SEGA® COMPUTER

CHRISTMAS ISSUE

The Official Sega User Club Magazine

PROGRAMS
Earth
The Racer
Purple People Eaters
Weed Garden
Paula's Quest for
Balloids
Saturn
Anti-Mastermind
and lots more...

MORE THAN FIFTY PROGRAMS

By MICHAEL HOWARD

So you want some more programs to key into your Sega? Well, this book has over Fifty for you to tap out covering everything from games to education, machine code and basic, short and long. (all programs will run on a 16k or 32k cartridge). Pages of programs, each one disected and explanations of how and why it works!

INTRODUCTION

Dear Readers

In this issue you'll find that we have endeavoured to get back to basics for the benefit of all new Sega owners. Many of our recent programs have involved some form of machine code and although this makes for a better program the majority of our readers are not quite at machine code programmer level. We have had many letters asking for more program disections and as usual the team has come up with the goods.

Also featuring this month is the long overdue competition we've been promising you, first prize a fabulous SP400 plotter printer.

Finally my apologies to the lady who wrote in complaining that she had difficulty explaining away some of the wording used in the program "Death of Philip Lloyd" to her eleven year old. Point taken, family show and all that! The offender has been dealth with!

Happy Programming

S Kenyon
DIVISIONAL MANAGER

Contents

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The above are contact names and addresses for Sega Users Clubs. If you wish to have your club advertised write to Sega Users Club P.O. Box 2353, Auckland.

If you have set up a local area user's club and you would like us to publish the details concerning your club please send them to us and we will publish the information for no charge.

LETTERS TO THE EDITOR

DEAR KARYN KAY,

I have had a long love affair with my young Sega micro computer for about 12 months now, and up until aobut a month ago everything was working out well, until SHE came into his life!

The SHE (or IT!) is a Zeta cassette recorder. I used to tickle his (that's my Sega!) keys, and he'd giggle with SOUND commands, and dance to LINE's, but that's all finished now, now I hardly tickle him, he has more time for her now, as commercial programs are loaded from cassette, I have no need to tickle him.

In other words, thanks for all that great cassette software!

PS Do you like the story?

Lisa J Applegate

EDITOR'S REPLY

The story is absolutely silly!!! (You sound just the type we need here at Grandstand HQ!!). Nice to see you like the software!

DEAR EDITOR

Is it possible to buy cartridge games off you still, at the knock down rate of $25?

EDITOR'S REPLY

Just about every Person and their computer has asked this!

Yes. . .! Just send us a list of what you want, (and a small list of second favourites, just in case we run out of stock) Plus a cheque, and then we'll rush off the products to you!

DEAR EDITOR

I would like to know why my SP-400 Printer Plotter will not print out graphics characters. It prints normal characters easily, but when I try the characters from 128-255, a blank is placed instead of the symbol.

EDITORS REPLY

The answer is actually quite simple, if you look through your handbook, you'll see a list of characters, this is called the character set. The characters numbered 0 to 127 are called ASCII characters, and just about every computer in the world uses these characters. The characters from 128 onwards are non ACSII, and the characters here vary from computer to computer. Now all printers are designed to work with the ACSII character set, and very few are designed to work with the non ASCII characters. So whenever you use a character in the range 128-255, you'll get nothing, because the printer does not know what the characters are shaped like, because they are non standard.

If you have any more problems then just write to anyone here at Grandstand.

DEAR EDITOR,

I would like to know if it is true that the price of the SF-7000 disc drive is now down to $695.

Bill Serton, Auckland

EDITOR'S REPLY

Yes it is true, the original price was $995, now the price is an extremely competitive $695.

It 's a shame that the drive has been underestimated for so long. This drive has it's own Power supply, a built in RS-232 interface, which allows you to talk to other computers (Mike Greenan and myself quite often have Amstrads and Segas talking to one another), also it has a built in Centronics interface, this allows you to hook up just about any printer on the market! Oh yes, it also has a built in disc drive! This uses lightening fast 3 inch discs. A typical program takes about 5 to 10 seconds to load!

DEAR EDITOR

Please could you tell me how to convert decimal numbers into binary, and vice verse so I can create sprites a little easier.

Fred Burgess, Invercargill

EDITOR'S REPLY

If you wish to learn how to convert binary to hex to decimal to binary etc, then I suggest you buy a copy of "Teach Yourself Basic Games Programming" as this explains ALL about games programming and number bases. This program for converting binary to decimal can be found in the book.

```
10 INPUT "ENTER A BINARY NUMBER ";B$
20 IF LEN(B$)<>8 THEN 10
30 DATA 128,64,32,16,8,4,2,1
40 RESTORE:T=0:FOR A=1 TO 8:READ B:IF
MID$(B$,A,1)="1" THEN T=T+B
50 NEXT A
60 PRINT "DECIMAL=";T
```

And to convert decimal to binary:-

```
10 INPUT "ENTER A NUMBER (0-255):";N:N=INT(N)
20 B$="":N1=N:IF N<0 OR N>255 THEN 10
30 IF N1/2≤0 THEN 60
40 N$=STR$(N1 MOD 2):N1=INT(N1/2)
50 N$=RIGHT$(N$,1):B$=N$+B$:GOTO 30
60 IF LEN(B$)<>8 THEN B$="0"+B$:GOTO 60
70 CL8:PRINT N;"=";B$
```

Note that in the first program, the length of your binary data MUST be 8 digits long (eg 10100010 is 8 long, 111011 is not!).

The Art of Simulation
Computer Chit Chat

We all know that the English language is one of the most convaluated and mixed up of all languages, in fact the Spanish and other foreign types find English murder to learn. So what do you think computers think of English? . . . not a lot!

Although English is a so mixed up, most sentences follow distinct rules. Most sentences are made up of articles, nouns, adjectives, verbs, adverbs and prepositions. The following program, which is taken from my book "More than 50 programs for the Sega SC-3000," shows how sentences can be constructed by a computer.

Examples of the language produced is given below. . .

The Lazy Nerd Eats Slowly on Top of a Damaged Computer

or

A Big Book Reads Awfully

I will now go into a quick dissection of the program, for all you code bunnies out there!

line What does it do?

10 This is the data for the articles. An article is either "A" or "THE."
This data is read by line 100, as and when needed.

20 This is the data for the nouns. A noun is something like "COMPUTER" or "CAT." This data is read by line 100, as and when needed.

30 This is the data for the adjectives. An adjective is a word like "BIG" or "POOR", it describes something. As with the above lines the data is read by line 100.

40 This is the data for verbs. A verb is a word like "EAT" or "RUN", they are "action" words, and are read by line 100 (again!)

50 Data for adverbs. An adverb is a word you place after a verb, such as "QUICKLY" or "SLOWLY", it stresses the action of the verb, and is read by line 100.

60 This is the data for prepostions. A preposition is a word that describes where an object is, such as "ON TOP OF" or "BELOW" etc. The data is read by line 100. (Not again!!!)

70 In this program, a lot of random numbers will be used, so, to save time I have defined a function that allows the programmer to call up random numbers as and when they are needed. The function is

```
DEF FN R(X) = INT(RND(8) * Z) + 1
```

"DEF FN R" means Define a function, and call it R. The function is INT(RND(8) * X) = 1, what happens is that the X after the R, will hold a number and that number will determine in what range the random numbers will be. This probably sounds yuch so I'll give an example. If we want a number in the range 1-10, we would use FN R(10), this would call up our function R, and pass on the value 10 through the X variable.
You can just about have any function you wish, it's just that in this case we want to use random numbers quite often.

80 This is one of the most important lines. This holds how much data is being stored in lines 10 through 60, and it is important that when you come to modify the program, you get these numbers correct, otherwise you'll mess up the results!

90 This sets up the arrays that will hold all the data in lines 10-60. The RESTORE command makes sure that the first lot of data is read in from line 10 onwards.

100 This line is the crux of the data reading. All the data is read in from lines 10 to 60. Note how the FOR . . . NEXT loops use the variables A1,N1,D1,V1,B1 and P1 to do the counting. This is why it is important to get the values of these variables correct.

110 S$ is a string that is set to nothing in this line. Later on S$ will contain the new stupid sentence.

120 All the routines for creating the new sentence are in subroutines. The reason for this is that it makes programming easier. The GOSUB's all jump to the parts of the program starting at lines 1000 followed by 3000 followed by 4000.

130 When all of the routines jumped to in line 120 are complete, this line prints out the value of S$. NB: the routines at lines 1000 onwards actually alter the value of S$.

140 If the user is not pressing a key then jump back to line 140.

150 When a key has been pressed, jump back to line 110.

1000 This is the routine that generates an article at random. The random number function I spoke of earlier is called into action, note that the information is passed on by A1, and the new random number goes into A. The bit of information held in the array at that point is then added to S$ . . . our sentence is now being constructed.

1010 It is a 50-50 chance that at this stage an adjective will be added to the sentence. If FN

R(10)>5 (ie a random number in the range 1 . . . 10 is greater than 5) then a random number is selected in the range 1 . . . D1 (ie the number of adjectives being stored) is selected, and the adjective corresponding to that number selected and added to the sentence. Note that spaces are added in between words . . . the reason is quite obvious!

1020 At this stage a noun is added. A holds a random number in the range 1 . . . A1, and by using this a noun is selected from the array A$.

1030 Exit this subroutine and commence with the command, after the original GOSUB (sounds awful doesn't it?!) Here's an example to show what I mean . . .

In the program, line 120 looks like this . . .

```
120 GOSUB 1000:GOSUB 3000:GOSUB 4000
```

and lines 1000-1030 look like this . . .

```
1000 A=????????? BLAH BLAH BLAH
1010      :
1020      :
1030 RETURN
```

Now what happens, is that when line 120 is reached, the command GOSUB 1000 is executed, the computer then jumps to line 1000, and starts to execute the program there. When the RETURN in line 1030 is reached, the computer returns to the command AFTER the GOSUB 1000 in line 120, whichin this case is GOSUB 3000 and so on . . . get the idea? Good!

3000 Firstly a verb is selected from the list of verbs, and added to the sentence.

3010 Next there is a 50-50 chance of an adverb being added after the verb. If one is added, then a call is also made to line 4000 onwards.

3060 Same as in line 1030. Exit the current routine and go back to whence you came.

4000 There is a 50-50 chance that this line will not be executed, this is governed by this line. If a random number leads to a value of over 5 then the program RETURN's.

4050 A preposition is added to the sentence at this stage. And then the program GOSUB's line 1000 onwards to add an article and noun.

Well, that just about wraps up the dissection of this program, to be honest with you, this is one of those programs I find really fascinating, mainly because it is small yet quite powerful . . . and most of all full of fun! I hope you like it!!

```
10 DATA A,THE
20 DATA COMPUTER,PRINTER,PROGRAM,BUG,PRO
GRAMMER,NERD,MONITOR,BOOK
30 DATA BIG,POOR,TINY,LAZY,SHORT,MASSIVE
,CRAZY,DAMAGED
40 DATA WRITES,RUNS,DEBUGS,PRINTS,EATS,R
EADS,CLIMBS
50 DATA SLOWLY,FAST,QUICKLY,NICELY,AWFUL
LY,LAZILY
60 DATA ON,IN,UNDER,ON TOP OF
70 DEF FN R(X)=INT(RND(8)*X)+1
80 A1=2:N1=8:D1=8:V1=7:B1=6:P1=4
90 RESTORE:DIM A$(A1),N$(N1),D$(D1),V$(V
1),B$(B1),P$(P1)
100 FOR A=1 TO A1:READ A$(A):NEXT:FOR A=
1 TO N1:READ N$(A):NEXT:FOR A=1 TO D1:RE
AD D$(A):NEXT:FOR A=1 TO V1:READ V$(A):N
EXT:FOR A=1 TO B1:READ B$(A):NEXT:FOR A=
1 TO P1:READ P$(A):NEXT
110 S$=""
120 GOSUB 1000:GOSUB 3000:GOSUB 4000
130 PRINT S$
140 IF INKEY$="" THEN 140
150 GOTO 110
1000 A=FNR(A1):S$=S$+A$(A)+" "
1010 IF FNR(10)>5 THEN A=FNR(D1):S$=S$+D
$(A)+" "
1020 A=FNR(N1):S$=S$+N$(A)+" "
1030 RETURN
3000 A=FNR(V1):S$=S$+V$(A)+" "
3010 IF FNR(10)>5 THEN A=FNR(B1):S$=S$+B
$(A)+" ":GOSUB 4000
3060 RETURN
4000 IF FNR(10)>5 THEN RETURN
4010 A=FNR(P1):S$=S$+P$(A)+" ":GOSUB 100
0
4030 RETURN
```

Twelve Days of Christmas

On the first day of Christmas my computer gave to me
A boo boo on the video screen

One the second day of Christmas my computer gave to me
Two keyboard seizures,
And a boo boo on the video screen.

On the third day of Christmas my computer gave to me
Three loose plugs,
Two keyboard seizures,
And a boo boo on the video screen.

On the fourth day of Christmas my computer gave to me
Four useless saves,
Three loose plugs,
Two keyboard seizures,
And a boo boo on the video screen.

On the fifth day of Christmas my computer gave to me
Five blank cassettes,
Four useless saves,
Three looose plugs,
Two keyboard seizures,
And a boo boo on the video screen.

On the sixth day of Christmas my computer gave to me
Six I/O spasms,
Five blank cassettes,
Four useless saves,
Three loose plugs,
Two keyboard seizures,
And a boo boo on the video screen.

On the seventh day of Christmas my computer gave to me
Seven total resets,
Six I/O spasms,
Five blank cassettes,
Four useless saves,
Three loose plugs,
Two keyboard seizures,
And a boo boo on the video screen.

On the eighth day of Christmas my computer gave to me
Eight worthless printouts,
Seven total resets,
Six I/O spasms,
Five blank cassettes,
Four useless saves,
Three loose plugs,
Two keyboard seizures,
And a boo boo on the video screen.

On the ninth day of Christmas my computer gave to me
Nine burnt-out fuses,
Eight worthless printouts,
Seven total resets,
Six I/O spasms,
Five blank cassettes,
Four useless saves,
Three loose plugs,
Two keyboard seizures,
And a boo boo on the video screen.

On the tenth day of Christmas my computer gave to me
Ten disc-drive lock ups,
Nine burnt-out fuses,
Eight worthless printouts,
Seven total resets,
Six I/O spasms,
Five blank cassettes,
Four useless saves,
Three loose plugs,
Two keyboard seizures,
And a boo boo on the video screen.

On the eleventh day of Christmas my computer gave to me
Eleven damaged diskettes,
Ten disc-drive lock ups,
Nine burnt-out fuses,
Eight worthless printouts,
Seven total resets,
Six I/O spasms,
Five blank cassettes,
Four useless saves,
Three loose plugs,
Two keyboard seizures,
And a boo boo on the video screen.

On the twelfth day of Christmas my computer gave to me
Twelve blown out chips,
Eleven damaged diskettes,
Ten disc-drive lock ups,
Nine burnt-out fuses,
Eight worthless printouts,
Seven total resets,
Six I/O spasms,
Five blank cassettes,
Four useless saves,
Three loose plugs,
Two keyboard seizures,
And a boo boo on the video screen.

Tesselation

I bet that just about none out there know what tesselation is! Those who think that they know are probably wrong anyway!

Well, let me explain . . . You know those really fancy patterns that you see on plastic flooring, you know the ones where some impossible looking patterns seem to interlock perfectly? If not then look at the pictures above.

This program allows you to create literally thousands of these type of patterns in an instant!

All you do is enter the program and RUN it. To operate, use these keys:-

Q-to move up
Z-to move down
I-to move left
P-to move right

When the program starts, you'll see a square on the screen and a small crosshair. When you use the Q, Z, I or P keys you will see the crosshair move in the respective direction. The best way to explain how the program is working is to use it! When you have the crosshair in the position you want, just press the "CR" key and the square will alter its shape, it will literally "reach out" and join the crosshair. Now another crosshair will appear, use the keys once again to move the beastie to the respective position, when it is in place press "CR". Once again, the "square" will change shape. This is now your final shape. Now you must FILL the shape in, but because the computer cannot work out the centre of the object, you must specify it's centre, this is done by using another crosshair, just use the afore mentioned keys to move the crosshair into the centre of the object, then press "CR".

Finally, an "Okay . . .?" prompt will appear, if the shape is what you want then press "Y" otherwise press "N".

If, the shape is what you want then you will see it appear in it's full glory all across the screen, to move onto another shape just press any key.

As you can see the program is quite spectacular, but quite simple, it is important that you stick to these little guide lines:-

1) Try not to let any lines get crossed, otherwise the shapes won't fit together properly.

2) Make sure that when it comes to filling the shape in (by using PAINT) that the crosshairs are in the middle of the object.

Other than those two rules, the program is very free . . .!

```
1  REM  By  MH
2  REM
3  REM
10  DIMA(7,2)
20  DATA0,0,20,0,20,20,0,20
30  FORI=0TO7STEP2:READA(I,1),A(I,2):NEXT
40  PATTERNS#0,"40E040000000000"
50  SCREEN  2,2:COLOR,15,,4:CLS:X=130:Y=84
60  LINE(120,95)-(140,115),4,B
70  SPRITE0,(X-1,Y-1),0,8
80  GOSUB460
90  IFX>138THENX=138
100  IFX<122THENX=122
110  IFY<75THENY=75
120  IFY>106THENY=106
130  IFA$="  "THEN150
140  GOTO70
150  BLINE(121,115)-(139,115):BLINE(121,9
5)-(139,95)
160  LINE-(X,Y):LINE-(120,95):LINE(120,11
5)-(X,Y+20):LINE-(140,115)
170  X=20-(140-X):Y=20-(115-Y):A(1,1)=X:A
(1,2)=Y:A(5,1)=X:A(5,2)=20+Y
180  X=142:Y=102
190  SPRITE0,(X-1,Y-1),0,8
200  GOSUB460
210  IFX>153THENX=153
220  IFX<126THENX=126
230  IFY<85THENY=85
```

```
240  IFY>115THENY=115
250  IFA$="  "THEN270
260  GOTO190
270  BLINE(120,95)-(120,115):BLINE(140,95
)-(140,115)
280  LINE-(X,Y):LINE-(140,95):LINE(120,95
)-(X-20,Y):LINE-(120,115)
290  X=X-120:Y=Y-95:A(3,1)=X:A(3,2)=Y:A(7
,1)=X-20:A(7,2)=Y
300  X=128:Y=100
310  SPRITE0,(X-1,Y-1),0,8
320  GOSUB460
330  IFA$="  "THEN350
340  GOTO310
350  X1=X-120:Y1=Y-95
360  CURSOR10,10:PRINT"Okay...?"
370  A$=INKEY$:IFA$=""THEN370
380  IFA$="N"THEN50
390  DATA20,40,20,40,20,40,20,40
400  COLOR14,13,,13:CLS
410  RESTORE390:FORY=20TO160STEP20:READST
:FORX=STTO200+(ST-20)STEP40
420  PSET(A(0,1)+X,A(0,2)+Y),15
430  FORI=1TO7:LINE-(A(I,1)+X,A(I,2)+Y):N
EXTI:LINE-(A(0,1)+X,A(0,2)+Y):PAINT(X+X1
,Y+Y1):NEXTX,Y
440  IFINKEY$=""THEN440
450  GOTO50
460  A$=INKEY$:X=X+(A$="I")-(A$="P"):Y=Y+
(A$="Q")-(A$="Z"):RETURN
```

THE RACER... Rudy Clavel

If there is one thing that really stands out about the Sega, it has to be the quality of graphics.

This program is really neat, and produces an excellent picture of a motorbike and a rider on it. So if you wish to type in the program, you'll be rewarded with a really great piccy.

Well done Rudy!!!

```
10  SCREEN2,2:CLS:COLOR8,1,(0,0)-(0,0),9:
CLS:PRINTCHR$(17):FORI=0TO15:CURSOR60,50
:PRINT"RUDY  CLAVEL'S":CURSOR105,80:PRINT
"RACER":NEXTI
20  SCREEN  2,2:CLS:COLOR  5,15,(0,0)-(255,
191),8  :PRINT  CHR$(16):CIRCLE(50,155),18
,1,1.2
30  CIRCLE(50,155),11,1,1.2
40  CIRCLE(50,155),  9,1,1.2
50  CIRCLE(50,155),17,1,1.2
60  CIRCLE(50,155),19,1,1.2
70  LINE  (48  ,155)-(58,122),1
80  LINE(53,155)-(63,122),1
90  CIRCLE(40,145),32,1,.5,.74,.07
100  CIRCLE(35,175),19,1,2.4,.75,.83
110  CIRCLE(50,155),4,1,.5
120  CIRCLE(38,159),3,1,.5,.51
130  CIRCLE(38,154),3,1,.5,.51
140  CIRCLE(38,148),3,1,.5,.51
150  CIRCLE(40,145),3,1,.5,.51
160  CIRCLE(43,142),3,1,.5,.51
170  CIRCLE(43,140),5,1,.75,.76
180  CIRCLE(45,137),7,1,.75,.76
190  CIRCLE(54,145),4,1,2,.75,0.1
200  CIRCLE(57,144),4,1,2,.9,.25
210  CIRCLE(60,146),4,1,2,0,.25
220  CIRCLE(61,159),4,1,1,0,.30
230  CIRCLE(61,166),4,1,1,.28,.50
240  CIRCLE(57,170),4,1,1,.30,.60
250  CIRCLE(53,172),4,1,1,.4,.70
```

```
260 CIRCLE(48,170),4,1,1,.45,.70
270 CIRCLE(43,167),5,1,  1,.50,.70
280 CIRCLE(43,123),5,1,1,.30,.50
290 CIRCLE(58,103),25,1,1.3,.40,.50
300 CIRCLE(45,138),20,1,2,.65,.75
310 CIRCLE(41,78),20,1,2,.19,.27
320 CIRCLE(36,108),13,1,2,.92,.05
330 CIRCLE(40,108),5,1,1.3,,BF
340 CIRCLE(52,143),25,1,1,.65,.81
350 CIRCLE(58,128),15,1,.5,.75,.90,BF
360 CIRCLE(58,120),15,1,.5,.25,.4,BF
370 CIRCLE(60,100),25,1,.5,.47,.85
380 CIRCLE(78,104),35,1,,.58,.75
390 CIRCLE(64,108),25,1,1.8,.85,0
400 CIRCLE(54,86),1,1,1,0,1,BF
410 CIRCLE(60,86),1,1,1,0,1,BF
420 CIRCLE(66,86),1,1,1,0,1,BF
430 CIRCLE(72,86),1,1,1,0,1,BF
440 LINE(61  ,104)-(68  ,100),6,BF
450 CIRCLE(100,98 ),25,1,.5,.15,.34
460 CIRCLE(106,169),45,1,1,.62,.78
470 CIRCLE(100,118),15,1,2,.94,.04
480 CIRCLE(88,144),35,1,.5,.25,.35
490 LINE(90,160)-(86,150),1
500 LINE(92,160)-(88,150),1
510 LINE(94,160)-(90,150),1
520 LINE(96,160)-(105,160),1
530 LINE(95,158)-(106,158),1
540 LINE(94,156)-(107,156),1
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560 LINE(92,152)-(109,152),1
570 LINE(110,150)-(107,160),1
580 LINE(91,150)-(110,150),1
590 CIRCLE(105,143),20,1,.3,.20,.67
600 CIRCLE(105,143),16,1,.2,.20,.65
610 CIRCLE(115,144),25,1,.2,.20,.29
620 CIRCLE(115,142),25,1,.2,.20,.29
630 CIRCLE(73  ,100),25,1,.5,.75,.85
640 CIRCLE(98,140),2,1,2,0,1,
650 LINE(74,149)-(84,146),1
660 LINE(74,150)-(84,147),1
670 LINE(75,152)-(85,150),1
680 LINE(75,153)-(85,151),1
690 LINE(76,155)-(86,153),1
700 LINE(76,156)-(86,154),1
710 LINE(73,147)-(83,144),1
720 LINE(73,146)-(83,143),1
730 LINE(77,158)-(87,156),1
740 LINE(77,159)-(87,157),1
750 CIRCLE(98,140),16,1,.6,.15,.85
760 CIRCLE(85,140),25,1,1,.95,.05
770 CIRCLE(137,140),35,1,1,.47,.55
780 LINE(103,140)-(110,141),1
790 LINE(103,143)-(110,144),1
800 LINE(103,137)-(110,138),1
810 LINE(103,134)-(109,135),1
820 LINE(86,134)-(102,135),1
830 LINE(85,137)-(97,138),1
840 LINE(83,140)-(87,141),1
850 CIRCLE(108,96),20,1,.5,.5,.62
860 CIRCLE(98,108),10,1,2,.66,.78
870 CIRCLE(114,118),20,1,2,.62,.65
880 CIRCLE(118,113),20,1,2,.63,.65
890 LINE(114,70)-(95,77),1
900 LINE(114,71)-(95,78),1
910 CIRCLE(123,88),20,1,1.4,.54,.6
920 LINE(114,72)-(95,79),1
930 CIRCLE(96,60),20,1,1.1,.87,.1
940 CIRCLE(113,67),25,1,1,.60,.71
950 CIRCLE(118,67),25,1,1,.44,.46
960 CIRCLE(88,63),15,1,.5,.83,.18
970 CIRCLE(102,60),6,8,2,.5,.55
980 LINE(94,62)-(96,60),8
990 CIRCLE(95,53),5,8,2,.2,.3
1000 CIRCLE(94,57),5,8,2,.14,.18
```

```
1010 CIRCLE(101,69),5,8,2,.5,.55
1020 CIRCLE(94,104),7,4,1,.65,.74
1030 CIRCLE(90,102),5,4,1,.08,.35
1040 CIRCLE(104,125),23,4,1.4,.66,.71
1050 CIRCLE(100,70),25,4,1.4,.23,.31
1060 CIRCLE(81,108),15,4,1.6,.94,.97
1070 CIRCLE(86,103),15,4,1.6,.94,1
1080 CIRCLE(94,81),25,4,1,.11,.20
1090 CIRCLE(94,79),15,4,1,.1,.20
1100 CURSOR78 ,116:PRINT"Harley"
1110 CIRCLE(113,87),4,5,1,0,1
1120 CIRCLE(96,78),25,4,1,.0,.22
1130 CIRCLE(120,90),15,4,1,.50,.63
1140 CIRCLE(114,83),5,4,1,.50,.70
1150 PAINT(100,100),4
1160 CIRCLE(40,108),4,1,1.3,,,
1170 LINE (107,75)-(118,70),4
1180 LINE(107,74)-(118,69),4
1190 CIRCLE(109,78),15,4,.6,.86,.0
1200 CIRCLE(120,93),10,4,1.5,.83,.05
1210 CIRCLE(96,108),15,4,1,.94,.01
1220 CIRCLE(120,110), 5,4,1,.45,.83
1230 CIRCLE(117,112),20,4,1,.86,.05
1240 CIRCLE(129,112),15,4,.7,.65,.74
1250 CIRCLE(134,100),25,4,1.4,.33,.40
1260 CIRCLE(115,105),25,4,1,.1,.14
1270 CIRCLE(112,130),20,4,1,.86,.96
1280 CIRCLE(105,140),20,4,1.4,.96,.03
1290 LINE(126,141)-(122,145),1
1300 CIRCLE(112,135),20,4,1,.90,.08
1310 COLOR6:CIRCLE(126,127),5,6,1,.09,.3
1320 CIRCLE(126,130),5,6,1,.09,.3
1330 COLOR6:CIRCLE(126,133),5,6,1,.09,.3
1340 COLOR6:CIRCLE(126,136),5,6,1,.09,.3
1350 COLOR6:CIRCLE(126,144),6,4,1.6,.98,
.35
1360 COLOR6:CIRCLE(125,149),4,4,1.6,.41,
.68
1370 LINE(120,154)-(133,151),1
1380 LINE(120,155)-(133,152),1
1390 LINE(132,146)-(136,146),1
1400 LINE(132,148)-(136,148),1
1410 LINE(136,146)-(138,144),1
1420 LINE (137,149)-(139,150),1
1430 LINE(137,144)-(187,144),1
1440 LINE (138,150)-(188,150),1
1450 LINE(132,125)-(148,125),1
1460 CIRCLE(140,105),20,1,1,.03,.2
1470 CIRCLE(125,105),30,1,.7,.95,.2
1480 CIRCLE(160,123),25,1,1,.55,.70
1490 LINE(115,160)-(123,140),1
1500 LINE(122,140)-(122,134),6
1510 LINE(114,125)-(122,135),1
1520 LINE(107,160)-(115,160),1
1530 LINE(132,145)-(145,125),1
1540 CIRCLE(132,130),20,1,1,.8,.9
1550 CIRCLE(132,130),17,1,1,.82,.9
1560 CIRCLE(132,130),14,1,1,.82,.9
1570 CIRCLE(132,130),23,1,1,.82,.9
1580 CIRCLE(132,130),26,1,1,.82,.88
1590 CIRCLE(132,130),29,1,1,.83,.88
1600 CIRCLE(132,130),32,1,1,.84,.88
1610 CIRCLE(132,130),35,1,1,.85,.86
1620 LINE (154,100)-(174,125),1
1630 LINE(137,128)-(137,132),1
1640 LINE(133,128)-(133,132),1
1650 LINE(135,128)-(135,132),1
1660 LINE(139,128)-(139,132),1
1670 LINE(148,125)-(172,125),1
1680 LINE(148,127)-(173,127),1
1690 LINE(146,126)-(147,127),1
1700 LINE(175,126)-(174,127),1
1710 CIRCLE(160,155),18,1,1.2
1720 CIRCLE(160,155),11,1,1.2
1730 CIRCLE(160,155),9,1,1.2
```

```
1740 CIRCLE(160,155),17,1,1.2
1750 CIRCLE(160,155),19,1,1.2
1760 LINE(166,128)-(173,130),1,BF
1770 CIRCLE(175,128),6,1,.5
1780 CIRCLE(175,128),3,1,.5,.75,.25
1790 CIRCLE(175,120),6,1,.5
1800 CIRCLE(175,120),3,1,.5,.75,.25
1810 LINE(170,119)-(173,121),1,BF
1820 LINE(164,157)-(156,127),1
1830 LINE(159,157)-(151,127),1
1840 CIRCLE(161,155),4,1,.5
1850 LINE(177,132)-(183,144),1
1860 LINE(177,130)-(168,135),1
1870 PAINT(174,132),1
1880 CIRCLE(182,147),7,1,.9,.92,.12
1890 CIRCLE(193,147),7,1,.9,.42,.62
1900 CIRCLE(148,154),3,1,.5,.51
1910 CIRCLE(148,148),3,1,.5,.51
1920 CIRCLE(150,145),3,1,.5,.51
1930 CIRCLE(153,142),3,1,.5,.51
1940 CIRCLE(153,140),5,1,.75,.76
1950 CIRCLE(155,137),7,1,.75,.76
1960 CIRCLE(164,145),4,1,2,.75,0.1
1970 CIRCLE(167,144),4,1,2,.9,.25
1980 CIRCLE(170,146),4,1,2,0,.25
1990 CIRCLE(171,154),4,1,1,0,.30
2000 CIRCLE(171,159),4,1,1,0,.30
2010 CIRCLE(171,166),4,1,1,.28,.50
2020 CIRCLE(167,170),4,1,1,.30,.60
2030 CIRCLE(163,172),4,1,1,.4,.70
2040 CIRCLE(158,170),4,1,1,.45,.70
2050 CIRCLE(153,167),5,1,1,.50,.70
2060 CIRCLE(148,159),3,1,.5,.51
2070 LINE(142,160)-(133,164),1
2080 LINE(132,165)-(123,165),1
2090 LINE(122,165)-(112,160),1
2100 DX=16:DY=0:ZY=191
2110 FORC=1TO15
2120 COLOR  ,C,(C*DX-8,DY)-(C1*DX+7,ZY)
2130 NEXT
2140 FOR I=0 TO 1
2150 COLOR2,14,(0,0)-(255,191),2
2160 COLOR2,11,(0,0)-(255,191),9
2170 COLOR2,3,(0,0)-(255,191),13
2180 COLOR1,15,(0,0)-(255,191),10
2190 COLOR11,7,(0,0)-(255,191),13
2200 COLOR11,11,(0,0)-(255,191),6
2210 NEXT I
2220 COLOR8,4,(168,0)-(255,65),8:LINE(16
5,0)-(255,0),4:LINE(170,65)-(255,65),4:L
INE(170,0)-(170,65),4:LINE(254,0)-(254,6
5),4:LINE(192,1)-(192,35),8:LINE(193,1)-
(193,35),8:LINE(194,1)-(194,35),8:LINE(1
95,1)-(195,35),8:LINE(196,1)-(196,35),8
2230 LINE(170,17)-(220,17),8:LINE(170,18
)-(220,18):LINE(170,19)-(220,19):LINE(17
0,20)-(220,20):LINE(170,21)-(220,21):LIN
E(170,16)-(220,16):LINE(170,15)-(220,15)
2240 LINE(170,0)-(218,37):LINE(169,0)-(2
18,38):LINE(168,0)-(218,39):LINE(167,0)-
(218,40):LINE(166,0)-(218,41)
2250 LINE(220,0)-(170,38):LINE(219,0)-(1
69,38):LINE(218,0)-(168,38):LINE(217,0)-
(167,38):LINE(216,0)-(167,38)
2260 PRINT CHR$(17):CURSOR220,30:PRINT "
W":CURSOR240,30:PRINT "W":CURSOR230,10:P
RINT "W":CURSOR230,55:PRINT "W"
2270 FORC=0TO1100
2280 NEXTC
2290 GOTO10
```

The Beginners Box of Bugs!

I know (and you do too!) that a hobby in computers can be very frustrating at first, what with words like "blowing an EPROM" or even "booting up the system" flying all about the place!

The computer industry is so full of jargon that any beginner tends to curl up and die and disappear with the rest of those unfortunate new-lings, well hopefully this new section, which will be appearing in every issue from now on, will help put things straight. The Box of Bugs is meant to be a question and answer session, covering the more technical topics, such as the art of programming or just write to me here at Grandstand . . . I promise that I'll endevour to answer!

Okay, let's get to work!

HELP! I NEED TO LEARN MACHINE CODE

"I've been using an SC-3000 for some time now, and I have quite a firm grasp of BASIC. Now I want to wander into the world of Machine Code, my main problem is where do I start. I wonder if you could help me?"

Before you can start to learn Machine Code on any computer it is important to know which Machine Code your computer uses. The type of Machine Code depends on the type of Microprocessor used inside the beast. By far the most common microprocessor used in the world today is the Zilog Z80, this little black miracle is to be found inside the Sega. In fact the one inside the Sega is known as a Z80A and is a twice as fast as a Z80 but identical otherwise.

The next step is to understand just what Machine Code is. The best way to understand this is to compare a Machine Code program with a program written in BASIC.

In BASIC, what happens is that as you type in a program, the program is stored in the computers memory, and when you RUN the program, the processor (in our case a Z80A) looks at each instruction and interprets it into a form understandable by the the computer. You see, computers are really thick, when you type in a BASIC program the computer does not know what on Mars you are on about! It has to literally look up each and every instruction one-by-one and interpret this information into a form it can understand! And this is a very slow process! With Machine Code programs things are a little different, when you tell the Sega to run (or execute) a Machine Code program, the program is in a form that is already understandable by the computer, that is why it is called Machine Code, it is, in essence, the machine's own code, and is this fact that makes Machine Code so blindlingly quick.

We now know what Machine Code is and roughly how it works, it is beyond the scope of this magazine to give a full lengthy run-down of Machine Code, but for those who are really interested in learning this fabulous mode of programming, then good news is availalbe, I am at present working on a very easy introduction to Machine Code, when it is complete, it will help ANYONE who has an average understanding BASIC to add ZIP to their programs! So hang around a while!

PRINTING ON THE SCREEN

"There appear to be many methods of printing information from a program on to the screen, but I do not know what they all are, or which is the best to use! Could you help untie this knot I'm in?"

The commonest, and most well known method of getting data onto the screen is by using the PRINT command from BASIC. The Print command is very versatile, and can tell the computer where to put the next lot of information on the screen when used in conjunction with the CURSOR command.

The micro (a term for a personal computer) keeps track of where on the screen the current postion is, and at the lowest level, PRINT will place the next lot of information at that position. Oh by the way, unless otherwise altered, the next lot of information will be printed on the next line down. If you place a comma "," at the end of a Print the next lot of data will be printed half a page across the screen eg:

```
10 PRINT "hello !"
20 PRINT "good bye !"
```

will yield:

```
hello !
good bye !
```

but

```
10 PRINT "hello !",
20 PRINT "good bye !"
```

will yield:

```
hello !                                   good bye!
```

Semi-colon ";" will cause the next lot of data to be printed straight after the previous lot, thus:

```
10 PRINT "hello !";
20 PRINT "good bye !"
```

will yield:

```
hello !goodbye!
```

Note that you may have to include spaces to stop text from "Running into" one another! as has happened above!

To alter the position of the next lot of data to be printed on the screen, you use CURSOR. Try this little program:

```
10 CLS
20 INPUT "Enter a word";A$
30 X=INT(RND(2)*36):Y=INT(RND(2)*22)
40 CURSOR X,Y:PRINT A$
50 GOTO 30
```

In the above program, line 10 clears the screen, line 20 asks you to enter a word, and stores it away in A$, line 30 generates two coordinates or locations on the screen, these numbers are random and are stored in X and Y, line 40 moves the current indicator of where text is to be placed on the screen to the positionheld in X and Y, the text held in A$ is then placed on the screen, line 50 goes back to line 30. It is worth noting that CLS not only clears the screen but it also sets the next position of printing to the top left of the screen.

The next, and probably one of most non-understood, is the topic of CONTROL CHARACTERS. Control characters are much the same as ordinary characters. All CHARACTERS. Control characters are much the same as ordinary characters. All characters are stored in the computer as numbers, for example, the letter "A" is stored as 65, so if you wanted to print an "A" on the screen you could type either PRINT "A" or PRINT CHR$(65), note that the latter is the control character.

If you wish to see all the control characters, try the following:-

```
10 CLS
20 FOR A=32 TO 255
30 PRINT A,CHR$(A)
40 NEXT A
```

This will print them all, see the "," and ";" in the line 30? Good! The characters from 32 to 127 are known as the ASCII letters and are standard on just about all characters from 0 to 31? Well, these are set aside for special purposes. Look at page 18 and 19 of the users manual (or page 23 if you have the SF-7000 manual), just ignore the first column for the moment because they don't interest us just yet. Look at the second column, see all those numbers, well those are called control codes, try the following:-

```
10 PRINT CHR$(12)
```

Now, run it see what happens? The screen cleared! Nothing was actually placed on the screen, a function happened instead! If you look down the list, you'll bump into number 12, and lo and behold, 12 means Clear the Screen! So if you wanted to shift to uppercase letters from within your program (and this is the only simple way of doing it) you just type:-

```
10 PRINT CHR$(19)
```

and Bob's your uncle.

As you can see the humble PRINT command is in fact very powerful. I hope that this has cleared up a few of your troubles!

HEX AND DECIMAL

"Can you tell me how to convert hexadecimal to decimal? Why do programmers prefer hex?"

Hexadecimal is based on 16, and because of this hex uses 16 digits — just as our normal decimal system used 10 digits (0 to 9). We use the letters A to F, in hex, to represent the numbers 10 to 15.

As in any number system, the value of a hex digit depends on its position. To understand this, try to remember the time when you first learnt to count and the idea of column values was introduced-units, tens, hundreds and so on. Thus the digit 3 in the number 376 has the value 300 since it lies in the hundreds column, while 7 means 70 and 6 means 60. As you can see, each column moves up by a factor of 10 (1,10,100 and so on). In hex the columns go up in steps of 16 (1,16,256,4096 and so on), luckily we don't have to worry too much about this on the Sega, as the Sega works in both hex and decimal. To convert a decimal number to hex try the following:-

```
10 INPUT "Enter a decimal number";D
20 B$=HEX$(D)
30 PRINT D;" In hex is";B$
40 Goto 10
```

As you can see HEX$( ) is used to convert a number from decimal to hex. To go the other way (hex to decimal) try:-

```
PRINT &H2A
```

this will print 42. &H signifies a number in hex.

The reason why Machine Code Programmers prefer hex to decimal is that hex is much easier to convert to binary than decimal to binary, and because binary is so fundamental to programming, this is important.

Especially in Machine Code, Programmers may need to find the value of a single bit in a byte and because hex is very close to binary, this can be done quite quickly. Here's an example:-

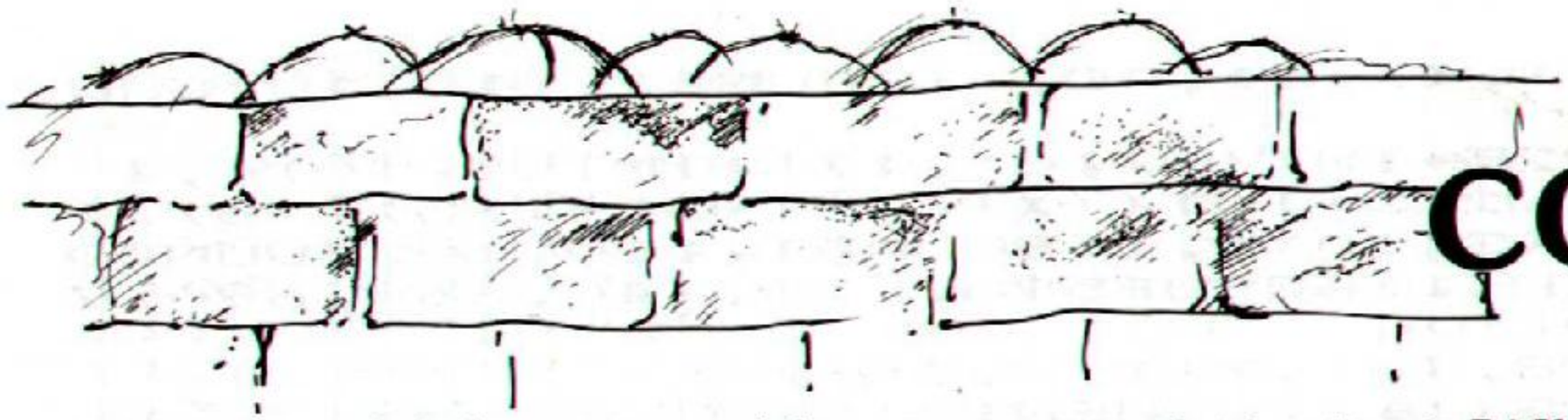
Imagine the number 245, this is F5 in hex, now F is 1111 in binary, and 5 is 0101 in binary, so if we wanted to know what the value of the left most bit was, we already know, it is a "1". Converting from decimal to binary is extremely cumbersome.

For more info I suggest you grab a copy of both "Teach Yourself Basic Games Programming" and a copy of "The Sega Beginners Guide" both available from Grandstand

Finally a joke . . .

Q: What did Shakespeare have to say about the hex equivalent to 43?
A: 2B or not 2B that is the question . . .

Well I thought it was funny!!



COLDITZ

By W. Newsome

This game is truly brilliant, it is one of those rare programs that is written in BASIC and is still fast enough to be totally addictive!

The object is really quite simple, if it moves . . . kill it, simple eh?! The beasties doing the moving are prisoners of war, who are trying to escape from Grandstand . . . er . . . sorry Colditz! (theres not a lot of difference really!)

Okay, enough of this happiness, this program is almost serious! The object is to prevent POW's from breaking out of the Colditz grounds, to do this you use a spotlight, which is moved by use of a joystick. When you see a POW runnin' for his life, you quickly press the fire button and end his existance on this planet. Actually, when the bloke is snuffed out, there is a gory SPLAT sound!

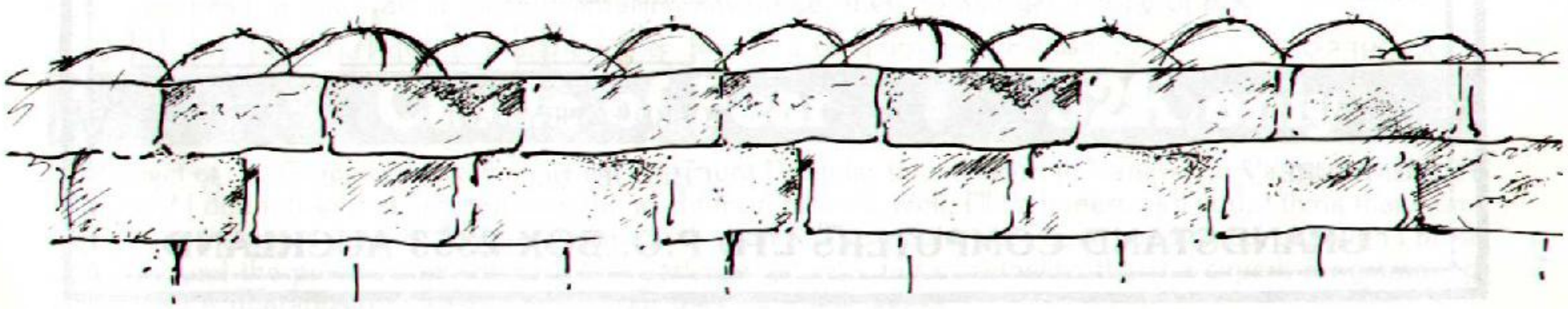
It is important to keep an eye on the map on the bottom right of the screen, as this will show the relative position of the POW who is currently trying to run away ('cos he didn't like the food . . .). Also watch out for the man hiding behind trees and buildings.

So all I can say is . . . type in this game, you'll love it!

```
10  MAG3:PATTERNC#160,"0C3C3C7C7CFCFCFC"
20  PATTERNC#161,"C0F0F0F8F8FCFCFC"
30  PATTERNC#162,"FCFCFC7C7C3C3C0C"
40  PATTERNC#163,"FCFCFCF8F8F0F0C0"
50  PATTERNS#0,"00000000000050504"
60  PATTERNS#1,"0701010102040818"
70  PATTERNS#2,"0000000000808000"
80  PATTERNS#3,"E0202020807010000"
90  PATTERNS#4,"0000000000010100"
100 PATTERNS#5,"0101070101010103"
110 PATTERNS#6,"0000000000808000"
120 PATTERNS#7,"80808C0800000C040"
130 PATTERNS#8,"070F3F7F7F7FFFFFFF"
140 PATTERNS#9,"FFFFFFF7E7E3E0E06"
150 PATTERNS#10,"E0F0FCFEFEFFFFFFF"
160 PATTERNS#11,"FFFFFFF7E7E7C7060"
170 PATTERNS#12,"0000000000000000"
180 PATTERNS#13,"0D0D0107000000000"
190 PATTERNS#14,"000000000000040A"
200 PATTERNS#15,"90FE020000000000"
210 PATTERNS#16,"1F3F7FFFFE3F3F3F"
220 PATTERNS#18,"F8FCFEFFFFFFCFCFC"
230 PATTERNS#19,"FCFCFCFCFCFCFCFC"
240 PATTERNS#17,"3F3F3F3F3F3F3F3F"
250 PATTERNS#20,"010D2F7F7F7F1F3F"
260 PATTERNS#21,"7F7F3D3921010103"
270 PATTERNS#22,"88FCF8FCFCFEFEFC"
280 PATTERNS#23,"FCFE9E8C80C0C0E0"
290 PATTERNS#24,"0000000050103F"
300 PATTERNS#25,"060F020401000000"
310 PATTERNS#26,"0000000004050E078"
320 PATTERNS#27,"C0F0C040200000000"
330 GOSUB 910
340 GOSUB 800
350 X1=5:Y1=10:MH=0:ME=0
360 BLINE(220,172)-(255,191),,BF
370 Y=INT(RND(-1)*100)+50
380 FORX=255TO5STEP((INT(SC+1/5))+8)*-1
390 S=Y
400 DY=INT(RND(-1)*3)+2
410 IFRND(-1)>.4THENDY=DY*-1
420 Y=Y+DY:IF Y<10THENY=10
430 IF Y>150THENY=150
440 IFPO=0THENPO=4:GOTO460
450 PO=0
```

```
460  SPRITE1,(X,Y),FD,1:SOUND1,110,10:SOU
ND0
470  PSET(225+INT(X/10),173+INT(Y/10)),1
480  PRESET(225+INT((X+(INT(SC+1/5))+8)/1
0),173+INT(S/10)),1:SOUND1,110,10:SOUNDO
490  ONSTICK(1)GOSUB590,610,640,660,690,7
10,740,770
500  SPRITE8,(X1,Y1),8,3
510  IFSTRIG(1)<>0THEN1210
520  NEXTX
530  FORBV=300TO110STEP-10:SOUND1,BV,10:N
EXT  BV:SOUNDO
540  ME=ME+1:IFME>4THEN1310
550  COLOR10:CURSOR233,0:PRINTCHR$(8);CHR
$(8)
560  CURSOR233,0:PRINTME
570  FORBV=300TO110STEP-10:SOUND1,BV,10:N
EXT  BV:SOUNDO
580  GOTO  360
590  Y1=Y1-6:IFY1<10THENY1=10
600  RETURN
610  Y1=Y1-6:IFY1<10THENY1=10
620  X1=X1+6:IFX1>230THENX1=230
630  RETURN
640  X1=X1+6:IFX1>230THENX1=230
650  RETURN
660  X1=X1+6:IFX1>230THENX1=230
670  Y1=Y1+6:IFY1>160THENY1=160
680  RETURN
690  Y1=Y1+6:IFY1>160THENY1=160
700  RETURN
710  Y1=Y1+6:IFY1>160THENY1=160
720  X1=X1-6:IFX1<5THENX1=5
730  RETURN
740  X1=X1-6:IFX1<5THENX1=5
750  X1=X1-6:IFX1<5THENX1=5
760  RETURN
770  Y1=Y1-6:IFY1<10THENY1=10
780  X1=X1-6:IFX1<5THENX1=5
790  RETURN
800  SCREEN 2,2:COLOR,1,,1:CLS
810  SPRITE2,(20,8),20,1
820  SPRITE3,(220,32),16,1
830  SPRITE4,(70,64),20,1
840  SPRITE5,(120,96),16,1
850  SPRITE6,(40,128),20,1
860  SPRITE7,(90,160),16,1
870  COLOR,10,(230,172)-(255,191)
880  COLOR10:CURSOR224,162:PRINT"RADAR"
890  CURSOR0,0:PRINT"  PRISONERS SHOT:0
:PRISONERS ESCAPED:0  "
900  RETURN
910  CLS:CURSOR14,15:PRINT"PRESS FIRE"
920  FOR U=1TO15:SOUND1,300,U:FORT=1TO10:
NEXTT:NEXTU:SOUNDO
930  IFSTRIG(1)=0THEN930
940  SCREEN 1,1
950  CLS:COLOR2,1
960  PRINT"Instructions
970  PRINT"
980  PRINT"You are a German prison guard
990  PRINT"on duty outside Colditz P.O.W.
1000 PRINT"Camp.You guard a nearby field
1010 PRINT"which is popular with escapee
s
1020 PRINT".When you hear the sound of
1030 PRINT"a running P.O.W. you must use
1040 PRINT"your radar to locate him with
1050 PRINT"your spotlight.There are tree
s
```

```
1060 PRINT"and huts in the feild which m
ay
1070 PRINT"obstruct your view.When you
1080 PRINT"think you've got him in the
1090 PRINT"sights of your spotlight fire
1100 PRINT"your machine gun.A successful
1110 PRINT"shot and your spotlight will
1120 PRINT"reveal a dead P.O.W.If he
1130 PRINT"should make it across the fie
ld
1140 PRINT"you will get a demrit point.5
1150 PRINT"demerit points and you're fir
ed.
1160 PRINT"The escapees get quicker.
1170 PRINT"
1180 PRINT" PRESS FIRE WHEN YOU ARE READ
Y
1190  IFSTRIG(1)=OTHEN1190
1200  RETURN
1210  SPRITEO,(X1,Y1),24,8
1220  OUT127,228:FORNM=1TO6:OUT127,240:OU
T127,245:OUT127,250:NEXTNM:OUT127,255:SP
RITEO,(255,191),,,O
1230  IFX>X1-6ANDX<X1+16ANDY<Y1+12ANDY>Y1
-12 THEN 1250
1240  GOTO 520
1250  SPRITE1,(X,Y+8),12,1
1260  FOR YT=1TO5:SOUND1,110,15:SOUNDO:NE
XTYT
1270  FORBN=1TO30:NEXTBN
1280  MH=MH+1:CURSOR96,O:PRINT CHR$(8);CH
R$(8);CHR$(8);CHR$(8)
1290  COLOR10:CURSOR96,O:PRINT MH
1300  GOTO 360
1310  SCREEN 1,1:COLOR2,1:CLS:PRINT"GAME
OVER
--"
1320 PRINT "YOU KILLED ";MH;" ESCAPEES"
1330 PRINT "YOUR ADOLF HITLER MERIT RATI
NG IS -"
1340  IFMH<5THENRR$="GRANNY WITH A WATER
PISTOL"
1350  IFMH>4ANDMH<11THENRR$="BEGINER WHO
NEEDS GLASSES"
1360  IFMH>10ANDMH<21THENRR$="INEFFICIENT
 GERMAN GUARD - OBVIOUSLY  NOT A TRUE GE
RMAN"
1370  IFMH>20ANDMH<31THENRR$="SECOND RATE
 GUARD - GUN MADE IN TAIWAN"
1380  IFMH>30ANDMH<41THENRR$="GOOD PREFOR
MFANCE - POTENCIAL HITLER  YOUTH"
1390  IFMH>40 THENRR$="CRACK-SHOT SHOULD
BE S.S. NOT GUARD"
1400 PRINTRR$:PRINT:PRINT:PRINT"PRESS FI
RE TO PLAY AGAIN"
1410  IFSTRIG(1)=OTHEN1410
1420  GOTO 340
```



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SOFTWARE REVIEW

The following programs were all going to be reviewed in the previous issue, but unfortunately, arrived, a little late! But not to worry, here they are. All these programs, and more information about can be obtained from:-

Poseidon Software PO Box 784 Hamilton.

Right . . . on with the reviews!

Time Capsule

This adventure game is a little bit different to the other two in that it is not gothic, instead you play the part of an adventurer who must travel to the past and the future, and collect 3 objects to give to Doctor What? to prevent the holocaust that is threatening our dear planet!

The scene starts as you are stood in front of the house of Dr. What?, next to me was a sign so I thought I'd give it a read, It said "Beware of the mad scientist!" . . . well I thought should I go in or not, well I did, and you know what I discovered? One of the most original and funny adventures I'd played in ages! Especially when you get into the bathroom and type in "Go toilet" . . . but I'll let you discover what happens!

In the game you have got to travel to 10 different time zones, and hopefully here you will find the objects you seek! The producers have even gone as far as to say that the game is like 10 adventures in one!

Once again . . . a great game!

NOTE: The previous 3 games have all been adventure games, now it is just about impossible to review fully an adventure game without sitting down for a few weeks with a dozen beers and a couple of tanks of coffee on hand, so the reviews themselves are scanty and by no means complete . . . the point I am trying to make is that they are all much much more complex and involved than say at first meet the eye . . . so please accept my apologies if they are needed!

Vermin Invaders

It's funny really, this program needs no real introduction! Everybody knows what Invaders is and this is the Sega version. One thing that is true is that this program is just as mean as the original and just as addictive!

There, as with the above game, to be heaps of screens, all full of nasties waiting to devour, destroy and generally mutilate you!

One thing I did really like, is that in the original game of Spacies, you could help yourself by destroying the beasties on the ends first and prolong your life . . . well you can do that in this as well . . . Good stuff!

Zivorx Adventure (32k) From Flexisoft

A massive 88 room, user friendly adventure that is handsomly packaged with a price tag of only $14.95.

This must be the cheapest Sega game on the market but by no means sacrifices price for quality.

The game itself loads with a great graphic presentation screen which has the title printed in large red letters with blood dripping from it (really neat and gory stuff!).

The adventure puts you on a baren island in your Viper shuttle with a distinct lack of fuel (oh dear!). Your mission is to infiltrate the great city of Zivorg which lies across the island. When (if!) you reach the city, you must get in contact with an agent who will give you the identity of a rebel traitor whom you must dispose of. The traitor is thought to have been receiving secret transmissions from Zivorx to Earth, and plans to give his vital information to the evil Zivorx Federation who will, with the information, crush Earth and the rebel bases.

You know, there's something about a good text adventure, and this one is no exception. It's like reading a very good book, except you decide your own fate, and the descriptions of the locations are beautifully recreated in your own mind! If you want a good, enthralling adventure, then go and get a copy of this!

All in all, a brilliant text adventure and another gem of a program from Flexisoft.

Castle of Fear 32K only

The object of this Graphics Adventure, is to find Count Drugular (any relation to Vanessa ze Vampire or Count Dracula?? I dunno!) so that you can save the world from his evil. Well, I'll be honest with you, I think that vampires are brilliant and not evil. Right now back to the game. The graphics are quite good really, although I must admit I found the previous adventure a little easier to get into, but nonetheless this is a superb programming effort, that is guaranteed to keep you on your toes for a few weeks!

The Youngins (32k) From Flexisoft

The double decker bus with Rick, Neil, Vyvyan and Mike smashes through the Cliff banner and plunges down a cliff and blows up! (Bad Karma man!)

Very sad, now that the "Young Ones" TV series is over, and the possibility that the boys are dead is even more depressing!

Well cheer up! As this is just the beginning. Yes, all your favourite characters are back in this brilliantly funny 32k adventure. If you are a fan of the TV series (which you will be if you eat lentils!) then you will split your sides over this game.

You play the part of Neil the pathetic long haired hippy who wakes up inside a space shuttle and must find a way out! To make life worse you must get presents for Mike, Vyv and Rick.

Hilarious fun and puzzles as you try to find all the presents.

The things that really struck me about this adventure is the originality! It is really funny and original, with no dragons to fight or pincesses to save. Just get Vyv some vodka! etc.

If you did like the series and can relate to think you'll make a good student hippy/anarchist/Punk/cool person then you'll adore this program, but only play the game whilst eating either the TV, lentils or curry!

Vortex Blaster 32K only

NO doubt, you have all seen the adverts for this program in previous issues of this humble magazine! So at last I can tell you what it's all about!

Basically, the game is a very fast, and very exciting "If-it-moves-shoot-it" type game! With the added bonus of speech, yes that's right SPEECH, the program introduces itself as "Vortex Blaster" complete with an Aussie twang! and when you start a new pattern (of which there seems to be many!) the Sega yells "Red Alert" all with outstanding reality, and not a trace "alienation" that is so common with software voice synthesis.

To make you sweat that little bit more, you have to keep an eye on your shields and you laser heat!

All in all, you'll love it! I did

NOTE that this will only work on the 32K model, but a 16K version is available but it does not have the voice synthesis.

Transylvania Castle of Horror

This is a real el-neato game . . . I just love good adventures, and this is probably the best text-only adventure on the Sega on the market to date.

Believe it or not the first room has no less than 4 puzzles in it! Good stuff, this is what adventures are all about! (I'll give you a clue OPEN CUPBOARD!). I can't recommend this game enough. What? What's the plot . . . real simple, do away with Count Dracula before the rise of the full moon! But as you all know, all adventures are murder to complete, and this one is no exception!

All I can say is if you like a bit of intellectual stimulation and puzzles once in a while, then buy a dozen copies of this game!

Now, where was I, ah what does the duck head do?

Kingdom

A few years ago, there was a program called Hamurabi, and this became extremely popular in schools and with people in general, the reason for this was very simple, the game was both addictive AND educational . . . a very rare combination indeed!

Well, this program is an updated version of that classic game, and what a game it is!

Okay, no doubt you are wondering how you are to play the game . . . well, I may as well quote from the instructions:-

> You are the ruler of a 15th century Italian city state. If you rule well, you will receive higher titles. The life expectantly then was short, so you may not live long enough to win! The computer will draw a map of the state. The size of the area in the wall grows as you buy more land. The size of the guard tower in the upper left corner shows how adequate your defences are, if it shrinks, equip more soldiers! If the horse and ploughman is touching the top wall, all your land is in production. Otherwise you need more serfs who will migrate to your state if you distribute more grain than the minimum demand. If you distribute less grain, some of the people will starve, and you will have a high death rate. High taxes raise money, but slow down economic growth. How long will it take you to become KING or QUEEN?

As you can see the game is really complex, but it is this complexity, that lifts the game above all other versions I have seen on ANY computer. . .!

Well, that just about wraps it up . . . but here is a small list of some of the software that will be available shortly from Aussie.

Power play chess:- currently undergoing tests in Australia and according to them it is really good. It is beating the popular chess computer "Novag". The program has speech and if it says it will checkmate you inside 20 moves IT WILL and there is nothing you can do about it! It has 8 levels of play.

Trillion Interceptor:- Sega's answer to Scramble . . . but better.

Lightening Disc Basic:- a new disc version of the Sega's BASIC is being written, this version, is about 20 times quicker than the BASIC at the moment, and leaves the user with about 40K free . . . Not bad eh!?

Okay, what's the damage? $19.95 for Vermin Invaders, Kingdom, Text adventures
$24.95 for Graphic adventure (Castle of Fear)
$27.95 for Vortex Blaster

IN SHOCK!

Isn't it funny how aliens and other evil nasties always seem to be nabbing harmless programmers (like you and me!) and saying "No . . . You can't escape until you complete. . ." and the task they give you is just about impossible!? Well, sorry folks, but once again a nasty race of aliens called Kamikaze Kombat Katerpillars has grabbed you, sedated you, (with a sledge hammer!) and thrown you on "The Grid."

To escape, you must move around and collect numbers, then reach the exit with a score of 0! AND race against time AND in the fewest number of moves! How on Pluto do you do it?

Well, let me explain. You start off with a total of 0, then you can move up, left, right or down by using the Q, I, P and Z keys respectively, and in doing so you land on a number and that number is added to your score, that square is then made 0. Now, if you have a score of say, 7 and you land on a square with the value of 6, your score does not become 13, but 3. This is called adding without carry. S ome other examples are 3+9=2, 6+5=1, and 9+8=7. As you can see if the number goes over 10 then the "1" at the beginning of the number is removed.

```
10  LM=40:BT$="00:00:30"
20  S$=CHR$(144)
30  ERASE:DIMZ(10,10):X=RND(-1):DEFFNR(X)
=INT(RND(8)*10)+1:T=0:Y=FNR(1):X=1:M=0:O
=FNR(10)
40  CLS:CURSOR13,0:PRINT"In shock!":CURSO
R13,22:PRINT"Total:  0":CURSOR27,0*2:PRIN
T"Out"
50  FORA=1TO10:FORB=1TO10:Z(A,B)=FNR(10)-
1:CURSOR4+A*2,B*2:PRINTZ(A,B):NEXTB,A:TI
ME$="00:00:00"
60  T=(T+(Z(X,Y)))MOD10:Z(X,Y)=0:CURSOR19
,22:PRINTT
70  CURSOR5+X*2,Y*2:PRINTS$:CURSOR4+X*2,Y
*2:PRINTO
80  A$=INKEY$:IFA$<>"Q"ANDA$<>"Z"ANDA$<>"
I"ANDA$<>"P"THEN70
90  SOUND1,1000,15
100  IFA$="Q"ANDY<>1THENY=Y-1
110  IFA$="Z"ANDY<>10THENY=Y+1
120  IFA$="I"ANDX<>1THENX=X-1
130  IFA$="P"ANDX=10ANDY=0ANDT=0THEN170
140  IFA$="P"ANDX<>10THENX=X+1
150  A=FNR(1):B=FNR(1):IFZ(A,B)=0THENZ(A.
B)=FNR(1)-1:CURSOR4+A*2,B*2:PRINTZ(A,B)
160  M=M+1:SOUND0:GOTO60
170  CLS:PRINT"You got out!":PRINT"Well d
one!"
180  PRINT"Moves";M:PRINT"Time  ";TIME$
190  IFBT$>TIME$THENBT$=TIME$
200  IFLM>MTHENLM=M
210  PRINT:PRINT"Least moves";LM:PRINT"Be
st time  ";BT$:PRINT"Score";10000+((59-VA
L(RIGHT$(TIME$,2))*500)-M*100)
220  FORA=0TO5:FORB=15TO0STEP-3:SOUND1,20
0,B:SOUND2,300,B:SOUND3,400,B:NEXTB,A
230  IFINKEY$=""THEN230
240  GOTO30
```

THE HOUSE

Jr ... Vanessa's Revenge

Many people have asked me how I got all those rooms into "The House!" (There are over 200!) Well, I won't tell you my coding techniques, but I will give you a hint!

The following program produces a system of doors and rooms identical to those found in "The House!" (Although "The House!" is a lot more complex, with purple people eaters, spells, gold, potions, fighting etc. . .). When you are in a given room, doors are shown, leading North, South, East or West or any combination thereof. If there is a door to the North, then you may exit that door (Pretty obvious!!).

The object of this cut down version is simple. . .find the ring. All the time the location of the ring is given and your location is also given, so as soon as locations match, you have found the ring. The program itself is very easy and simple, so you can add as much as you like, thus creating your very own version of "The House!". . .!

Okay, as stated beforehand, here is how the doors are stored. The only problem with explaining it, is that it involves binary and bits/bytes. Now I'm not going to give a lecture on binary math, so if you really want to get stuck into programming, then I suggest you buy "Teach Yourself Basic Games Programming, which is a cassette and booklet combination, (Do I hear you say. . ."He's getting a lot of free adverts?" Oh well!!!). Well, the book explains in full graphic detail the in's and out's of binary and hex etc., etc., etc.

Now, where was I? Oh! That's right. . .binary. Well those of you who understand binary...read on. Those who don't, type in the program THEN rush out and buy a copy of the set (PLEASE!!)

Well, we know that binary numbers are made up of "1"s and "0""s, and there are 8-bits to a byte, thus:—

bit no. . . . . > 7 6 5 4 3 2 1 0
bit. . . . . > 1 1 1 1 1 1 1 1

Note how the bits are numbered 0—7 and not 1—8. In "The House!" bits 0-3 held the data for the position of doors in any given room. Bit 0 was North, 1 the South, 2 the east, and 3 the West. If a bit was reset to 0 then there was no door, if it was 1 then there was a door. So here we go:—

bit 0 North 1. . .a door, 0. . .no door
bit 1 South 1. . .a door, 0. . .no door
bit 2 East 1. . .a door, 0. . .no door
bit 3 West 1. . .a door, 0. . .no door

So in the following example (bits 7 through 4 are ignored)

The room with the data 9, which is binary is 1 0 0 1, has a North door and a West door, because bit 3 = 1, which is West, and bit 0 = 1, which is North, the other bits are all 0, therefore they have no doors in that direction.

Let's take another example. . . 1 0 1 1, (11 decimal) has:—

bit 3 = 1, bit 2 = 0, bit 1 = 1, bit 0 = 1

Therefore, this room has doors to the North, South and West, but none to the East.

In the program, the data for all the doors is stored in the array A, in "The House!" The data is stored in machine code. The data for the doors is stored in data at the end of the program . . . Okay! Understand? GOOD!!!

```
1 REM MH
10 ERASE:DIMA(251)
20 RESTORE:FORJ=0TO251:READB$:B=VAL("&H"
+B$):A(J)=B:NEXTJ
30 PP=INT(RND(8)*250):PR=INT(RND(8)*250)
40 SCREEN2,2:COLOR4,15,,4:CLS:LINE(100,7
0)-(150,120),,B:LINE(95,65)-(155,125),,B
:PAINT(99,69):PATTERNS#0,"FFFFFFFFFFFFFF
FF":M=0:COLOR13
50 CURSOR 50,170:PRINT"Ring is in room";
PR
60 RESTORE10030:FORJ=0TO3:SPRITEJ,,,0:RE
ADB,X,Y:IF(A(PP)ANDB)=BTHENSPRITEJ,(X,Y)
,0,15
70 NEXTJ
80 COLOR1:BLINE(50,150)-(90,158),,BF:BLI
NE(50,180)-(164,188),,BF:CURSOR20,150:PR
INT"Moves";M:CURSOR50,180:PRINT"You are
in room";PP:IFPP=PR THEN CURSOR60,10:PRI
NT"You have found the ring!!":BEEP:GOTO8
0
90 I$=INKEY$:IFI$<>"P"ANDI$<>"I"ANDI$<>"
Q"ANDI$<>"Z"THEN90
100 I=(-1ANDI$="I")+(1ANDI$="P")+(-14AND
I$="Q")+(14ANDI$="Z")
110 IFI+PP<00RI+PP>251THEN90
```

```
120  IFI$="Q"AND(A(PP)AND1)<>1THEN90
130  IFI$="Z"AND(A(PP)AND2)<>2THEN90
140  IFI$="I"AND(A(PP)AND4)<>4THEN90
150  IFI$="P"AND(A(PP)AND8)<>8THEN90
160  SOUND1,1000,15:PP=PP+I:M=M+1:SOUNDO:
GOTO60
10000  DATAA,C,C,E,E,E,E,C,6,A,C,E,6,2,3,
A,E,F,D,7,B,6,B,5,2,9,F,7,B,F,5,B,E,D,D,
7,3,A,F,6,3,1,9,F,E,5,B,E,E,7,3,9,F,F,F,
6,A,F,F,C,F,D,7,9,D,6,9,F,5,3,B,D,D,E,F,
6,3,2,2,3,2,B,6,3,9,E,6,3,B,7,3,3,B,7,B,
F,5,3
10010  DATAA,5,9,7,B,F,F,F,7,B,7,B,C,7,3,
A,E,7,B,D,F,D,F,D,F,F,E,5,3,3,B,F,F,C,F,
C,5,A,F,F,D,6,9,F,7,B,F,4,B,6,2,B,F,7,A,
5,A,5,9,F,F,E,5,B,F,7,9,D,F,6,3,A,C,F,D,
D,6,B,7,3,A,E,7,1,1,B,C,F,E,C,F,7,3,1,3,
1,9,4
10020  DATAA,F,C,F,7,8,7,B,F,C,7,8,C,6,9,
D,E,D,D,E,F,D,F,6,B,6,2,3,2,8,D,C,C,5,B,
E,D,F,D,D,7,3,9,C,C,C,C,C,5,9,C,D,C,4,9,
5
10030  DATA1,120,62,2,120,118,4,94,90,8,1
50,90
```

Runes

If, like me, you are a bit of a Tolkein nut, then you'll appreciate the following program.

It changes all the lower case (a, b, c, . . .z) letters into the Elven runes, although of course, you could alter the program to u;se the upper case letters (A,B,C. . .Z) or perhaps sprites.

A couple of things must be kept in mind, the runes I and J are the same as are U and V.

The program could be used for, say, an adventure game you are doing or as a puzzle that needs to be de-coded.

```
10  DATA  80C0A080C0A08000
20  DATA  C0A090E090A0C000
30  DATA  8080C0A0908800
40  DATA  8888D8A8D8888800
50  DATA  88D8A8A8A8888800
60  DATA  A8C890E080808000
70  DATA  8888502050888800
80  DATA  88C8A8D8A8988800
90  DATA  1010101010101000
100  DATA  1010101010101000
110  DATA  90A0D0908888800
120  DATA  80C0A0908080800O
130  DATA  D8A8D888888888800
140  DATA  20A0602030282000
150  DATA  80D0A080D0A08000
160  DATA  D0A0808080A0D000
170  DATA  A0B0E8B0A0A0A000
180  DATA  80C0A0C0A0909000
190  DATA  8080B0D090101000
200  DATA  2070A8202020200O
210  DATA  80C0A0908888800
220  DATA  80C0A0908888800
230  DATA  C0A090A0C0808000
240  DATA  A8A8A8702020200O
250  DATA  F888F8A8A8A8A800
260  DATA  2020202070A8A800
300  RESTORE:FORA=0TO25:READA$:PATTERNC#A
+97,A$:NEXT
```

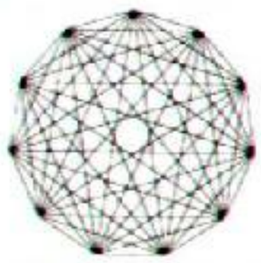
The Competition of the Year!!!

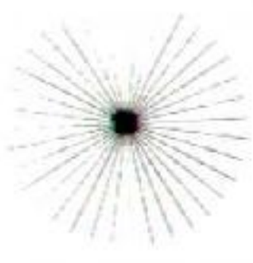
Well, here it is . . . the competition you've all been waiting for!

So, what's the Prize? Well, were giving away a new, shiny SP-400 Printer Plotter! Valued at $475.

The SP-400 is a very sophisticated printer, not only does it print letters, like all printers do, it also draws lines, allows you to write text in ANY size, in any of four directions, in any of four colours and in dotted lines if you like!

Below you can see a few of the possible print outs that are available, as you can see, the result is exceptional . . . and now you have the chance of winning one of them . . . !!!





Well, what do you do?

In the array of letters below, are hidden 15 words, you have to find them all! And then answer a few questions.

Here is the array . . .

Right, now here are the questions:

1] What does RAM stand for?
2] What is the SJ-300?
3] What is the SF-7000?
4] How many colours does the SP-400 have?
5] What does the "H" denote on the SC-3000H computer?

And that's it! Now the rules . . .

1) Only one application may be made per family.
2) The judges decision will be final.
3) No correspondance will be entered into.
4) The winner, is the first person whose name is drawn from a "hat", who has all 15 words correctly located, and answers all the questions correctly.
5) The winner will be notified by post on or before the second week of February.
6) The closing date for the competition is 5.00pm on January the 31st 1986.

If you don't wish to cut up your mag, then photo copy the square, put a ring around all 15 words, send it with your name and address, and the answers to the questions to:

The Competition
Grandstand Computers Ltd
CPO Box 2353
Auckland

Well that's it! So get to work, and who knows, YOU might be the proud owner of a brand new SP 400 Printer Plotter!

Competition . . . solution

Words to look for . . .

GRANDSTAND DISCDRIVE CARTRIDGE INTERFACE COMPUTER CASSETTE MACHINE
PROGRAM PRINTER PLOTTER MONITOR MICRO SEGA CODE TV

The Purple People Eaters Weed Garden

Michael Howard

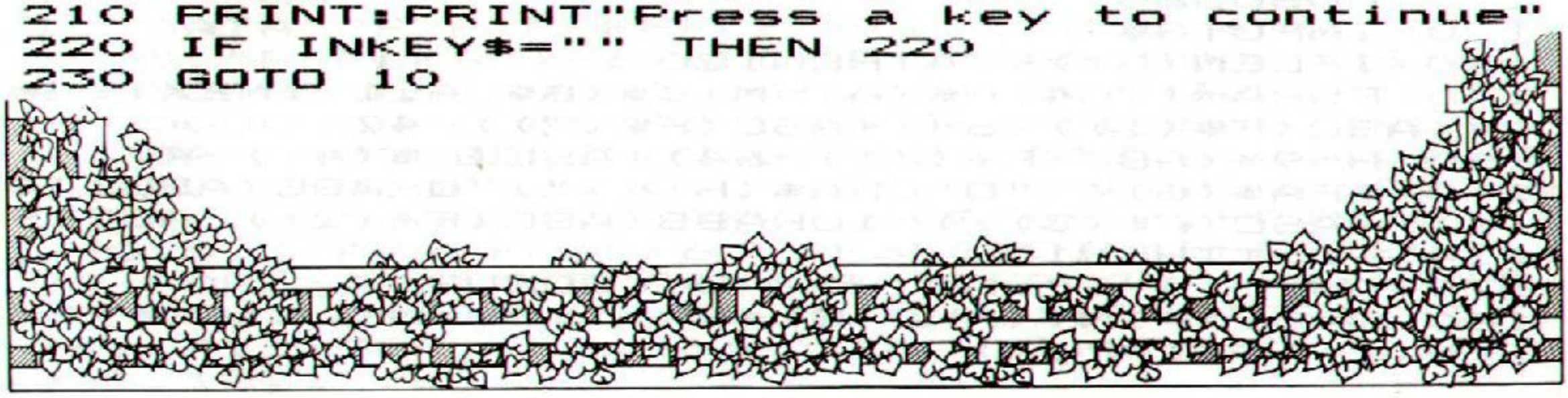
Once more folks, the PPE's are wreaking havoc on Earth! This time they have planted some nauseus plants called "Colinus Vulgaris" (a bit of Latin culture there!), commonly known as "Yuchweed". After some 3 weeks, the green horror had spread all over the land, devouring and smothering kiwifruit crops, grape crops and even television aerials, but the crunch came when potato crops were threatened. Parliament debated the situation for 72 hrs. With such questions raised as. . . "Where are we gonna get the chips for Fish and Chips?" So that was it! That was enough! It's one thing threatening the boom Kiwi fruit crop, but threatening spuds was pushing things too far. You have been summoned to combat the crazed chlorophyllic creepies! (The reason you've been chosen is that you're expendable! Ha Ha!)

Okay, enough of the waffle. In this game, you steer a bucket full of super, multicoloured, megaterrific, hyperfantastic, all singing, all dancing, overpriced, weed exterminator by using the "P" and "G" keys to steer right and left respectively. If you hold down the shift key as well as "P" and "G" you'll move the bucket at double speed. To drop the contents of the bucket, press the space bar and the weed underneath will wither away . . . well for awhile anyway!! Because after a short while it will grow back! With over 15 plants to choose from all growing at random speeds...this game is fun and not for the faint hearted!

The game ends when a weed hits the top rail on which you travel.

The High score is 646, attained by my cat "MegaPuss."

```
10  REM  MH
20  ERASE
30  DIM  H(17)
40  P=&H3CDC
50  S=0
60  Z$=CHR$(144)
70  CLS
80  CURSOR 8,1:PRINT"The PPE's Weed Garde
n"
90  CURSOR 9,5:PRINT"!--------------------!"
:FORA=6 TO 15:CURSOR 9,A:PRINT"!
            !":NEXT:CURSOR 9,16:PRINT"======
================"
100  VPOKE P,229
110  A=INT(RND(8)*17)+1:H(A)=H(A)+1:CURSO
R A+9,16-H(A):PRINTZ$:IFH(A)>10THEN180
120  IF RND(8)>.6 THEN 110
130  A$=INKEY$:P1=(A$="Q")-(A$="P")+2*(A$
="q")-2*(A$="p"):IF P+P1<&H3CD4 OR P+P1>
&H3CE4 THEN 100
140  IFA$=" "THENSOUND1,200,10:A=P-&H3C02
:Q=INT(A/40):Q=(A-(Q*40))-9:S=S+H(Q):CUR
SOR10,18:PRINTS:FORA=6TO15:CURSORQ+9,A:P
RINT"  ":NEXT:H(Q)=0:P1=0:SOUND0
150  IFP1=0THEN100
160  VPOKEP,129:P=P+P1
170  GOTO 100
180  FORA=0TO10:BEEP:NEXT
190  CURSOR0,21
200  PRINT"Oh dear..it's all over!!!"
210  PRINT:PRINT"Press a key to continue"
220  IF INKEY$="" THEN 220
230  GOTO 10
```



Paula and her Quest for Balloids

. . . Michael Howard

The Earth stood still the day Paula decided to declare war (for no apparent reason) on an innocent, pacifist race of Balloids on the planet Pentes. Balloids are small furry spheres of good intent, and look somewhat like "tribbles" from Star Trek" . . . small, cute and cuddly! Paula on the other hand, is mean and evil, totally malevolent with a cackle similar to that of a witch, that could easily raise the dead!

Now, no matter what Maria (she thought she was perfect and anyone wishing to destory innocent creepies is mean. . .(she's right!) did to stop Paula from fulfilling her hateful quest was in vain. There is no way that Paula, the evil boss of Mutant apples, (and the sworn foe of Kamifaze Kombat Katerpillars — who are the sworn foe of Purple People Eaters — who are the sworn foe of Siddy Superspook — who is the sworn foe of Vanessa the Vampire — who is the sworn foe of Fearless Fred!) was going to relinquish her campaign of slaughter. As soon as she had got a couple of bottles of B ourbon and placed them in the cargo hold of her Triumph powered-Meta galactic, fuel injection, turbo space vehicle (called "Trike") along with her cookies and black leathers . . . she was off! Off on a destory crazy trip to Pentes. Luckily for the Balloids they detected her coming on their DATIDAB scanner (Detect All That Is D opey And Brainless), and managed to assemble an army of elite Balloids. As soon as Paula landed on the planet surface she could tell that something was amiss. "So this is where Vicks Vapo rub comes from!", she said giggling to herself, as she sniffed the atmosphere. Then, on the horizon came an army of muscly Balloids, armed to the teeth with knitting needles, but Paula wasn't scared.

The battle that commenced, is controlled by YOU! You must (as Boss in Chief) move your army of Balloids to completely contain Paula, by entering some coordinates. You can move 1 Balloid at a time in any direction including diagonal, but only to an adjacent square. The computer plays the part of Paula, and uses Artificial Intelligence (which makes up for her lack!) to move around. She eats Balloids by jumping over them (similar to draughts or checkers). Your job is to make it impossible for Paula to move, by pinning her in a corner and completely surrounding her. From whence you can do lots of nasty things to her, like torture her, to name but a few things!

Some Notes: The coordinates are given in the fashion E2D3, ie. you want to move from E2 to D3.

In the listing, the "@" 's are in fact solid black squares, and the "+" is a small man. The funny looking "e" in lines 210 and 270, is also a black square.

```
10 REM MH
20 CLS:PATTERNC#79,"0070D8A8A8D87000":PA
TTERNC#253,"D8D80020008870":PATTERNC#46,
"0000003333000000":CURSOR2,0:PRINT"Paula
 & her quest for Balloids"
30 A$=" 1234567 A@@...@@AB@@...@@BC...+.
..CD.......DE0000000EF@@000@@FG@@000@@G
1234567"
40 DIMA$(80),F$(4):FORA=1TO80:A$(A)=MID$
(A$,A,1):NEXT
50 Z=32:GOTO110
60 DE=1:CURSOR11,6:FORA=1TO71STEP9:FORB=
0TO8:PRINTTAB(B+11);A$(A+B);:IFA$(A+B)="
0"THENDE=0
70 NEXT:PRINT:NEXT
80 PRINTSPC(12);"1234567":FORA=15TO21:CU
RSOR0,A:PRINTCHR$(5):NEXT
90 IFDETHENCURSOR12,18:PRINT"I win!!":EN
D
100 CURSOR0,15:RETURN
110 GOSUB60
120 INPUTG$
130 IFLEN(G$)<>4THEN120
140 FORA=1TO4:F$(A)=MID$(G$,A,1):NEXT:G=
9*(ASC(F$(1))-64)+ASC(F$(2))-47
150 H=9*(ASC(F$(3))-64)+ASC(F$(4))-47
160 IFA$(G)<>"0"ORA$(H)<>"."ORABS(ASC(F$
(1))-ASC(F$(3)))>1ORABS(ASC(F$(2))-ASC(F
$(4)))>1THEN120
170 A$(G)=".":A$(H)="0":GOSUB60
180 Q=0:X=INT(RND(8)*8)+1:B$=MID$("(:<)3
1;*(:<)31;*",X)
```

```
190 FORX=1TO8:N=ASC(MID$(B$,X,1))-50:IFZ
+2*N<1ORZ+2*N>8OTHEN220
200 IFA$(Z+N)<>"O"ORA$(Z+2*N)<>"."THEN22
0
210 A$(Z)=".":A$(Z+N)=".":A$(Z+2*N)="è":
Q=1:Z=Z+2*N:GOSUB60:BEEP:GOTO190
220 NEXTX
230 IFQ=1THEN120
240 FORX=1TO8
250 N=ASC(MID$(B$,X,1))-50:IFZ+N<1ORZ+N>
8OTHEN280
260 IFA$(Z+N)<>"."THEN280
270 A$(Z)=".":A$(Z+N)="è":Z=Z+N:GOTO110
280 NEXTX
290 CURSOR12,18:PRINT"You win":END
```

SATURN

This program (small it may be) does one thing. It takes a while, but the result is worth waiting for . . . it draws a 3D picture of Saturn, and Saturn rings. It also incorporates a simple, but interesting, form of shading.

```
10 SCREEN 2,2:COLOR14,1,,1:CLS
20 X=128:Y=90:IN=.08:R2=28
30 FOR R1=100 TO 65 STEP-5
40 R2=R2-1
50 FOR TH=0 TO 2*PI-IN STEP INC
60 LINE(R1*COS(TH)+X,R2*SIN(TH)+Y)-(R1*C
OS(TH+INC)+X,R2*SIN(TH+INC)+Y)
70 NEXT TH
80 LINE-(R1+X,Y)
90 NEXT R1
100 BCIRCLE(128,90),50,,1,.5,1,BF
110 R2=50:ST=.015:CIRCLE(128,90),50,,1,1
,0
120 FOR R1=46 TO 16 STEP-4
130 FOR TH=PI/2 TO 1.5*PI STEP ST
140 PSET(R1*COS(TH)+X,R2*SIN(TH)+Y)
150 NEXT TH:ST=ST+.009:NEXT R1
```

Merlin the Cat

This program is in remembrance of the best cat who ever lived . . . Merlin the black cat! Those of you who have seen the front cover of "More Than 50 Programs" will have seen the cat, well that is little old Merl-Merl!

Just run the program and see the result.

Do cats get to eat mice in heaven? I hope so!

```
1 REM MH
10 DATA"7F7F7FFFFFFFDFCF","C3C060603C3FO
300","FBFBFBF7F6F6ECE8","FFFFOOOOOO87FF7
8","OOOOOOOOOOOOOOOO","O1O3O7O7OF1F1F3F"
,"OOOOOOOOOOO1FFF","FFFFFFFFFE8E77FB"
20 DATA"77B8B8383838387038","1ECCOOOOOOCOF
838","8OOOOOOOOOOOOOOO","OOOOOOOOOOOOOOO
O","OOOOOOOOO3OFFFFF","FFFEFEFEFC7B7B77"
,"O1O2OEFEFEFCFEF6","F6FC7C381EFFFEEO"
30 FORA=OTO15:READA$:PATTERNS#A,A$:NEXT
40 MAG1:SPRITEO,(50,50),O,1:SPRITE1,(50,
34),4,1:SPRITE2,(66,50),8,1:SPRITE3,(66,
34),12,1
```

Book Reviews

Instant Programming on your Sega SC-3000

At last a book is available that enables the absolute beginner to learn the art of programming. In fact here is a quote from the introduction ...

> "This is a book for beginners. It's for people who have just acquired their Sega SC3000 and want to write their own programs for it. It takes you step by step through the functions of the computer's keys, introduces you to the BASIC commands you'll need to write your own programs and shows you how to put them together into programs that really work."

And that just about sums it up! The book is extremely easy to read and is laid out in what I would call quite a unique manner. The first half of the page is called the "action" column, whilst the right hand side is called the "result" column, so by cross-referencing the two columns you get a true insight into what is going on! When you do something, by following what is written in the action column, you get a result, and that result is already available in the result column, so you can check if you have made a mistake or not!

Another really nice touch is the way that new topics and major commands are shown by the use of mice. The first cartoon demonstrates the use of the CLS instruction (Clear the Screen), it displays firstly a load of mice on a mock-up TV screen gobbling up cheese (if only I had my cats, Saskutz, Merlin or Megapuss here!!), then as soon as you press the CLS key the mice all disappear! (Good job) and that's it ... I mean you couldn't really expect an easier way of describing the command, could you?!

This book covers everything from simple uses like the delete key to nested loops and data storage ... all in all a great book!

21 Fabulous Programs for your Sega SC-300 Computer

Here we have another one of those most useful of books, the book of programs. I mean, it's all well to teach someone how to program, but a book of programs shows a person how to implement those skills ... that's why I like books of programs!!

This book, contains twenty one medium sized programs and gives a "How to use" sections, a "Notes on the program" section, a "Changes you can make" section and a program listing (of course!!). The book contains such programs as Tic-Tac-Toe, light show, horse race and Sega poet.

The two books are going to be priced about the $25 mark and further information can be gained from:-

Watt's Bookshop Ltd
Books 'A' Plenty
PO Box 383
Tauranga

WALLYJACK

Michael Howard

This is the best dice simulation yet! (Well, I like it!!!) You can have up to 5 mates play against the computer (who is called Wally). Firstly you enter all your initials, (up to 3 digits long), then the game starts.

The object is simple. Either roll the dice 10 times without getting a score of over 31, — this gives a cheat and pays heaps, — or get a score of 31 with 10 rolls, thus getting a Wallyjack cheat, which pays megabucks!

You can bet after the two rolls . . . which are given to you automatically. To roll the dice again press D, to stop press S. When you stop the next person has his/her go. Wally goes last. If no one gets a cheat or Wallyjack then the person with the highest score wins.

The game finishes when someone gets to be $1,000,000 or someone has no money!

The game is really addictive. I hope you like it!

```
10 DEFFNR(X)=INT(RND(8)*X)+1
20 SCREEN 1,1:CLS
30 INPUT"How many players?(1-5) ";NP:IFNP<1ORNP>5THEN20
40 NP=NP+1:PRINT"And me makes";NP;"!!"
50 ERASE:DIMM(NP),SC(NP),F(NP),N$(NP),R$(NP),C(NP),B(NP):N$(1)="Wal":EF=0
60 FORI=1TONP:M(I)=100:C(I)=2:NEXT
70 PRINT"My name is Wally!!"
80 PRINT"Please now enter players names":PRINT"Player# 1 Me...!!"
90 FORI=2TONP
100 PRINT"Player#";I;
110 INPUTN$(I):IFLEN(N$(I))>3 OR LEN(N$(I))<1THENBEEP2:GOTO100
120 NEXTI
130 CLS:PRINT"Pleased to meet you ":FORI=2TONP:PRINTN$(I):NEXT
140 PRINT"Okay,because I'm so brainy I'll deal!"
150 PRINT"I'll deal to all players,then to me"
160 PRINT"Press 'D' to Deal,'S' to Stick"
170 BU=0:PRINT:FORI=2TONP:SC(I)=0:PRINT"Get ready ";N$(I):PRINT"You have $";M(I)
180 J=1:GOSUB840
190 J=2:GOSUB840
200 INPUT"How much do you bet? ";MB
210 IFMB<1ORMB>M(I)THENBEEP2:GOTO200
220 M(I)=M(I)-MB:B(I)=MB
230 BEEP:BEEP:BEEP
240 A$=INKEY$:IFA$<>"D"ANDA$<>"S"THEN240
250 IFA$="S"THEN320
260 J=J+1:C(I)=J:GOSUB840
270 IFSC(I)>31THENC(I)=-1:PRINT"Busted.":BU=BU+1:GOTO320
280 IFSC(I)=31ANDC(I)>9THENPRINT"You've got a WallyJack..& a cheat!!!":GOTO320
290 IFSC(I)=31THENPRINT"You've got a WallyJack!!":GOTO320
300 IFC(I)>9THENPRINT"You've got a cheat!!":GOTO320
310 GOTO230
320 BEEP:FORX=0TO300:NEXTX,I
330 PRINT"Okay my go...!":I=1:SC(1)=0
340 PRINT"I have $";M(1)
350 J=1:GOSUB840
360 J=2:GOSUB840
370 PRINT"I'll bet $";
380 MB=M(1)*.2
390 IFSC(1)<8THENMB=M(1)*.25
400 IFSC(1)<6THENMB=M(1)*.5
410 IFSC(1)<4THENMB=M(1)*.75
420 IFSC(1)<3THENMB=M(1)*.85
430 MB=INT(MB):IFMB<1THENMB=1
440 PRINTMB:M(1)=M(1)-MB:X=2:B(1)=MB
450 F1=0:F2=0:FORI=2TONP
460 IFSC(I)=31THENF1=1
470 IFC(I)>9THENF2=1
480 NEXT
490 I=1:X=X+1:J=X:C(1)=X:GOSUB840
500 IFSC(1)>31THENPRINT"Busted...Huh!":C(1)=-1:GOTO590
510 IFSC(1)=31ANDX>9THENPRINT"Ha Ha,I've got a WallyJack & a cheat!":GOTO590
```

```
520 IFSC(1)=31THENPRINT"I've got a WallyJack!!":GOTO590
530 IFX>9THENPRINT"I've got a cheat!":GOTO590
540 IFBU=NP-1THEN590
550 IFF2 OR F1 THEN490
560 FORF=2TONP
570 IFSC(F)>SC(1)THEN490
580 NEXTF:GOTO590
590 FORX=0TO400:NEXT
600 CLS:PRINT"Okay here's a rundown"
610 FORI=2TONP
620 PRINTN$(I);:GOSUB850
630 PRINT:NEXT
640 PRINT"Wal";:I=1:GOSUB850
650 PRINT:PRINT
660 FORI=1TONP:IFF(I)THEN730
670 NEXT
680 X=0:FORI=30TOOSTEP-1
690 FORJ=1TONP
700 IFSC(J)=ITHENF(J)=2:X=1
710 NEXTJ:IFXTHEN730
720 NEXTI
730 DF=0:FORI=1TONP
740 PRINTN$(I);" ";:A$="lost":IFF(I)<>0THENA$="wins":M(I)=M(I)+B(I)*(F(I)+1)
750 PRINTA$;"..now..$";M(I);" left":IFM(I)<=0THENDF=I
760 IFM(I)>=999999THENEF=I
770 NEXT:IFDFTHEN820
780 IFEFTHEN830
790 PRINT"Press a key for next game"
800 IFINKEY$=""THEN800
810 CLS:GOTO150
820 PRINTN$(DF);" Has lost.......":FORI=15TOOSTEP-.25:SOUND1,110,I:NEXT:END
830 PRINT"We have a Millionaire!!":PRINTN$(EF);" can you lend me $5?":END
840 S=FNR(6):PRINT"Roll#";J;"...";S;" Total..";:SC(I)=SC(I)+S:PRINTSC(I):RETURN
850 PRINT" Total";SC(I);:F(I)=0
860 IFC(I)=-1THENPRINT"...Ha Ha...";TAB(25);"$";B(I);" bet"
870 IFC(I)<>-1THENPRINT" Off";C(I);" dice";TAB(25);"$";B(I);" bet"
880 IFC(I)>9THENF(I)=2
890 IFSC(I)=31THENF(I)=F(I)+5
900 RETURN
```

ANTI - MASTERMIND

This program is another one in my list of Artificial Intelligence series, and let me warn you now...this little gem is a real pain in the "You know what!"..it gets a code of 4 digits, that you make up, in less than 7 moves!

Now, I know that you know how to play Mastermind, you know the peg game? Good! Well, instead of some lousy computer setting up the hidden code and you trying to guess the answer (or at least work it out), YOU make up the code and the computer tries to work out the code!

You firstly write down a 4 digit code using the digits 1,2,3, and 4 (eg 1422). Then RUN the program. Once the Sega has made a guess, enter it's score as follows: The first digit is the number of "blacks", these represent a correct digit in the correct place, the second digit being the "whites", these showing a correct peg but in the wrong place.

As an example if the code you made up is 1234, and the computer guesses 2231, then the answer is 21, because there are 2 numbers in the right place and the right number (numbers 2 and 3), and one number is correct but in the wrong place (that number is the number l). The game finishes when you give a score of 40 (all numbers in the right places).

The program is quite slow, but sometimes it can be quick so please bare with it! If for some reason you enter a wrong score, the computer will actually be able to tell you at the end of the game! (depressing isn't it?).

The reason for using only the digits 1, 2, 3 and 4 is because it strikes a balance between speed and difficulty.

Anyway I hope you like it, and it certainly is a lot of fun at a small gathering of computerniks.

```
1  REM  MH
10  CLS:PRINTTAB(8);"Black  White"
20  DIMA(10,5),Z$(4)
30  Z=INT(RND(8)*4)+1:Q$=MID$("12341234",
Z,12-Z):FORA=1TO4:Z$(A)=MID$(Q$,A,1):NEX
T
40  S=1:G=1:Q=1
50  FORZ=ST04:FORY=ST04:FORX=ST04:FORW=ST
04
60  A(G,1)=Z:A(G,2)=Y:A(G,3)=X:A(G,4)=W
70  IFQ=1THEN180
80  FORT=1TOG-1
90  E=4
100  K=A(T,1):L=A(T,2):M=A(T,3):N=A(T,4)
110  FORP=1TO4
120  R=A(G,P)
130  E=E+(R<>KANDR<>LANDR<>MANDR<>N)
140  NEXTP
150  E=E+9*(-(Z=K)-(Y=L)-(X=M)-(W=N))
160  IFE<>A(T,5)THEN360
170  NEXTT
180  CURSORO,G:PRINTZ$(Z);"  ";Z$(Y);"  ";Z
$(X);"  ";Z$(W);
190  A$=""
200  FORP=OTO1
210  B$=INKEY$:IFB$<"O"ORB$>"4"THEN210
220  BEEP
230  A$=A$+B$
240  IFINKEY$<>""THEN240
250  NEXTP
260  IFVAL(LEFT$(A$,1))+VAL(RIGHT$(A$,1))
>4THEN190
270  PRINT"    ";LEFT$(A$,1);"      ";RIGHT
$(A$,1)
280  A(G,5)=VAL(A$)
290  Q=O:G=G+1
300  IFG=11THENPRINT"I  give up...!!":END
310  IFVAL(A$)=4OTHENPRINT,,"I guessed th
e code in";G-1;" goes":END
320  IFVAL(A$)=OTHENS=S+1
330  IFVAL(A$)<1OTHEN390
340  IFVAL(A$)<2OTHEN380
```

```
350  IFVAL(A$)<30THEN370
360  NEXTW
370  NEXTX
380  NEXTY
390  NEXTZ
400  PRINT"You cheated..!!"
```

Maths

Maths can be fun at times!

Have you ever wondered how some loopy mathematician has been able to guess a number you are holding in your head by asking you a few simple divisions and then telling you what the number is?

Well if so, then this little program will be of interest to you. To run the program just enter a number in the range 111..999, and after a few steps the computer will have got the number you entered!

I won't explain how it works, just play around with it. I'd like to hear from anyone who comes up with some similar maths puzzles.

Maths can be fun!

```
1   REM MH
10  CLS
20  INPUT "Please enter a number (111-999)";x
30  IF x>999 or x<111 THEN 10
40  x$=STR$(x)
50  x$=x$±x$
60  x=VAL(x$)
70  PRINT "Step A...";x
80  x=x/?
90  PRINT "Step B...";x
100 x=x/11
110 PRINT "Step C...";x
120 x=x/13
130 PRINT "Last step";x;".....";
140 PRINT"WOW!!!"
```

Goto Page 12

Pg 2

The Earth

by Andrew Upjohn

This little program (in fact there are two of them) is one of my favorites, and I take my hat off to Mr Up john for his work on this.

The smaller of the two programs is a demo showing the moon revolving around the Earth against a back drop of stars (isn't it romantic!?).

The program could be used for many things ranging from education to the basis of a global warfare game or some such manic game.

Any way, I'd like to see any programs that arise from this brilliant code, just send them to Me (Michael) at Grandstand, and I'll gladly publish them.

```
10 REM HEMI-SPHERES
20 SCREEN 2,2:CLS:COLOR3,1,(0,0)-(255,19
1),1:P=255
30 CIRCLE(93,29),27,3,1,0,1:CIRCLE(153,2
9),27,3,1,0,1
40 FOR I=88TO 124:READ A$,X,Y:PATTERNC#P
,A$:CURSORX+70,Y+5:PRINTCHR$(P):NEXTI
50 DATA 8040004040,4,37,001098FB671C0F31
,10,-2,0101001CC27F0181,18,-2,88FC0C2E82
303E,26,-1
60 DATA 81C040404060301O,18,6,D774060404
040C78,26,6,EEB8591F03,21,14,4000700CC0C
F6938,29,14
70 DATA 0898101808OC0602,28,22,C06020380
E030103,37,20,1030202167SCF0E0,31,30,081
81070C080,39,28
80 DATA E0C050,30,38,3CE060C08080,19,46,
0C90E02038,25,45,01070F0C103F61C1,62,6
90 DATA 1800032ECD33FE,70,0,E3DEF0,78,2,
7FC0,86,0,C0808080E0203432,96,1
100 DATA E038280C44FD1515,70,8,C04040C0C
040407E,60,14,8080C040404040,66,22,82C
664243C18,68,30
110 DATA C0808OC058D89890,74,24,B7D75C60
3C181030,73,16,C0709EE33181,78,13,1C76C3
C181200201,86,16
120 DATA 715B6A223030,68,95,9,E0A4C4E0418
```

```
9983A,94,16,9A4278020003061C,94,24,20703
C04D0D07010,102,24
130 DATA 404040FC05070204,96,32,404040C0
80,104,32,030E3820404080,76,44,8CF8,82,4
3,80F01C040603,88,43
140 REM EARTH
150 FOR I=1 TO 87:READ A$,X,Y:PATTERNC#P
,A$:CURSORX+55,Y+70:PRINTCHR$(P):NEXTI
160 DATA 100C1C08303060C0,78,66,C8,63,51
,050F1830E08080C0,56,52,90D8780C06020301
,64,52,404FF860,56,60
170 DATA 01C163223E000C04,64,60,0C3818E8
F8,89,4,80F01C,95,3,0C0C0C008CF8,101,1,D
CBCB40CC07C080C,107,1
180 DATA 3494E0E44C14F4BC,113,1,801C301C
80D87870,119,1,C060F0783E3678,125,2,1070
C06C380C3040,89,9,7CC480,95,11
190 DATA 80C06070 58,101,12,040C08080C04,
113,9,C898000000000C078,119,9,7E04E0B49EC
040C0,125,9,C06030F01038C880,131,14
200 DATA F0503020206040 60,105,17,18180C,
119,17,8C98941C183060 40,125,17,C0603C160
A0A0B05,107,25,0C181090,115,30
210 DATA 040C18F0901008,121,25,90D07C3C,
115,33,18C4C080E060201C,121,33,802000007
8CC84,127,34,0101030286040 6,120,41
220 DATA 80F018080C04,133,40,E0301808183
02020,139,45,8080C06030101010,126,48,040
C1830604 0C080,136,53,4040404074546CE,12
8,56
230 DATA 4C4848585 0D8F0,127,64,C6E070,12
8,71,30F0C0000000 0404,3,7,08181804,3,15,
0C080C04001C1010,3,23
240 DATA 3020604040C080C0,3,31,60301C08,
3,39,040C0C0C8884C8CC,9,10,E89870C05C50F
060,9,17,C01CF484,9,25
250 DATA F80C0004040 4,9,41,0C3860CC9814D
474,15,5,E44C08F80000E0B0,15,13,D86C2828
400000DC,15,21,74,15,29
260 DATA 80808000 80C04040,15,42,40C08080
80808080C3,15,50,466C2838,15,58,C0707CDCEC
BE,21,5,C040780808080808,21,22
270 DATA F8782C34180 80C04,21,29,040C1810
10107040,21,49,040C0C04005C70C0,27,2,1C1
09C80C46CB8F0,27,30,80F03020 60C08080,27,
38
280 DATA 80808080,27,46,2060E0A0A0E0C000
,27,50,10E000000040C68FC,33,0,C0788CC4840
4,33,30,C4DC50D0B0E0,38,4
290 DATA C0E4ACE868283810,39,35,0C3CE080
80,44,1,70D0909C040C0804,45,33,60F8080C,
50,0,30502030180004,48,41
300 DATA 047C4040602 0E040,51,32,9CF4,56,
3,70DC8C,56,23,E4242020206 0C0A0,56,26,0C
0C000CB8E0,62,1
310 DATA 01137EC0,64,11,6040741414346 4C0
,62,15,848E0B183878F080,62,23,A09000 80F0
180C,68,1,C4840C1C141810,70,12
320 DATA 8FF8000039E94F10,72,6,F0FE9CC1C
0,80,6,0420202010 9818,57,30,3064E8EC6C00
9004,54,41,0000400140C,60,41,E4E8D008,66,
45,400804000008000 20,72,41
330 PSET (146,105),3:PSET (92,140),3
340 REM GRAPH LINES
350 FOR O=52.5 TO 210 STEP 12.5:LINE (O,
70)-(O,150):NEXT
360 DATA 70,81,100,115,130,150
370 FOR I=1 TO 6:READ E:LINE(52,E)-(202,
E):NEXT
380 PATTERNC#48,"708898A8C88870"
```

EARTH DEMO

```
10 SCREEN 2,2:CLS
20 VS=1
30 COLOR 1,1,(0,0)-(255,191),1
40 FOR E=1 TO 200:PSET (RND(1)*255,RND(1
)*191),14:NEXT
50 CIRCLE (31,30),10,5,1,0,1,BF
60 CIRCLE (31,30),20,14,.2,.85,.65
70 COLOR 8:CURSOR 100,180:PRINTCHR$(17);
"SEGA":CURSOR 164,180:COLOR 14:PRINTCHR$
(16);"Earth-Demo"
80 GOSUB 490
90 MAG 1
100 SPRITE 0,(147,123),0,1
110 GOSUB 230
120 FOR I=1 TO 7.2STEP.05
130 X=SIN(I)*80+125:Y=COS(I)*20+80
140 IF INT(X)<147AND INT(Y)<63 THEN VS=0
:T=1
150 IFX<186ANDY<87ANDX>129THENGOSUB340
160 IFX<120ANDY<69ANDX>69THENGOSUB440
170 IFX>186ANDY<95ANDY>69THENGOSUB290
180 IFX<68ANDY<95ANDY>69THENGOSUB390
181 IFX>74ANDY>95ANDX<166THENGOSUB490
190 IFT=1 THEN IF INT(X)<83 AND INT(Y)>4
9 THEN VS=1
200 IF VS=1THENSPRITE 0,(X,Y),0,14
210 IF VS=0 THEN SPRITE 0,(255,255),0,1
220 NEXT:GOTO120
230 BCIRCLE(123,79),27,0,1,0,1,BF:CIRCLE
(123,79),27,3,1,0,1
240 FOR I=88TO 102:READ A$,X,Y:PATTERNC#
61,A$:CURSORX+100,Y+55:PRINT "=":NEXT:RE
TURN
250 DATA 8040004040000000,4,37,001098FB6
71C0F31,10,-2,0101001CC27F0181,18,-2,008
8FC0C2E82303E,26,-2
260 DATA 81C040404040603010,18,6,D7740604
4040C78,26,6,EEB8591F03000000,21,14,4000
700CC0CF6938,29,14
270 DATA 0898101808080C0602,28,22,C060203
0E030103,37,20,1030202167SCF0E0,31,30,08
181070C0800000,39,28
280 DATA E0C0500000000000,30,38,003CE060
C0808000,19,45,0C90E02038000000,25,45
290 PATTERNS#0,"00030E162B1F667E"
300 PATTERNS#1,"372A170D0701"
310 PATTERNS#2,"0080F0785860BEEA"
320 PATTERNS#3,"8E04440498E0C0"
330 RETURN
340 PATTERNS#0,"0000000070B1A3F2F"
350 PATTERNS#1,"3B29010B01"
360 PATTERNS#2,"000000C0A0F050F0"
370 PATTERNS#3,"D090E060C0"
380 RETURN
390 PATTERNS#0,"00030C1F3A363D6F"
400 PATTERNS#1,"5F25271131F0701"
410 PATTERNS#2,"0080E0D0F0F498AA"
420 PATTERNS#3,"089464D878A0C0"
430 RETURN
440 PATTERNS#0,"0000000101071D171D"
450 PATTERNS#1,"17050F0603"
460 PATTERNS#2,"000000C0A0D0F0D8"
470 PATTERNS#3,"58B8D0A0C0"
480 RETURN
490 PATTERN S#0,"030F1F3B2F7B7EC8"
500 PATTERN S#1,"F2503A29310B0701"
510 PATTERN S#2,"C0B048E452C205BB"
520 PATTERN S#3,"4141820000050E080"
530 RETURN
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