPER 2: PEN 15
7820 FOR r=9 TO 14: PRINT AT r,30;" "
      : NEXT r
7830 PLOT 240,56: DRAW 0,35
7840 PAPER 7: PEN 0: CIRCLE 244,50,4
7850 RETURN
7900 REM leg1
7910 PAPER 14: PEN 15
7920 FOR r=14 TO 19: PRINT AT r,27;CH
      R$ 128;CHR$ 133: NEXT r
7930 RETURN
8000 REM leg2
8010 PAPER 14
8020 FOR r=14 TO 19: PRINT AT r,28;"
      ": NEXT r
8030 REM belt+shoes
8040 PEN 0
8050 FOR c=60 TO 63
8060 PLOT 216,c: DRAW 23,0
8070 NEXT c
8080 PEN 7: CIRCLE 228,61,3
8090 PAPER 0: PEN 7
8100 PRINT AT 20,26;" " : PRINT AT 20
      ,29;" "
8110 PLOT 228,16: DRAW 0,35
8120 REM delay
8130 FOR d=1 TO 100: NEXT d
8140 RETURN
9000 DATA "APPLE","ANGLE","ALPHABET",
      "ANTIQUE"

```

Smashing programs, Robert.

Alan Cox of St.Clears, Dyfed, writes that some time ago, I mentioned the value of republishing Spectrum items which had appeared in now defunct magazines. As nothing has happened, he's culled a few. Amongst them are some short bits of code, and he wants to know if I need code or Basic, and if my column is for novices or experts. Actually, Alan, I try and do the impossible and put something in Short Spot for most readers. So some of the programs and ideas are short and simple, whilst others may be sophisticated and tortuous. I also like to include a balance of articles for Spectrum and SAM. If you like/dislike the mix, drop a letter to the "letters" page to tell us.

The first snippet Alan has sent is to convert lower to upper case in the string L\$. As the program didn't work, he corrected it.

10 REM To convert lower to upper cas

```

e in string L$
20 REM R H Doughty Popular Computing
   Weekly September 1-7 1988
25 REM corrected by ADC
30 INPUT "What string ? ";L$
40 FOR L=1 TO LEN L$
50 IF CODE L$(N)<123 AND CODE L$(N)>
   96 THEN LET L$(N)=CHR$(CODE L$(N)
   )-32)
60 NEXT N
70 PRINT L$

```

So, what use is this? Well, imagine you're trying to sort a list in a database. Life is infinitely easier if you change the case first, then sort on ASCII code. Or put this in as a subroutine and refer to it, for instance, with your microdrive or Discovery, which both differentiate between lower and upper case names for file titles. Or... but I'm sure you'll think of much cleverer uses than ever I could...

Bjorn Nyberg of Lennoxton, Glasgow. This name is familiar, isn't it. Well, following my requests, he's ground through all his bits and pieces and found a little snippet specially for Christmas. Remember the three Kings of Orient, who followed a star? Bjorn's program is all about stars - a "fun" program; just the job for Christmas. "Starmaster" lets you create a chosen number of stars in your universe (thereby creating mayhem and confusion amongst the Kings of Orient) and then lets you search for them at random. A nice little game for you, really. Many thanks, Bjorn, and here's your "Starmaster" program, hot from the press and only just in time, as it arrived yesterday.

```

50 LET hit=0
70 BORDER 0: INK 9: PAPER 0: CLS
80 CLS : PRINT "YOU CAN PLOT THE STARS
  IN YOUR UNIVERSE AND THEN TRY TO
  FIND THEM BY RANDOM SEARCH. FIRST
  YOU INPUT THE NUMBER OF RANDOM
  STAR POSITIONS YOU WANT TO PLOT;
  THEN YOU DECIDE ON THE INTENSITY
  OF THE SEARCH."
85 PRINT "EACH STAR FOUND BECOMES
  THE CENTRE OF A CIRCLE, WHICH
  HELPS TO GAIN POINTS!" "YOU CAN
  CHOOSE ANY CIRCLE DIAMETER

```

```

UP TO 75!" "HAVE FUN!": PRINT #
1;"Press a key to continue": PAUSE
E 0
90 INPUT "No. of plots? ";no1: INPUT
  "No. of checks? ";no2
92 INPUT "Circle diameter? ";p: IF p
  <1 THEN GOTO 92
96 IF p>75 THEN PRINT #0;"Maximum ci
  rcle diameter is 75! Press SPACE
  to try again!": PAUSE 0: GOTO 92
99 CLS
100 FOR n=1 TO no1
110 LET x=INT (RND*(256-p*2)+p)
120 LET y=INT (RND*(176-p*2)+p)
130 PLOT x,y
137 INPUT "": PRINT #0;n
140 NEXT n
150 PRINT #0;"Press a key for next ph
  ase": PAUSE 0
170 INPUT ""
200 FOR n=1 TO no2
210 LET x=INT (RND*(256-p*2)+p)
220 LET y=INT (RND*(176-p*2)+p)
235 IF POINT (x,y) THEN CIRCLE x,y,p:
  BEEP .5,3: LET hit=hit+1
237 INPUT "": PRINT #0;n
240 NEXT n
250 PRINT #0;hit;" star";"s" AND hit<
  >1;" found": PAUSE 0
260 CLS : PRINT "NO " AND hit=0;"CONG
  RATULATIONS! YOU FOUND ";HIT'"STA
  R";"S" AND hit<>1;"!""DO YOU WA
  NT TO TRY AGAIN, MASTER OF THE UNI
  VERSE?"
270 GOSUB 1000
280 IF k$="Y" OR k$="y" THEN GOTO 50
300 GOTO 9999
1000 INPUT ""
1005 PRINT #1;"Press Y for Yes or N fo
  r No": PAUSE 0
1010 LET k$=INKEY$: IF k$="Y" OR k$="y"
  " OR k$="n" OR k$="N" THEN RETURN
1020 GOTO 1000
9999 INPUT "": PRINT #1;"O.K. - FAREWE
  LL FOR NOW!": PAUSE 0

```

That's all for this year.

Contributions (preferably short ones) on a disc, and with a print out, if it's code, preferably along with a Basic poker and data statements for those without an assembler. Send to: John Wase, Green Leys Cottage, Bishampton, Pershore, Worcs, WR10 2LX. Have a wonderful Christmas. All of you. See you in 1992.

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# SPELLING ATTACK

## AN EDUCATIONAL GAME FOR SAM

Reviewed By:- Guy Inchbald.

SAM Computers have had to take educational software by the horns and start publishing their own titles, in order to break out of the vicious circle of "no software - no sales - no software". Under the Revelation label, the first two titles in their SAMschool range have now arrived. So what are they like?

I intend to deal with Highway Code soon. Spelling Attack is excellent classroom material, and my daughters enjoy it at home too. It "gives graded practice with over 90 common letter/sound combinations in English. The material is intended for children aged between 6 and 12, as well as for remedial study. The child will be able to work alone, but notes tell the teacher or parent how to provide support".

Spelling Attack comes on a 3½" disc in a plastic case, with a good-looking but not very helpful inlay. To find out how to run it, you have to read the disc label. "Press F9 To Load" it says. I did, and it didn't. It turns out that there are software protection devices which prevent you loading from DOS, which I was of course running. One way to get out of DOS is to enter POKE &5BC2,0 which makes your SAM forget it. I was able to load after leaving SAMDOS this way, but this did not work with MasterDOS (anybody know why?): here I had to resort to the much-used reset key round the back.

The loading screen gives you a choice of running the game or reading about it first. The information section is essential reading: it has about 40 pages including Index, User instructions, Glossary and much fascinating if somewhat jargon-infested educational background. In fact, I found this so interesting that I would have liked it all in a little

booklet on its own rather than on-screen.

On first running the actual game, you are asked to enter the current date. This is done via the cursor and enter keys, as is the main program. Next you are presented with the main menu, giving over ninety exercises to choose from. Each exercise is based around one or two letter groups or sounds, and everything you can think of is here from "sh" and "ch" through Magic "e", Silent Letters and so on to "aught" and "ought". They are graded to cover reading ages from 6 to well... embarrassingly close to mine! Having selected an exercise, you enter your name, wisely via the keyboard not the cursor keys, and then get stuck in.

Each word is first built up in sections in an animated sequence, and the sections then joined together choo-choo fashion: a delight to capture a child's attention without driving it wild, and a superb way to illustrate the lesson. Once several words have been built up, the child is presented with a series of sentences to complete by choosing the appropriate word. The details of each exercise vary in subtly-handled ways depending on its needs, and keep coming up with nice touches like a wizard's hat for Magic "e", an animated finger over a mouth for silent letters, or warning roadsigns when you change pronunciation of "ough". My only niggle is that the keyboard response is very fast, and it is too easy for a small child to jump past the desired word in a list: perhaps the timing was originally set for the Spectrum, and is put out by SAM's extra speed.

Each exercise takes the child through two or three variations on

this theme over a period of around 15 minutes, and at the end comes up with a personal certificate giving a graded performance rating (this is where all that date and name stuff at the beginning comes in). A valuable feature is the ability to print this certificate out for the child to keep. This reinforces the experience for the child, again in a controlled way. Unfortunately, I could not check this out.

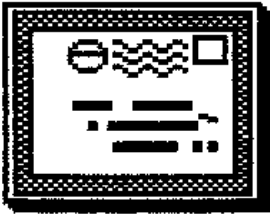
I could go on and on. All in all Spelling Attack is a wonderful classroom tool, expertly thought out

and put together. It reinforces spelling work by using word attack in a constructive and attention-grabbing way, and needs only a cooling-down of the keyboard response to be ideal. The informative material is worth the asking price in its own right. And if SAM Computers could find a more user-friendly protection device, it would do no harm. My only advice is to take your SAM Coupé straight down to your local primary school, and hit them over the head with it. Now.

Spelling Attack costs £10.99 from Sam Computers Ltd. Tel 0792-700300.

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# YOUR LETTERS



Dear Editor,

The reason I am writing to you is one which I am sure that most of the *FORMAT* readers have known ever since they have been using the Spectrum or SAM computers. I started out on computers on the old ZX81 and then on to the 'rubber' SPECTRUM, to which I added the Plus keyboard and started using the OPUS disc drive which served me well until the control board packed up and I was unable to get it repaired in South Africa.

There was nothing else to do but change my disc drives, and so I bought a BETA interface with 5.25" and 3.5" drives, again a very good combination which worked very satisfactorily for a few years. Then on a trip to the UK I came across the DISCiPLE which I used with my 3.5" drive with fantastic success. On my next trip to the UK I heard about the PLUS D, my next purchase, again a great success. I was able to transfer most of my data from the BETA to DISCiPLE and then to the PLUS D almost entirely without loss.

When the SAM Coupé came out I once again updated and this time I felt that I had reached the top of the range, I wasn't disappointed. At the moment I have quite a range of computers, a ZX81(16k), Spectrum (in DK'Tronics keyboard) with BETA interface and drives, Spectrum (DISCiPLE and PLUS D) with double drives, finally the SAM Coupé with double disc drives.

Imagine my surprise when a few weeks ago I "Inherited" a P.C. with hard disc and two floppy drives, from my son. This came complete with a TASWORD PC, word processor and spelling check, as well as two spreadsheet, PC Write and a database program. It has taken me some time to learn to use the PC. In doing so I have come to realize just how brilliant the designers of the Spectrum and the SAM Coupé were. To me, the ease with which an absolute

beginner on computers can learn to use these two machines is fantastic. The key operations on the PC are far more complicated and 'round about' than on the Speccy and SAM. I have been able to teach my eleven year old grandson to use TASWORD 2 in just over half an hour, this would be almost impossible on the PC.

Anyway, Bob, even though I have the PC I am not likely to drop the Spectrum or the SAM, and I really look forward to the monthly issue of *FORMAT*. Keep up the good work.

Yours sincerely, Peter Hyde.

-----

Dear Editor,

Several points arising from the current *FORMAT*.

1) Letter from Kevin Gould - the FDI 3" floppy drive is still available from Silicon City, Dept 8, Postal Buildings, Ash Street, Windermere, Cumbria, LA23 3EB (cost incl VAT and UK postage £79). However, I do not recognize the reference to an SII Interface, and overall the idea of using a 3" drive with a PLUS D in 128K mode seems to me a bit weird. On his reference to AMX, I think that he probably means MSX, which you may recall was a concept of a variety of different machines which would all recognize and run the same software. The answer to "What did happen to ...." is that it died the death, although I believe there are still a few devout users out there somewhere.

2) Thank you for your response to my letter concerning the SPI interface. The answer is basically what I had expected, but I thought it was worth trying it on before I invested in one. Still, at that price I can hardly go wrong, so I enclose a separate piece of paper ordering one. If you want to avoid stupid letters (like mine!) in future it might be worth while slightly altering the advertisement to

say 'all computers with a Centronics port' (or is it still almost all?).

3) I was sorry to see that Jeremy Cook's 'Thought Spot' did not appear this month. I am a great fan of his monthly problem, since I believe that problem solving, not programming for its own sake, is the name of the game.

Yours sincerely, Alan D.Cox.

Many thanks for all the above Alan. I think you are right on the 3" drive, the FDI (an external drive for the CPC range) is available but the interface to connect it to the +2a was never produced. On the point about our SPI, there just isn't enough room on the page to give more details, but your letter wasn't stupid - it raised a valid question which I was only too pleased to answer (that is what I'm here for - as well as making the tea for Jenny and the others).

Finally, Thought Spot is back, which should please you and all the others that wrote or phoned. Ed.

Dear Editor,

How's about an article on files, Basic, Code, Open etc., all eleven types. I know that various articles have appeared in FORMAT, but none have really told me everything I wish to know, such as:-

1) Why can I save strings and arrays to tape, but only arrays to PLUS D (or is there a trick?).

2) If I save as a BASIC file I can call back to edit, if I save as code it is (apparently) gone for ever.

3) What is the difference between a Microdrive file and any other?

P.S. I'm a Spectrum +2 man.

Yours sincerely, Rusty Atkins.

Quick answers. 1) its a bug. Not in the PLUS D but the tape routine in the +2 ROM. You should NOT be able to save simple strings, only string and numeric arrays. 2) what do you expect? If it is a Basic program you save it as Basic that way it loads back. 3) a Microdrive file is one that is written by a machine code program that uses Interface 1 hook-codes.

Every type of file has been covered

at least once in FORMAT, but if someone wants to write an article I would be pleased to see it. Ed.

Dear Editor,

I greatly admire the ingenuity of Barry Cartwright's UDG Designer (FORMAT Sept/91) but is he pulling our leg with his lines 20-40, where all he needs is POKE 23658,8?

My Spectrum+ usually has Betabasic in residence so I had to try the designer with that, but forgot the fairly obvious need for KEYWORDS 0, with chaotic result. How to guard against that? While in BB one can add this line:-

```
7 IF PEEK 23730+256+ PEEK 23731=46623  
THEN KEYWORDS 0
```

command DELETE 0 to 0 and save. The program will then work with or without BB, but without it that line 7 looks rather odd and cannot be edited, so I ferretted around in BB's code and found that the line could be simply POKE 64476,195. One can POKE 64476,218 to restore KEYWORDS 1 but better not to do it with this program! I could offer a game of dominoes - play against the computer - but its listing occupies 11 screens, too much of a mouthful for your publication? Yours sincerely,

Yours sincerely, G.Jackson.

No kidding, that is the correct way to set caps-lock on. It makes sure that no other flags are upset. But having said that the poke will work in 99% of programs - just don't say you haven't been warned when you come across one of the other 1%.

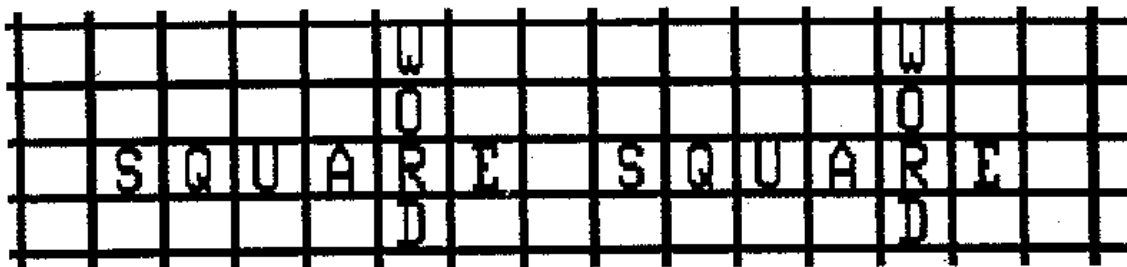
And no, you dominoes program would not be too big (although I may split it so it wont swamp one issue) I look forward to seeing it. Ed.

\* - \* - \* - \* - \* - \*

Letters may be shortened or edited to fit on these pages.

This is YOUR letters page so it is up to you, our readers, to fill it. Send your letters, on any subject you feel would interest other readers, to our usual address, keep them as short as you can so we can fit in as many as possible.





By:- Bob Brenchley.

In this issue is another of our ever popular Word Square puzzles and in the past several readers have asked me how they are produced. Well I have to hang my head in shame and say that, until this year, they have always been done on my BBC 'B' - simply because I had the program so I used it. Still that is no good for FORMAT readers, so, in a fit of madness, and with little thought for my own sanity, I set out to write a program readers could use.

Now let's get one thing straight before we go any further. This program was written in a very short period, interrupted by many hot-line calls, and it ain't the best of programming. It does however work, which is the main thing.

Right, so here is the program. There are no special characters or any other problems. It is guaranteed to work on any Spectrum or SAM Coupé and although it would be difficult you could even use it without a printer, just copy the screens by hand.

```

10 REM WORDSQUARE COMPILER
20 REM (C)1991 FORMAT PUBLICATIONS
30 REM ALL RIGHTS RESERVED
40 INPUT "S=Screen OR P=Printer";IS
50 LET CHAN=2: IF IS="P" THEN LET CHAN=3
60 GOSUB 1000
70 GOSUB 2000
80 LET PS="SOLUTION"
90 GOSUB 4000
100 GOSUB 5000
110 LET PS="WORDSQUARE"
120 GOSUB 4000
130 PRINT #CHAN;"Word List:-"
140 FOR I=1 TO WCNT
150 PRINT #CHAN;WS(I);" ";
160 NEXT I
170 STOP
1000 REM ** SET VARIABLES **
1010 LET SIZE=16: LET WCNT=10: LET WLEN=15
1020 DIM WS(WCNT,WLEN): DIM GS(SIZE,SIZE): DIM C(WCNT,3)
1030 LET AS="ABCDEFGHIJKLMNOPQRSTUVWXYZ"
1040 GOSUB 9000
1050 RETURN
2000 REM ** FILL GRID WITH WORDS **
2010 FOR I=1 TO WCNT
2020 LET XS=""
2030 FOR J=1 TO WLEN
2040 IF WS(I,J)=" " THEN GOTO 2070
2050 LET XS=XS+WS(I,J)
2060 NEXT J
2070 PRINT AT 10,0;"Placing ";XS,,
2080 LET X=1+INT (RND*SIZE)
2090 LET Y=1+INT (RND*SIZE)
2100 LET D=1+INT (RND*8)
2110 IF D=1 OR D=3 OR D=4 THEN IF X+LE
N XS>SIZE THEN GOTO 2080
2120 IF D=2 OR D=7 OR D=8 THEN IF X-LE
N XS<1 THEN GOTO 2080
2130 IF D=3 OR D=5 OR D=7 THEN IF Y+LE
N XS>SIZE THEN GOTO 2080
2140 IF D=4 OR D=6 OR D=8 THEN IF Y-LE
N XS<1 THEN GOTO 2080
2150 LET F=0
2160 FOR J=1 TO LEN XS
2170 GOSUB 3000
2180 IF NOT F THEN IF GS(X1,Y1)<>" " T
HEN IF GS(X1,Y1)<>XS(J) THEN GOTO
2080
2190 IF F THEN LET GS(X1,Y1)=XS(J): LE
T C(I,1)=X1: LET C(I,2)=Y1: LET C
(I,3)=D
2200 NEXT J
2210 IF NOT F THEN LET F=1: GOTO 2160
2220 NEXT I
2230 RETURN
3000 REM ** CALC NEXT COORD **
3001 IF D=1 THEN LET X1=X+J-1: LET Y1=
Y
3010 IF D=2 THEN LET X1=X-J+1: LET Y1=
Y
3020 IF D=3 THEN LET X1=X+J-1: LET Y1=
Y+J-1
3030 IF D=4 THEN LET X1=X+J-1: LET Y1=
Y-J+1
3040 IF D=5 THEN LET X1=X: LET Y1=Y+J-
1
3050 IF D=6 THEN LET X1=X: LET Y1=Y-J+

```

```

1
3060 IF D=7 THEN LET X1=X-J+1: LET Y1=
Y+J-1
3070 IF D=8 THEN LET X1=X-J+1: LET Y1=
Y-J+1
3080 RETURN
4000 REM ** PRINT GRID **
4010 CLS
4020 PRINT #CHAN;'PŞ'
4040 GOSUB 4500
4060 FOR I=1 TO SIZE
4061 PRINT #CHAN;CHRŞ 124;" " AND CHAN
=3;
4062 FOR J=1 TO SIZE
4065 PRINT #CHAN;GŞ(I,J);
4066 IF CHAN=3 THEN PRINT #CHAN;" ";
4068 NEXT J
4070 PRINT #CHAN;CHRŞ 124
4075 NEXT I
4080 GOSUB 4500
4100 RETURN
4500 FOR I=1 TO SIZE+1
4501 PRINT #CHAN;"=";"=" AND CHAN=3;
4502 NEXT I
4503 PRINT #CHAN;"="
4510 RETURN
5000 REM ** FILL SPACES **
5010 FOR I=1 TO SIZE
5020 FOR J=1 TO SIZE
5030 IF GŞ(I,J)=" " THEN LET GŞ(I,J)=A
Ş(1+INT (RND*26))
5040 NEXT J
5050 NEXT I
5060 RETURN
9000 REM ** SET UP WORDS **
9001 FOR I=1 TO WCNT
9010 READ WŞ(I)
9030 NEXT I
9040 RETURN
9099 REM ** YOUR WORDS GO HERE **
9100 DATA "CHRISTMAS"
9110 DATA "TREE"
9120 DATA "TURKEY"
9130 DATA "ADVENT"
9140 DATA "DECORATIONS"
9150 DATA "SNOWMAN"
9160 DATA "TELEVISION"
9170 DATA "MISTLETOE"
9180 DATA "REINDEER"
9190 DATA "CHOCOLATE"

```

So how does it work? Well let's start with important bits: line 1010 sets the SIZE of the grid, the number of words (WCNT) and the maximum word size (WLEN). No checks are carried out as to how sensible your figures are. If you enter a word of 20 characters

and only have a grid size of 18 then boy do you have a long wait, the program will NEVER be able to place your word. For printing on 80 col paper 38x38 is normally the largest you can do but you could work out ways to print larger if you want.

The program first reads your list of words into WŞ() and then uses the routine starting at line 2000 to fit the words into the grid GŞ(). The array C() hold the X,Y co-ordinates of the first letter of a word plus the direction. This array is not printed out at the moment but if you have large grids with long lists of words it may help you to add a few lines to print out a list of words with the matching array entries at the same time as the solution is printed.

As the program starts to place a word it prints it out on the screen, notice that after a time long words become more difficult to position. It is worth noting that long words are better entered at the start of the list for this reason. On very rare occasions the program may appear to hang when placing a word, there is no 'time-out' feature as the program just keeps trying until you get tired of waiting. If it does happen, move the word up in the list and try again.

At the start you will be asked if you want the output to Screen or Printer. When sent to a printer a space is printed between each letter on a line in order to preserve the aspect ratio. The printing is done, both to screen or printer, from line 4000. It is the section of the program which could give you the most scope for customizing and enhancing the look of the result.

Two prints are provided. One before the extra characters are added (the Solution) and one after - which is of course the one you hand out to someone to solve. Fig 1 is a typical example but remember each time you run the program the grid will be different.

Finally, you will of course need to provide your own list of words

starting at line 9100 (the lines given are just for testing).

The resulting printed wordsquare has many uses, as well as tormenting your loved one (or enemy) with your fiendish creation just think of the fund raising opportunities for schools, clubs etc....

Fig 1. A SAMPLE OUTPUT

SOLUTION

```

=====
+           +
+ T E L E V I S I O N           +
+           E                   +
+ C H R I S T M A S           T +
+           E           A S     +
+           E           L   N   +
+ N       T       D       O       O   E +
+ A       U       N C       I       O +
+ M       R       O I       E T       T +
+ W       K       H       A E E       A   E +
+ O       E C       D       R R       R   L +
+ N       Y       V       T       O       T +
+ S           E           C           S +
+           N           E           I +
+           T           D           M +
+           +
=====

```

WORD SQUARE

```

=====
+ U C I W C O Y U G U D W Q Q D W +
+ Z T E L E V I S I O N F K M W X +
+ C K K H O X C M U O T Y E M G P +
+ C H R I S T M A S I T T W N X U +
+ S T E E G Q K C E S A S Y D N O +
+ Y G O K E T I C Z L L N G H O Q +
+ N Z Y T L D V G O K G O U X V E +
+ A W T U C E N C S C Y I M I X O +
+ M I B R H T O I Y Z E T Y K M T +
+ W Y F K E H K A E E C A A B T E +
+ O E D E C C D X R R O R M B E L +
+ N P L Y X V J T K H K O G A E T +
+ S R O E E W G X A H H C O R A S +
+ L N Z N B T D C O V K E Q S H I +
+ I T T X U N R H R I F D K K K M +
+ Y Q W O W W C D W N E I P U A H +
=====

```

Word List:-

CHRISTMAS	TREE	TURKEY
ADVENT	DECORATIONS	SNOWMAN
TELEVISION	MISTLETOE	REINDEER
CHOCOLATE		

\* \* SMALL ADS \* \*

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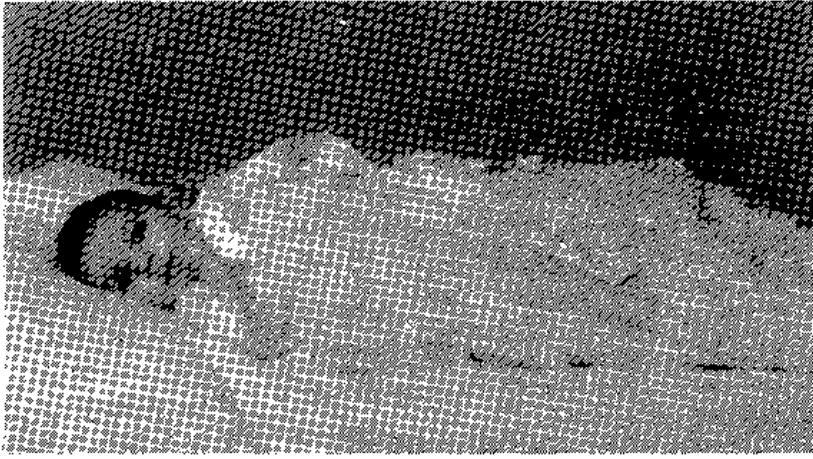
DISCiPLE Interface Wanted Please write to or ring Peter Page, 3 Stocks Lane, Blofield, Norwich, NR13 4JY. Tel:0603 713759.

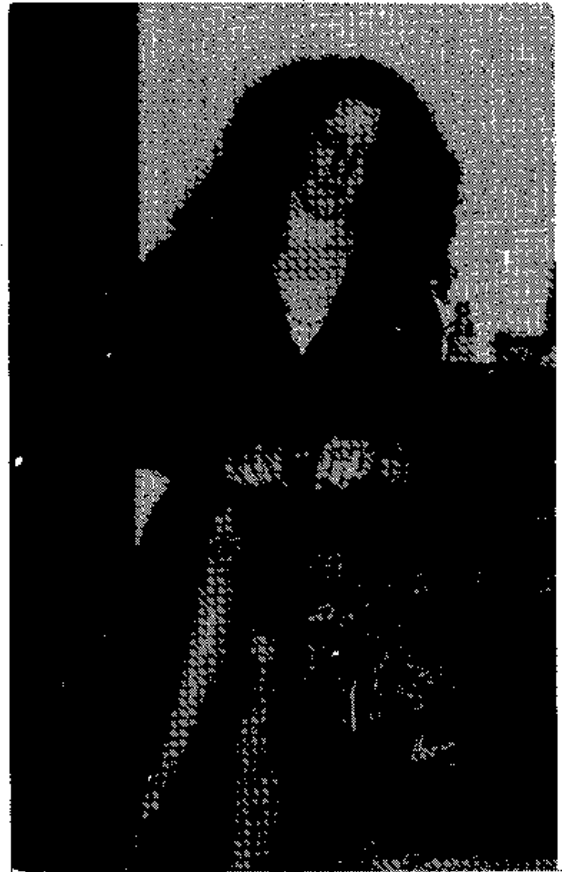
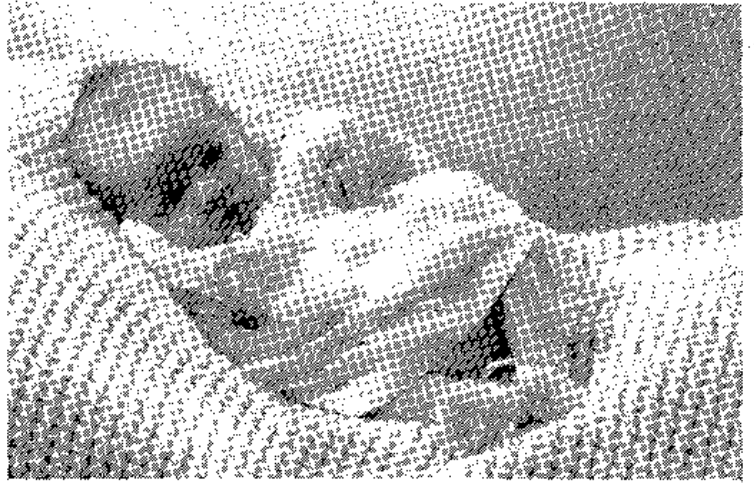
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# MERRY CHRISTMAS





**FROM ALL AT FORMAT**

Here are a few jokes to keep you chuckling over Christmas. My appology if you have heard any of them before, but the old ones are often the best.

=====

Q. What's the difference between a Nintendo owner's brain and a prison?

A. A prison usually has more than one cell...

-----

Q. How many ST owners does it take to make chocolate chip cookies?

A. Four. One to stir the mix, and three to peel the Smarties.

-----

A recent press release by Nintendo, stated that Joan Collins had ordered 365 of their Game Boy hand held games systems to be delivered over the next twelve months.

Nintendo later withdrew the press release saying there had been a misunderstanding. Miss Collins had in fact been asking for a daily Toy Boy.

-----

Having finished his delivery run for another year Santa decided to take an extra job so he could afford his summer holiday in the sun.

The only position available at the job centre was at London Zoo where, because of a shortage of monkeys he was to dress up as one and spend his day in a cage.

On the first day he gets into his monkey suit and starts swinging around the cage. After a while he begins to show off a bit and accidentally swings right over the top and lands in the next cage. To his horror he realizes it's the lion's cage. He's screaming and shouting in terror when suddenly the nearest lion bounds over and says "Shut your big mouth you fool or we'll all get the sack."

-----

Q. How can you tell when an Amiga owner has been doing some word-processing?

A. There is Tipeg all over the screen.

-----

Two kid were discussing their visit to see Father Christmas at the big store. "Well, I think he is just like my dad." said one. "Why's that?" asked the other. "He never shaves, stinks of booze and he only works one day a year."

## JOKE BOX

Tommy had never uttered a single word in his eight years of life, until last Christmas morning, when he suddenly turned to his mum and said "I don't think much of the present you bought me."

His mum was overjoyed. "Tommy," she exclaimed, "you can talk!"

"Course I can," said Tommy.

"Why on earth have you never spoken before then?"

"Well, everything has been OK up till now."

-----

Q. How do you make an Atari ST owner's eyes light up?

A. Shine a torch in his ears.

-----

A Roman galley was ploughing through the becalmed Mediterranean one day when its progress suddenly slowed.

The Captain was furious and ran up to the Galley Master. "Why are we slowing down?" said the Captain.

The Galley Master was apologetic and replied "one of the slaves has just died at the oars."

The Captain looked impassive. "Well throw him over-board and give the rest of the slaves twenty lashes" he ordered.

The Galley Master look disturbed, "But sir," he said, "I can understand throwing the dead man over the side but why give all the rest twenty lashes?"

"Because," retorted the Captain, "when anyone dies on my ship we always have a good whip-round, that's why."

-----

On his way home from a Christmas party Bob was suffering from a very bad case of alcohol abuse. Staggering around the streets at 3am, trying to find his way home, Bob finally manages to wave down a taxi and jumps in. "Take me to 34 Bourton Road," he told the drive in a drunken slur. "This is 34 Bourton Road, sir" said the cabbie patiently. "All right," said Bob, jumping out and handing over a £10 note, "but next time don't drive so bloody fast."

# PRIZE WORDSQUARE

Back, by popular demand, our CHRISTMAS PRIZE WORDSQUARE. In the grid below are 66 words, half Christmas related and half computer. All you have to do is find them all, CHOCOLATE is already marked so you have just 65 to go. As usual there will be a prize (you can't have a prize wordsquare without one can you). This year I am pleased to offer A YEARS FREE SUBSCRIPTION to one lucky winner plus ten runners-up prizes of an EXTRA 3 MONTHS on their next years subscription (well it is Christmas so why not be generous).

So find the words, send this page (or a photocopy) to the usual FORMAT address, mark the envelope WORDSQUARE and remember to write your membership number on your entry. We will put all the correct solutions into the hat and draw the winners on Monday 9th March 1992 (so even overseas readers have time to enter). Spoilt entries or entries without membership number will be excluded. As in all things like this the Editor's decision is final. Winners in the April issue.

Y	J	A	S	S	G	O	O	S	E	T	Y	S	N	O	I	T	A	R	O	C	E	D	E	T	V	V	Z
N	F	V	N	A	K	E	Y	B	O	A	R	D	A	H	G	(S)	(O)	(F)	(T)	(W)	(A	R	E)	L	M	B	G
N	F	A	D	N	I	C	U	L	R	C	H	D	R	I	A	L	C	N	I	S	Y	K	W	O	X	S	I
E	S	A	H	T	F	(P	R	I	N	T	E	R	E	I	N	D	E	E	R	F	N	O	N	X	A	F	
J	T	K	V	A	G	L	E	X	I	P	K	H	Z	C	E	M	(C	S	I	D	A	B	C	G	K	X	A
S	O	H	Z	T	M	L	I	Y	I	C	M	Y	S	L	O	F	E	J	C	A	R	D	R	O	C	M	F
A	A	R	O	N	W	P	E	A	V	S	F	T	K	Y	P	N	J	F	L	T	L	A	A	L	I	E	O
T	D	G	L	K	Y	A	E	C	P	C	H	S	B	X	I	M	Y	G	D	R	E	T	C	I	T	D	T
S	R	U	V	S	C	O	D	R	A	G	T	A	L	N	I	R	Z	G	R	I	U	A	K	V	S	O	T
F	N	B	U	I	A	Y	V	K	I	O	N	A	S	S	O	C	O	L	O	L	N	D	E	E	Y	M	O
A	K	O	S	G	R	C	E	L	M	I	U	F	T	M	O	W	Q	U	W	T	I	B	R	Z	O	Z	R
P	X	A	W	I	N	O	A	M	B	L	N	L	E	Z	D	Y	P	S	Y	O	T	Z	Y	I	J	N	G
T	M	Y	A	M	X	R	A	T	S	L	E	M	A	D	V	E	N	T	E	G	N	N	R	N	W	E	S
T	U	F	K	L	A	R	I	A	B	T	X	E	C	N	H	N	E	J	K	O	O	S	M	D	F	E	S
Q	Z	R	X	G	G	N	M	N	O	F	O	H	M	O	L	J	O	R	E	C	C	O	H	U	E	R	L
T	S	D	K	O	V	T	B	E	Q	E	A	C	A	I	S	D	O	E	D	N	U	O	S	G	O	C	L
F	Z	G	R	E	S	U	I	T	L	R	E	Q	K	S	T	S	R	R	P	O	T	M	A	R	K	S	E
W	D	P	T	I	Y	F	R	R	A	Z	F	X	Y	I	V	O	L	T	I	N	S	E	L	R	E	Z	B
D	W	D	R	D	E	F	C	C	P	Y	Q	U	H	V	N	N	X	B	T	A	C	A	R	O	L	O	R
W	Y	H	Y	C	C	Z	T	O	B	Z	N	S	H	E	F	G	U	N	S	C	R	O	U	M	A	D	A
N	C	P	M	K	I	E	P	L	(C	H	O	C	O	L	A	T	E	T	K	T	(C	A	N	D	L	E	N
A	U	J	O	O	R	S	O	I	P	E	C	P	L	E	S	A	M	S	Z	O	D	B	E	F	O	I	
P	L	A	R	R	A	Y	A	N	D	T	F	W	L	T	S	Y	C	E	K	L	M	P	R	B	O	O	T
I	T	R	E	B	O	R	P	B	J	Y	E	I	Y	I	S	B	E	G	R	O	P	K	Z	I	R	W	S
Z	M	Y	O	S	C	E	E	R	T	B	Y	M	L	E	T	L	P	R	O	T	I	N	O	M	M	P	I
R	S	N	O	O	L	L	A	B	T	J	V	A	D	E	A	X	(S	P	E	C	T	R	U	M	A	B	R
A	R	M	E	C	B	P	X	B	K	C	P	O	D	G	R	B	E	R	A	W	D	R	A	H	T	M	H
M	X	L	E	T	T	E	S	A	C	C	Z	S	U	T	I	H	Y	N	I	B	O	R	S	B	E	C	

## WORD LIST

- CHOCOLATE
- TELEVISION
- DECORATIONS
- STOCKING
- CHRISTMAS
- ~~BALLOONS~~
- MISTLETOE
- REINDEER
- SNOWMAN
- CRACKER
- MARZIPAN
- ~~SANTA~~
- ~~PANTOMIME~~
- GROTTO
- TURKEY
- TREE
- ~~ROBIN~~
- ~~ADVENT~~
- CAKE
- ~~HOLLY~~
- STAR
- ~~CANDLE~~
- ~~CARD~~
- ~~TINSEL~~
- ~~CAROL~~
- GOOSE
- BELLS
- FAIRY
- LIGHTS
- ~~SAN~~
- ~~SPECTRUM~~
- ~~BINARY~~
- CODE
- RAMTOP

- |                    |                   |          |                  |                     |                    |
|--------------------|-------------------|----------|------------------|---------------------|--------------------|
| NUTS               | TOYS              | HAMPER   | CRIB             | BASIC               | <del>PROGRAM</del> |
| <del>PRINTER</del> | <del>DISC</del>   | FILE     | SINCLAIR         | BYTE                | DATA               |
| KEYBOARD           | <del>FORMAT</del> | JOYSTICK | <del>RISER</del> | CHARACTER           | SCREEN             |
| SOFTWARE           | KEYWORD           | HARDWARE | <del>MODEM</del> | <del>CASSETTE</del> | QL                 |
| MONITOR            | <del>ROM</del>    | ASIC     | <del>ARRAY</del> | SOUND               | <del>MEMORY</del>  |
| STOP               | CONTINUE          |          |                  |                     |                    |

# IT'S UBIQUITOUS!

*There's one  
near you!*

## JANUARY

**11. WEST MIDLANDS**  
MOTORCYCLE MUSEUM  
J6, M42

**12. NORTH**  
UNIVERSITY SPORTS CENTRE,  
CALVERLEY ST., LEEDS

**18. LONDON**  
HORTICULTURAL HALL,  
GREYCOAT ST., WESTMINSTER,  
(VICTORIA TUBE)

**19. WEST**  
BRUNEL CENTRE, TEMPLE MEADS,  
BRISTOL

**26. SCOTLAND**  
CITY HALL, CANDLERIGGS, GLASGOW

## FEBRUARY

**1. EAST MIDLANDS**  
DONINGTON PARK,  
J23A, M1

**2. NORTH WEST**  
HAYDOCK PARK,  
J23, M6

**8. NORTH EAST**  
NORTHUMBRIA CENTRE,  
WASHINGTON, A194 (M)

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# THOUGHT SPOT.

By: Jeremy Cook.

Greetings, of a Christmassy sort of nature. Apologies for being absent from the November issue, but I did have a note from my mum. Putting the stupidity aside for a moment though, I have been under a lot of pressure recently, and I sent Thought Spot in just too late to be included.

In an attempt to reduce the number of mistakes I make and ease the pressure on me a little I have decided to omit the prize puzzle from every other month (starting next month). This is a more sensible arrangement because it allows solutions to appear regularly in-between prize puzzles, and also gives you more time (effectively) to do each prize puzzle. The non prize puzzles will of course continue to appear. We apologise for the inconvenience.

Some people have complained that the last prize puzzle was nothing more than a programming challenge. I am inclined to agree, and don't really know what came over me, except that I was planning for it to lead to something more difficult (this may still happen). I hope this month's prize puzzle is to everybodys liking; it's certainly more challenging! The prize is of course ONE YEARS FREE SUBSCRIPTION to FORMAT!

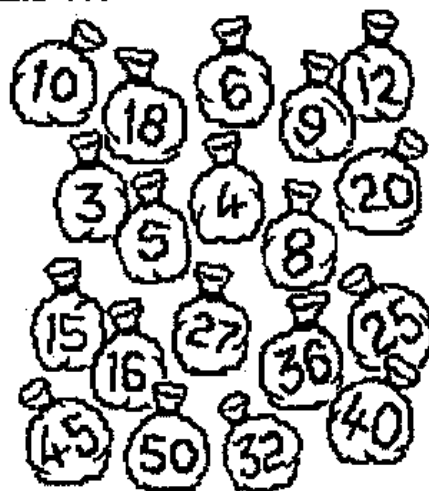
## PRIZE PUZZLE No.13: RICH PICKINGS

Everyone knows that Santa gives away lots and lots of presents to all sorts of people, but one question has always puzzled me. I don't want to know where he does his shopping, but what I do want to know is "where does he get the money?"

I happened to meet him the other day in Greenland (or Iceland or Leyland or Croydon: wherever he comes from anyway), and so I asked him that very

question. Said he:-

"Well, it's none of your business, but I have an arrangement with a charitable quadrigintillionaire (called Richard). He spreads out on the floor a number of sacks, each of which has the amount of money it contains written on the side (not dissimilar to the diagram below). I then take the sacks that I want and the money in them is mine. BUT, I can only take a sack that has a factor of it's worth still on the floor, and every time I take a sack, he takes back all those sacks worth an amount which is a factor of the amount I have just taken. I only wish I knew how to get the maximum amount of money each year. Can hardly make ends meet you know, what with the fuel economy of reindeer and ..."



The diagram is just a small example, the amounts that Santa has to choose would be much larger. The principle is the same though. For example, you cannot take the 4 sack, and taking the 45 sack means Rich would take the 3, 5, 9, & 15 sacks. All you have to do is write a program (short and neat preferably) to work out the order in which Santa would have to take which sacks to amass the most money. (note: a is a factor of b if there is some x such that  $ax=b$ )

Send your solutions in by 1st March 1992 to:- Jeremy Cook (Thought Spot), 6 Burgoyne Road, Sunbury-on-Thames, Middx. TW16 7PW. As ever, send in anything you come up with.

Now to battle. But first a question:- what animal do you like to be on a cold day?

**HEART SURGERY**

The hearts of several English words have been extracted and placed below. What were the words? eg. given CKN the word would be aCKnowledge.

OOKKEE	YRR	GNU	ABYI
NXI	CTRU	WKW	TSQ

**RIGHT OR WRONG?**

Alf, Bert, Charlie, Duggie and Ernie each made statements about their order in a mince pie eating contest they had. They spoke as follows:-

- A: Charlie was higher than I was.
- B: I was second or third.
- C: Duggie was higher than Ernie.
- D: I was fourth or fifth.
- E: Alf was higher than Bert.

What order did they come in?

Oh, I forgot to say that they had all been drinking a bit too much and all their statements were false. How does this change the order?

(adapted from "Puffin Book of Brainteasers", Eric Emmet)

**HARD BOILED**

You have two hourglasses. One lasts for eleven minutes, the other just seven minutes. How can you use these timers to boil an egg for quarter of an hour? It is simple to boil the eggs for 15 minutes in a 22 minute time period: start both timers at zero; when the seven minute timer runs out put the eggs in the boiling water; when the eleven minute timer runs out, restart it; when this timer runs out again, after 22 minutes, the eggs will have been boiled for 15 minutes. Can

you do it in a 15 minute time period?

**TWELFTH NUMBER**

Where does 12 fit into the following pattern?

1	2	6	10
	4	5	9
	3	7	8
			11

And lastly, an answer: a little otter!

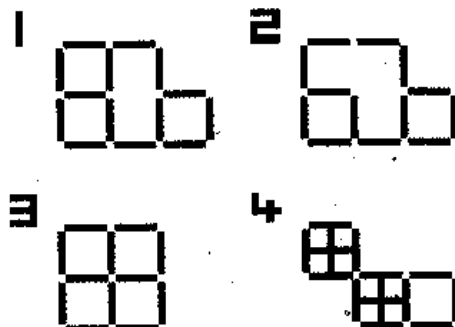
Did you enjoy that selection of puzzles, almost completely unrelated to Christmas? I am afraid that is all for this month. In coming months solutions to previous prize puzzles will be forthcoming; the robot puzzle solution missed November but should appear next month. I want you all to find time between eating and drinking to have a go at this months prize puzzle, tricky though it may be, and if you can do it by hand I would be interested to see what you have done. Merry Christmas. Bye.

--oOo--

**SOLUTIONS TO OCTOBER'S PUZZLES**

Bath Time: 10 minutes

Match Play:



Crossword?: CROSS  
REMIT  
OMEGA  
SIGHT  
STATE

Nineteen: 308 cubed is 29218112  
NINETEEN

----oOoOo----

If you have any puzzles you feel other people would be interested in then I would love to hear from you.

# Z80-SUBS

## MACHINE CODE SUBROUTINES.

By:- Bill Nicholls.

Hi, I'm back again, more machine code routines for you to play around with. Over the years I have accumulated quite a few Z80 subroutines, but I'm sure many of you out there in FORMAT land will have some I (and others) will not have seen. I doubt not that there are also many better ways of doing something than the way I do it - just put my poor programming down to old age. I am really relying on you to send in better, faster, smaller ways of doing things, so get jotting and send me your work, via the usual FORMAT address, and see your name in print.

The first item this month is a little routine to mimic the instruction:- LD HL,(HL). The double register HL is often used as a pointer into tables, sometimes these table entries are themselves pointers that you might wish to use. The following routine gets the contents of the two bytes pointed to by HL into HL so they are ready for immediate use.

```
HLEQHL PUSH DE ; save DE
LD E,(HL) ; get first byte
INC HL ; up pointer
LD D,(HL) ; get 2nd byte
EX DE,HL ; move to HL
POP DE ; recover DE
RET ; exit
```

Can anyone think of other ways of doing the same?

Now for something ready to use for Spectrum users. I call it the Aussy routine. Why? Well try it and you will find out.

```
UDG EQU 23675
AUSSY LD HL,(UDG) ; collect address
PUSH HL
POP DE ; get into DE
LD B,8 ; set count
NEXT LD A,(HL) ; load byte pointed to by HL
```

```
INC HL ; add 1 to HL
PUSH AF ; save byte
DJNZ NEXT ; loop around
LD B,8
UNSTACK POP AF ; recover byte
LD (DE),A ; put byte back
INC DE ; add 1 to DE
DJNZ UNSTACK ; loop
RET ; return
```

Okay, now type in this little bit of Basic (sorry but I do have to use basic sometimes).

```
10 FOR I=0 TO 7
20 READ N: POKE (USR"A"+I),N
30 NEXT N
40 DATA 255,126,60,24,255,126,60,24
50 FOR I=0 TO 31
60 PRINT CHR$( 144);
70 LET A=USR n: REM n=routine address
80 NEXT I
```

Run the program and you will see what happens. The routine should give readers a few ideas and I want to see the results.

O.K. One point I would like to get out of the way before we go any further. Although I have been using the Z80 since I purchased a second hand ZX81 in 1983 I have no intention of writing this column every month by myself. I'm looking to you, the reader, to send in short machine code routines to fill this page. At the moment I am Spectrum based, Bob has promised me access to a SAM to test routines readers send in that are SAM specific - but first SAM users must send the routines in, or I won't have anything to test will I? So get out the wordprocessor and send something in. The sort of routines I really would like are those that, like the one below, can be incorporated into readers own programs. You get the idea; SUB-ROUTINES; hence the title of this column - Z80-SUBS. Still, don't

let that stop you sending in complete routines designed to be called from Basic (like the one above this month). If you have any queries regarding how to send submissions then give the **FORMAT** office a ring.

Next, another routine for you to use within your own programs. This one gives you the address (in HL) of the top line of pixels of the character location given in BC. The comments in the listing should enable most of you to understand the routine.

; On entry B=Line No, C=Column No.

```
COORDS LD HL,16384 ;Start address of screen.
LD A,248 ;Mask used to find screen segment.
AND B
PUSH AF ;Save value on stack.
ADD A,H ;Add it to high byte.
LD H,A
LD A,B ;Get line number.
POP DE ;D now holds screen segment.
SUB A,D ; A now holds a line within segment.
ADD A,A
ADD A,A
ADD A,A
ADD A,A
ADD A,A ;A has now been multiplied by 32.
ADD A,C ;Add column number.
LD L,A ;Move result to L
RET ; Return with HL pointing to byte.
```

No more room I'm sorry to say, but I will see you again next month, and have a nice Christmas.

T.B.C.N.M.

His wife said  
could we please  
keep him until  
after Christmas.



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# SIGMASOFT

DEPT F11, 8 PINE DALE, RAINFORD, MERSEYSIDE, W11 8DP.

NEV'S

# HELP PAGE

By:- Nev Young.

There is a printer problem that crops up almost as often as the incorrect line feed that I detailed a few months ago. This one is to do with the printing of special characters £ # and \$.

The problem began back in the mists of time with the introduction of ASCII. The American Standard Code for Information Interchange. As you would expect the colonies saw no need to include the £ in the code and so it was omitted. This was no problem until ASCII was adopted as a world standard.

Now being an American code the \$ was kept and the international characters like £ and ¤ replaced the #. So when you look at an ASCII chart you will find £ and not # at position 35. This is fine except when you want to print both £ and #. Now you have a problem.

To further complicate things when Uncle Clive gave us the Spectrum he also gave it to the Americans under the Timex badge and so, naturally, he wanted to keep the # and \$. To do this he decided to put the £ somewhere else and so he replaced the character with the £ at position 96 of the ASCII table. This wouldn't matter as the only printer that was to go onto the Spectrum was designed to use the internal Spectrum character set.

Then to mess every thing up we all started to use 'real' printers on our Spectrums (and now also our SAMs). The result is that some times when you try and print #£ you get # \$ or # £.

This is caused by either no attempt to correct the Spectrums code into ASCII or more than one attempt to convert giving even greater problems.

The first place where a fix will be

attempted will, probably, be in the printer. You may have a British character set so # will print as £, and £ will print as \$.

The next place is within the computer. Programs like Tasword +2 will let you redefine the characters so when you say that you want to print a £ (Spectrum code 96 ) it will send # (ASCII code 35 ).

I'm afraid it gets worse and worse. The more you try and fix it the deeper into the mire you get.

Let me try and help you to sort it out. First of all we have to find out what the printer is doing. So use the first program to do this.

```
10 REM find full character set on
    printer
20 POKE @6,1 : REM SPECTRUM
20 CLOSE #3: OPEN #3;"B" : REM SAM
30 FOR N=32 TO 127
40 LPRINT N;" ";CHR$ N; CHR$ 13;
50 NEXT N
```

You may find that you need to add a CHR\$ 10; on the end of line 40.

Now look through the printout and find the code that the printer recognises as £ # and \$. This is what you have to send to get that character. Of course if you have a good printer manual then you won't need to do this.

The next part is a bit more difficult and can only be done by you. You have to find out how to redefine the characters from within the program you are using. How this is done depends on the program and you can be sure they are all different. (If it can be done at all!).

I use Tasword +2 and have set it up

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as follows:-

£ - 27 54 156  
# - 35  
\$ - 36

and I have my printer (EPSON FX850)  
set up for a US character set.

Finally on this subject the PLUS D  
and DISCiPLE have an extra feature  
that can be turned on with POKE @10,1  
which will print the # and £ as  
graphics, and on the SAM using  
MasterBasic XVAR 60 and 61 are  
normally set to print # and £ via a  
set of codes in XVAR 62-86.

Now enough of that I am sure most of  
you are quite lost or bored so on to  
something else. Once more I am asked  
"How can you make a Spectrum emulate a  
BBC, Commodore, Atari etc" and still I  
say that realistically you can't. Whilst  
it would be possible to write a  
program that made the Spectrum behave  
like a different computer, even using  
machine code it would be so very slow  
that it would not worthwhile.

This is because of two things the  
first and most obvious if the CPU  
chip. The Spectrum uses a Z80A and so  
expects Z80 instructions. A program to  
translate the machine code of a  
different chip would be big and slow.  
The second reason is the layout of the  
screen, keyboard and various I/O  
ports. These work differently and so  
every I/O operation would become a  
major task.

To give you some idea of how slow  
emulators work I have a Spectrum  
emulator that works on a PC. Even with  
a 386SX running at 25MHz the emulator  
is still slower than a basic Spectrum.

L.Simpson of Mansfield is having  
problems entering the LOGOMAKER  
program that was in issue 5/2. The  
problem is with the line POKE @6,1.  
The syntax checker will not accept the

This means that either you are not  
using a PLUS D or DISCiPLE, or you are  
and have not booted the DOS. Now I am  
well confused as before you get the  
the offending POKE line you have two  
LOAD D1 lines and these obviously work

so you must have loaded the DOS.

The only other solution I can think of is that you are a SAM user and you have modified the load commands for SAM. If this is the case then replace POKE @6,1 with CLOSE #3: OPEN #3;"B" and replace POKE @6,0 with CLOSE #3: OPEN #3;"P". Having said that the program will only work on SAM if you are running under a commercial emulator with the Spectrum ROM on board, not because it calls the ROM but because it needs a mode 1 screen to start at 16384.

Malcolm Perry has found a possible problem with MasterDos on the SAM. He tells me that if you use BACKUP or COPY on the SAM to copy a GDOS disc then the first file is corrupted by the disc name being placed in the first file position. I don't know of any way to turn this off but if all you are doing is copying a complete disc then you can fix it after by the line:-

```
READ AT 1,0,1,65536: WRITE AT 2,0,1,65536
```

This will copy the first directory sector from disc 1 to disc 2 and will correct the 'corruption' caused by MasterDos. As an aside if you are in the habit of copying lots of discs the same then the following program is very fast.

```
10 READ AT 1,0,1,65536,800
20 INPUT "LOAD TWO DISCS";LINE AS
30 WRITE AT 1,0,1,65536,800
40 WRITE AT 2,0,1,65536,800
50 GOTO 20
```

Its very fast and if you reduce the 800 to a smaller figure for discs that hold less than 80 tracks of data you may have trouble keeping up with the machine.

A letter from Malta that has been directed to me via FORMAT tells of a problem with a DISCiPLE where the two PAL chips have failed. This is not too suprising as they do run very hot. But the owner is asking where he can get two chips type PAL20L8ANC. I could

tell you where to get them from but they would be of no use as they are programmable devices and the important thing is not the chip but the program within them.

The only source I know of programmed chips is PBT who advertise in this magazine. You should get in touch with PBT regarding repair before sending your DISCiPLE off. This is because there is more than one type of chip depending on the design level of the PCB.

Well I've run out of space again so if you have any problems please write with as much detail as possible to:-

Nev Young (Format Help Line),  
70, Rainhall Road,  
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Colne,  
Lancashire,  
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## JOKE BOX 2

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What do you call a computer after the postman has delivered it? SCRAP.

Heard the one about the Libian terrorist who was sent by Colonel Gedaffi to blow up the QE2 - He burnt his mouth on the funnel...

Q. How many Amiga owners does it take to change a light bulb?

A. None, you can't change a light bulb with a mouse or joystick so an Amiga owner doesn't stand a chance.

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# SPECFILE+

## ADVANCED DATA RETRIEVAL ON YOUR SPECTRUM

Reviewed By:- Ken Elston.

S.D. Software's new release is one of those rare things these days - a serious piece of Spectrum software.

SPECFILE+ is a program that is best compared to a card index file, in that you can store any type of data you like in SPECFILE+, but unlike a card file you can search through data at lightning speed.

Most filing programs require you to define a record layout for each file you create. This layout is often very difficult, if not impossible, to alter at a later date if you want to add or remove fields from records. The need for you to think ahead often leads to fields being defined larger than really needed - leading to wasted space. Given the limited memory of the Spectrum, few filing programs allow more than 20K for data and even that doesn't leave room for many records.

SPECFILE+ is different. To start with it gives 28K of free space, add to this the compact way it stores records and you get far more into memory than on any other program I've come across. There is no need to define record layouts - the program simply gives you a screen to fill as you please. I set up one file with five different types of records and easily managed to access the information I wanted.

The search command is a dream. All you need to do is type "Apple" and SPECFILE+ displays the first matching record (if there is one of course) and then waits for you to press a key. At this point you can Edit, Delete, Copy and Print the record, all with just a single keypress. If you press Enter then the next matching record is displayed. It does not matter where in the record the word "Apple" appears, it can be in different places in each

record and SPECFILE+ will still find it. A command (CASE) is used to control the type of search going on. When CASE is OFF you only select records with an EXACT match - "Fred" will match with "Fred" but not with "FRED" or "fred", or "FreD". However when ON the case of the letter is ignored so all the above would match.

If that was all, I would be pleased with the search command but there is something else - the AND function. Type "John AND London" and any record with both the word "John" and the word "London" will be displayed. I've never seen a filing program with this feature except on a professional PC.

Another nice feature is the FORMAT command which allows you to define which lines are sent to your printer when you want a print-out of records.

Unlike other filing programs SPECFILE+ is designed to be user expandable. Given a very simple knowledge of Basic you can easily add new features. The manual gives an example and it only took me a little while to become familiar with the methods used. I'm sure many people will come up with new routines to add to this already powerful program. Bob Brenchley (grovel, grovel) has already promised to run an article from me in the near future but don't let that hold you back - this is one program you should buy right-away.

SPECFILE+ will work on any Spectrum fitted with PLUS D or DISCiPLE, it is of course compatible with SD Software's excellent UNI-DOS system and will run very well under their SPECMAKER emulator on the SAM Coupé. It is supplied on 3.5" or 5.25" disc priced at £12.95 (£9.95 for INDUG members). I for one will be using this program for all my filing needs.

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nb. Not a PC emulator.

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# MACHINE CODE

## WITHOUT THE TEARS

Part 5.

By:- Carol Brooksbank.

How did you get on with writing a print routine for our file sorter? Here is my way of doing it, but don't worry if yours is different, so long as yours works. There is often more than one right way of doing things in machine code, and you will develop your own style.

My routine is very straightforward. To print the sorted list, it goes to the workspace, finds the address of the start of the first string, finds the string and prints all its bytes till EOS is found, when it prints a CHR\$ 13 - carriage return - so that the next string will start on a new line.

The file making BASIC I gave you in part 3 poked a 13 at the end of each text input, so that each line of text starts on a new line. At the end of each file item, when you entered "\*", the BASIC poked two 13s before the EOS marker. The machine code adds another, so file items are clearly separated from each other by two blank lines - one CHR\$ 13 starts a new line, any more will each insert a blank line.

When EOS shows that the file item has all been printed, the routine returns to the workspace for the address of the next string. This continues till EOF is found.

```

ORG 28099
WORKSP EQU 26624
EOS EQU 129
EOF EQU 255
PRSORT LD A,2
      CALL 5633 (Spectrum)
      or
      CALL 274 (Sam)
      LD BC,WORKSP?
  
```

We begin with the usual ORG value, and three labels/addresses from the previous routine, which we need to

refer to in this one.

The routine is called from PRSORT, where we use the now-familiar instructions which set printing to the main screen. BC is then loaded with the address of the first workspace.

```

PRADD LD A,(BC)
      LD E,A
      INC BC
      LD A,(BC)
      LD D,A
NXTCHAR LD A,(DE)
      CP EOF
      RET Z
      CP EOS
      JR Z,NXTITEM
      RST 16
      INC DE
      JR NXTCHAR
NXTITEM LD A,13
      RST 16
      INC BC
      JR PRADD
  
```

The address the workspace holds is transferred to DE, and at NXTCHAR the string loop starts. A character from the string is fetched. If it is the EOF marker, the whole file has been printed and we exit to BASIC. If not, we check whether it is the EOS marker. If so, we jump forward to NXTITEM, where a CHR\$ 13 is printed and the next workspace address found before we jump back to the start of the printing loop at PRADD. If the character was neither EOF nor EOS, we print it using RST 16, point DE to the next character and jump back to check that.

```

NOSORT LD A,2
      CALL 5633 (Spectrum)
      or
      CALL 274 (Sam)
      LD DE,FILE
CHKCHAR LD A,(DE)
      CP EOF
      RET Z
  
```

```

CP EOS
JR Z,NEWLINE
RST 16
INC DE
JR CHKCHAR
NEWLINE LD A,13
RST 16
INC DE
JR CHKCHAR
FILE EQU $
END EQU $
LENGTH EQU END-PRSORT?

```

Printing the unsorted list is even easier. It simply prints the whole block of strings, byte-by-byte, sending a carriage return at each EOS and stopping when EOF is reached.

The printing object code resides immediately after the sorting code we finished last month. I suggest that you load the two blocks of code and then re-save them as a single block. CLEAR 26615 before you load the sort code, so that it is protected above RAMTOP. Load the sort code to 26616 and the printing code to 28099. Then:-

```
SAVE "alpha" CODE 26616,1540
```

will save the whole sort-and-print code. Any files you make with the BASIC program should be loaded to 28156.

These are the addresses you need for the machine code

```

LET A=USR 27891 - sorts the file
LET A=USR 28099 - prints sorted list
LET A=USR 28130 - prints unsorted list
POKE 28100,3 - print sorted list to printer
POKE 28100,2 - print sorted list to screen
POKE 28131,3 - print unsorted list to printer
POKE 28131,2 - print unsorted list to screen

```

A warning - this program is not idiot-proof. It makes no checks to ensure that you have no more than 629 items in the file, and with more the workspace will overwrite the machine code and crash during sorting. It does not make sure that you have

remembered, when making a file, to enter "\*" between each record and "\" at the end so that EOS and EOF markers are inserted. Again, it will crash without them. And it does not check that the file bytes will not go beyond 65535. You must take all these precautions yourself. There is no provision for updating or deleting file items. But it is a useful little utility for handling simple lists and files, which it sorts very quickly.

There is a code poker, which I hope you will not need. This is the last time I shall give a code poker, because from now on it really is essential that you use an assembler.

```

5 CLEAR 56615
10 FOR N=56616 TO 57883
20 POKE N,0
30 NEXT N
40 LET FIRSTBYTE=57884, LASTBYTE=5815
5
50 LET Q=170
60 FOR N=FIRSTBYTE TO LASTBYTE STEP
8
70 LET CHECK=0
80 FOR B=0 TO 7
90 READ A
100 POKE (N+B),A
110 LET CHECK=CHECK+A
120 NEXT B
130 READ A
140 IF CHECK <> A THEN PRINT "ERROR IN
LINE ";Q: STOP
150 LET Q=Q+10
160 NEXT N
170 DATA 126,254,129,200,35,24,249,1,
1018
180 DATA 235,4,33,0,104,54,0,17,447
190 DATA 1,104,237,176,33,0,104,34,68
9
200 DATA 254,103,33,252,109,34,248,10
3,1136
210 DATA 205,236,108,35,34,250,103,42
,1013
220 DATA 250,103,126,254,255,202,113,
109,1412
230 DATA 229,205,236,108,35,34,252,10
3,1202
240 DATA 225,1,0,104,197,10,254,0,791
250 DATA 193,32,8,197,3,10,254,0,697
260 DATA 193,40,14,229,10,95,3,10,594
270 DATA 87,237,82,225,40,39,3,24,737
280 DATA 227,42,250,103,237,91,248,10
3,1301

```

290 DATA 26,254,129,40,24,126,254,129,982  
 300 DATA 40,13,26,70,184,32,4,35,404  
 310 DATA 19,24,237,26,184,56,6,42,594  
 320 DATA 250,103,34,248,103,42,252,103,1135  
 330 DATA 34,250,103,24,162,237,91,248,1149  
 340 DATA 103,42,254,103,115,35,114,35,801  
 350 DATA 34,254,103,33,252,109,126,254,1165  
 360 DATA 255,40,51,1,0,104,197,10,658  
 370 DATA 254,0,193,32,8,197,3,10,697  
 380 DATA 254,0,193,40,20,229,10,95,84,1  
 390 DATA 3,10,87,237,82,225,40,3,687  
 400 DATA 3,24,227,205,236,108,35,24,8,62  
 410 DATA 213,34,248,103,205,236,108,3,5,1182  
 420 DATA 34,250,103,195,19,109,229,19,3,1132  
 430 DATA 42,254,103,113,35,112,201,62,922  
 440 DATA 2,205,1,22,1,0,104,10,345  
 450 DATA 95,3,10,87,26,254,255,200,93,0  
 460 DATA 254,129,40,4,215,19,24,244,9,29  
 470 DATA 62,13,215,3,24,233,62,2,614  
 480 DATA 205,1,22,17,252,109,26,254,8,86  
 490 DATA 255,200,254,129,40,4,215,19,1116  
 500 DATA 24,244,62,13,215,19,24,238,8,39

#### SAM USERS CHANGE THE FOLLOWING LINES

440 DATA 2,205,18,1,1,0,104,10,341  
 480 DATA 205,18,1,17,252,109,26,254,882

#### ALL USERS

the code poker BASIC is too long for a RAMTOP of 25515, so:-

```
SAVE "temp"CODE 56616,1540
NEW
CLEAR 25515
LOAD "temp"CODE 26616
SAVE "alpha"CODE 26616,1540
```

Now for something quite different. We have written programs which use the ASCII code to write letters on the

screen, but how are the letter shapes themselves dealt with? All screen display is built up of tiny dots known as pixels (picture elements). I said at the beginning of this series that a computer can handle only numbers, and even graphics displays are simply collections of numbers. The shapes of the various characters in a screen typeface are held in a list of 768 numbers - 8 numbers per character, 96 characters per typeface.

It is the binary form of the numbers which is the key to graphics display work. In fact, binary is the key to all computer work because the numbers are held in the computer's memory addresses and registers in binary form. But most of the time we humans don't need to bother about that.

Binary is a way of expressing a number using only two digits, 0 and 1. Any number between 0 and 255, the numbers which can be held as one byte, can be expressed in 8 binary digits - bits - so there are 8 bits in a byte. Fig.1 shows the relationship between the binary and the familiar decimal form of a number, which employs the 10 digits 0-9.

It is only when the individual bits are more important to us than the value of the number as a whole that we need to venture into binary. Graphics display is one of those times.

There is no need for you to try to work out the binary forms, because when it is important your assembler will let you enter the number in binary instead of decimal. This is why it is vital that you use an assembler from now on. You will have to check your handbook for the symbol your assembler expects before a binary number. Mine uses @.

The screen display is simply a file of numbers in a special part of memory. When the screen is cleared, all the numbers in the screen file are poked with 0.

A printable character has its outline held in the binary form of 8

# BITS & BYTES

IN THE BINARY FORM OF NUMBERS, ONLY 2 DIGITS ARE USED, 0 AND 1.

VALUE OF BIT	128	64	32	16	8	4	2	1
BIT NUMBER	BIT 7	BIT 6	BIT 5	BIT 4	BIT 3	BIT 2	BIT 1	BIT 0

ALL NUMBERS BETWEEN 0 AND 255 CAN BE EXPRESSED USING 8 BINARY DIGITS, OR BITS, SO THERE ARE 8 BITS IN 1 BYTE. BIT 0, ON THE RIGHT IS THE LOWEST VALUE BIT, BIT 7 ON THE LEFT IS THE HIGHEST.

BINARY NUMBER	128	64	32	16	8	4	2	1
	1	0	0	1	1	1	0	1
	128	0	0	16	8	4	0	1

TO CALCULATE THE DECIMAL VALUE OF A BINARY NUMBER, ADD TOGETHER THE VALUES OF THE SET BITS AS SHOWN IN THE DIAGRAM.

**BIN 10011101 = 128+16+8+4+1=157**

numbers. If you look at the "Q" in Fig.2, you can see the outline of the letter in the "1"s in the block of binary numbers. (You can take my word for it that those are the binary forms of the decimal numbers alongside.) To make it a little clearer, I have copied the "1"s into a square, leaving the "0"s as a chequered grid so that you can see how the letter is picked out. If those 8 numbers are poked one below the other, (not one after the other) into the screen file, the result will be a "Q" on screen.

Next month we will look at how the correct bytes are found and printed to the screen, see you then.

Fig 1.

Fig 2.

## ASCII CHARACTERS

Q	00011100	28		THE ASCII CHARACTERS ARE HELD IN MEMORY IN THE BINARY FORM OF NUMBERS. EACH SET BIT (HOLDING 1) IS REPRODUCED AS A DOT ON SCREEN IN INK COLOUR. EACH RESET BIT (HOLDING 0) IS REPRODUCED AS A PAPER COLOUR DOT. EACH SCREEN DOT IS CALLED A PIXEL.
	00100010	34		
	00100010	34		
	00100010	34		
	00101010	42		
	00100100	36		
	00011010	26		
	00000000	0		

REPRODUCED AS A PAPER COLOUR DOT. EACH SCREEN DOT IS CALLED A PIXEL.

THERE ARE EIGHT NUMBERS PER CHARACTER, SO EACH LETTER IS ON A FRAME OF 8x8 PIXELS.

THE DRAWING ON THE RIGHT SHOWS THE RELATIONSHIP BETWEEN THE PIXELS AND THE BITS OF THE NUMBER. SOME OF THE PAPER COLOUR PIXELS HAVE BEEN SHADED TO SHOW THE PIXEL POSITIONS MORE CLEARLY.

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