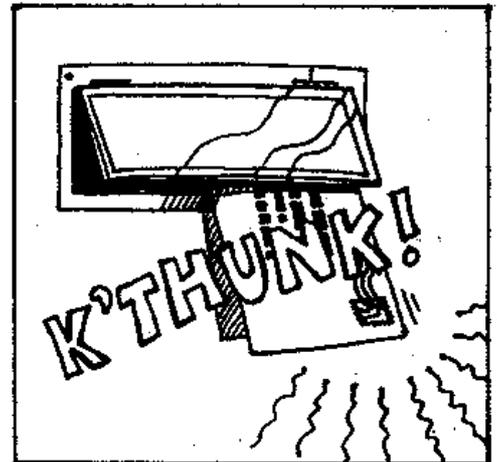


Vol.5 - No 3.

November 1991.

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# CONTENTS

Vol.5 No 3.

November 1991.

News On 4.....	4
The Editor Speaks.....	7
Short Spot.....	9
Machine Code Without Tears 4..	13
INDUG Membership Drive.....	17
OUTWRITE Reviewed.....	19
Small Ads.....	21
Z80-Subs.....	23
Chordmaster.....	25
Nev's Help Page.....	31
Your Letters.....	35
FORMAT Readers Service.....	39

<b>THIS MONTHS ADVERTISERS:-</b>		
	ARABOMAN PUBLISHING	30
	ALL FORMATS SHOW	38
	BETASOFT	33
	BETTERBYTES	Back Cover
	B.G.SERVICES	24
	BLUE ALPHA ELECTRONICS	12
	CHEZRON SOFTWARE	24
	FRED	30
	JAMES BROWN	30
	KOBRAHSOFT	2
	LERM	8
	PBT ELECTRONICS	5
	S.D.SOFTWARE	22
	SIGMASOFT	30
	SOUTH WALES COMPUTER FAIR	6
	STEVE'S SOFTWARE	34
	TEACHERS PET	16

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**FORMAT ISSN 0963-8598.**

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FORMAT is published by **FORMAT PUBLICATIONS.**  
34, Bourton Road, Gloucester, GL4 0LE, England.  
Telephone 0452-412572. Fax 0452-380890.

Printed by D.S.LITHO. Gloucester. Telephone 0452-23198.

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# NEWS ON 4

## NEW COMPUTER EXPRESS CLOSED

After a long period of falling editorial standards and falling circulations Future Publishing have pulled the plug on New Computer Express.

Having totally alienated everyone who doesn't own a PC, Amiga or ST by nearly doubling its cover price to include a so called "Free Disc" NCE had been walking a tight rope for several months. For Spectrum & SAM owners the only thing worth reading was Robin Alway's column which was sometimes given only half a page.

The Bath based company, who also publish several monthly titles including the games glossy 'Your Sinclair' say they will now concentrate on their single computer mags.

Little news coverage was given to 8 bit machines and software, indeed many items were published that ran-down machines. They seemed to have a particular axe to grind where the SAM Coupe was concerned.

While it is sad to see any computer magazine close down, this is one that will be missed less than others. It now leaves the weekly scene with only Micro Computer Mart on the shelves.

## BIG BLUE JOB CUTS....

20,000 jobs are to go world-wide following a massive 80% down-turn in profits at IBM. Bosses of the massive U.S. based computer company have been forced into the cuts due to rising competition from Japanese micro manufacturers. About 1,000 jobs are to go out of the 18,000 here in the UK and other staff are to have their wages frozen.

Company president John Akers hit American headlines early this year when he issued a warning to IBM's staff which said "sell or be sacked". Despite many cost cutting exercises projected profits have dropped from £600 million to just £100 million.

## NEW SHOWS AROUND THE COUNTRY

A new company have jumped into the computer show scene with plans for shows all over the UK. Computer Technology Fairs, based in Brighton have already held shows in Maidstone, Brighton and Southampton. Other shows for your diary are in Manchester on the 1st December, Birmingham on the 12th January and Brighton on the 25th January. Entry is a very reasonable £2.50 for adults or £1.50 for kids.

For more details contact CTF, 16 Manor Road, Brighton, BN2 5EE. Tel: 0273 607633

## FRED SOFTWARE....

Colin MacDonald, producer of the renowned disc mag FRED for the SAM Coupé, is branching out into commercial software.

The first release IMPATIENCE is in fact two games for the price of one. TRILTEX is a simple but very frustrating game of skill. THE VIKING GAME is described as an authentic conversion of a thousand year old board game. It requires similar playing skills to chess and draughts but playable by teams as well as just two players.

IMPATIENCE is available now. For more details send a stamped addressed envelope to FRED, 40 Roundyhill, Monifieth, Dundee, DD5 4RZ.

## SAM GETS A COMET

Yet another assembler for the SAM Coupé has been launched by Revelation, the software arm of SAM Computers.

Called COMET it has been written by Edwin Blink who has become famous for his sound samples on PD discs. The assembler works with both 256K and 512K machines and a full review by Carol Brooksbank will appear next month.

Also from Revelation this month comes the long awaited game 'Prince Of Pursia' which received very good

reviews when published by Domark on 16 bit machines. The graphics are superb. For more details contact SAMCO on 0792 700300.

**E.E.C. THREATEN PC IMPORTS**

For over two years the European Community have been imposing hefty import tariffs on imported Japanese printers. Now there is talk of extending the tariffs to ready assembled PCs.

Amstrad, and several other European computer companies, have been closing down factories in favour of far east production. Tariffs are seen as one way to keep some production in Europe.

**AMSTRAD DROPS 3 INCH DISCS**

Amstrad are to stop distributing the 3" discs, needed by +3; PCW & CPC owners, when existing stocks are exhausted. The move comes at a time when several smaller disc manufactureres in the Far East have closed their 3" production lines to switch to 3.5" which are fast taking over from 5.25" as the industry standard.

For several years the Spectrum+3, Amstrad PCW and the Amstrad CPC 6128 have been the only machines produced with 3" discs. Amstrad's sales of blank discs therefore represent a large slice of world 3" sales. How long Maxell, the only remaining source, will continue is unsure.

**ULTIMATE HACKING**

SIGMASOFT have released what they describe as the Ultimate Hacking Pack for the Spectrum.

Sold on tape at £8.99 the package of six programs will work on any Spectrum from the rubber-keyed 48K up. It comes complete with instructions including examples, and expert hints and tips.

News Credits: David Bush, Andy Stone.

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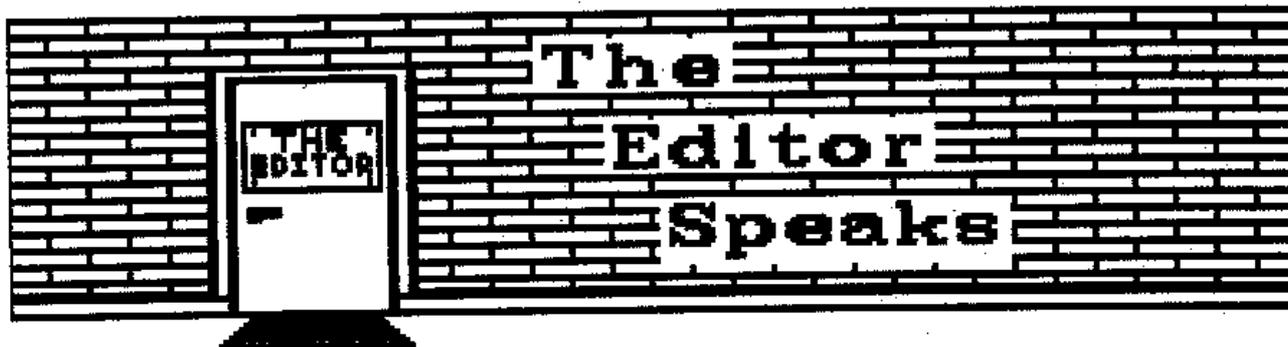
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As promised in last months News On 4 I'm pleased to announce that we are relaunching the highly acclaimed ARTIST II. Written by Bo Jangerborg the program is the best art package ever produced for the Spectrum. It has now been completely converted for DISCIPLE/PLUS D disc systems. The disc contains both 48K and 128K versions of the program together with the page-maker software, sprite designer and other utility programs. A completely new manual has been produced, written for us by Carol Brooksbank. The order code is SPD-001 and the price to INDUG members is #16.95 (a saving of #3 on the retail price) please state 5.25" or 3.5" disc on your order. Here is one program that I can safely say every Spectrum user should have.

I would now like to give one last reminder to members who subscribed prior to the 1st January 1991 using the special form sent out with SAMs until August last year. Any of you who have not sent in your stamped addressed envelope to claim your free copy of our SAM Demo Disc should do so now as the offer will close at the end of this month. Following the success of this first SAM Demo Disc, I would like to do another. So I'm looking for suitable items. Demos, utilities, screens\$ files, in fact anything that you think might interest other SAM users. Anyone who has an item published will receive a free copy of the new disc when it is ready and I intend to make a special award to the producer of the item I think most uses SAM's features. Send your contributions as soon as you can to the usual address.

FORMAT is now the only monthly

magazine for Spectrum and SAM users who want to go beyond playing games. So, in response to demands from several readers, I am pleased to announce a new service especially for Christmas. Yep, solve a Christmas present problem and give someone a years pleasure reading FORMAT by giving them a subscription for Christmas. All subscriptions received here by first post on Wednesday 18th December will be posted out the day they arrive. As an extra we will include a Christmas card in the envelope for you with a brief message. Just send your friend's (or relative's) full name and address and the message you want included, together with a cheque for £12 (£16 overseas, £25 airmail) and your name and membership number.

This month sees the results of our Summer Membership Drive and the full launch of its replacement that will run through the winter months. While I leave it to Jenny to give the details I would like to give my personal thanks to all who introduced new members.

UK readers will be pleased to hear that we have been able to negotiate a £1 discount for entry to any of the All Formats shows between now and Christmas. You will find the special voucher enclosed. I hope to be at both the London shows, and the Birmingham show. Nev Young will be flying the FORMAT flag in Leeds and Glasgow.

Next months issue is of course the Christmas issue. It should go out from here as normal but with the Christmas post it may take a little longer to reach people.

Bob Brenchley. Editor.

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# SHORT SPOT

By:- John Wase.

Let me start by admitting - I'm not perfect. I will therefore start this month's column with the heading "Clagners". John Redfern of Forest Hill draws my attention to one of these I made when his program was printed - the original line 10 seemed to have vanished. This should read as follows:

```
10 POKE @0,0: CLEAR 31999: BORDER 6:
    PAPER 6: INK 1: CLS: LET B$="":
    LET DR=1
```

Without this, the program comes to a sudden and inexplicable halt on the first screen. My grateful thanks to you, John, and apologies to all readers who were baffled by this.

Next, a program from Leon Volausk of Pen-y-Graig Wen, Pontypridd, South Wales, who uses a Spectrum and +D with Betterbytes' "Filemaster", which he uses a great deal. All Leon's access codes to get into his files are kept on a separate directory file which, itself, needs a password. A change of disc along with a reorganisation, and the inevitable happened - Leon forgot the new password, and hadn't, of course, written it down. Fortunately, he eventually remembered it. Scared of what might have happened and having read the recent article by Ray Bray on Filemaster files in "Format" vol 3 No 6, Leon came up with this little program which finds the password, unscrambles it and prints it out. At the risk of being sued, lynched for permitting espionage and generally dragged through the mire, I decided that on balance, it was well worth printing. After all, you've got to have someone who knows this system very well and who is dedicated, and who has this program, and really wants to know what is on your files, and has access to your system before anything untoward will happen. For anyone

without this knowledge - well, all he's got to do is to get a disc, copy it and use any one of a number of ASCII code readers on each sector which he reads in - it's nearly as tortuous and equally improbable.

The password is in Q\$ and is decoded by deducting the OFFSET from the CODE of the character to give the true character in line 150. When entering the file name, you do not need to enter the Disc File Extension, and you should write protect your disc with the file on in case of any error occurring. Finally, the astute will have noticed that there is an odd line - 105 - which breaks the otherwise uniform sequence. This was a vital afterthought by Leon (many thanks for the follow-up letter), all of whose discs are password protected, and who therefore didn't think of this eventuality until nearly too late. The extra line merely tests to see if a password was used at all.

```
10 REM * LEON VOLAUSK 9/91 *
20 REM **FIND FILEMASTER FILE PASSWO
RD**
30 REM **Acknowledgements to RAY BRA
Y's article in FORMAT vol.3 No.6
**
40 BORDER 0: PAPER 0: INK 7: BRIGHT
1: CLS
50 INPUT "PLEASE ENTER NAME OF FILE
": ' LINE F$
60 PRINT "Write protect disc with fi
le :-": 'F$
70 PRINT "'Place disc in drive :-
ANY KEY": PAUSE 0
80 OPEN #6;d*:"D_"+F$IN
90 INPUT #6:A$;B$;A;B;C;D;E;OFFSET;Q
$
100 CLOSE #6
110 PRINT "'scrambled password is ";
Q$
120 PRINT ''
130 DIM P$(6)
140 FOR X=1 TO 6
```

```

150 LET P$(X)=CHR$(CODE Q$(X)-OFFSET
)
160 NEXT X
170 PRINT : PRINT
180 PRINT "Password is "; INVERSE 1;P
$( TO 6)
190 STOP
9990 SAVE dl"FM"

```

It's nice to see so much stuff coming in for the Spectrum. I don't usually print loader programs unless they have some special feature. This one for +D discs is from our old friend L. G. Baumann of Cowies Hill, South Africa; it's unusual in that it's short, neat and does the business admirably. It prints out the directory in three columns, so normally only two keypresses are necessary to load a chosen file which is highlighted during loading. Include it on your discs as "AUTOloader", file 2, straight after the system file. Incidentally, it's much quicker with +SYSBeta, particularly with almost full discs. Constraints are minimal - it won't load a program containing a keyword embedded in the name, and will only load code or screen files if the first or last character is a hash or a dollar respectively. (SNAP screen files will therefore not load unless renamed). Suppose the screen's full. There's the file you want, and there's "SCROLL" as well. Pressing any key makes your file disappear, and your memory's nearly as bad as mine... Press BREAK followed by GO TO g (two presses on key g). Magic.

Here it is:-

```

10 CLS : LET g=20: PRINT AT 0,0; BRI
GHT 1;"(If Stop Scroll, Then 'GO
TO g')";: CAT 1!: REM By L.G.
Baumann.
20 PRINT AT 0,0;" "; BRIGHT 1;1;
BRIGHT 0;" "; BRIGHT 1;
2; BRIGHT 0;" "; BRIGHT 1
;3; BRIGHT 0;" ": FOR n=97 TO
118
30 PRINT AT n-97,10; INVERSE 1;CHR$
n;AT n-97,21; INVERSE 1;CHR$ n: N
EXT n: BEEP .2,29
40 PRINT #0;"Line & Number? ";: PAUS
E 0: LET m$=INKEY$
50 IF CODE INKEY$<97 OR CODE INKEY$>

```

```

118 THEN INPUT ': GO TO 40
60 PRINT #0;m$;" ";: BEEP .1,23: PAU
SE 0
70 LET n$=INKEY$: IF VAL INKEY$<1 OR
VAL INKEY$>3 THEN INPUT ': GO T
O 70
80 PRINT #0;n$;" ";: BEEP .1,23: PRI
NT #0; FLASH 1;"loading": LET a$=
"": LET r=(VAL n$-1)*11: LET y=(C
ODE m$)-97
90 FOR x=r TO r+9: LET b$=SCREEN$(y
,x): LET a$=a$+b$: NEXT x: PRINT
AT y,r; BRIGHT 1;a$: BEEP .3,22
100 IF a$(1)="$" OR a$(10)="$" THEN
LOAD D1;a$SCREEN$: STOP
110 IF a$(1)="#" OR a$(10)="#" THEN
LOAD D1;a$CODE : STOP
120 LOAD D1;a$: STOP

```

Let's stick with the Spectrum for a while. Our old friend Bjorn Nyberg of Lennoxton, Glasgow, is back again with a nice little snip - "deletion". This program was originally published in "Popular Computing Weekly" and erases lines or blocks you don't want any more. It's particularly quick - just one snag, neither of us can remember the original author. My apologies, and, anonymous author, if you read this, do write in and let us know. All Bjorn has done is to adjust the program to make it run more smoothly - well that's what he says, but I know Bjorn's adjustments of old... Here it is...

```

9990 REM deletions
9991 DATA 33,0,0,205,110,25,229,33,0,0
,35,205,110,25,209,205,229,25,201
9992 RESTORE 9991: FOR n=0 TO 18: READ
a: POKE 23300+n,a: NEXT n
9993 INPUT "Enter lowest line number i
n""block to be deleted: ";a
9994 POKE 23301,a-256*INT (a/256): POK
E 23302,INT (a/256)
9995 INPUT "Enter highest line number
in""block to be deleted: ";b
9997 POKE 23308,b-256*INT (b/256): POK
E 23309,INT (b/256)
9998 RANDOMIZE USR 23300

```

Now we'll move from the Spectrum to SAM for a while. Malcolm Perry of Kidderminster (nice to hear from you again, Malcolm) mentions that a while back he sent in an idea for locking out faulty sectors on Disciple/+D

discs. He's had a little think, and this routine for checking SAM discs from MasterDOS is the result (with acknowledgements to Nev Young for the basis of the idea).

```

1 REM *** SECHECK ***
2 REM*** Malcolm Perry ***
100 FOR R=0 TO 128 STEP 128: LET T=0
, S=1
110 ON ERROR GOTO 500: READ AT 1,T+R
,S,65536, (800-T*10-S+1)
120 NEXT R: STOP
500 LET T=IN 255: LET S=IN 226: PRIN
T T+R;" ";S
550 LET S=S+1: IF S=11 THEN LET S=1,
T=T+1: IF T+R=80 THEN NEXT R : ELSE I
F T+R>127 THEN STOP
560 GOTO 110

```

This is for drive 1. For drive 2, T=IN 241, S=IN 242 and the READ AT 1 is changed to READ AT 2.

This is all very well, but Malcolm can do much better than that. The next routine, "partlock" does what the last didn't do; it not only checks for dodgy sectors, it locks them out as well. This is done by putting a false directory entry at position 2. BE WARNED - anything written there will be exterminated! And with no prompts, messages or by-your-leave. YOU HAVE BEEN WARNED!

```

1 REM SAM MASTERDOS faulty sector
lock out
10 REM move any program from P2 oth
erwise it will be erased and ove
rwritten.. WITHOUT WARNING
20 REM by M.PERRY
30 REM disc test
40 CLEAR 39999: LET w=0,c=0,ct=0
50 FOR r=0 TO 128 STEP 128: LET t=0
,s=1
60 ON ERROR GOTO secerror : READ AT
1,t+r,s,65536,(800-t*10-s+1)
70 NEXT r: ON ERROR STOP : IF CT=0
THEN CLS : PRINT "DISC OK": STOP
80 REM set file name
90 RESTORE 100: READ AT 1,0,1,40000
: FOR n=0 TO 14: READ r: POKE 40
256+n,r: NEXT n
100 DATA 8+64,83,69,67,84,79,82,76,7
9,67,75,0,0,0,0
110 REM clear old sector map
120 FOR n=11 TO 255: POKE (40256+n),

```

```

0: NEXT n
130 REM poke sector data
140 FOR n=0 TO c-1 STEP 2: LET t=PEE
K (60000+n): LET s=PEEK (60000+n
+1): LET x=INT (t-4)*10+s: LET y
=INT ((x+7)/8): LET z=x-(y-1)*8
150 LET p=1: FOR m=1 TO z-1: LET p=p
*2: NEXT m
160 LET pk=PEEK (40270+y): LET p=p+p
k: POKE (40270+y),p: NEXT n
170 REM resave directory
180 WRITE AT 1,0,1,40000
190 CLS : PRINT "ALL DONE": STOP
200 LABEL secerror
210 LET t=IN 225: LET s=IN 226: PRIN
T t+r;" ";s
220 LET tr=t+r: LET ct=ct+1: IF tr>7
9 THEN LET tr=tr-48
230 POKE 60000+c,t+r : POKE 60000+c+
1,s: LET c=c+2
240 LET s=s+1: IF s=11 THEN LET s=1,
t=t+1: IF t+r=80 THEN NEXT r: EL
SE IF t+r>207 THEN GOTO 80
250 GOTO 60
260 SAVE "partlock"

```

Finally, Malcolm mentions that this is a minimal routine with no error trapping or checks, and is intended to be expanded as required by our readers.

Malcolm has already done this on "seclock" which is a machine code version which works under MasterDOS or SAMDOS, where it uses machine code and DOS hook codes to read a sector: SAMDOS is still much slower than the MasterDOS version. It also uses directory position 80 (p80) (usually free), having first checked to see what's there. It's too long and too complicated to include in this column; let's put it on the compilation disc, shall we?

Whilst we're on SAM, hands up those who remember Simon Brooks' "scrolly" program. I guess he's started something - Daniel Doore of North Ascot, Berkshire, has sent in his smooth scroller which uses "GRAB" and "PUT" to create the illusion of a smooth pixel scroller. Daniel admits that this is an illusion, since it actually shifts two columns of pixels at the same time. It's very effective, though, he says, and very

customizable! Type it in and give it a whirl!

```
10 REM **** SAM SMOOTH SCROLLER ***
*
20 REM ***** By Daniel Doore *****
30 MODE 4: CSIZE 8,8: BLOCKS 0: LET
  yos=-16: PALETTE 7,0 LINE 15
40 LET xcord=4,ycord=31,rightXcord=
  240,leng=(rightXcord-xcord)+2
50 LET mess$="SMOOTH SCROLLER BY Da
  n Doore of FRED fame...."+STRING
  $(10," ")
60 FOR s=1 TO LEN mess$
70 PRINT #0; PEN 7; AT 0,0;mess$(s)
80 FOR x=0 TO 7 STEP 2
90 GRAB t$,x,16,1,8: PUT rightXcord
  ,ycord,t$
100 SCROLL 1,1,xcord,ycord,leng,10
110 PAUSE .6: REM Adjust this value
  to get the greatist smoothness-
  experiment!
120 SCROLL 1,1,xcord,ycord,leng,10
130 IF INKEY$<>" " THEN CLS #: MODE 3
  : STOP
140 NEXT x: NEXT s: GOTO 60
```

Regrettably, that's all we seem to have room for. Do please keep on

sending in your snippets, particularly the small crisp ones; I'll be writing the new year's issue by the time I get the next lot (seems odd in October), so do try and keep things with a topical flavour.

A few words of guidance. Send any program material - however short - on disc, that way I can test it and there should be no problems when Bob comes to print it. Include as detailed an explanation as you can and please provide a print-out so I can see what it is about before I load the program. Remember SHORT SPOT is not just for programs and routines, I want lots of Hints & Tips as well.

Keep them coming to:-

John Wase,  
Green Leys Cottage,  
Bishampton,  
Pershore,  
Worcs,  
WR10 2LX.

Thank you, and see you next month.



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# MACHINE CODE

## WITHOUT THE TEARS

Part 4.

By:- Carol Brooksbank.

We start this month by setting up the variables for the first pass.

```
LD HL,WORKSP
LD (FWS),HL
LD HL,FILE
LD (LSF),HL
CALL NEXTSTR
INC HL
LD (CS),HL
```

The workspace start becomes FWS, because as yet no workspace addresses have been used. FILE is the address of the first string, and becomes LSF. CALL NEXTSTR and INC HL find the second string, which becomes CS.

```
CHKCS LD HL,(CS)
LD A,(HL)
CP EOF
JP Z,NEWLOW
PUSH HL
CALL NEXTSTR
INC HL
LD (NS),HL
POP HL
LD BC,WORKSP
```

This is the start of the loop which checks each string. The first byte of CS is fetched and checked to see if it is the EOF marker. If so, the pass is complete, the current LSF is the lowest unlisted string, and JP Z jumps forward to the routine which puts LSF in the workspace. Otherwise, we set up NS. The address of CS is preserved by PUSH HL. CALL NEXTSTR and INC HL find the start of the string following CS which is put in the NS variable. CS is retrieved by POP HL and the start of the workspace is put in BC.

```
CHKWS PUSH BC
LD A,(BC)
CP 0
POP BC
JR NZ,CHKADDR
PUSH BC
```

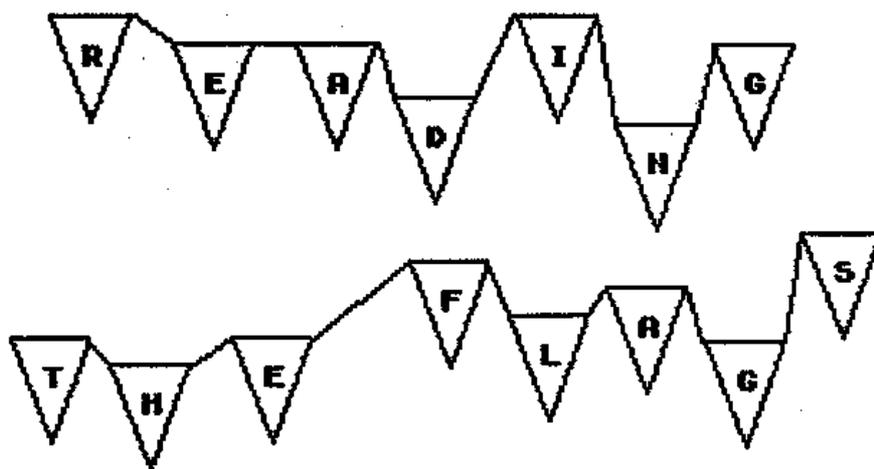
```
INC BC
LD A,(BC)
CP 0
POP BC
JR Z,BYTES
```

Here the loop which checks whether CS is already listed starts. If it is listed, we don't need to check it any further. First, we check the workspace address. If nothing is listed there we have checked all the used workspaces and the string is not listed. If there is an address in the workspace we jump forward to check it against CS.

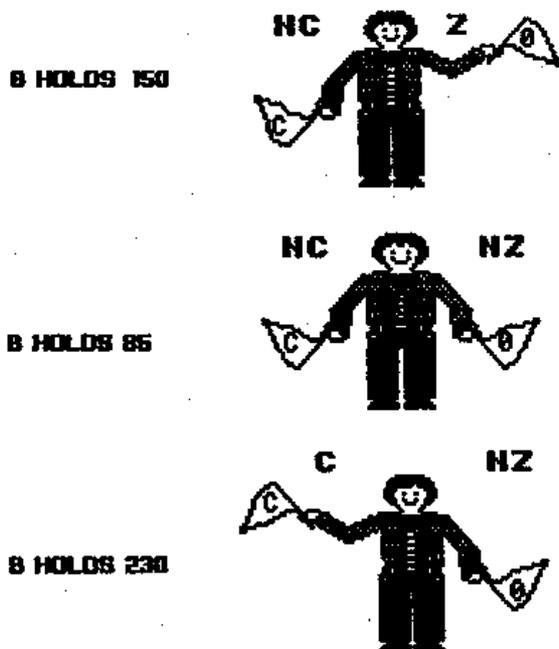
PUSH BC preserves the listed address. The first byte, its LSB, is checked. The stack must be balanced in case we have to jump, so POP BC comes before JR NZ, which will jump forward if there was anything in the byte.

If the LSB was empty, we check the MSB. If that too is empty we have arrived at the first unused workspace, and the program jumps forward to check CS against LSF. If not, it runs straight on to the routine which checks CS against the workspace address.

But before we go on, you must meet the carry flag. You already know the zero flag, which is set if the result of a calculation is 0. The carry flag is set if the result of a calculation will not fit in the register. So, if the result is outside the range 0-255 with a single register, or outside the range 0-65535 with a double register, the carry flag is set. If you have 150 in A, and try to subtract a bigger number, the carry flag will be set because the answer would be less than 0. If you tried to add 156 or more, the carry flag would be set because the answer would be above 255. The flag acts as a warning that the register cannot hold the correct



THE RESULT OF CP B WHEN A HOLDS 150



below the range of printable characters. If the carry flag is not set, A holds something larger than 32 which might be an ASCII code, so then we check it against 127 by CP 127. Now if the zero flag is set we know A holds the code for (c). But if the carry flag is set A holds something lower than 127, so A is holding an ASCII code. Fig. 1 shows how to read the carry and zero flags.

```

CHKADDR PUSH HL
LD A,(BC)
LD E,A
INC BC
LD A,(BC)
LD D,A
SBC HL,DE
POP HL
JR Z,GETNS
INC BC
JR CHKWS
  
```

This section of the program checks CS against a listed address. It begins with PUSH HL because we need to use HL but don't want to lose track of the address

FIG.1

answer to your sum so you must not proceed as though it does.

We can use the flags to tell whether a number is the same as the one in A, or is larger or smaller. So what use is that? Well, we could check whether the number in A is the code of a printable character. We know the printable codes run from 32 (space) to 127 (normally DELETE, but (c) to Spectrum and Sam). CP 32 will set the zero flag if A holds 32, the code for a space. If 32 is bigger than the number in A, the carry flag will be set, meaning that A holds something

it holds - CS. First, we put the contents of the workspace into DE.

You are familiar with CP, which allows you to check the number in A by theorizing about what would happen if you deducted a number from the one it holds. There is no such instruction for double registers. You actually have to do the sum using SBC (Subtract with Carry) and the answer is stored in HL. SBC does an accurate sum, because it takes into account the carry flag, and therefore compensates if there had been an overflow from a previous calculation. The matching instruction, ADC (Add with Carry) will add two numbers, also using the carry

flag. If the last sum had given a result outside the register range, ADC and SBC will give an accurate result for the present calculation whereas ADD and SUB might not. SUB can only be used with A, ADC, ADD and SBC can be used with A or HL.

We PUSH HL before, and POP HL after, SBC because the result of its calculation corrupts HL.

SBC is used to check whether CS matches the address in a workspace. If it does, CS has already been listed and we can jump forward to get another string to check. If they are the same, SBC HL,DE will leave HL holding 0 and the zero flag set, so JR Z will jump forward. If they were different, INC BC will point to the next workspace address and we jump back to check the address it holds against CS.

```

BYTES   LD HL,(CS)
        LD DE,(LSF)
BYTECHK LD A,(DE)
        CP EOS
        JR Z,GETNS
        LD A,(HL)
        CP EOS
        JR Z,CSLSF
        LD A,(DE)
        LD B,(HL)
        CP B
        JR NZ,COMP
        INC HL
        INC DE
        JR BYTECHK
COMP    LD A,(DE)
        CP B
        JR C,GETNS
CSLSF  LD HL,(CS)
        LD (LSF),HL
GETNS  LD HL,(NS)
        LD (CS),HL
        JR CHKCS

```

The flags are used when the individual characters of CS and LSF are compared to see which is the lowest. HL holds the byte from CS and DE the one from LSF, and the check continues as long as the bytes in the two strings are the same. The first check is whether the LSF byte is EOS. If not, we check the CS byte against EOS. If EOS is met in the LSF first,

it stays as LSF. If EOS is reached in CS first, when the bytes have been the same so far, it must be shorter than LSF, so CS becomes the new LSF. If neither is EOS, the bytes are compared by loading them into A and B and using CP B. If they are the same, JR NZ COMP will not jump and we use INC HL and INC DE to fetch the next pair and jump back.

If two different bytes are encountered, LSF stays as LSF if it has the lower one. If CS has the lower byte, the old LSF address is discarded and CS becomes LSF. It is by checking the carry flag in COMP that we decide which byte is higher. JR C GETNS will jump past the routine which changes LSF if the CS byte is higher, but if there is a new LSF its address is stored in the variables. NS is made CS and we jump back to the start of the main loop to check it.

```

NEWLOW LD DE,(LSF)
        LD HL,(FWS)
        LD (HL),E
        INC HL
        LD (HL),D
        INC HL
        LD (FWS),HL

```

The program jumps to NEWLOW at the end of each pass, and LSF, the lowest unlisted string found in that pass, is stored in the next free workspace. LSF is loaded into DE and FWS into HL. INC HL is used between the two bytes - the LSB is loaded into the first workspace byte and the MSB into the next. Another INC HL gives us the next free workspace, and this is stored as FWS.

```

        LD HL,FILE
STRCHK LD A,(HL)
        CP EOF
        JR Z,ALLDONE
        LD BC,WORKSP
FREEWS PUSH BC
        LD A,(BC)
        CP 0
        POP BC
        JR NZ,CHKTHIS
        PUSH BC
        INC BC
        LD A,(BC)
        CP 0

```

```

      POP BC
      JR Z,NEWSLF
CHKTHIS PUSH HL
      LD A,(BC)
      LD E,A
      INC BC
      LD A,(BC)
      LD D,A
      SBC HL,DE
      POP HL
      JR Z,NEWSTR
      INC BC
      JR FREEWS
NEWSTR CALL NEXTSTR
      INC HL
      JR STRCHK
NEWSLF LD (LSF),HL
      CALL NEXTSTR
      INC HL
      LD (CS),HL
      JP CHKCS

```

Now we return to the start of the file, to look for an unlisted string to use as LSF for the next pass. The first byte of each string is tested to see if it is EOF. If so, we have arrived at the end of the file without finding an unlisted string, so the sort is finished and we jump to the exit routine.

If it is not EOF, checks, very like ones we have done before, proceed. We fetch a workspace address and check whether it is empty. If so, we have checked all the workspaces and the string we are checking is unlisted and will do for LSF for this pass. If there is an address in the workspace, we check our string against it. If they are the same, it is listed and we need to get another. If they are different we go back and check another workspace. When an unlisted string is found, it becomes LSF, the one following becomes CS and we jump back to the start of the checking loop.

```

ALLDONE PUSH HL
      POP BC
      LD HL,(FWS)
      LD (HL),C
      INC HL
      LD (HL),B
      RET
END EQU $
LENGTH EQU END-LSF

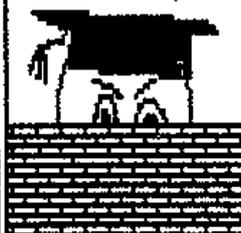
```

We jump here to the final exit routine, with HL holding the address of EOF, when the whole list has been sorted. EOF's address is put into the next free workspace, and we exit to BASIC. Finally, we add END and LENGTH labels which will allow us to find the size of the code block from the symbol table after assembly.

When you have assembled this routine and saved the object code, use CLEAR 26615 and LOAD the code to 26616. LOAD the code for the file you made with the BASIC to 28156. LET A=USR 27891 will make the list of addresses in ASCII order in the workspace.

Next month I will complete this simple file program with a routine to print the file to screen or printer, either sorted or in the order in which you entered them. But why not try writing your own printing routine? You already know all the commands you will need.

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# INDUG'S CHARITY MEMBERSHIP DRIVE

By:- Jenny Sundock.

Now we are well into the winter months and what with Christmas just around the corner I have decided to appeal once again to all you readers as its nearly the season of good will and all that. We had very good results from our Summer Membership Drive (after a little bit of geeing up by me in the July issue of FORMAT), and because of that I'm going to spur you on into a Winter Membership Drive, with charity once again being the main beneficiary and maybe one or two lucky members getting something as well.

But what of the Summer Membership Drive I hear you say. Well, if you remember in the May issue of FORMAT we announced that we would open a special account, and for every new member introduced £1 would be invested so that at the end of September the entire content of the account would go to a nominated charity. We would select at random, from all the members who introduced someone, a winner who would be able to nominate his or her favorite charity. In addition, the winner would receive a LIFETIME subscription to INDUG and FORMAT. Well I'm pleased, indeed I'm proud, to announce the lucky winner is..... Mr Frederick R. Hamilton, 329 North Road, Atherton, Manchester, M29 ORF. Frederick, who is known as Bob to his friends, has been contacted and the charity he has nominated is the 'NEWHEART, NEWSTART FUND' which is based at Wythenshawe Hospital, Southmoor Road, Manchester. They have been sent a cheque for £126.34 which was the total amount including interest that built up.

So CONGRATULATIONS to you Bob! from all at FORMAT and I hope that William Yates of Chorley who you introduced will get as much pleasure in being a member as you say you have over the last couple of years.

Right then, straight into the Winter Membership Drive, which will be run on a similar basis to the summer one. Again you introduce more new members by getting them to fill in the subscription form opposite and send it to us along with the appropriate fee. You can photocopy the form as many times as you like or contact me for more copies. I have also left a little space where you can write in the charity you would like to benefit. Unlike the summer drive we are allowing you all to vote for the charity who will get the money so everyone has a say in where the money goes. Again, we will put a £1 in a special account for every new member introduced, and the charity that has been nominated by the most people will be the one to benefit. I have also decided to give a prize to everyone who introduces five or more members, I will tell you more at a later date.

The Winter Membership Drive has already kicked off as a few late stragglers from the summer drive have been carried forward. We will also be including in the drive any memberships given under Bob's Christmas Present scheme (see this months editorial) so come on readers - lets see some action on your part.

Thank you very much to all of you who participated in the Summer Membership Drive, I'm sorry we couldn't make everyone a winner. I'm sure the Winter Drive will be even better. Remember you can use all the ideas I gave you in the July issue (Vol 4 No 11) of FORMAT to get to know other Spectrum and SAM owners. As FORMAT is the only monthly magazine for Spectrum and SAM users who want to get the most from their machine it is up to you to spread the word. Don't forget the more INDUG grows the more everyone will benefit.

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# OUTWRITE

## A NEW WORD PROCESSOR FOR SAM

Reviewed By:- John Wase.

A respectable word processor written specially for SAM has been a long time coming. Indeed, this was the principal moan from most: "A computer without a word processor - what good is that?"

Most people have used a Spectrum word processor running under one of the commercial emulators. Others have purchased the SAM versions on Tasword 2 or PCG's Wordmaster. However these are just Spectrum code slightly modified to work on SAM. Tasword 2 is sluggish, with a text file limited to 5 A4 pages with no auto numbering or page printing, with primitive editing facilities, limited printer control (16 control codes only, each of no more than 4 decimals) with an additional problem of appalling keyscanning. Again, the PGC program is merely a tweaked Spectrum version and suffers from several problems: it has a quirky and inconsistent menu layout which means that beginners find it particularly difficult, embedded printer control is limited to only three decimals, which rules out many printer options, and the on-screen character set is the same 4-pixel wide set used on the Spectrum and is the vilest and most difficult to read of all these curious character sets.

It is therefore pleasant to be able to report that there is a new word processor written for SAM that seems to be reasonably serviceable. This is "Outwrite!", written by Bob Wilkinson and marketed by Chezron Software. It has a pleasant on-screen typeface which is relatively easy to read, particularly as one can alter the colours from the main menu and save the customised program. The cursor moves quite quickly enough for me, and the program is quite robust and can actually stand typing at quite a speed. However, once the screen is full of text, it still scrolls the

whole screen slower than I would like, although it's quicker than, say, "The Last Word".

Indeed, one shouldn't expect miracles, and there are none yet here. There are only 64 characters a line (with no chance of more, and no margins to cut things down), and the format is such that lines don't end with a CHR\$ 13; but merely carry on to the next, Tasword 2 fashion. It says "Insert", but there's no real insert mode. All "Insert" does is to add a line when you get to the end of the last. So, if you've a mistake to correct, say adding an omitted letter, symbol and cursor down allow you to split a line, whilst F9 lets you split a word. Note that the split line adds a complete 64 character blank line, so that if you are splitting a line between, say, "too" and "small", the "small", and everything following, goes down on the line below, to a position in the text file immediately below where it was previously. In Tasword, for instance it would have gone to the start of the next line. Justify is quick, and doesn't mind split lines, so beware, Tasword will merely tolerate an indent, "Outwrite!" needs a blank line left between each paragraph and the next or you'll reform all 25 pages.....

Compared with Tasword 2, there's a bit more room for text in "Outwrite!", which holds 761 lines of text (I counted them). Actually, that's not really that much - rather more than twice Tasword 2 - around 12 pages of A4. So it looks as though Bob Wilkinson's confined the processor to addressing just 64K and avoided any bank-switching - a pity if you've got a 1.5 megabyte SAM as this one is.

The overall setup is pretty inconsistent in its use of commands -

the main menu contains several quite minor facilities, whilst the rest of the facilities are arrived at direct from the keyboard. For example, you print by pressing "Edit" and "p", but have to go to the main menu to change disc drive. Odd; I would have expected more menus. There are no margins available, but there is (thank heavens), a word count and good on-screen help pages (accessed by F0 and inverse, respectively - usually the other way round).

The save also verifies your text, and is mercifully quick. Except that if (as I do), you save in duplicate, there is no way of avoiding going all the way back to the text again, then back to saving. And you can't erase files from the "save" submenu - an irritating omission. The only way round this is to go back into Basic. However, the block markers allow you to save portions of text and merge them again, a useful feature. Against this, they don't allow block "move" or "erase", only a single "copy", after which you've got to go back and erase the original paragraph line by line. Block copy is pretty quick though, (though I did lose a line of text somewhere during one operation). Again, eminently usable, but room for additions.

Printing, too, has some irritating omissions. The author is clearly blessed with an old fashioned 9-pin tractor feed printer, and is not used to new-fangled gadgets. I tried it with my Epson LQ400 equipped with my bargain sheet-feeder. This worked fine - up to a point. It would have been nice to have been able to add page numbers. More seriously, copy submitted to publishers is always double-spaced, and I find it wholly unacceptable to have to try disembowelling the printer to look for DIP switches - in any case, it suits all my other machines and software as it is. This facility should be provided for in the software. There should be the facility to form-feed after each page - I could only get the thing to work by filling the pages up. And I resent the fact that it sits

there, mulishly, asking me if I want another copy - I told it that I would perhaps let it do another after it had told the sheet feeder to do a form-feed, so that the next page was ready, but it took no notice. You should be able to set the program to match your printer - not the other way round. Oh, and after the save, the cursor has mysteriously been shifted to the beginning of the file. So for corrections on page six - sort through the lines again, Fred.

Control codes are added in an odd sort of way and seem to be changed only with difficulty. They are set out for use with minority machines and are poked into an area. There was not enough care taken in writing this part of the program - modern printers often need a lot of control codes, and for laser printers strings of up to 20 decimals are used to alter things like fonts. The area should be larger, be set out so that users can readily alter things and have as default some standard machine like the Epson FX80, the IBM standard, the Qume or the Hewlett Packard for lasers. In this way, the user could modify it easily. As it stands, it's usable but clumsy. The author has made the mistake of incorporating a space code (32) in many of the codes, instead of letting the machine sort things out. Fine until the control code starts a line.... Or you need to write the formula for sulphuric acid.

A further frustration is that if "Outwrite!" thinks the printer's not connected, there's a message. This is superfluous, and could with advantage be omitted. A lot of the problems arise because the processor's not driving the printer through the "b" channel - this would enable you to use either the serial or parallel port, and (silly messages aside) allow you to print to other devices or even to a disc.

If this sounds as though I'm knocking this word-processor unmercifully, well in some ways I am, it is still a long way from what many will expect from a machine with SAM's

power, whilst in others, I'm not. I demand enough from my word-processor to write reasonably lengthy documents, paginated and containing formulae and a variety of typefaces, often accessing Greek characters and with superscripts and subscripts as necessary. My requirements are therefore much more stringent than those of your average amateur. So whilst this review points up a lot of omissions, they probably won't affect you. And, after all, "Outwrite!" was initially written by an amateur merely as a simple text editor to allow people to write to "Outlet".

Now for the real, acid test. I actually find "Outwrite!" quite usable. Unlike "Tasword 2" on SAM, I found myself using it very comfortably within about 25 seconds after I'd changed the screen to white letters on a blue background (like Microsoft "Word", I guess) and saved off a working copy to disc. Indeed, I felt myself very at home with it - so much so that I'm using it to write this review. And that's the test of a good wordprocessor. An additional real advantage of this one is that in concept it's very similar to "Tasword 2", and, similarly, is almost entirely driven from Basic, making it very easy to modify.

The program as it stands is good, stable, and I can't make it crash. Once the author gets a decent file-length, a patch to improve printer routines, and simple items like margins, it should be a piece of cake to look up old copies of "ZX-Computing" to find how page numbering, headers and footers and multiple copies were added to Tasword 2 and act accordingly. The modest instruction book of 16 A5 dot matrix pages is easy to read and follow.

It needs more work but I am actually begining to feel happy with my SAM as a word processor. I look forward to future versions

OUTWRITE costs £12.00 from Chezron Software, 605 Loughborough Road, Birstall, Leicester LE4 4NJ.

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\* \* SMALL ADS \* \*

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# Z80-SUBS

## MACHINE CODE SUBROUTINES.

By:- Bill Nicholls.

I made the mistake a few months ago of sending Bob Brenchley a number of machine code subroutines I thought some of you might be interested in. The mistake was in hinting that this could form the start of a regular spot in *FORMAT*, with readers providing other useful Z80 routines. Little did I expect that Bob would land me with the job of organizing just such a column - still I bowed to the pressure he laid on, so here is the first one.

I trust readers will not leave me to fill future columns on my own. Contributions to Z80 SUBS are expected - nay DEMANDED - from readers. Send them to me at *FORMAT*'s usual address. Keep them short, give lots of comments, include an ascii file (I don't have every assembler but I can cope with anything sent in ascii form) and make sure you include a printed copy.

O.K. down to business. My first offering this month is a simple routine to compare two strings in memory.

```
COMP2STR LD A,(DE) ;get char from test string
          INC DE ;and increment pointer.
          CPI ;test against other string
          RET NZ ;return if not a match.
          JP PE,COMP2STR ;loop while BC not zero
          RET
```

Enter with DE holding address of the first string, HL holding the address of the other string and BC holding their length.

If the strings match then a return is made with the Z flag set. It is also interesting to note that if (DE)>(HL) then both the S and Z flag are reset. If (DE)<(HL) the Z is reset and the S flag is set.

This routine has a lot of uses but

the strings need to be the same length. Remember that the comparison is on the ascii value of the character, therefore "this" is greater than "THAT" - think about it...

Now there are times that you want to make your machine code relocatable so you can load it anywhere in memory. This has always meant using jump relative (JR) instructions to get around as JP and CALL both require a two byte absolute address. Many in the past have written routines that modify themselves, putting the correct addresses in at the time the routine loads - Hisoft's Devpac relocates its code in this way depending on the address you want it to load to. However, if you have twenty-seven bytes you can spare in a fixed part of memory then you can implement a Relative Call.

RCALL is the routine that does the job. Let's say the routine is stored in the Spectrums printer buffer starting at 23296, the following instructions will call the routine:-

```
CALL RCALL
DEFB nn
```

The nn is calculated in the same way as the displacement for a JR instruction. The RCALLED routine will return to the byte after the DEFB nn.

```
RCALL  PUSH HL ; save registers
        PUSH DE ;
        PUSH AF ;
        LD HL,6 ;
        ADD HL,SP ;HL now points to RET address
        LD E,(HL) ;
        INC HL ;
        LD D,(HL) ;DE now holds RET address
        INC DE ;add 1 to it
        LD (HL),D ;
        DEC HL ;
        LD (HL),E ;and put it back on stack
```

```

EX DE,HL ;and the HL register
DEC HL ;point to displacement
LD A,(HL) ;get displacement
LD E,A ;store in E register
RLCA ;rotate sign bit into carry flag
SBC A,A ;A=11111111 if carry 00000000 if NC
LD D,A ;store in D
INC HL ;point to next instruction
ADD HL,DE ;then add displacement
POP AF ;
POP DE ;restore registers
EX (SP),HL;unstack HL and stack call address
RET ;CALL routine

```

The routine works by putting the calculated address you are calling on the stack after the adjusted return address (following the DEFB). It would be possible to alter the routine to

allow a two byte displacement - I will publish your ideas on that if you send them in.

Right, I fink I dun enuff four dis mumff, it is now up to you. If you like Z80-SUBS then I welcome any fan mail, if you don't like the column then send contributions to the Bill Nichols retirement fund and I just might leave you in peace.

Meanwhile thank you for reading and thanks in advance for all the lovely Z80 subroutines you are going to be sending in during the next month (you are going to send some in - AREN'T YOU).

T.A.F.N.

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# CHORDMASTER

## GUIDES YOUR FINGERS ON THE FRETS

By:- Jeff Rogers.

The chord symbol system, along with the rest of music notation, has archaic origins, and has evolved over many centuries to its present day state. The result is a system that, although reasonably consistent, is cluttered, widely misinterpreted and full of conventions, i.e. rules having little logical basis and so only learnable by experience.

However, like the English language - and many computer languages - at least it has the advantage of having settled down into an established standard, agreed on by (almost) all. This program boils chord structure for guitarists down into a very easy to use expert system.

It accepts any chord name typed in simply as read from sheet music, and takes into account all recognised variants by which chords are known - but if you type in rubbish don't blame me for the results! Unlike chord books or simple chord programs, which store a few standard chord shapes, CHORDMASTER scratch builds each chord you ask it.

This makes it extremely flexible and able to work out virtually any chord, of any type, whether old, contemporary or yet to be fashionable, in any key, at my fret position, and also for any tuning of any stringed instrument; a total of many thousands of chords. Although it works from theory it also weeds out what experience tells me are impractical combinations of notes e.g., an eleventh chord technically includes a third as well as a fourth, but the third is omitted in practice.

Eventually you are given a simple display of the guitar neck, showing finger positions as you would see them if playing your guitar in front of a mirror. Some people prefer the more

conventional, if illogical, view with treble strings uppermost, so I have included a control to flip between either view. Keys Z and X let you scan up and down the neck to see different frets. The neck display is held in an array (G\$) using one character string per guitar 'string'. Several UDG's are used for frets and thick/thin strings.

For beginners, a simplifier can be selected which shows chords as small, easy-to-grasp shapes to play.

For more advanced players the simplifier can be switched off so that a greater length of the fretboard can be seen at one time. This mode shows not only all the notes usable for a given chord but also their scale relationships e.g. root, third, ninth, etc, which is useful for learning about harmony and the anatomy of chords, or as an aid to composing solo runs - or bass guitar runs - to fit in with a given chord sequence.

As far as fingering the chords is concerned, an obvious shape will usually suggest itself. The more complex types of chords however can have several alternative ways of being played. There may even be two notes indicated on the same string within a few frets of each other and they obviously can't both be played, even though they are all legitimate notes for that chord.

So, to help sort out which to choose I have made 'top priority' notes appear in capitals, with less important or optional notes in lower case letter. Although all the 'standard' chord shapes can be seen, the program can also produce less common ways of playing chords.

Don't be conservative, try them all, see which you prefer - you've nothing

to lose but your fingernails - and remember that each inversion may be just what's needed to suit a particular piece of music rather than the others.

Also, carefully chosen parts of a chord (residues) can sound just as strong as a huge six-string-five-fret-wrist-wrecker, especially when playing in combination with other instruments - or a good echo-chorus unit!

There now follows a potted chord theory. A chord symbol, such as E, means the basic chord third and fifth steps of the rising major scale of (in this case) E - and their octaves. Minor, sus 4, augmented and flattened fifth chords are formed by altering - raising or lowering - the third or the fifth.

Added notes can then include the sixth, various sevenths, ninths, and so on, in any combination. The added notes generally sound better if confined to the higher-pitched strings, so the program indicates this automatically. In fact, if a seventh or other added note is required as a bass note than it can be written not as a seventh but as 'chord over bass note' e.g. D/C, and this notation is allowed for in the program.

It became more common as the main system failed to conveniently describe some contemporary chords, e.g. If the chord A/D had to be named with D as its root - but still as exactly the same notes - it would be called D maj 7/9/no 3rd. The newer notation is more descriptively accurate, yet short to write and quick to understand (like a good computer language should be!).

If typing errors are made when entering games programs then something obvious will usually happen - or at least fail to happen - but with a utility/educational program, such as this one, errors may give you an apparently working program but one that spouts a load of misleading rubbish. I made up the (rather unlikely) 'test chord' in line 4080 to

test as many parts of the search algorithm as possible.

If you do not get exactly what's shown in Fig.1 then there is an error somewhere. When a Run gives the correct result you can erase line 4080, then make final copies using SAVE d1"C-MASTER" LINE 1.

User-definable characters - to be entered in Graphics mode - are highlighted in the listing like this: {GA} means type A in graphics mode. {4\*GS8} means type graphic SHIFT 8 4 times.

It is most important to notice where capital or small letters are used in the listing, because this is used as a note-priority marker. For this reason check all lines in the search loops even more carefully than usual.

In use, the sharp sign (#) can be found on key 3. For flats, as on all music, a small 'b' is used. If you come across a natural sign then type maj instead. It is not necessary to put capitals or spaces when typing in a chord, these will be inserted later by the program itself where needed for clarity e.g. Type in abbbass and see how the four b's get sorted out into Ab Bb Bass.

For 9th chords you are prompted to choose jazz or added, the former includes a seventh, the latter doesn't and sounds more contemporary. Any chord + 7 means augmented fifth and dominant seventh, not a sharpened seventh. A 13th chord includes the sixth and seventh, usually an octave apart, sometimes the ninth, optionally the fourth and theoretically the root, third and fifth.

If the program is typed in error-free (!) then at least 99.9 per cent of chords typed-in off sheet music will be worked out correctly. Don't believe those who tell you "that's not how I play" whatever, many guitarists have their own somewhat loose idea of chord names.

Even sheet music is not infallible

and can contain chord shapes or names that are unsuitable or just plain wrong e.g. G eleventh (G11) is used sometimes to mean F/G but sometimes to indicate G7 sus 4.

Structure-wise (horribobble word) the program flows straight through from line 10 to 900. The main variables to try and follow are A\$, B\$, C\$, P and X\$. Both searches through the inputted chord name (C\$) use a pointer (P) to keep track of everything. P is incremented for example to accommodate "sharps and flats" in the routine at 1000. Allowed notes for the chord in question are built up in A\$ - for the three treble strings - and in B\$ - for the three bass strings. B\$ gets started off containing a major triad in line 60.

The filling of the actual guitar-strings array (G\$) is all done in line 660 as follows: For each guitar-string/fret position (S,F) the fixed reference array N is sliced to find the note-value at that S,F. The resulting number - range 1 to 12 - is used to slice out a character from A/B - allowed notes data - which is then put in G\$ at the current string/fret.

This character could be a symbol or just a bit of guitar string - to fill the gap - depending on whether the note was an allowed one for the current chord or not.

Since the Spectrum BEEP is monophonic - not to mention barely audible - the only way to give at least an impression of a chord is to play the notes of the chord rapidly in succession. This is done by storing the notes of the chord into a play array, P - sounds better through a proper amp.

Note that throughout this program I use 1 to represent C, 2 for C sharp, 3 for D and so on. The Spectrum's Beep uses the same system but one lower (0=C) hence the need for 'n-1' in line 580.

I have not been able to try the program on a SAM as I can't afford one

until after Christmas. Still I'm sure some SAM user out there will soon come up with corrections if they are needed and I expect a few improvements as well to the display.

Right, here is the CHORDMASTER program, I hope readers find it useful.

```

1 REM *** CHORDMASTER ***
2 REM By: J.D.ROGERS.
3 REM FORMAT NOVEMBER 1991.
5 GOTO 2000
10 REM *** NEW CHORD ***
15 BORDER 0: PAPER 0: INK 7: CLS : P
  RINT H$:#0; FLASH 1;"Press any ke
  y"
20 BRIGHT 1: INK RND*8: LET X=INT (R
  ND*5)*7: LET Y=1+INT (RND*5)*4: P
  RINT AT Y,X;"{GG}{GH}{GI}{GJ}";AT
  Y+1,X;"{GK}{GL}"
30 IF INKEY$="" THEN GOTO 20
40 BORDER 1
50 POKE 23617,253: POKE 23609,22: PO
  KE 23658,0
60 INPUT ( FLASH 1; PAPER RND*7; INK
  9);" Please enter chord requir
  ed "; LINE C$
70 LET C$="..." + C$ + "....."
80 LET P=4: GOSUB 1000: LET ROOT=V:
  IF ROOT=0 THEN GOTO 10
90 LET B$="R...3..5...": LET BASS=0
100 REM *** FIRST SEARCH ***
105 FOR P=5 TO LEN C$-7: LET P$=C$(P)
  : LET X$=C$(P TO P+1)
110 IF X$="11" THEN LET B$="r.9..4.f.
  .7."
120 IF X$="13" THEN LET B$="r.n.3..5.
  67."
130 IF X$="-5" OR X$="b5" OR X$="5b"
  THEN LET B$(7 TO 8)="5."
140 IF X$="di" OR (P$="o" AND C$(P-1)
  <"j") THEN LET B$="R..3..5..7.."
150 LET X$=C$(P TO P+2)
160 IF X$="aug" OR P$="+" OR X$( TO 2
  )="#5" OR X$( TO 2)="5#" THEN LET
  B$(8 TO 9)="5"
170 IF X$="no3" THEN LET B$(4 TO 5)="
  .."
180 IF X$="no5" THEN LET B$(7 TO 8)="
  .."
190 IF C$(P+1 TO P+3)="ass" THEN LET
  C$(P)="B": LET P=P-1-(C$(P-2)>="a
  " AND C$(P-2)<="g"): GOSUB 1000:
  LET BASS=V: LET P=P+4
200 NEXT P
210 LET A$=B$: IF B$(5)="3" THEN LET

```

```

B$(5)="t"
220 REM *** SECOND SEARCH ***
230 FOR P=5 TO LEN C$-7: LET X$=C$(P
TO ): LET P$=C$(P)
240 IF P$="/" THEN IF X$(2)>="a" AND
X$(3)<>"d" AND X$(2)<="g" THEN LE
T P=P+1: GOSUB 1000: LET BASS=V
250 IF P$="m" AND X$( TO 3)<>"maj" TH
EN LET B$(4 TO 5)="t.": LET A$(4
TO 5)="3."
260 IF P$="6" OR X$( TO 2)="13" THEN
LET B$(10)="s": LET A$(10)="6": I
F A$(8)="5" THEN LET A$(8)="f"
270 IF P$="7" THEN IF A$(12)<>"7" AND
A$(10)<>"7" THEN LET A$(11)="7":
LET A$(1)="r": LET B$(11)="s"
280 IF X$( TO 3)="sus" OR P$="4" THEN
LET A$(5 TO 6)=".4": LET B$(5 TO
6)=".u"
290 IF X$( TO 3)="-10" THEN LET A$(4)
="9"
300 IF X$( TO 4)="maj7" OR X$( TO 4)=
"maj9" THEN LET A$(12)="7": LET A
$(1)="r": LET B$(12)="s"
305 IF X$( TO 2)="11" THEN LET B$(1)=
"R": LET B$(3)="n"
310 REM *** NINTHS ***
320 IF P$<>"9" THEN GOTO 390
325 LET X$=C$(P-1): LET N=(X$="#")-(X
$="b" OR X$="-"): IF N THEN LET A
$(3+N)="9": LET A$(3)=".": LET B$
(3)=".": GOTO 390
330 LET A$(3)="9": LET B$(3)="n": LET
A$(1)="r": IF A$(5)="3" THEN LET
A$(5)="t"
340 IF P>5+2*SHF THEN GOTO 390
350 PRINT #0; FLASH 1;"Jazz or added
ninth?"
360 LET k$=INKEY$: BEEP RND/4,RND*22
370 IF K$="" THEN GOTO 360
380 IF K$="j" THEN LET A$(11)="7": LE
T B$(11)="s": IF B$(5)="t" THEN L
ET B$(5)="3"
390 NEXT P
395 INPUT ;: PRINT #0;AT 0,0; FLASH 1
;" WORKING OUT ";C$
400 REM *** ADJUSTMENTS ***
410 IF a$(10 TO 11)="67" THEN LET a$(
10 TO 11)="6s": LET B$(10 TO 11)=
"s7": LET B$(1)="r"
415 FOR N=3 TO 4: IF A$(N TO N+1)="93
" THEN LET A$(N TO N+1)="9t": LET
B$(N TO N+1)="n3"
420 NEXT N
430 LET A$=A$(14-ROOT TO )+A$
440 LET B$=B$(14-ROOT TO )+B$
450 IF BASS THEN LET ROOT=BASS: FOR N
=BASS-2 TO BASS+2: LET P=N+12*((N

```

```

<1)-(N>12)): LET B$(P)="{GN}" AN
D B$(P)<>".")+B$(P): NEXT N: LET
B$(BASS)="B"
460 LET I$="{12GD}": LET J$="{12GA}"
480 FOR N=1 TO LEN A$
490 IF A$(N)=". " THEN LET A$(N)="{GD}
": GOTO 510
500 LET I$(N)="{GM}{GN}"(1+(A$(N)>="a
"))
510 IF B$(N)=". " THEN LET B$(N)="{GA}
": GOTO 530
520 LET J$(N)="{GM}{GN}"(1+(B$(N)>="a
"))
530 NEXT N
540 LET J$(ROOT)="{GS8}"
550 REM *** FILL PLAY ARRAY ***
560 DIM P(48): LET PA=1: LET P(1)=ROO
T-13: LET S$=B$+A$
570 FOR N=1 TO LEN S$: IF CODE S$(N)<
128 THEN LET PA=PA+1: LET P(PA)=N
-1
580 NEXT N
600 REM *** FILL GUITAR STRINGS ***
610 FOR S=1 TO 6: LET G$(S)=(U$ AND S
<4)+V$: LET G$(S+6)=G$(S): IF S>3
THEN LET B$=A$: LET J$=I$
620 BEEP .01,42+S
630 FOR F=1 TO 19: LET G$(S,F*4)=B$(N
(S,F)): LET G$(S+6,F*4)=J$(N(S,F)
): NEXT F
640 IF G$(S,4)<>G$(S,5) THEN LET G$(S
+6,2)="o"
650 NEXT S
700 REM *** PRINT OUT ***
710 BORDER VAL "7775017310"(1+COL): I
NK 9: PAPER 7*(COL=2*INT (COL/2))
: BRIGHT COL=6 OR COL=7
720 CLS : PRINT INVERSE 1;"
CHORDMASTER",...
730 PRINT "P=Play. N=New chord""Z/
X=Scan down/up frets""V=Alter vi
ew. 0-9=Colours.""S=Simplifier S
teps. T=Re-tune"
740 PRINT ,, "This is "; INK VAL "1646
263624"(1+col);c$;AT 21,1;"FRET:"
;#0;" Gtr Tuning ";T$
750 PAPER COL
760 IF SIMP<>2 THEN GOTO 800
770 DIM Q$(384): PRINT AT 8,0;Q$
780 PRINT AT 9,21;"{GS8} and {GM}";TA
B 20;"main finger";TAB 20;"positi
ons";TAB 21;"({GS8}=Root)";AT 14,
19;"{GN} Play if no";TAB 20;"alte
rnative";AT 17,19;"Do not play";T
AB 19;"open strings";TAB 19;"unle
ss=o"
800 PRINT AT 8,0;"{32*G3}";AT 20,0;"{
32*GS3}"

```

```

810 LET X=6 AND SIMP: LET A=FR+31-(14
    AND SIMP=2)
820 PRINT PAPER 8;AT 21,6;" "; F
    LASH 1;AT 21,6;(FR+2)/4
830 PRINT AT 8,0
840 FOR S=1 TO 5: IF VIEW THEN FOR S=
    6 TO 2 STEP -1
850 PRINT G$(S+X,FR TO A): PRINT E$(F
    R TO A): NEXT S
870 PRINT G$(S+X,FR TO A)
890 REM *** USER CONTROLS ***
900 IF PLAY THEN FOR N=1 TO PA: BEEP
    .02+SIMP/8,P(N): IF INKEYS="" THE
    N NEXT N: GOTO 900
910 LET K$=INKEYS: PRINT AT 0,10+(RND
    *10); INK RND*8; PAPER 9; OVER 1;
    " ";
920 IF K$="" THEN GOTO 910
930 IF K$="p" THEN LET PLAY=NOT PLAY
940 IF K$>="0" AND K$<="9" THEN LET C
    OL=VAL K$: GOTO 700
950 IF K$="n" THEN GOTO 10
960 IF K$="c" THEN SAVE SCREEN$
970 IF K$="v" THEN LET VIEW=NOT VIEW
980 IF K$="s" THEN LET SIMP=VAL "201"
    (1+SIMP): GOTO 750
990 LET FR=FR+(4 AND K$="x" AND FR<45
    )-(4 AND K$="z" AND FR>4)
991 IF K$<>"t" THEN GOTO 800
992 REM *** OPTIONAL RETUNER ***
993 CLS : PRINT ,, "Enter tuning requ
    ired for six strings,bass string
    first,using this exact form:e.g."
    ,, " :d:a:e:a:b:e:,,, " (example
    is jdr's D6/9 tuning)",,, "OR:Ente
    r n to return to normal"
994 INPUT LINE T$: CLS : IF LEN T$>1
    2 THEN GOTO 4020
995 IF T$="n" THEN RUN
996 GOTO 992
1000 REM *** NOTE TO NUMBER ***
1010 LET P$=C$(P): LET C$(P)=CHR$(COD
    E P$-32)
1020 LET V=0
1030 FOR N=1 TO 7
1040 IF P$="cdefgab"(N) THEN LET V=VAL
    "01030506081012"(N*2-1 TO N*2)
1050 NEXT N
1060 LET SHF=(C$(P+1)="#")-(C$(P+1)="b
    ")
1070 IF SHF THEN LET V=V+SHF: LET P=P+
    2: LET C$=C$( TO P-1)+" "+C$(P TO
    )
1080 RETURN
2000 REM *** SET UP ***
2020 LET F=0: LET S=0: DIM G$(12,78):
    DIM N(6,20): DIM A$(12): DIM B$(1
    2): DIM J$(12): LET FR=2: LET X$=

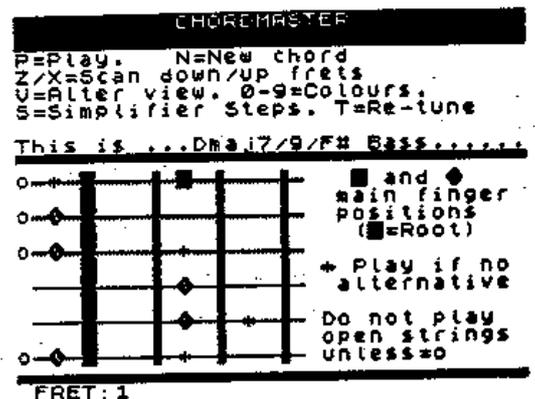
```

```

": LET COL=6: LET SIMP=0: CLS :
    LET VIEW=0: LET PLAY=0
2030 LET U$=" {3*GA}{GB}"
2040 LET V$=" {3*GD}{GE}"
2050 LET E$=" {GS8}"
2060 FOR N=1 TO 20
2070 LET U$=U$+"{3*GA}{GC}"
2080 LET V$=V$+"{3*GD}{GF}"
2090 LET E$=E$+" {G5}"
2100 NEXT N
2110 LET E$(52)=":"
2120 LET H$=" b ? # "
2130 LET H$=H$+H$: IF LEN H$<700 THEN
    GOTO 2130
2140 LET H$=H$( TO 704)
2150 IF LEN (A$+B$+J$+X$+G$(12)+U$+V$+
    E$+H$)<>1076 THEN PRINT "ERROR li
    nes 2000 to 2150",,JDR
3010 DATA 0,0,0,0,255,170,0,0,255,255,
    255,126,255,170,126,255,15,15,15,
    15,255,170,15,15,0,0,0,0,255,0,0,
    0,255,255,255,126,255,126,255,255
    ,15,15,15,15,255,15,15,15
3020 DATA 0,3,63,29,13,13,253,127,56,2
    52,252,248,95,85,248,124,0,0,0,0,
    255,85,0,0,0,0,0,24,252,95,0,0,19
    ,96,64,48,8,48,192,128,252,48,0,0
    ,0,0,0,0: REM GUITAR
3030 DATA 24,60,110,235,215,118,60,24,
    0,0,16,84,255,84,16,0,74,46,68,97
    ,118,101,46,82,111,103,101,114,11
    5
3040 FOR N=USR "A" TO USR "P": READ F:
    POKE N,F: LET S=S+F: NEXT N
3050 IF S+N<>76042 THEN PRINT "ERROR I
    N DATA",JDR
4000 REM *** TUNE UP NOTES ARRAY ***
4010 LET T$=":e:a:d:g:b:e:"
4020 LET C$=T$: LET P=2
4030 FOR S=1 TO 6: GOSUB 1000
4050 FOR F=1 TO 20: LET N(S,F)=V: LET
    V=(V AND V<12)+1: NEXT F: LET P=P
    +2: NEXT S
4080 PRINT AT 20,0;"test chord": LET C
    $="dmaj7/9/f#bass": LET SIMP=2: G
    OTO 70
4090 GOTO 10

```

Fig.1



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NEV'S

# HELP PAGE

By:- Nev Young.

I will kick off this month with a problem that has been with us since the DISCiPLE first appeared. N.Unitt has recently upgraded to PLUS D from microdrive and wants to get his Tasword 3 files onto disc. Well you have two problems. The first is to get a working version of Tasword 3 for the PLUS D. I believe that there are conversions floating around but I don't know of any "official" sources, or you could get hold of Tasword+2 which uses the same file format (assuming you have a +2). Next you have the very arduous job of moving your text files onto disc. With the DISCiPLE this wasn't too hard as you can connect the Interface 1 onto the back of a DISCiPLE but, as you have the PLUS D, I am sorry to tell you the only way is to load each file from microdrive and then save it to cassette from within Tasword 3. This is a long and dreary job but should only need to be done once and it does leave you with all your files on tape as a back-up. While I am on this subject has anybody out there got a routine to convert Tasword three to work with Uni-Dos? If so I would like to hear from them.

Kevin Gould has recently purchased the OCP Art Studio and has two problems. First how to connect both a mouse and the PLUS D to his Spectrum, and second how to get the print routines to work with the PLUS D. First answer, you need a Twoface to connect both devices. Bad news is it never sold well and is now out of production, I suggest you try placing a wanted advert in the Small Ads column of FORMAT. Next you need to build a printer driver for use with the PLUS D, see FORMAT volume 1 issue 4 for more details or one of my earlier help pages where I went through this for the OCP assembler. (I forget which issue). Also your problem

with the Style Writer is caused by the program being so old it doesn't know what a PLUS D is. If there is an option to use the Spectrum printer then try that. Otherwise you will have to find out where in the program it overwrites the values in channel 3, as this is how most older programs invoked different printer drivers. Once found then stop the channel from being changed and you should be able to get it working.

A problem with the Sam dump routine now. This from Ron Deeks who cannot get a reasonable shaped dump from the routine. I believe the routine uses the ESC \* 4 sequence to select graphics. If this is changed to ESC \* 5 you should get a better shape picture. The reason for using the former is that not all printers can use the 5. To change it use POKE SVAR &24,5.

An old letter that must have fallen down the back of my "in tray" from M.O'Connell who asks if FORMAT has published a comprehensive list of the PLUS D pokes. It certainly has, the DISCiPLE ones (no real difference) were published in Vol 1 issue 2) and other articles spread about in volumes one, two and three cover things very well. The reviews of the Sam Coupé have been appearing for almost three years now. Thats a lot of back issues I know, but they are worth it (honest).

Mr Webster from NSW in Oz has sent in a monster letter which all boils down to how do I make Tasword 2 and the Kemsoft CAD program work with a PLUS D. The conversion for Tasword 2 was outlined in this very column only a few months ago and to repeat it would only be a bore. The Kemsoft CAD program was sold in several versions including one for the PLUS D. You will

need to get hold of this version or mod the basic lines of your current version. All of your other problems come down to the correct setting of the auto line feed and the POKE @ values as detailed also a few issues ago. You may already have seen these by now and be working. If not then its back issues for you too.

A regular writer from Manchester has come up against by own nemesis on the Sam. The NOT UNDERSTOOD error. There are many reasons for this wicked report not all of them are valid. It is often caused by the program getting corrupted when it is moved up and down in memory during operations such as opening and closing channels. It is supposed to be fixed if you are using ROM version 3 and Masterbasic version 2. If you are, then the polite thing to do is create a disc with the program on, and instructions of how to recreate the fault. Make sure that the fault happens every time. Then send the lot off to Dr A.Wright at Betasoft. He is always on the look out for any outstanding bugs in the Sam.

Martin Hofbaur asks why it is that, now he has typed in the upgrades to his system file, booting the machine with the printer switched off will crash the machine. I can only assume it is because you have mistyped something.

He also has problems with GEN54/MONS4. From your description you are not using the DISCiPLE version of the program. The interface 1 version will not work correctly.

He also has this tip for anybody using a NEC printer. These will not support the ESC \* 5 command (remember that from the last page). Well he tells me it does use the ESC \* 4 so using this sequence for graphic dumps will give a reasonable result.

And lastly he asks for info about the DISCiPLE ports and how to use them. This will have to wait as the commands for the 1772 disc controller chip takes 16 pages of its own manual, and that is before you even start to

look at the other bits in the ports. One day I will.

Another problem with the Sam dump routine. It only gives a black and white dump even on a colour printer. Quite right, thats what its supposed to do. PBT sell a colour dump utility. They advertise somewhere in this issue.

D.Sheperd of Bristol has some corrupted discs but he doesn't understand why they do what they do. When the disc is catalogued even though it has many files on the disc it shows huge amounts of space left. Often more that the disc had in the first place.

Each file on a disc has two bytes in the directory that show the number of sectors that it uses (the two bytes after the filename). These can become corrupted. When you CAT a disc these bytes are added together and the total subtracted from the space on an empty disc. However due to the corruption the answer goes negative and so the CAT will show a very large amount of space left. To find the offending programs the KA program published some time back will track down all the corruptions. The only fix is often to remove the programs but sometimes loading it into the machine and then resaving it will also fix the disc.

Well after last month when I only answered one letter I hope I have made up for it this month by answering so many. I also hope the replies were not too brief.

Meanwhile keep the problems coming in, remember I don't have a total library of every program ever issued for the Spectrum & SAM. So if your problems are software related make sure you enclose as many details as you can. Send your problems to:-

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```

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00020      PUT  32756
00030      OPEN  EDU  HD112
00040      ;*****
00050      ;Print message "SAM Coupe"
00060      ;*****
00070      ;open stream 2
00080      LO  A,2
00090      CALL  OPEN
00100      ;Print the message starting in register HL
00110      LO  HL,SAMCOUPE
00120      LOOP:LO  R,(HL)
00130      RND  R
00140      RET  2
00150      PUSH  HL
00160      RST  16
00170      POP  HL
00180      INC  HL
00190      JN  LOOP
00200      RET
00210      SAMCOUPE:DB  "SAM Coupe"
    
```

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# YOUR LETTERS



Dear Editor,

I am writing to say that I have been partly successful in getting a Jupiter Ace ROM image to work on SAM.

Only partly successful because I have not yet managed to get the LOAD and SAVE commands to work, and the Ace ROM insists that SAM's "Z" key is symbol shift.

The Ace was designed by Richard Altwasser and Steven Vickers of Spectrum fame, and in many ways it is similar to the Spectrum beneath its Forth exterior, but in other ways I find it more like the ZX81.

The Ace stores its "Video RAM" as a series of ascii codes put into the 768 bytes starting at location 9216. I have persuaded SAM to display this Video RAM by adding a short machine code routine to the Ace's RST 38H interrupt routine. At each interrupt, one line of the Ace's video RAM is printed in turn to SAM's screen in Mode 2. At the moment satisfactory, but I feel it could be improved.

I know the Ace was very much a minority computer, but I have always enjoyed programming in Aceforth. If there is anyone out there who might be interested in Ace emulation, or has any suggestions on how LOAD and SAVE might be made operational, I should be pleased to hear from them.

Yours sincerely, John Avis.

It is a long time since I've seen someone working on the Ace but I'm sure there is more interest in the use of FORTH. Anyone who can help John can write to him via FORMAT. Ed.

Dear Editor,

Having purchased Samtape 2, with the intention of converting Tasword 2, for use with my SAM, I duly followed the instructions and customized my new version. It worked perfectly on SAM. However, since I am a bit thick, when

it comes to computing, I wondered how I was going to get all my existing Tasword code files, previously created on 5.25" discs with a 48k Spectrum and DISCiPLE, transferred to 3.5" discs and up and running on SAM.

For the benefit of other members who may, like me, be complete dunces when it comes to computing, I shall explain: Load the converted version of Tasword 2 on SAM (created by SAMSPEC). Exit to menu and press "b" (returning to SAM basic). With the external 5.25" drive attached, do a DIR 2, then enter DEVICE d2, Load the code file required by entering LOAD "name" CODE (65536 + 32000), x, where x is the length of the original code file, since code text files are saved at address 97536.

The code file previously saved on the DISCiPLE can then be accessed by RUN on the SAM which takes you back to the Tasword 2 text file. By then following the normal commands the text file can then be saved to disc on SAM.

It all worked perfectly, although this may seem obvious to many members I am sure there must be others like me who are not whizkids!

Keep up the good work, any chance of following up the original article on expanding Tasword 2 written by Ken Elston (August 1988 issue).

Yours sincerely, A.H.Jenkins.

Many thanks Mr Jenkins. I would add that for those of you without the external drive interface files can be transferred in the same way via tape.

Sorry but there is no plan to follow up Ken's article as, in the end, there was little interest from readers. Ed.

Dear Editor,

Please can you tell me what the names are of the two characters, often featured on the cover of FORMAT, if they have ones. How about a small, regular, light hearted comic strip

every month in FORMAT featuring these two characters. I hope you can tell me.

Yours sincerely, Andrew Jones.

Jon Nixon, artist extraordinaire, who does the front covers for FORMAT does have names for them. But just to make life interesting lets have a few suggestions from readers. Each entry on a post card (one pair of names per card please but you can enter as many times as you like) to arrive here by first post on Monday 15th December.

I will get Jon to select a winner in time for the Feb'92 issue. To make things worth the effort I will give a prize of a full years subscription to the lucky winner.

As to a regular cartoon strip, well I have been trying to persuade him to do one for a long time. Jon claims that with Scuba diving, Wind surfing and several other calls on his time he is just too busy - still I will keep trying. Ed.

-----

Dear Editor,

Could you please print the following in an edition of FORMAT. Just a quick word on logo-maker. It is a pleasure in such a sensible magazine to see a useful program such as this with clear explanations - now on with my letter.

Is there anybody out there who may have, knows of, of where I can obtain a 3" FDI Amstrad Floppy Disc Drive and SII Interface. No, I have not changed over to Amstrad, just a 128K+2a (black case) Spectrum to replace my dead 48K. I have the PLUS D 3.5" Disc System but I am told that it can only be used in 48K Mode on the +2a. The FDI is for 128K Mode. Thankfully I can still continue with FORMAT as Amstrad had the sense to include the 48K Speccy BASIC in the +2a-unlike some manufacturers. What did happen to the AMX (I think) system of same software irrespective of machine?

Next, as FORMAT covers Spectrum and SAM users only would it be possible to produce FORMAT on 3.5" disc - as a disc based magazine. I used to subscribe to a one-make user group which produced their monthly on a 5.25" disc which was done in two ways.  
a) Each month the disc was returned

for the next edition, the contents being copied from a master floppy disc. b) For a small extra charge a new disc was sent to you each month. The magazine was well written and was menu-driven. Programs such as Logo-Maker were already on disc as a programme with the explanation in the magazine, how it worked I am unsure of as it needed no additional software such as a W.P. Could this avenue be explored, what do you and other readers think of the idea?

Finally, a quick last one. I seem to remember sometime ago a Sinclair Professional Computer, I believe black cased - any info on it?

Yours sincerely, Kevin Gould.

As far as I know Amstrad never got round to producing an external disc drive for the +2a. Still 48K is the real mode for programming. I don't understand the reference to AMX, perhaps you can write in again with more explanation.

Next, I think you miss the point of FORMAT. We exist to pass on ideas, to help readers learn about programming and how to use their computers. Yes I could produce FORMAT on disc, it would be easier for me. But unless you read things and type in programs you will never advance, you would just sit there and absorb other peoples efforts. So no - FORMAT will stay on paper, even though it is more work for me.

The Sinclair PC200 is no longer available and the only person I know with one is an overseas reader. Several times I have asked for someone to lend me a manual and a set of system discs so I can copy them for him but either nobody owns a PC200 or they are all to mean. Ed.

-----

Dear Editor,

A few random thoughts to enclose with my renewal.

1. Keep up the good work - even though FORMAT's arrival can mean the entire family is neglected until I've read at least the Help Page and Short Spot!

2. What media can you accept contribution in? As yet I've no

printer or WP package for SAM but could supply disc from IBM PC packages?

3. This month Nev Young's HELP PAGE did an excellent intro on IF THEN ELSE and BOOLEAN expressions. Could he follow up with similar to cover DEF PROC, LOCAL, REF etc., so I can really understand PROCEDURES. A worked example using all features would do. Similar on SOUND and ON ERROR would help.

4. How about a "Which" style guide to printers - mainly 'cos I'm thinking of buying one. 5. I'd like to see more hardware articles particularly for SAM. Clearly you rely on readers so I see the problem.

Yours sincerely, Alan Harper.  
(A well satisfied customer)

Another long letter, but I like it. Having said that could readers try to keep their letters as short as possible so I can get more in. Each month I have to omit so many.

Still Alan, if you fancy writing something for FORMAT I can accept article on IBM 5.25 or 3.5" discs provided the text is saved as an ascii file. The same applies to Spectrum DISCiPLE or PLUS D discs and SAM discs. I can also accept BBC text files on 5.25 single density. Sorry but no +3 3 inch discs please. If you supply a printed copy at the same time there should be no problems. Program material needs to be on DISCiPLE/PLUS D or SAM discs.

Finally if readers would like to write in with their experiences (both good and bad) with printers I will try to get them into print.

Dear Editor,

I note, in the advertisement in FORMAT Readers Services October 1991 for the SPI, a claim that information can be read into a SAM Coupe "from almost ANY other computer".

I am hoping to be able to set up information exchange between either my Spectrum 128K or SAM and an EPSON HX20 lap-top computer. Both the EPSON and the Spectrum have RS232 interfaces, giving the possibility of serial interchange, but of course SAM does

not have a built-in serial port, nor does your SPI. Presumably the SPI can only communicate with another computer with a Parallel printer interface? I should be grateful for any information on these points that you can provide.

Yours sincerely, Alan D.Cox.

Well we do say ALMOST any other computer, but as the vast majority of computers have centronics/parallel interfaces I think the statement is a good one.

The HX20 only has the serial port built in but there was an external parallel interface available at one time. If you really must use RS232 then you will need the Comms interface from SAMCO. Ed.

Dear Editor,

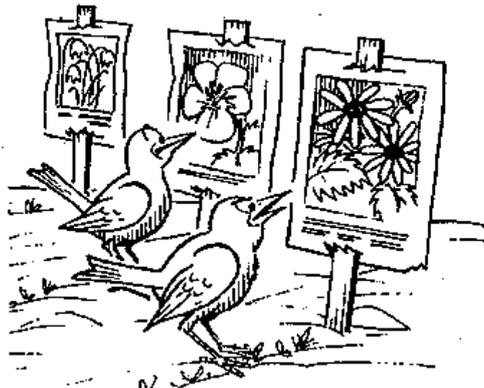
Just a short note re Brian Wright's letter in the last issue of FORMAT. Spectrum rubber keyboards can be replaced by R.A. Electronics of 133 London Rd., LOWESTOFT, Suffolk NR33 OAX. (0502 566289).

Yours sincerely, Clyde Bish.

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

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.



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