Vol.7 Nº12.   August 1994.

FORMAT

FOR SPECTRUM AND SAM USERS

SCIENCE FICTION CLASSICS, No. 302...

SO THEY FINALLY DID IT! THOSE DAMN FOOLS...

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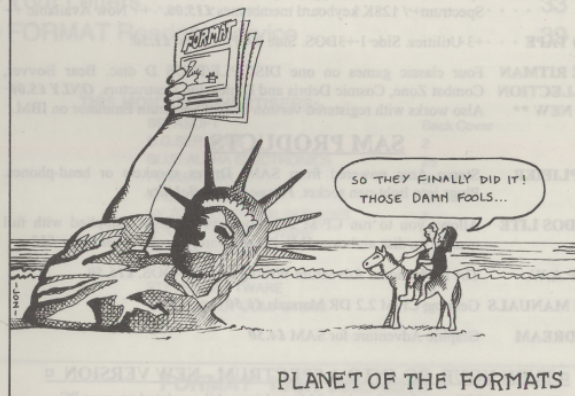
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SPECTRUM PRODUCT

CONTENTS

Vol.7 Nº12.   **August 1994.**

NEWS ON 4

FUTURE FOR SALE

Computer magazine giant Future Publishing is up for sale. The company, based in Bath, is continuing 'Business as Usual' while negotiations go on with several interested parties including their arch rivals EMAP and VNU.

Chris Anderson, founder of the company and its Chief Executive, has been putting much of his efforts into a US publishing division for some time now. It is expected that he will take full control of the US company when the British side is sold in the next few months.

Future have a very large turnover, £42 million last year, all based on computer and electronic games mags. They were of course the former publishers of *Your Sinclair*.

ITS A FUNNY OLD GAME

The Football season starts early this year, at least for 48K/128K Spectrum owners. 'It's A Goal' is a new football arcade game which includes features like ball control, computer controlled goalkeepers, selectable team formations, 1 or 2 player games, World Cup '94 and Anglo-Scottish league competitions to play in.

The game costs £4.50 including UK p&p and is available on tape or 3½" disc from Brendan O'Brien, 22 Garron Crescent, Larne, Co.Antrim, Northern Ireland, BT40 2AT. Make cheques payable to Brendan O'Brien.

NEW AMSTRAD PRINTERS

Amstrad are to re-enter the printer market in a new collaboration with Swedish firm Jarfalla ICC which is partly owned by IBM.

The first joint development will be a new ink-jet printer which will be available under the Amstrad badge as well as at least one other brand-name.

Jarfalla is still 35% owned by IBM. It was wholly owned until IBM's cut backs over the last year or so. The tie-in with Amstrad is seen as a way for Jarfalla to remove its reliance on IBM without the need to build its own sales and marketing wing.

Printers are also seen as the new growth market in Europe. As computer sales continue to slow the scramble to produce better and better printers, at lower and lower prices, looks set to make or break a few companies over the next two years.

COMMODORE FUTURE LOOKS BLACK

Although Commodore UK is putting on a brave face, the future of the Commodore world still hangs in the balance. Despite many rumours, there is still no sign of a buyer being found for Commodore International. It now looks certain that the company will be broken up into small sections for sale.

There are several interested parties who would be prepared to take over some of Commodore's research and development projects, but the big question is will the Amiga survive beyond the large stocks that already exist.

Credits:- D.R.Howder.

URGENT we need your news. Anything you think other people should know about. Each item printed earns the contributor 3 months extra subscription (*please claim when next renewing*).

The Editor Speaks

Remember that last month I asked for your nominations for the 'Top Ten' people in home computer history. Well, get a move on, closing date for the voting is 30th September 1994 and so far there have only been a handful sent in. Provided we get enough entries to make it worthwhile then all entries will also be put into a prize draw so come on you lot, get voting.

I've had lots of letters asking for more program listings to be printed in FORMAT. Well there are several nice ones lined up for you in the next few issues, but I still need more material to help fill future *FORMAT*s. Several people have written asking about the copyright situation on programs that originally appeared in old magazines like *Sinclair User* or the much lamented *ZX Computing*.

Well, this is a slightly difficult area but as far as I can tell the situation is this. As the mags in question no longer exist then it is possible to reprint programs provided that the author and magazine are fully credited (i.e. Program by X.Y.Zebra, originally published in ABC Issue 24, June 1983). In other words, do not claim the program as your own - give credit where credit is due. If you are translating an old Spectrum program to SAM then mention the original in the same way.

All we need is the program on disc (DISCiPLE/PLUS D or SAM) together with a reasonable write-up on what it does. This text should be saved as an ASCII word processor file (no printer control codes or page breaks). This can come from any word processor and we can even take MS-DOS discs if that is what you do your word processing on. Please enclose a printed copy so we can read it straight away, also note what word processor you used as that helps us in the transfer stage.

Oh yes, don't worry about the spelling, grammar or layout, we will get that into order for you - well Jenny will anyway, as you all know I can't spell either. Just do your best and leave the rest to us.

One thing worth remembering is that the majority of Spectrum/SAM users around today were not readers of the mags in the good old days (the 1980s that is), so they have never seen the wealth of material that was published during the early years of the Spectrum. Anyway, now you have some guide-lines to work to, I want to be flooded with material.

Sorry there is no SHORT SPOT this month, The post office were a bit slow in moving it the few miles from John Wase's location to mine (the old stage coach mail was faster in 1894). Anyway, he will be back next month and the side effect is that I have been able to run a large program called Music 48. I know a lot of you have been after something like this for some time, but it always seems to get squeezed out due to lack of space. Anyway, I hope you like it and consider it worth the effort to type in.

Next month will be another Birthday issue - another year older and still going strong. There will also be news next month of the third Gloucester Show - something I know many of you are really looking forward to.

Until next month.

Bob Brenchley, Editor.

MUSIC 48

In a bored moment recently, I remembered a demo program that had rather impressed me about four years previously and how I had mentioned to someone that I was thinking about writing an improved version that would be more user-friendly and have loads more features.

Well it really was quite a challange (and a senseless waste of a time) but here it is, the definitive music program for the 48k Spectrum. It's gone through about ten rewrites but the sound quality is almost bearable now. It's long (just under 3k of code), and you'll probably end up with sore fingers typing it in, but I hope you find that it's worth it.

The program takes strings of data in a similar format to the 128k Spectrum's PLAY command. However there are actually 4 music channels (rather than 3) with completely independent volume and envelope control. A fifth channel provides a beat with 10 pre-programmed white(ish)-noise effects, 1 special effect and the ability to add extra effects if required.

Listing 1 is the actual program. It's got quite a lot of error checking and should spot any typos in your data and tell you where they are - it's probably a good idea to save the program regularly as you type it in to prevent you losing everything through a crash. Make sure you stick to the same line numbering scheme because this is part of the error checking. If it runs successfully, it will create a file called "music_code" and verify it. It then saves itself (just in case) and then NEWs - don't panic, all is well! Of course, you will have to modify the LOAD/SAVE lines in all the listings if you don't use a disc system.

Listing 1.

```
   5 READ ADDR: CLEAR ADDR-1
  10 RESTORE : READ ADDR
  20 LET A=ADDR: LET L=1010
  30 RESTORE L: LET S=L
  40 PRINT AT 0,0;"Reading line:
     ";L
  50 FOR F=2 TO 24 STEP 2
  60 READ D: LET D1=INT (D/256):
     LET D2=D-D1*256
  70 POKE A,D2: POKE A+1,D1
  80 LET S=S+F*(D2+1)+(F+1)*(D1+
     1)
  90 LET A=A+2: NEXT F: READ C
 100 IF S<>ABS C THEN PRINT "Err
     or in Line ";L: STOP
 110 LET L=L+10
 120 IF C>=0 THEN GOTO 30
 130 PRINT "Data OK"
 140 PRINT '"SAVING ""music_code
     """
 150 SAVE d1"music_code"CODE ADD
     R,2914
 160 PRINT '"VERIFYING ""music_c
     ode"""
 170 VERIFY d1"music_code"CODE A
     DDR,2914
 180 PRINT '"SAVING ""music_poke
     """
 190 SAVE d1"music_poke" LINE 5
 200 PRINT '"Press any key to ne
     w..."
 210 PAUSE 0: NEW
1000 DATA 49151
1010 DATA 49536,65342,29217,1300
     3,52069,24866,10955,23563,8
     669,49307,62413,56771,48927
1020 DATA 52513,52672,50163,8669
     ,49408,62413,56771,12833,52
```

```
     673,50163,8669,49719,51986
1030 DATA 4301,15044,49279,2022,
     11570,62402,29677,52067,289
     ,8704,49727,545,31472
1040 DATA 8706,49725,22447,26463
     ,55663,24407,28519,48958,18
     413,24301,30459,54757,50538
1050 DATA 30241,8896,49476,42189
     ,10945,49729,16162,53698,45
     025,56584,56353,960,44024
1060 DATA 7129,15482,1,15872,819
     2,54056,4350,59134,54023,16
     894,65040,1,35394
1070 DATA 60160,60169,15624,1567
     7,6152,6928,0,0,0,0,0,0,570
     9
1080 DATA 0,11008,15484,1,15872,
     8192,54056,4350,59134,54023
     ,16894,65040,39280
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     ,11024,0,0,0,0,0,4641
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     62,10272,65235,65040,2022,6
     5235,37841
1110 DATA 4161,510,0,2539,2283,1
     5677,2109,4120,27,0,0,0,106
     73
1120 DATA 0,0,0,0,31787,316,0,62
     ,10272,65235,65040,2022,277
     42
1130 DATA 65235,4161,510,0,2304,
     2048,15677,2109,4120,43,0,0
     ,9189
1140 DATA 0,0,0,0,0,2223,30410,1
     5808,1615,56831,459,10334,3
     1397
1150 DATA 60194,60169,52189,2411
     5,7464,777,20441,65286,5218
     9,24220,4904,2539,37090
1160 DATA 56811,52939,10334,2318
     ,30915,192,21443,6337,227,2
     6819,961,30915,40706
1170 DATA 62912,10981,49729,3178
     7,8373,8467,49726,8245,1101
     8,9086,8567,49245,29597
1180 DATA 17442,10945,49727,1667
     4,57794,64497,16073,56191,8
     190,2104,65086,65243,50681
1190 DATA 53791,51138,14077,465,
     65313,8959,49729,8669,49307
     ,52189,32259,17356,46764
1200 DATA 56770,52513,56768,971,
     52350,49731,8669,49408,5218
     9,32259,17356,56770,48533
1210 DATA 12833,56769,971,52350,
     49731,8669,49719,52189,3225
     9,52674,10951,49727,46601
1220 DATA 24285,56578,1150,10389
     ,5641,24320,29661,49668,500
```

```
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1230 DATA 7736,14114,5826,56576,
     606,29661,51716,50050,20290
     ,33485,8643,52023,40027
1240 DATA 24073,22051,16107,5964
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     0,0,21335
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     9,61386,60354,52315
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     ,42758,33482,20419,32477,38
     151,296,56655,1905,36203
1270 DATA 13088,32477,56585,2251
     ,10310,56581,2694,792,38621
     ,56330,49854,30685,41725
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     799,16331,16331,8488,30685,
     12258,10950,30685,42156
1290 DATA 56801,58571,31206,5187
     9,50050,5396,1056,14523,314
     89,9839,8704,49729,31035
1300 DATA 56777,58571,6310,45030
     ,18141,51976,10304,15617,26
     827,7712,18635,4392,31891
1310 DATA 30823,16878,30685,5888
     8,31812,3776,56576,1649,521
     69,10320,56822,2251,43007
1320 DATA 51694,52189,44552,5150
     3,22237,56577,94,4891,4890,
     12423,8486,49910,33071
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     ,28518,36585,38339,39619,42
     691,43715,46787,50905
1340 DATA 51907,53699,58311,5139
     5,60615,20419,6,43297,2505,
     9038,56646,62576,43561
1350 DATA 29149,56819,65406,3068
     5,56797,3198,30685,42758,12
     072,30685,54535,5727,40450
1360 DATA 52480,50050,56785,3454
     ,30685,56584,3710,30685,565
     85,58571,56806,2894,47240
1370 DATA 8205,56581,2507,3238,1
     0558,56721,57969,30685,5680
     1,370,29661,56576,45455
1380 DATA 854,24285,56578,1394,2
     9661,10756,49729,60727,5537
     8,21485,49729,61897,47357
1390 DATA 14045,989,56088,1771,6
     144,60163,9030,60238,28893,
     56579,625,6857,35744
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     ,20450,10558,56721,46185
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     3703,6675,30685,37042
1420 DATA 4876,56602,2679,6675,3
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      6398,6818,28519,40634
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      0714,31181,199,65150,54336
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      5,50905,21758,3530,65223,32
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      2062,9214,3624,65037,10276,
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      7314,56772,350,9086,16854,8
      446,824,57318,41683
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      2016,544,32830,52189,38181
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      50989,30685,6145,34448
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      57,2505,60238,52189,65025,4
      2873,3368,52189,45209
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      5,28365,32455,20222,9152,56
      702,203,51798,50347,49888
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      3855,18304,34564,32777
1700 DATA 34688,32327,22526,3731
      4,9156,453,8,11725,49607,63
      185,51984,10311,41788
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      677,16117,52614,51054,15481
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1730 DATA 50641,34878,52189,2201
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      0703,6155,54792,65072,37132
1750 DATA 12298,9188,49980,50517
      ,34595,1615,60160,19745,250
      7,54763,16077,58311,45111
1760 DATA 9075,57714,3608,35390,
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      1054,2755,8646,39808
1770 DATA 11249,8677,50988,8677,
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      ,12502,2814,9520,5727,8960,
      54910,65072,53258,35643
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      17449,10573,2345,1848,1615,
      2304,12523,52706,30161
1800 DATA 51065,52482,51065,5862
      5,24874,30667,8739,52065,51
      681,32477,50688,12849,41572
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      64790,14283,52654,40567
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      ,455,3,15565,61728,18115,52
      499,51165,31683,45495
1840 DATA 61723,52189,65027,1382
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      651,10072,51673,8701,51818
1850 DATA 23610,16115,60735,6074
      3,64342,9417,14880,18816,30
      318,27745,25705,20000,35452
1860 DATA 29807,8293,24900,57716
      ,24918,30060,8293,30789,259
      68,29795,58469,24918,37446
1870 DATA 30060,8293,30031,8308,
      26223,21024,28257,58727,248
      98,8292,25934,29811,33467
1880 DATA 28265,20199,29541,2699
      6,26478,21536,28527,17440,2
      5957,20208,29807,8293,34447
1890 DATA 30789,25968,29795,5846
      9,28494,25972,20256,29813,2
      8448,8294,24914,26478,32761
1900 DATA 17893,28781,31092,2102
      4,28773,24933,21748,28527,1
      9744,28257,8313,26964,33804
1910 DATA 25701,20000,29807,6230
      9,7686,536,2054,30799,7686,
      3951,31079,65235,31615
1920 DATA 32045,8253,31229,6390,
      65235,1086,26500,8253,4349,
      51690,286,59425,39309
1930 DATA 259,6,3019,50386,9160,
      18123,49354,52168,63207,629
      76,54016,254,50063
1940 DATA 49669,51363,49677,5136
      3,52169,6311,14320,210,5376
      0,0,210,0,31762
1950 DATA 6144,7908,8464,3864,41
      66,61182,54032,9214,4166,61
      182,54032,7678,42796
1960 DATA 60960,7881,3597,16703,
      65040,4334,65235,2507,4161,
      61182,54032,7678,45042
1970 DATA 60704,4553,1058,792,12
      305,28418,14,4161,63230,540
      32,31230,20354,35545
1980 DATA 4167,32254,65235,8221,
      51693,23585,20224,42878,590
      80,45336,65235,6179,44003
1990 DATA 8693,896,16390,32335,6
      374,54193,15870,64800,4141,
      51700,65313,1539,39423
2000 DATA 20416,59006,45336,6523
      5,4141,51703,801,1536,20246
      ,58821,32089,15819,38644
2010 DATA 15819,58927,20227,6,56

      699,53537,4355,1,2525,54477
      ,57603,65297,36692
2020 DATA 60672,49498,56336,201,
      513,1027,2054,3338,4880,667
      8,8990,552,12439
2030 DATA 1027,2054,4108,8216,16
      432,2400,11,1026,1797,2568,
      511,65283,18480
2040 DATA 2054,446,421,397,375,3
      54,334,315,297,281,265,250,
      17256
2050 DATA 236,223,210,199,187,17
      7,167,158,149,140,132,125,2
      6836
2060 DATA 118,111,105,99,94,88,8
      3,79,74,70,66,63,14604
2070 DATA 59,56,53,50,47,44,42,3
      9,37,35,33,31,8500
2080 DATA 30,28,26,25,23,22,21,2
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2090 DATA 15,14,13,12,12,11,10,1
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2110 DATA 5390,5134,4622,4366,41
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      ,3868,3868,7938
2130 DATA 3611,3611,3354,3354,33
      54,3354,3097,3097,3097,2840
      ,2840,2840,8339
2140 DATA 4140,4140,3883,3883,38
      83,3883,3626,3626,2326,2326
      ,3369,3369,10418
2150 DATA 3369,3369,4155,4155,41
      55,4155,4155,3898,3898,3898
      ,2855,2855,12963
2160 DATA 3641,3641,3641,2598,25
      98,2598,3384,3384,4170,4170
      ,4170,3909,14423
2170 DATA 3909,3909,3909,3909,39
      09,3656,3656,3656,3656,2870
      ,2870,4185,15593
2180 DATA 4185,4185,3399,3399,33
      99,3925,3925,3925,3925,3142
      ,3142,3142,16729
2190 DATA 3142,3671,3671,4200,42
      00,2356,2356,2356,2885,2885
      ,3414,3943,16609
2200 DATA 3943,3943,3943,3943,42
      15,4215,4215,4215,4215,5131
      9,51323,51355,37080
2210 DATA 51410,51434,51458,5146
      3,51489,51504,51523,51539,5
      1581,51581,51581,51581,5139
      0
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```
2220 DATA 51581,51581,51581,5158
     1,51581,0,0,0,0,0,0,0,-1332
     9
```

Well, that's the big one out of the way, it is all fairly simple from now on.

Listing 2 is the general form of a music routine. Type RUN 9999 to save it. When you load it back, it will auto run to line 9900 and restore the machine code ("music_code") to memory.

Line 1 is the important one because it defines a music function (FN p) which takes 5 string parameters - the 5 channels. Line 1000 is the one that actually plays the music by calling this function. Any channel not in use should just be replaced by a null string, "". Listing 2 is just a demo to play a chord - type it in and try it with RUN 9900.

When you call the music function, all 5 data strings are scanned before the music starts, to see if they contain valid data. If not then an error message will be printed of the form: $2: Illegal note data (This means that an error was found in the 2nd string). The note data should be of the form:-

c,d,e,f,g,a or b - notes in lower octave

C,D,E,F,G,A or B - notes in upper octave

a # in front of a note makes it a sharp

a $ in front of a note makes it flat
    (so #a = $b.)

& = a rest.

The length of notes and rests is controlled by placing a number between 1 and 12 in front of the notes. Figure 1 shows what the numbers mean, eg. "5abc" will play 3 quavers. Tied notes can be played by placing a "-" between numbers, eg. "5-9-3#F.

Figure 1: Note Lengths
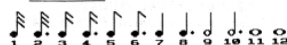
The rest of the data in each string affects how the notes sound. The following letters MUST be in capitals. Each string has its own set of settings which remain valid for all following notes until the next control data is found.

H - when reached, an 'H' immediately halts the music, otherwise, the program continues until the end of all 5 data strings has been reached.

O<octave> - alters the current octave. The number should be in the range 1-7. (1 is low, 7 is high).

V<volume> - alters the current volume. The number should be in the range 0-15. (15 is loud, 0 is off altogether).

UX<speed>[V<initial-volume>]W<envelope> - allows envelope control of volume. The speed is in the range 0-240. (1 is a fast envelope, 240 is slower, 0 is constant volume). The possible envelopes are shown in Figure 2. The 'V' and initial volume are optional and can be left out.

Figure 2: Volume Fade Envelopes
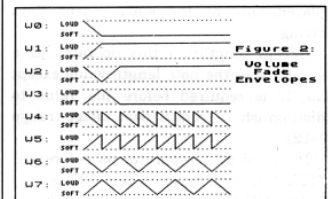
!comments! - exactly like that.

(<data>) - plays the note data in brackets twice, (<data>)*<number> :- plays the note data 1-100 times, (<data>)+ :- repeats the note data forever (or until an 'H' is reached in one of the other data strings).

N - Used to separate the number in one of the above commands from a note length value, eg. "O4UX50W1N3a".

The fifth data string, used to control

the beat, is treated slightly differently. The 'O','V' and 'UX' commands are not allowed and obviously you can't place notes in this string. The ten beat effects are represented instead by the numbers 0 to 9.'&','H', brackets and comments are the same as before.

0-9 - plays one of the 10 predefined beat effects. S<0-9> :- plays one of the 10 special effects. Only S0 is predefined.

S<0-9>=<address> - allows you to add your own effects. <address> should point to a routine which plays your sound effect. On entry to your routine, the A register will hold the border colour. The routine should end with a 'RET' instruction. It is best to place these routines BELOW 'music_code' because memory higher up may be used by it as a workspace.

T<tempo> - this is the master speed control for the music function and applies to all 5 channels. Only values 1-10 are allowed. Usually this would be placed only at the start of the data string.

L<beat length> :- this operates in a similar way the note length value except an 'L' is required before the value to distinguish it from a beat effect (range 1-12).

N - used as a separator as before. eg. "T2L3N12" will play two beat effects.

WARNING: High notes are more likely to be distorted and may actually drop slightly in pitch if played simultaneously with 3 other high notes (although the program should compensate for this). If all four notes are in octave 7, the program may actually find that it is unable to run fast enough and will crash. At all other times, the break key is scanned at the end of each note.

With a little editing (removal of any 'M' commands and altering of fade

times), 128k PLAY strings can be used with 'music_code'.

Listing 2.

```
   1 DEF FN P(V$,W$,X$,Y$,Z$)=US
     R 49153
   5 REM ********************
   6 REM * Play C major,      *
   7 REM * with a beat demo!  *
   8 REM ********************
  10 LET A$="O4UX50W0N8cegCcccccH
     "
  20 LET B$="O4UX50W0N8&&&&&eee"
  30 LET C$="O4UX50W0N8&&&&&&gg"
  40 LET D$="O4UX50W0N8&&&&&&&C"
  50 LET E$="T3L2((097)*2N97)+"
1000 LET P=FN P(A$,B$,C$,D$,E$)
1010 STOP
9900 CLEAR 49150
9910 LOAD d1"music_code"CODE 491
     51
9920 RUN
9999 SAVE d1"Demo1" LINE 9900
```

Listing 3 is a simple example to try, pinched I'm afraid from the pages of CRASH magazine. RUN 9900 the first time, after that you need only use RUN by itself to repeat the tune. I'd love to hear anything written by you.

Listing 3.

```
   1 DEF FN P(V$,W$,X$,Y$,Z$)=US
     R 49153
  10 REM *******************
  11 REM * This is a piece of *
  12 REM * music written by   *
  13 REM * Simon Bates and    *
  14 REM * first printed in    *
  15 REM * CRASH magazine.    *
  16 REM *******************
 100 LET D$="UX2W0O4(3Eabe)*12"
 110 LET E$="O5(eeeeeeee)*4"
 120 LET F$="V11O4(6D#C5b6ag5#f6
     e#f5g9a6D#C5b6ag5#f6e#f5e9d
     )"
 130 LET G$="V13O4(5eg3#fed5e3g#
     fe5d)"
 140 LET H$="V11(5$eg3f$ed5$e3gf
     $e5d)"
 150 LET I$="UX2W6(3$ED$Eg)*8"
 160 LET J$="UX2W0O4N9&&(3b#CD#F
     b#CD#Fb#CD#F)"
 170 LET K$="(#C#C#CDDDbb)*4"
```

14

By:- Carol Brooksbank.

Recently I decided that I need a second printer, because I often have long runs of printing going on, and hate waiting for a couple of hundred copies of something to be printed until I can even write a letter. As I already have a 9-pin Citizen Swift 9 colour printer, I decided to stay with the same stable and my new one is a 24-pin Citizen Swift 200C (also colour).

The first thing I noticed about it is that it is very quiet compared with the Swift 9, and the print quality is far better of course. 24-pin can produce letter quality, (LQ) whereas 9-pin can only manage near letter quality (NLQ). Fig.1 shows you the difference. Only part of the printouts are shown, enlarged somewhat so that you can see more detail. In the original, the 9-pin printing looks quite grey, compared with the 24-pin, as though the ribbon was worn out, though both machines had new ribbons. The 200C is also much faster, especially in LQ mode, because it only makes one pass

```
This is a sample
quality.  Both s
pitch, with a 1/6
9-pin Swift 9.
```

```
This is a sample t
quality.  Both sa
pitch, with a 1/6
24-pin Swift 200C.
```
Fig.1.

per line, whereas the NLQ 9-pin mode makes two passes per line. In LQ mode, the 200C prints 60 characters per second, against the 9's 40 cps.

When I looked at the handbook, I was soon on the phone to Citizen. The handbook which comes with the printer assumes that you want to attach the machine to a IBM PC, follow some simple instructions about feeding the paper in, changing the ribbon and so on, and not much more. The printer codes are simply listed at the end, with no detailed information about them. You get things like:-

Set single density graphics.
ESC K n1 n2 v1 v2...vn

with no explanation at all to tell you what n1 n2 etc. are supposed to represent. Had I not had a Swift 9 with its full handbook, I should have been completely stuck, and as it was, some of the codes not available on the Swift 9 were a mystery to me. But a call to Citizen asking whether a proper handbook is available brought me the full version in the next day's post at no charge at all. Apparently most IBM type users are intimidated by all that information, so Citizen include only the simple manual with the machine, but supply the proper one free of charge to anyone who asks for it. (Makes you wonder about PC users, doesn't it?).

In order to make the machine even more idiot-proof, they have also done

15

away with dipswitches. The various modes are selected by an electronic menu, which prints out each set of choices with the current state underlined, and gives you the option of selecting a different condition or going on to the next. Personally I would rather poke a dipswitch with a biro than have to go through this menu to get to the thing I want to change, but apparently IBM PC users don't much like dipswitches either. The electronic menu is intelligent, though. Once you have selected a set of conditions those are in place whenever you switch the machine on. You can select your favourite font from the 6 LQ and 2 draft, and that will always be selected on power-up, unlike the 9-pin which always powers up in draft mode. Your desired top-of-form position is also stored, so you don't have to adjust the paper every time you switch on, and you can store different positions for tractor feed and single sheet paper. Like the Swift 9, the 200C has paper parking to make switching from continuous to single sheet easy. If you want to make a temporary change to the top-of-form, the machine will work on that till you switch off, when it will revert to your chosen default setting. If you want to change to the new one permanently, a single button-press will store it as the new default.

Slider selection panels on the machine let you make temporary changes to font, pitch, colour, condensed, proportional and so on, or lock the font so that software instructions cannot change it.

There are useful printing modes: copy (makes the print head strike harder if using muti-part forms); envelope (doesn't go off line when the bottom of the envelope passes over the paper-out detector, so you can print the whole address); quarter (prints four pages of text in quarter size on one sheet of A4. Fig.2 shows one of four pages I printed from *DTP Pack* in this way, it is extraordinary that the detail remains so clear in these quarter size printouts. They are useful for an economical preview of your work, and if you use double height and width printing, so that a decent size type is produced, can be used to produce small leaflets, programmes, menus etc.

The printer has Epson, IBM and NEC emulation, plus some extra commands which are unique to Citizen. It comes with tractor or single sheet feeding, and

Fig.2.

Centronics interface. Serial interface and an automatic sheet feeder are available as optional extras. Also provided was a disc for setting up Windows on a PC to drive it. Colour or ordinary black ribbons may be used, or a film ribbon is available if you want super high quality for preparing printing masters, for instance. It can also print in black or colour on film for overhead projectors.

The SAM and Spectrum user cannot simply plug in a 24-pin printer and sail away, knowing that most of your software will work normally with it, as you can with a 9-pin. Although the codes for 1/8 and 1/6 line spacing are the same, and so any program which uses those will work normally, the smaller linefeeds are different. 24-pin uses n/60 and n/180, against the 9-pin's n/72 and n/216. Any existing software which uses those codes, (ESC A and ESC 3) is going to give trouble. The printouts will be deeper, the proportions different, and anything which fitted neatly on an A4 page will now be going onto a second page.

Some programs are easily put right. *The Secretary*, for instance, uses 12/72 to get its 1/6 spacing. So all you need to do is alter the 12 to 10 in every appearance of ESC A (27,65,12 becomes 27,65,10, and the linespace of 12 on the print menu changes to 10), because 10/60 is also 1/6. I use a 9 linespace with Elite printing on the Swift 9, to give a 1/8 linefeed. You cannot get an exact 1/8 with *The Secretary* in 24-pin, but a linespace of 7 is near enough. *Outwrite* tells you how to produce your own printer driver in the manual - simply follow the instructions and substitute the 24-pin codes.

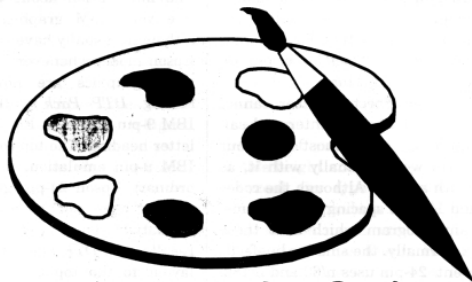You have more trouble with programs like *DTP Pack*, because the printouts are distorted vertically, and no longer fit the page. The Swift 200, however, has 9-pin graphics emulation available in IBM mode. It is called Alternate Graphics Mode, and confusingly it has to be set to OFF to select it on the electronic menu. The information about which way you like your IBM graphics is stored, so although I usually have the printer set to Epson mode, whenever I switch to IBM, 9-pin graphics are now the default setting. *DTP Pack* works perfectly in IBM 9-pin graphics. Fig. 3 shows a DTP letter heading. The top copy is printed in IBM 9-pin emulation, the lower one in ordinary Epson 24-pin graphics. If your printer does not have 9-pin graphics emulation, you can get quite satisfactory results with *DTP Pack* by confining your layout to the top threequarters of the page. (Don't put anything in the bottom two rows of rectangles on the grid which is overlaid by key X in *Typeliner*!). Some illustrations may have to be stretched horizontally to compensate for the vertical distortion in the printing - you need to draw an ellipse in your original to print a circle - but the results are still pretty good.

Style Writer is not so good. It too produces a taller printout in Epson mode, but it does not respond well to the IBM emulation. It prints illustrations in perfect proportions, but it prints them all on top of one another at the start of the line, instead of side-by-side across the page. I suspect that it may use some sort of horizontal tab settings to move across the page between items, and the tab commands are different in Epson and IBM emulation. One of these days I must disassemble the *Style Writer* print routine, and see what can be done, but in the meantime, I either use the 'fatten the illustrations and keep to the top threequarters of the page' method, or

COVENTRY DIOCESAN READERS' LIBRARY
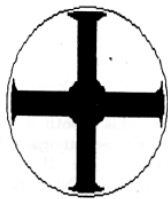
COVENTRY DIOCESAN READERS' LIBRARY

Fig.3.

more likely, use the Swift 9 with *Style Writer*.

SC_DTP has 9-pin and 24-pin modes built in, so there is no trouble with that one, and *SC_Word Pro* works only with 24-pin anyway. *SAMpaint* printout proportions can be restored by changing the graphics mode and, in colour printing, by changing mode and print width. A few experiments will soon show you the settings to use.

So, is 24-pin worth it? Certainly it is. The LQ printing is far superior to anything a 9-pin can produce. But you must be prepared to play about a bit with some of your existing software to get things working, because most of our Spectrum/SAM software has 9-pin drivers. Our software writers really need now, with 24-pin and bubble jet printers becoming much more common, to think in terms of supplying alternative printer drivers to be installed when making your working copy.

I bought the Swift 200C from Kays mail order catalogue (buy now, pay in December, 38 weeks interest-free credit and 10% of the puchase price back as commission because I am the agent) at £329.99. Anyone with the readies should be able to get it for quite a bit less from one of the mail-order box shifters. A SAM or Spectrum user will, I think, need the full handbook. Citizen are fairly unusual in supplying the full handbook free on request. Some manufacturers put a very high price on what they call the 'technical' handbook, so if you are in the market for a 24-pin, that is one of the things worth checking - will the manual tell you all you need to know to adapt your software, and if not, is getting a fuller one going to bump up the cost of your machine?

If you want good quality, a bubble jet will give you that, but although there are colour bubble-jets around, if your bank balance is anything like mine, affordable good quality plus colour means 24-pin. I can recommend the Citizen Swift 200C.

19

The HELP PAGE

Another month has gone by and as I sit down to compile the Help Page I am still deafened by the hammering and drilling going on around me. I just wonder how much more brick dust the trusty printer can stand before it seizes up as it seems to get into everywhere, no matter how well things are covered up.

First this month a letter from Mick Hopper of Scunthorpe referring to July's edition of the Help Page and the program 'M3 UNLOCK'. You may recall that we said we had not been able to contact the person who used to market this program. Mick knows this person and has offered to contact him to see whether the program is still available. As Mick is a SAM user it is good to know that there are some readers who take an interest in all of the systems covered by **FORMAT**. Thanks for your offer Mick.

Still dealing with the +3, we have a query from Bert Seymour of Scarborough who wishes to know how to transfer *Tasword +3* files to SAM. Mike says that TW+3 files can be converted to *Tasword 2* files and also to *Wordmaster* files. and also knows that TW2 files can be transferred to SAM but is not sure whether WM files (+3 format) can be, although they are virtually the same as TW2 files. There is a utility 'T3TO2' which will change TW+3 files to TW2 files. It is available from:-

Chezron Software,
34 Saltersgate Drive,
Birstall,
LEICESTER,
LE4 3FF.

Mike states that he has no experience in using this program but understands that it is quite successful although a bit slow. The conversion to *Wordmaster* files can be carried out using the program 'TCON' which is on the *Wordmaster* disc (now available only from **FORMAT**). He has transferred +3 files using this utility and it is fairly easy to use and very quick. On the SAM side of things, I have used the IMPORT facility on *The Secretary* to transfer Tasword2 files from PLUS D discs and have also used it to read *Tasword +3* files I have transferred from tape.

Our next question concerns the use of the box drawing facility of *The Secretary*. Paul East of Farnborough, Hants, is having a problem in getting his Cannon BJ10 printer to print boxes with continuous vertical lines, they appear as broken lines. You don't say which mode you are using on the printer Paul, but I assume it is the Epson emulation (LQ) mode. The trouble here lies in the different standards used for line spacing. Although the basic printer control codes for line spacing used by the BJ10 and *The Secretary* are the same, *The Secretary* assumes that the spacing is defined in n/72 of an inch whereas the BJ10 uses n/60 of an inch. However, the answer is quite simple. All you need to do is to reset the line spacing from 12 to 10 when you set up the parameters for printing the document using EDIT/PRINT.

The subject of monitors has arisen quite a lot recently and is threatening to replace printers as a main source of concern. Aubry Greenslade of Little Baddow Chelmsford wishes to replace his faulty monitor and finds that the popular Philips CM8833 is no longer available. All the other monitors he has been offered all require separate horizontal and vertical sync inputs whereas the SAM has only a composite sync output. I don't know of any monitor in current production which will work with SAM but I would like to hear from anyone who does.

Most readers who have written to me on the subject of monitors have been using the Amstrad CTM640 or CTM664 colour monitors which they have obtained at sales or through the small ads. I understand that Bull Electronics of Hove had a supply of these last year so it might be worth trying them. Apart from this I can only suggest that you purchase a SCART equipped TV which will give as good a performance as a monitor, but check that the SCART pin layout is the same as listed in the SAM handbook otherwise a lead will have to be specially made, also there might be other compatibility problems. I have been using a 14" Sony KV-M141OU TV for the past two years with excellent results. This is not only compatible with the SAM SCART lead and is in a monitor style case, but it also allows me to watch the sports programs whenever I want to, which is something you can't do with a monitor!

This leads nicely into the next problem, which concerns the compatibility of the Mitsubishi TV with the SAM. J.Stewart of West Plean Stirlingshire has a new Mitsubishi TV with a SCART socket which, when connected to SAM via the standard lead, only produces a dark unusable picture unless the brightness is set to maximum, and even then there are a lot of light and dark areas on the screen. He has tried disconnecting the link between pins 16 and 20 but although this produces a picture of normal brightness, it then rolls both horizontally and vertically. The pin layout on the TV is as follows:-

1. Audio out	11. Green out
2. Audio in	12. Not connected
3. Audio out	13. Red earth
4. Audio earth	14. Blanking earth
5. Blue earth	15. Red in
6. Audio in	16. RGB blanking
7. Blue in	17. Video out earth
8. Function switch	18. Video in earth
9. Green earth	19. Video out
10. Not connected	20. Video in
	21. Socket earth

Looking at the pin connections which are used, they are essentially the same as for a standard SAM lead so I am at a loss to suggest what else to try. One thing that I do note is that there is a separate video-in earth pin which does not appear on the SAM diagram of the TV SCART socket. The video-in pin is normally cross-connected to the CSYNC signal and in the absence of a video-in earth pin, I assume the video-in circuit draws it's earth from CSYNC earth. It seems possible that in your TV the video-in circuitry might require it's own earth to function correctly, and you need to connect pin 17 of SAM (Comp. Video Earth) to pin 18 of your TV.

Bob Bates had a similar problem with a Samsung TV, which also has a non-standard SCART pin layout, and he resolved it by buying a SCART lead from the shop which supplied the TV. I have been in contact with Bob and he has promised try and let me know what connections are made on the lead he is using. That is all for this month, a very

short offering, so please keep sending in your problems/answers to the following addresses:-

<u>Anything SAM or General Purpose:-</u>
  Ray Bray (Format Help Page),
  Spring Cottage,
  Bourne Close,
  Porton,
  Salisbury,
  Wilts, SP4 0LL.

<u>Anything +3, CP/M:-</u>
  Mike Atkins (Format Help Page),
  70, Rudgwick Drive,
  Bury,
  Lancashire. BL8 1YE.

Please remember that if you want any discs/printouts returned then you must include a stamped addressed envelope.

By the way, we are still looking for more people to join the Help Page team. Drop me a line if you have any specialist knowledge you feel may of help to others.

```
 180 LET L$="V9(O4D#fa#CgabgO3AD
     #FGbD#FaEgb#FaDgbA#CEA#CEA#
     CO4D#fa#CgabgO3AD#FGbD#FaEg
     b#FaDEg#faDgaDeD)"
 190 LET M$="V1303(5CE3DCb5C3EDC
     5b)"
 200 LET N$="V11(5C$E3DC$b5C3$ED
     C5$b)O2(3C&8&3&5$a7$b3&)"
 210 LET O$="UX2W0O4N9&&&3gabDg
     abDgabDgabD(aAaAaAaA)*4"
 220 LET P$="UX2W0O2(dDDd1DDDD3d
     D)*16"
 230 LET Q$="UX4W0(7ab6C5D3E)V13
     N7ccccccccO2(3C&8&3&5$a7$b3&
     )"
 500 LET A$=D$+E$+F$+G$+H$+I$+D$
     +E$+F$+"O3N9D"
 510 LET B$=J$+K$+L$+M$+N$+J$+K$
     +L$+"O2N9D"
 520 LET C$=O$+P$+Q$+O$+P$+"V13O
     2N9d"
1000 LET P=FN P(A$,B$,C$,"","T3"
     )
1010 STOP
9900 CLEAR 49150
9910 LOAD d1"music_code"CODE 491
     51
9920 RUN
9999 SAVE d1"Demo2" LINE 9900
```

BASICally Speaking...

Part 9.   **By:- David Finch.**

Right, last month we covered UDGs, so to continue a graphics theme, this month we are going to look at colour. You may remember in part 5 I explained INK, PAPER, BORDER and CLS, so for a quick recap:

You have a palette of eight colours, as listed below:-

                0 Black
                1 Blue
                2 Red
                3 Magenta
                4 Green
                5 Cyan
                6 Yellow
                7 White

(Remember that when I refer to the INK command, I mean PEN on the SAM) You set the colour of the letters that you print using the INK command, followed by the colour of your choice. Similarly, the colour of the background is set with PAPER, and the border around the edge of the screen is set using the BORDER command. The settings for PAPER and INK are only for letters which are printed after the commands. To set the whole screen to a particular paper you must set the PAPER number before you CLS. Try this as a demonstration.

```
10 PAPER 2
20 BORDER 2
30 CLS
40 PAPER 6
50 INK 1
60 PRINT AT 10,5;"Only this bi
   t is yellow"
```

You actually have fifteen colours if you count the BRIGHT versions (BRIGHT black is still black so there are not sixteen colours as some would think). For the SAM the bright colours are obtained by using colours numbered 8 to 15 (8 plus the corresponding number). For example bright red is colour 10. Spectrum users try this-

```
10 BRIGHT 0
20 PAPER 0
30 BORDER 0
40 CLS
50 FOR i=0 TO 7
60 PAPER i
70 INK (0 AND i>3)+(7 AND i<4)
80 PRINT 'i;" normal. "; BRIGH
   T 1;i;" bright. "
90 NEXT i
```

Although the program works for SAM (SAM can also use the BRIGHT command), you can make direct use of the colours 8 to 15 instead. SAM users could change line 80 to:-

```
80 PRINT 'i;" normal; PAPER i
   +8 ;i+8;" bright. "
```

Hopefully you should understand how line 70 works.

SAM users have more colours than a Dulux sample card, 128 in fact. You could imagine a painting palette with 16 blotches of paint on it (numbered 0 to 15). When you ran the program above you saw all sixteen default colours. However, if you fancy doing a Neptune Blue program, you can replace any of the blotches of paint with another colour. If you look at page 66 of your SAM User Guide you will find that Neptune Blue is

colour 93. The obvious thing to do would be to use PAPER 93, but we can only have access to 16 at a time. Instead we must use the PALETTE command. Suppose we want our Neptune Blue paint to be in the palette space numbered 2. This is Brick Red when you switch on, so the Brick Red is washed away and a fresh tube of Neptune Blue is squeezed into the space. Now when we use PEN, PAPER or BORDER with colour 2, we will get Neptune Blue instead of dark red. Try adding the following line to the previous program:-

```
5 PALETTE 2,93
```

The first number is the PALETTE space that you want to squeeze your tube into, and the second number is the number for the colour. If you change it to the following:-

```
5 PALETTE 2,93,70
```

The colour will alternate (or "flash") between Neptune Blue and Apple Green. You can determine the rate at which the colours will alternate by using POKE SVAR 8,n where n is a number from 1 to 255. 1 is so fast that it is more of a flicker, and 255 changes about once every five seconds.

If Spectrum users have the urge to flash they should use the FLASH command. FLASH 1 switches it on, and FLASH 0 switches it off, just like BRIGHT. Unlike the SAM, this FLASH can only alternate between the INK and PAPER colours for that particular character cell. SAM users can use FLASH only in modes 1 and 2. We will come to modes later.

Going back to SAM's palette: If you have written or drawn something on the screen using a certain palette, if you change the paint in the same palette the paint already on the screen will change colour also. This can be useful. Try this:-

```
10 PAPER 0
20 BORDER 0
30 CLS
40 PAPER 4
50 PRINT AT 9,10;"        " (8
   spaces)
60 PRINT AT 10,10;" On/Off "
70 PRINT AT 11,10;"        " (
   8 spaces)
80 DO
90 PALETTE 4,4
100 GET A$
110 PALETTE 4,2
120 GET A$
130 LOOP
```

You will need to press ESC to exit this program. As you see, the colour of the background changes whenever you press a key, yet the information wasn't reprinted (lines 80 to 130 simply change the palette whenever a key is pressed). This means that if you wanted more than 16 colours on the screen at once you cannot draw some, then change the palette and draw more. However, you can change the palette so that above a horizontal level it has a certain value, and a different value below it. PALETTE n,c LINE z changes palette n to colour c blow line z only (where z is a y coordinate). Try this:-

```
10 CLS #
20 LET a=90,s=90
30 DO
40 palline a
50 change
60 LOOP
70 DEF PROC palline p
80 PALETTE 0 LINE s
90 PALETTE 0,62 LINE p
100 LET s=p
110 END PROC
120 DEF PROC change
130 GET a$
140 IF a$="q" THEN LET a=a+5*(a
    <190)
150 IF a$="a" THEN LET a=a-5*(a
    >0)
160 END PROC
```

As you see, the black palette of the paper and border becomes "Tuna" part way down the screen (This level is controlled by keys Q and A). If you press escape and bring up the list again, you will see the program text over the black and pink. As far as SAM is concerned the screen is PAPER 0 all the way down. The palette for colour 0 changes part way down. Line 80 cancels the previous setting (variable s holds the level which it was at. If line 80 didn't exist, line 90 would set many palette changes, yet only the highest would be observed since any below would be changing a Tuna palette to Tuna (ie no change).

I think that is a good place to stop for this month. May I appologise to Spectrum owners for the amount of SAM only bits I've just covered.

See you next month.

26

ANALOGUE and DIGITAL STATES

By:- David Spark.

Each month **FORMAT** publishes articles for serious Spectrum & SAM users, but it seems rare that articles are published on general computing principles. Instead of commanding the editor to produce such an article out of thin air I decided it would be more fun to send an article in. This has been written to inform the readers on the basics of Analogue and Digital states and how they are used in computing. I also hope this will save a few A-level and BTEC students from being fined at the local library for handing in overdue I.T. books.

Analogue and Digital States

Two states that can be found on a computer system can be classed as either Analogue or Digital, depending on their characteristics.

Most measurments appear in a analogy form. Analogy system means that all values are possible and they increase smoothly. This also includes the infinite values between the two states.

A common example of this is in a analogue clock. The hands move around the face and as they move from one minute to the next, the hands cover all the distance between the two.

Other examples of an analogue state system includes: temperature, pressure, time and distance.

Digital has only a certain number of values that are possible and the numbers 'jump' from one to another. e.g. 1, 2, 3, 4, 5, etc...

Digital clocks have figures that suddenly move from one number to another, the numbers in between aren't covered. The counting system used in a digital clock works using a A.C. voltage with a velocity of 60Hz, this is converted into a 60Hz pulse and finally scaled down to a 1Hz pulse. The pulses are counted from 0-59 before going back to zero. However these pulses don't include any of the values between the two figures, this is the same for all quantities being used on a digital system regardless of whether they're minutes, seconds or milliseconds.

Other digital states can be found on: on/off switches, traffic lights and other devices that only use selected numbers.

Transmitting Data

An analogue system uses the value of the voltage as a way of transmitting messages. Different levels of voltage will give a different message to the decoder. The reason that computers don't use analogue states is due to the internal voltages found inside the computer, these will distort the correct voltage, giving it a different value and so a different meaning.

Digital signals are sent in pulses of 0V or 5V. As with the analogue system time messages are sent using a voltage, but as there are only two possible voltages it isn't the level of voltage sent but what sequence the voltages are sent in. Fig.1 shows an example of a 8 bit sequence.

27

VOLTAGE	SWITCH	BINARY
5V	ON	1
5V	ON	1
0V	OFF	0
5V	ON	1
0V	OFF	0
5V	ON	1
5V	ON	1
0V	OFF	1

Fig1.

In the first column is the value of the voltage being sent, the second column shows which of the two states they represent and the final column gives the binary command that the computer will understand. The binary being sent will be an instruction for the computer to carry out and the last byte of binary may be a check digit to ensure that the decoded command is correct.

Internal voltage cannot effect a digital signal in the same way as the analogue is affected, this is because the voltages are sorted into the values closets to either 0V or 5V, 0.6V would become 0V, 5.35V would become 5V. This offers a reliable way of ensuring correct values.

Analogue and Digital in computer systems

Often sensors are used in computers to input values of heat, light, pressure, sound, etc. The problem here is that the signals will be in analogue form and so the computer can't read them. The solution is to use an 'Analogue to Digital Converter' (ADC), the characteristics of which are seen in fig.2.

The sensors analogue signals would be inputted and converted into digital output usually in the form of binary code.
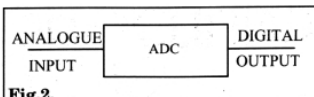
Fig.2.

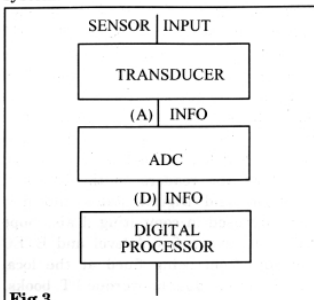See fig.3 below for a more detailed diagram showing the input side of the system.

Fig.3.

The analogue sensor signals are sent to the transducer, where they are converted into electrical signals, these signals are still in their analogue form (A) are passed to the ADC. The ADC uses a technique called 'PULSE CODE MODULATION' (PCM) to convert the signals into a digital form (D). The digital information is then passed to the processor where a pre-written list of instructions will tell the computer how to deal with the data.

The PCM system mentioned above samples the analogue information at regular intervals of time and converts what it sees into binary code. This gives a more accurate representation of the original signal.

However, the accuracy of the digital version depends on the sample rate. The faster the sample rate the higher the accuracy achieved by the digital signal.

This can be clearly seen if you look at the example given below in fig.4.
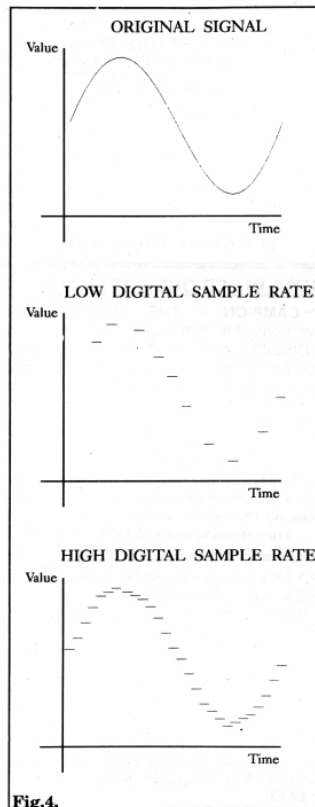
Fig.4.

The aim when producing a digital signal is to make it look as much like the original analogue signal as possible.

MEMO for DRiVER

By:- Robin Biesbroek.

This is 'MEMO': a data base in which you can store people's addresses, telephone numbers and zip-codes. It runs under DRiVER. In fact, you must load it into DRiVER, so it uses DRIVER's windows. To run this program, you need a blank disc. This disc doesn't have to be formatted. Now, type in program 1 and RUN it. It will format the disc, save this program plus a code-file and will make lots of sub-directories (this will take a while). We will call this disc the 'memo' disc.

So, how do we run this program ? It's very simple: load DRiVER. If DRiVER automatically makes a directory of the DRiVER-disc, close the 'DRiVER' window (to eject it) and eject the disc. Now, put the 'memo' disc into drive one and click to the disc-icon to make a directory of the 'memo' disc. If you don't see an icon titled 'Memo.bas' you must go to the 'preferences' menu (on top of the screen) and click to the Basic line so that the program will show Basic programs. Now, click to the 'Memo.bas' icon. This will load the Basic program and will return to DRIVER. You will see that we now have small icons and different colours. If you want to take a look at the entries, click to the 'Entries'- icon. A window appears, containing 19 entries, called zz1 to zz19. To enter a name, click the zz1 (or zz13, whatever) icon and click on the highlighted name (yes, we are actually renaming files). Now you can change 'zz1' into a name of your friend.

Remember that the length of this name can only be 10 characters long. To enter his address, double-click the icon and you will see that a new window appears, with three entries: Add, Zip and Tel. You can enter your friend's address, zip-code and telephone-number the same way you changed the name: by clicking the icon and then clicking on the name.

You can enter up to 19 different names with each name holding its address, zip-code and tel. number. Why only 19 ? Well, I started with a disc, formatted with **FORMAT "d1",39** so it could contain 778 files. With one Basic program, one code-file and the 'Entries'- subdirectory, there were 778-3=775 files left for the entries. Each entry has a name, an add, a zip and a tel, so each entry takes four files. So the disc could contain 775 div 4= 193 entries. However, DRIVER can only cope with 80 files on a disc! This means we can only have (80-3) div 4 = 19 entries. Why?! I don't know! Does anybody have a solution for this?

For all you programmers who want to know how it all works: here's a closer look. In lines 100-120 the disc will be formatted. You can enter your own disc-name. After that, the Basic is saved, as well as a code-file, holding the preferences DATA (130+140). Then, the 'Entries' subdirectory is made and also made the current subdirectory (150). Now, 19 subdirectories are made, called zz1 to zz19 and each subdirectory will

hold three files: Add, Zip and Tel, all one byte long (160-220). Lines 230-270: this is the tricky part. Each subdirectory has its own window with DRIVER. The position and size of that window are stored at bytes 232-235 in the directory entry. The subdirectory 'Entries' is stored at track 0, sector 2 (first half) of the disc. The position of the 'Entries' window is at (95,18) and the size is 64*173 (w*h). Beware that position (0,0) is at the top left of the screen. Line 230 changes the subdirectory 'Entries'. The subdirectories zz1 to zz19 are stored at track 0, sector 2,4,6,etc. (second half).

Lines 240-270 change these subdirectories. The position of the windows for these directories is at (148,30) and the size is 64*48. Lines 1000-1070 contain data for the preferences and in lines 1080-1190 there is a procedure to put these bytes into memory. When the program is loaded from DRiVER, the start-address of DRiVER is calculated (line 10) as well as the start-address of the preferences-data. These data are also loaded. In line 20 the program returns to DRiVER. If you return to Basic again from DRiVER, the memory will be cleared.

OK, here is the listing:-

```
   1 RUN 100
   9
  10 LET base=16384+16384*PEEK
     23703,a=base+DPEEK (base+2
     6): LOAD "Memo.set"CODE a
  20 CALL base: NEW
  99
 100 INPUT "Name of MEMO-file ?
     ";a$
 110 PRINT "Insert blanc disc a
     nd press a   key.": PAUSE
 120 FORMAT "d1:"+a$
 130 SAVE "Memo.bas" LINE 10: V
     ERIFY "Memo.bas"
 140 store 81920,64,1000: SAVE
     "Memo.set"CODE 81920,64
 150 OPEN CAT "Entries": CAT ="
     Entries"
```

```
 160 CLS : FOR f=1 TO 19: PRINT
      AT 0,0;19-f;"   "
 170 LET a$="zz"+STR$ f
 180 OPEN CAT a$: CAT =a$
 190 SAVE "Add"CODE 0,1
 200 SAVE "Zip"CODE 0,1
 210 SAVE "Tel"CODE 0,1
 220 CAT ="^": NEXT f: CAT =/
 230 READ AT 1,0,2,81920: POKE
     82152,95,18,64,173: WRITE
     AT 1,0,2,81920
 240 FOR f=0 TO 18: LET a=(f*2+
     2) DIV 11,b= (f*2) MOD 10+
     2
 250 READ AT 1,a,b,81920
 260 POKE 82408,148,30,64,48: R
     EM 81920+256+232
 270 WRITE AT 1,a,b,81920: NEXT
      f
 999
1000 DATA 15,0,90,127,12,15,25,
     0,284
1010 DATA 2,0,1,3,2,1,2,1,12
1020 DATA 0,0,1,1,0,0,0,0,2
1030 DATA 0,0,1,0,1,1,1,0,4
1040 DATA 0,0,255,0,4,59,245,84
     ,647
1050 DATA 16,56,232,96,24,77,22
     5,88,814
1060 DATA 32,72,216,96,40,80,20
     8,96,840
1070 DATA 48,88,200,96,56,96,19
     2,96,872
1080 DEF PROC store first,numbe
     r,q
1090 RESTORE q: FOR n=first TO
     first+number-1 STEP 8
1100 LET check=0
1110 FOR b=0 TO 7
1120 READ a
1130 POKE n+b,a
1140 LET check=check+a
1150 NEXT b
1160 READ a
1170 IF check<>a THEN PRINT "ER
     ROR IN LINE ";q: STOP
1180 LET q=q+10
1190 NEXT n: END PROC
```

That's it for now. If you've found a way of using more than 19 files, please send it to *FORMAT*. See you !

[*Editor's Note*: This may not be the most efficient way of making a database, but it does explore some new ideas that I thought readers would be interested in. Let's see what improvements you can make.]

YOUR LETTERS

Dear Editor,

I have just read Wilf Stone's letter in last months *FORMAT*, and I think I can explain the strange behaviour of his program, Power Graphics.

In the good old days, in version 1 of Speccy, the keyboard worked in a slightly different way. The keyboard is connected to several Z80 ports (see the manual), but only uses bits 0-4 of each port. In issue 1 Speccies, bits 5-7 were always set to zero, so machine code programmers could ignore them. Issue 2 and later Spectrums had bits 5-7 as random values, so many older programs did not work correctly.

If, when Wilf's Speccy was repaired, the ULA was replaced with a later version, this problem may occur.

I would suggest trying the program on the Spectrum emulator from BG Services, as this probably sets b5-b7 to zero.

Yours sincerely, D.J.Sheridan.

Dear Editor,

You asked about monitors with SAM. I use a Philips CM8833 and find this works well.

With regards to the chap that had problems with two discs not working on his friends computer, it may have been worth trying to use a disc formatted on his friends machine.

Yours sincerely, G.Jess.

The CM8833 is not available any more as far as I know, but they may be available on the second-hand market if you look out for them. **Ed.**

Dear Editor,

I was interested to read Carol Burdge's letter about genealogy.

I have written a genealogical database which might just interest her (on SAM). I have also written another program for the Spectrum which simulates change-ringing in campanology. Therefore I would be grateful if you could put me in touch with both these people.

May I suggest that, assuming you received more letters than you publish each month, that you publish a brief list of the subjects covered in the letters which are not published to give readers the opportunity at least to correspond between themselves.

I mention this because, although I have written to you before, about genealogy, because the letter was not published, other readers have therefore not been able to contact me, or vice versa.

Yours sincerely, Peter Wood.

A copy of your letter has been passed on to the two people concerned Peter. If anyone else would like to contact you we will pass on letters.

We keep a file of what we consider 'interesting' letters and it is from that file that we select each month to try and get a balanced content to the *Your Letters* section. Once in a while we do go through and remove letters that are getting a little long in the tooth, but it is possible for a letter to appear several months after it was first written.

May I recommend to readers that if they what to contact other readers regarding a special interest then the best

way is through the Small Ads section. This allows your address and or phone number to be printed. *Ed.*

Dear Editor,

It is with some regret that I received my copy of **FORMAT** last month and read your reply to a certain 'Lord Blackadder'. It once again fuelled the fear that the SAM is slowly being dug into a pit by people, including yourself, who fail to see that the machine is suffering due to a lack of new hardware.

Your understanding that things will come in time is one I find particularly sad as the computer market is one of constant change. Who can afford to sit still in this market environment?

Well it looks like the SAM will try. Perhaps the reason for this idle approach is that the funds for research and development are not available and that you are just hoping that this hardware argument will just blow away given time. If there is a lack of funds then the good ol' SAM public will have to chip in and back the machine up a bit. After all I'd like a hard drive, a digitiser etc., and would be willing to invest in its development. What is also severely lacking is your support and enthusiasm for the hardware designers out there who would like to be part of a hardware project. Whenever I ring David Ledbury I come off the phone at least feeling that there are people interested in the Coupé and that it is worth hanging on to. Believe me the temptations of ditching the SAM for a PC have almost got the better of me on a few occasions when the SAM world has gone into sleep mode. I personally feel, and I know others do, that your organizational skills would be invaluable in organizing the hardware developers out there. What it needs is your enthusiasm, belief in the people willing to develop the machine and if the cash isn't available the willingness to invite members of the SAM public to

contribute to the machines long awaited success. Please at least give it some thought.

Incidentally, I feel that your statement that the writer of the letter which started this debate was childish to use a pseudonym is in itself a childish comment. Does it really matter how people wish to be addressed in the computer world? The music world is full of people who choose to be called something else - as is the art world, and theatre world. Are they all childish as well? After all it's only fun isn't it?

Yours sincerely, Mr Pants.

(Sorry, Alan Hawes)

It is nice to see something that stirs up a bit of controversy once in a while, and yes I can see some of your points Alan but I think you miss one of my points.

SAM, very sadly, has not had the mass sales of machines like the Spectrum or C64. At the moment there are around 12,000 SAMs in the world and around 4,000 of those are in eastern-block countries so they do not affect the UK market (little software is sold to them and even less comes out of their efforts).

Given this, it is most important that the SAM market it not fragmented too much. Let us take a case in point, the 1meg memory expansion. Little software has been written to really exploit it. Why? Because any software company wants to sell as many copies of a program as possible. If a program sells to only 10% of the user base, that gives 800 potential customers, if on the other hand it sells to 80% of 1meg owners then that may only amount to 600 sales. You see my point?

If we can get more software support then SAM's sales will increase - it is one of the simplest rules of the computer market. Then there will be room for new and exciting hardware.

That said, I do not include a hard drive in that category. I'm told the hardware

side is quite simple (although nobody has yet demonstrated working hardware to me) but that writing a DOS is a very big job. I would love a hard drive, I would quite happily put money into such a project. All it needs is for someone to show me working hardware, that could be commercially produced, and I will back it 100%.

As to names, yes I do think it is childish to use childish names. Where is the fun in it? Am I missing out on something? *Ed.*

Dear Editor,

I read with interest the letter from Lord Blackadder and I was pleased that you decided to give it a sensible answer as people like me need all the answers we can get.

As to the matter of enhanced graphics, I was recently in Dixons giving unhelpful suggestions to a relative who was buying a camera when I was asked to go and look at the computers. I was surprised to see teeny little words on the screens that I could actually read, well maybe PCs are expensive and hard to program but the graphics are rather nice so I for one would like a mode 5 with real Hi-Res graphics and would even be prepared to put my money where my mouth is and invest say £25 in the development of such a card, and if only five or ten per cent of INDUG members did the same there would be a healthy sum to get started on.

In reply to Carol Burdge you asked for family tree software for Spectrum that could be converted to SAM, well Tony Reese Computer Services of 94, Coombe Lane, Bristol BS9 2AP, tel 0272 686768 have a Spectrum program called 'Progen' with two main areas, a pedigree chart and a family group sheet.

Finally, what has happened to the hardware design course. I would like to see an analogue to digital converter then the computer would be used as a

multi-meter amongst other things, and wasn't there mention of a hardware development kit?

Yours sincerely, Ken Murray-Taylor.

For most of your answer Ken, please read my reply to the last letter.

The series of hardware articles has dried up at the moment because Adrian Parker is off doing something else. However I am looking for someone to take over the course so if there is anyone out there interested please get in contact. *Ed.*

Dear Editor,

Reading the letters in the June **FORMAT** I felt motivated to reply to Mr B.Jewel's letter about monitors for SAM.

I have struggled with a 14" colour T.V. for a year. The print codes down the left side of the screen were impossible to read when using *The Secretary* W.P. But now I've got a colour monitor and I'm delighted every time I switch on, no more trying to read a fuzzy picture. The trouble is that the only monitor that's compatible with the SAM is also compatible with the Amiga, and there must be millions of them. if you go into W.H.Smiths you'll see at least 6 different magazines for the Amiga, so there's a bit of competition for these monitors. They are about £100 second hand. Then you'll probably need a lead as the pinouts from the SAM are different. According to the 'experts' there are two kinds of monitor, both made by Philips, one is the Commodore 1084 - if it's got ST after it then it has stereo sound facility, if not then it's mono. The other one is the Philips 8833 Mk l and Mk 2 either mono or stereo. I was fortunate I bought mine from Dixons, an ex demonstration Commodore 1084 ST for £150.

What can I say about **FORMAT**! An excellent magazine, I look forward to it every month, and to the next rally.

Yours sincerely, Keith Williams.

Dear Editor,

There has been some discussion in recent issues of *FORMAT* on problems in loading discs between the drives on different SAM Coupés. As I had a similar problem with an external drive with the SAM disc interface, I thought my experience would be of help. What happened was that although the directory of drive 2 could be read without problems, trying to load programs was difficult, and threw up error reports, and saving was very erratic and unreliable.

Having MasterDOS, enables the parameters of both drives to be altered, and after some experimenting I found that by changing both the stepping rate for drive 2 and the skew, the problem was solved. This can be checked on your own SAM by entering PRINT PEEK DVAR 4 and PRINT PEEK DVAR 14. In my case I used POKE DVAR 4,15 and POKE DVAR 14,254 to effect the changes.

I also find it useful when using the transfer program for Opus Tasword files to SAM to POKE DVAR3,15 to slow drive 1 down, to ensure reliable reading of Opus discs.

I trust this is of interest.

Yours sincerely, Frank Harrop.

Thanks Frank, I must admit I've never found that the skew factor made any difference in reading discs but it does sometimes help set up for odd drives. *Ed.*

Dear Editor,

With reference to the enquiry concerning a Nassi/Shniederman diagram. (*FORMAT* Vol 7 No 11 page 27 column 2). I offer the following information.

I believe they are the people responsible for introducing flow-chart symbology. Their actual use in demonstrating the flow of a program can be classed as a Nassi/Shniederman diagram. Further reading can be obtained from the following:-

Software Engineering - A Practioners Approach, 3rd Edition, ISN Number 0-07 -112779-8, Author Roger S. Pressman, Publishers - McGraw/Hill.

The actual book was called Flow-chart Techniques for structured programming, Nassi, I & Shniederman, B. Sigplan, ACM, August 1973.

I hope the above proves useful.

Yours sincerely , Eric Olyott.

Thanks Eric. *Ed.*

Dear Editor,

I am a new member, (and found my first copy of *FORMAT* waiting for me to come home late Saturday night (9/7/94) and I welcome this chance to state some of the queries that come to mind.

My first question concerns compatibility. Has any work been done by anyone to re-write 48K games that are not compatible with the +2, +3 or SAM, so that they could be, or has anyone written listing or utilities to change the necessary code so one may have one's working favs., on one's upgrade.

Otherwise the situation exists that, although you may upgrade your Speccy for a system that is compact and comes packed with disc drive or tape deck and has more memory, a certain section of your software is redundant, unless you keep an array of Speccies ready for go! If this is the case, then only the 48K (rubber or +) is needed for all software that is not 128k, but then one is hampered for work that requires more memory. I am not a clever programmer and so have to (in the main) depend on those more wise on this subject than I am, so to my mind it is either an array of Speccies, or re-written programs, that would solve this problem.

My second question concerns itself with early games that were great, but had bad user keys, inadequate (non existent, or obscure) joy-stick modes. Has any work been done to standardize these, to at least both Kempston or Sinclair formats for joy-stick users. (realizing that they don't all work on +2s or +3s or SAM's either). In my work (dustman) and hobby (car-booting) I come across a good many computers (some working, some not!) and much software, I mainly dedicated myself to the Spectrum, repairing, selling or giving them as presents, so I have a range of Speccies up to +3 and SAM Coupé, and a large software library, but some frustration sets in, with having to load one program in one Speccy and one in another, just to have them work, then finding they may have a deformed finger arrangement as a keying-in format, to play the game, and then there is the time and palaver it takes to load some of the latest games in, (if not on disc drive) a factor exaggerated by some software companies, to help kill off the speccy no doubt! Then there is the space it all takes. (wires and that!). It seemed fun once, but not any more, so I'm wondering if any of the good programmers out there could be moved to producing utilities or program listings to help in making incompatible programs compatible, you would have thought that the software companies would have already done all this but no!

I am beginning to wonder if anyone else had these problems, and what did they do about them. I don't hear them mentioned, although I feel that the subject may be old hat, what can one do. Enough of my moaning ... are there any lists of recommended printers (and what is needed to work them) for each of the Speccies and SAM, if there are, may I be sent one.

Finally are there comprehensive listings around of which game/programs are compatible with which Speccy.

Yours sincerely, N.J.Shelley.

Quite a long one there. Please readers, try to keep letters short and to the point.

Anyway, Spectrums fall into three major groups. 48K, 128K/+2 and +3/+2a. On the 48K it is best to say that the older (earlier) the model the more tolerant it is to software quirks. Every 48K game/utility I've ever tried worked first time on my old issue 1 machine.

128K software works best on a Sinclair 128K+. Although the vast majority will work on a +2. Most 48K software will run in 48K mode on the 128K/+2 but there is some that fails due to changes in the 128's version of the 48K ROM.

The +2a can be improved by buying a conversion kit from B.G.Services otherwise, like the +3, there can be problems.

As to mods to software, well hackers have published pokes in the past to make some changes to programs but there are no commercial aids that cover whole lists of games.

It comes back to learning a bit about machine code and starting to hack into games yourself I'm afraid. *Ed.*

Dear Editor,

Thought, I'd let you know how as an elderly person I get on with coping with a long or awkward program to type in.

At work, one generally has a copying stand to place a book from which one copies. At home though the copying is done by placing the book or copy to one side of the 'writer'.

Unless one is a good typist, the process does tend to be error prone as one occasionally gets lost.

This I overcame by recording -VOICE - at a speed that I could easily type (find the keys) - using words that 'distinctly' describe the required key to be pressed, at the same time following the line with my finger so as not to lose my place, so reducing errors. I would start and stop reading and recording at any time.

When I had finished the listing, I would, at a good time to do so, listen to myself, at the same time, entering the

listing.

Felt I should make people aware of making things easy and getting things accurate, hoping that the program listing wasn't corrupted initially.

I always used the phrase 'Newline' at the end of a line.

It can be hard job getting down to it but it saves a lot of heart ache.

Yours sincerely, E.A.A.Warwick.

Dear Editor,

I was very pleased to see your replies to several letters in recent *FORMAT*s about hardware upgrades to SAM.

I've owned a SAM since early last year but before that I was a Spectrum owner since 1983. I suffered from always backing the wrong type of joy-stick interface, the wrong printer interface and then the wrong disc interface. Each product looked good on paper but lacked support. At least I had to learn how to program - it was the only way to convert software for my 'non-standard' system.

In recent years I have been using an IBM PS/2 (286 based) for my job. Now I'm having difficulty buying software that will run on a 286. Everything is power hungry and disc hungry.

Let us all hope that SAM will progress, at a steady speed which all its existing users can follow. Please Mr West Coast Computers, don't leave us behind.

Yours sincerely, Paul Young.

I know how you feel Paul. Just two years ago my 386SX was powerful enough to run the best of software. Now, not enough memory, not enough speed, programs taking up 60 Mbytes of hard drive. Every time machines expand the programmers just seem to get lazy and use the extra power to cover their short comings.

Anyway. West Coast have promised not to expand SAM's features unless the new feature can be made available to existing users at a reasonable price. The

new SAM élite is a case in point. The printer interface matches the existing external one, the new drives can be fitted to old machines. *Ed.*

Dear Editor,

I wrote to artworks about images for the Spectrum. The reply was:-

"Unfortunately we do not produce images for the Spectrum, in the past the limited RAM of the Spectrum has prohibited the use of large images files.

I do not know if this would still be a problem with the disc based SAM Coupé, if there is an image file conversion program for your computer you might be able to import images in this manner."

Here ends the story, I do have the style writer with imager on the disc, would this do the job or can you help in anyway.

Yours sincerely, B.Tillotson.

I must be honest Mr Tillotson, I don't understand a word of what you are talking about. What, or who, is 'Artworks'? Is there some special meaning to the word 'Images'?

Perhaps you could drop us another line with a few more details. *Ed.*

SCHOOL RE-OPENS SEP 4

"Why is it that the older you get, the longer the school holidays seem?"