

FOR AMSTRAD, IBM AND OTHER PC COMPATIBLE BEGINNERS • \$4.50

THE *PC* MAG

plus

**THE
AMSTRAD
USER**

September
1991

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PIRACY:
*Who's
really
being
burned?*



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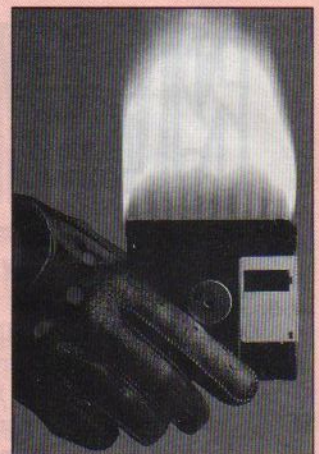
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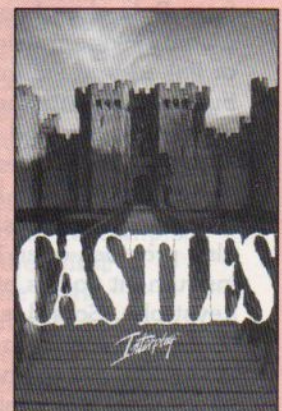
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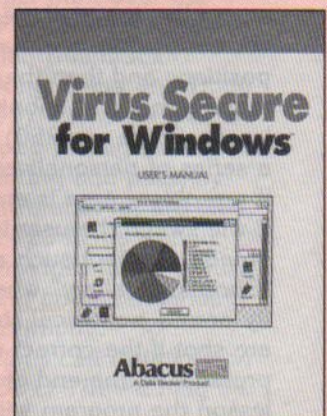
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• Castles, a new castle-building strategy game, gets the thumbs up on page 15



• Virus Secure - latest release from Abacus to protect your Windows environment.

Guide to M/code - 8

Alex Aird discusses 'pressing' matters to do with CPC screens and halting loops.

The following program combines the ideas of squashing the screen both vertically and horizontally. The screen is always 40 characters wide and 25 characters high so far as the 6845 chip is concerned. So the following program will work in any mode.

```
10 BORDER 0
20 FOR a=25 to 0 STEP -1
30 OUT &BC00,6
40 OUT &BD00,a
50 OUT &BC00,1
60 OUT &BD00,INT(a*1.6)
70 FOR delay=1 to 50:NEXT:NEXT
80 CALL &BB18:'press any key
90 FOR a=0 to 25
100 OUT &BC00,6
110 OUT &BD00,a
120 OUT &BC00,1
130 OUT &BD00,INT(a*1.6)
140 FOR delay=1 to 50:NEXT:NEXT
```

You can load a screen at line 80 instead of simply waiting for a key press. This idea is used in several commercial games.

A BASIC PROGRAM

```
10 FOR a=25 to 0 STEP -1
20 OUT &BC00,6:OUT &BD00,a
30 FOR delay=0 to 50:NEXT delay
40 NEXT a
```

THE MACHINE CODE EQUIVALENT

```
ld a,25
.loop
ld bc,&bc06
out (c),c
ld b,&bd
out (c),a
ld b,50
.delay
halt
djnz delay
dec a
jr nz,loop
ret
```

It may look a little strange that in machine code we use &BC06 and in Basic we use &BC00.

It is all to do with the way the z80 chip interprets the out (c),c instruction. The Z80 gets the address &BC from the b register and sends the contents of the c register down the data lines.

```
ld b,&bd
out (c),a
```

and in this case the contents of the A register are sent down the data lines and although the instruction is out (c),a the C register is not really involved.

MACHINE CODE DELAY LOOPS

The easiest way to get a short delay is to use the HALT instruction. It tells the Z80 to suspend operation of the program until an interrupt occurs. Now, on the CPC computers, interrupts are happening all the time, 300 times a second in fact. So by telling the z80 to halt 300 times, you get a one second delay. In the machine code program, the delay is 1/6 of a second.

Whatever you do, DO NOT disable interrupts before using HALT. The z80 will wait forever for an interrupt that will never happen.

I will pass converting of lines 60 and 130 of the first Basic program. The calculation of INT(a*1.6) can get rather complicated. First I shall go into shift and rotate instructions. They are:-

RLC	Rotate Left Circular
RRC	Rotate Right Circular
RL	Rotate Left
RR	Rotate Right
SLA	Shift Left Arithmetic
SRA	Shift Right Arithmetic
SRL	Shift Right Logical
RLD	Rotate Left Decimal
RRD	Rotate Right Decimal

The instructions SLA, SRA and SRL are most useful in calculations. eg to multiply by two

```
ld a, 3
sla a
```

and a=6

It is easier to see when the numbers are converted to binary

3 decimal = 0000011
6 decimal = 00000110

To divide by two it is just as easy

```
ld a, 4
srl a
```

and a=2

If you start with an odd number then you will have a remainder which is kept in the carry flag.

Earlier I mentioned converting the Basic line INT(a*1.6). This is the same as INT(a*8/5). Now a*8 is easy. Just repeat the instruction sla three times.

ld a,25	;a=25	Binary
sla a	;a=50	11001
sla a	;a=100	110010
sla a	;a=200	1100100

All you need to watch out for is if the answer exceeds 255. If it does then carry will be set. The difficult bit is dividing by five. More on that another time.

ASSEMBLER CONVENTIONS

All assemblers use their own variation of assembler language. In particular, labels are defined in different ways.

For example the firmware routine to print a character on the screen is at &BB5A so at the start of a program it is easier to write (using Maxam) something like this:

```
.print equ &bb5a
```

then when you want to print a character on the screen use call print
Using Devpac write:

```
print:equ *bb5a
```

The colon and the word print upset Maxam. Other assemblers, particularly those in the public domain library, use the form:

```
print: equ 0bb5ah
```

Check your assembler manual for the correct syntax to use. Labels are also used to point to a routine. In Basic you might have a subroutine at line number 1000 and to use it you would write GOSUB 1000.

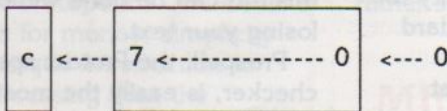
In assembly language there is no line numbers, only labels. The equivalent of GOSUB is call, and as there are no line numbers you have to use the form:

```
CALL LABELNAME
```

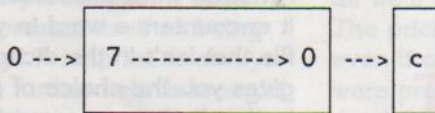
The subroutines in both Basic and assembler usually finish with a return. RETURN in Basic and RET in assembler language.

That about wraps up this series although we will be touching on Machine Code aspects now and again in the future.

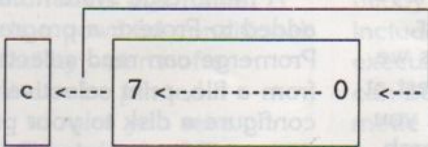
SLA



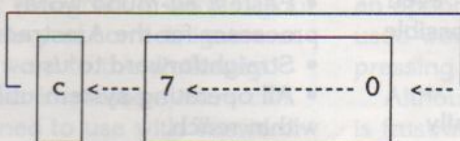
SRL



RLC



RL



Mincing your words

You need a word processing package to get your thoughts onto paper. Here's an opinion on some of them - past and present.

What is a word-processor? It's a tool for manipulating words, sentences and paragraphs. It's a program to load onto your computer that does away with the need for pen and paper. If you make a mistake while typing, just press the Delete key to rub out your mistake. If you decide you want a different layout, you don't need to retype everything, just press a key to format it differently.

In the long run word-processing will reduce the time you need for creating a document. The end result will be neater. And your English will be better because it is much simpler to make corrections or play with words.

Other tools can be added to your word-processor. They will enhance or ease your work but are not essential. Often they have a price tag to match the word-processor's. Spelling checkers are the most useful extension if your spelling is as bad as mine. Or

there's a 'mail-merge' facility for creating personalised standard letters.

First let's look in detail at what's around for the CPCs bearing in mind that many are only available direct from the UK these days and some are getting a little old.

PROTEXT

Protex is written specifically for the Amstrad; it doesn't have to struggle through layer upon layer of CP/M like treacle in winter.

Of all the word-processors we tested, PROTEXT is the fastest at reformatting text - blink and you miss it - and at complex search-and-replace jobs. Its speed at deleting, moving or copying blocks is equally impressive. True merging of separate files - even from different disks - is possible anywhere in the current document.

Command keys are easily

remembered and include just about every function you need plus a few you probably don't. Printer options are just as good: emphasized, condensed, subscript and underline are easily selected. Search-and-replace works with no trouble on control codes.

With Protex, a file can be only as big as the Amstrad's free memory - normally about 22k. You rarely find this a constraint; a solid page is about 7.5k.

All the Amstrad's own disk operating commands can be executed from within Protex - an immense advantage over Newword and Wordstar. Disk directories are sorted into alphabetical order, complete with file lengths and space free. You can even make calls to other roms. If you want to return to Basic, perform some operation - such as program the function keys - and then resume Protex, this too can be done without losing your text.

Prospell, the Protex spelling checker, is easily the most comprehensive for the Amstrad machine. It can be used within Protex, or you can check any Ascii file formed from other Amstrad word-processors. When it encounters a word in your text file that isn't in the dictionary, it gives you the choice of adding it to the dictionary, correcting the spelling, ignoring the spelling or viewing the word in context - very fast and powerful.

A mailmerge system can be added to Protex: a program titled Promerge can read selected data from a file, print selectively and configure a disk to your preferred options. After merging data, text is automatically reformatted.

Good Points

- Fastest all-round word-processor for the Amstrad.
- Straightforward to use.
- All operating-system utilities within reach.

- Ample features to suit anyone's needs.

- Available in Australia

Bad Points

- Price is steep, especially if you wish to add Prospell or Promerge. Individually they cost:

Protext	\$79.95
Prospell	\$69.95
Promerge	\$69.95

- Printer effects don't show on screen.

TASWORD

Owners of Amsword will be pleased to know that Tasword is identical - just the name has been altered. (Not the same as Easi-Amsword, however.) There are almost as many versions of Tasword as there are Amstrad machines, and is probably the only word processor in Australia available on tape for CPC 464s. If it's value for money, simplicity and a tranquil introduction to word-processing then the Tasword series are top of the class.

Tasword lacks many of the more advanced features found on other word-processors. It does, however, present itself as being child's play. A help list is always on screen; further help is brought into view when required.

Tasword 464D and 6128 have a useful mailmerge facility built in, which can give multiple prints of standard letters and forms. Included is a powerful conditional printing facility - parts of a document can be printed according to rules you set.

The spelling checker (Tasspell) that can be purchased to complement Tasword works only from disk-based systems. If it does not recognise a word in your text, it lets you correct, ignore or add the word to the dictionary.

A rather impressive extra can be obtained to use with Tasword:

namely Taspriint. It enables you to print your text file in a choice of five impressive print styles. Data-Run and Palace Script are two of them.

Good Points

- No competing with it for the price, especially if you include Tasspell. Individually the cost:

Tasword 464 (tape)	\$59.95
Tasword 464D (disk)	\$69.95
Tasword 6128 (disk)	\$69.95
Tasspell (disk)	\$49.00
Taspriint (tape)	\$39.00
Taspriint (disk)	\$39.00

- It comes with a mailmerger.
- Very simple to learn.
- Optional extras can do wonders to your document.
- All Tasword products are available in Australia

Bad Points

- Lacks many advanced features.
- Text-handling routines are rather slow.

MINI OFFICE II

Mini Office II contains more than just a word-processor, but that's all we'll talk about in this article. The price tag would be good even if only the word-processor were present, but also having the database, spreadsheet and others utilities makes it excellent value.

The word-processor is rather a mixed bag. There are some handy novel features; also included are several rather badly executed standard functions. Text can be written in any screen mode - 20, 40 or 80 columns.

Some of the handier features include a continuous-display clock, search-and-replace system (although slow it works well), and an option allowing commonly used words to be printed out by pressing a single key.

Although centring is possible, it is frustratingly slow. You actually

sit and watch while the program fills the left side of the line with spaces. Although amusing to watch a word or line slither across to the top or bottom of a document is a mite irksome: the usual Control and arrow keys aren't used.

It has to be said that the Mini Office 2 word-processor is not the best around, nor does it have nearly enough features; what it does very well is to keep your bank balance healthy.

Good Points

- Inexpensive and comes with many other programs.
- Use any screen mode.
- Available in Australia (on disk only) for \$59.00.

Bad Points

- Lacks important functions.
- Some routines are irritatingly slow.

WORDSTAR

Wordstar (the one with the annoying capital letter in the middle) on the CPC micro range is not the fully-fledged version - its true title is Pocket Wordstar. What you receive when you purchase Wordstar (if you can get hold of a copy) is an install program and a mailmerge facility - not forgetting of course the main word-processor file.

Just about everything is possible with Wordstar. It is a professional system with price tag and control to match. Be warned that you're in for a very hard time if this is your first word-processor. There are countless menus and sub-menus, all got at by obscure control-key sequences such as Control-KD for saving a file. It's difficult to get to grips with.

As the CPC machines can't fit all the program's features into memory, many overlays are

WORD PROCESSORS

necessary - and this means that to do certain tasks you must wait for bits of program to load from disk. Text moving, copying, even search-and-replace are all extremely slow. This happens because Wordstar insists on showing on screen every change made - and we all know text output on the Amstrad is not lightning anyway.

Document size is limited only by the free space available on your disk. Unfortunately moving from top to bottom of a long file necessitates lots of disk accessing which slows work down considerably. And remember you have to have at least 50k of Wordstar resident on every disk, unless you have a twin-disk system. NewWord requires dual disks. Neither likes you sneakily trying to change disks: crash.

Good Points

- Will be familiar if you've used it on other machines.
- Comprehensive list of functions.
- Just about any text-handling routine is possible.
- Large documents possible.

Bad Points

- Difficult to get to grips with.
- Slow and cumbersome.
- Don't switch disks while in operation!
- Not available in Australia
- Needs CP/M Plus

NEW WORD

Newword is a Wordstar lookalike - a clone. Text files are interchangeable between the two and with a bit of attention can be read by other word-processors.

The tale is that the original Wordstar programmers fell out with MicroPro about plans for revising the geriatric software - it's been around since the dark ages of a decade ago - and went

off with the code in their heads (and a capital letter in the middle) to do it their own way.

Disk directories start out with files in the same jumbled order as MicroPro's. It's possible to reconfigure Newword to sort them alphabetically, or by date or type - if you are prepared to wade through a massive manual. To calculate free space on the disk, I found I must save my text, get out of Newword and use CP/M's Stat, then reload Newword. I've never had any luck with the R option on the menu, which is supposed to run a program and come back to Newword with less hassle.

Unlike Wordstar, it's not possible to turn off page breaks, an irrelevant nuisance in magazine copy.

The main visible innovation from Wordstar is that printer goodies such as bold or italic show on screen in reverse video.

Timings are of a muchness, - 'NEW' is a bit snappier than 'STAR' in most things except loading itself (and credit here is no doubt due to our having stripped the help files from our Wordstar disk). But there is still no comparison with the word-processors that work in the Amstrad's native operating system rather than in CP/M Plus.

The ubiquity of CP/M means that versions of the software of either clone are available for almost any make of computer. Learn the system on one machine and you'll be familiar with it on any other.

My final word: that's the only star it rates.

Good Points

- Shows printer effects on screen.

Bad Points

- Needs dual-disk system.
- Expensive.
- Not available in Australia.
- Needs CP/M Plus.

Tasman

SOFTWARE

Advanced text processing software for AMSTRAD and PC computers

TASWORD

The word processor. A TASWORD is available for every Amstrad computer, each making the best use of the computer's processing power and memory. Fast, efficient and thoroughly professional.

TAS-SPELL

The spelling checker option for Tasword. Use the dictionary provided to check your spelling, add new words at your choice.

TASCOPY

For the 464/664/6128 family, prints out high resolution screen copies (up to poster size). For the PC, provides a graphics editor, graphics/text merge, font designer and screen snapshot to disc.

TASPRINT

Provides additional impressive print styles for dot matrix printers. Adds emphasis and distinction to your documents.

TAS-SIGN

Produces signs, posters or banners, either across or along the sheet. Definable character height, borders, shading.

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Tas-sign 6128 (disc)	69.95
Amstrad PCW 8256/8512	
Tasword 8000	69.95
Tas-spell 8000	49.00
Tasprint 8000	39.00
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At discerning computer shops or mail order from Dolphin. Tasword PC users may upgrade to PC2 for \$199 by returning their original Tasword PC disk. Enclose cheque/money order/Bankcard/Visacard/Mastercard details. Mail \$3.00, Overnight courier \$10.00. All prices include sales tax. All products guaranteed.

Roll over Beethoven

Some sounds from your CPC may well make the great composer roll over in his grave! This short series will teach you the fundamentals to making better music.

There are a wide range of ways to get sound from your Amstrad CPC. To start I shall go through how to program simple pieces of music using Basic. All you need to know about music is how to read it in its manuscript form, what the various abbreviations mean and

how long notes last for. If you don't know these things, don't worry because there are many good books which take you through the simple steps, and I'll give you help on the way.

In this particular article we shall only look at the very simple facts about programming your

computer to play to you. The only command you really need is SOUND.

To use SOUND you have to type some numbers in after it. Each number is separated by a comma. Type in:

```
SOUND 1,239,100,15
```

and press Return. You should hear Middle C played for two seconds. If you did not, you must either have had the volume control turned down or have typed the line in incorrectly. If the latter, type the command in again.

Let us look at what each number after the SOUND command does. The first number is the Sound Channel - in this case 1 - but there are three Sound Channels: 1, 2 and 3.

The next number is the Tone of the sound, in this case Middle C. Every musical note has a number associated with it. See Fig. 2 on the next page for a table of all the musical notes and their numbers, two octaves above and below Middle C. If you want a more detailed table you will find one in your Amstrad CPC User Instruction Manual.

The 3rd number along is the Duration of the note, or how long the note will hold for. A number of 50 would last for 1 second, a number of 100 would last for 2 seconds and a number of 25 would last for half a second, etc.

The 4th number is the Volume of the sound - a volume of 1 would be very quiet and a volume of 15 would be very loud.

There are three more possible numbers after the 4th one. They are Volume Envelope, Tone Envelope and Noise Period, but we will take a more detailed look at these another time.

The best way to program the tune in Fig. 1 into your computer is to use Basic. It is also a good idea to write the program on

B C D E F E D C B

B G B G B G B G B G

Figure 1

MUSIC

paper first so you don't get too mixed up. Here are the first three lines of the tune in Fig. 1 notice the line numbers:

10 SOUND 1, 127, 25, 15
 20 SOUND 2, 253, 50, 15
 30 SOUND 3, 319, 50, 15

As there is only one note playing at a time in the Treble Clef all notes in that clef are given the Sound Channel 1.

In the Bass Clef there are two notes playing at the same time as a note playing in the Treble Clef, so the notes in those clefs are given the Sound Channels 2 and 3. The top, or highest note would be given Sound Channel 2 and the lower note in that clef would be given Channel 3.

Each crochet note lasts for one second, each minim lasts twice as long, and each quaver will last

NOTES ABOVE MIDDLE C					
B	-	127	B	-	63
A#	-	134	A#	-	67
A	-	142	A	-	71
G#	-	151	G#	-	75
G	-	159	G	-	80
F#	-	169	F#	-	84
F	-	179	F	-	89
E	-	190	E	-	95
D#	-	201	D#	-	100
D	-	213	D	-	106
C#	-	225	C#	-	113
C	-	239	C	-	119
NOTES BELOW MIDDLE C					
B	-	253	B	-	506
A#	-	268	A#	-	536
A	-	284	A	-	568
G#	-	301	G#	-	602
G	-	319	G	-	638
F#	-	338	F#	-	676
F	-	358	F	-	716
E	-	379	E	-	758
D#	-	402	D#	-	804
D	-	426	D	-	851
C#	-	451	C#	-	902
C	-	478	C	-	956

Figure 2

for half a second.

There is one volume change in the music - the one from F to MP so when there is a volume of F it is given a number of 15 and when there is a volume of MP the volume number is 10.

Now try programming the piece of music into your micro. If you type the line 200 as:200 GOTO 10 the program will keep repeating itself until you press ESC once - if you press ESC twice the program will stop.

Remember to write the program down on paper first. I shall print the full program next issue then you can make sure you got it right. Good luck with your programming.

You'll find some examples of using different channels in the type-in on the next few pages!

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AMSTRAD CPC

Englebert Jump-a-lot

A classy type-in for CPC Basic which will have your fingers or joystick screaming for a rest.

Englebert is based on the popular game Q-bert or Hubert, where (in this case) Englebert must cover the pyramid on which he lives with footprints.

While he is marking out his territory, jumping from block to block, pink squashy balls invade his domain. The object of the game is to cover the blocks with footprints without getting squashed or falling off the edge.

You start with three lives, and if you are successful, the game will move on to a harder level.

The game contains some clever graphics and sound and is suitable for any CPC.

```

10 REM +++ Englebert +++
20 REM +J.Keneally +
30 REM ++++++
40 INK 0,0:BORDER 0
50 ENT -1,1,5,1
60 ENT -2,1,10,5
70 ENT -3,10,10,1,10,-12,1
80 ENV 1,15,-1,2
90 ENV 2,15,-1,10
100 ENV 3,15,-1,30
110 GOSUB 1700
120 hi=100
130 DIM bx(5),by(5)
140 DIM sh$(6),ts(6)
150 DIM nx(5),ny(5),ox(5),oy(5)
160 REM read in sheet data
170 RESTORE 2650
180 FOR sh=1 TO 6
190 READ ts(sh)
200 READ x,y
210 IF x=99 THEN GOTO 240
220 sh$(sh)=sh$(sh)+CHR$(x)+CHR$(y)
230 GOTO 200
240 NEXT sh
250 INK 1,20:INK 2,13:INK 3,10
260 GOSUB 2700
270 GOSUB 3110
280 wc=0:li=3
290 sh=1
300 num=0
310 GOSUB 3050
320 RESTORE 340

```

```

330 FOR I=1 TO 15:READ COL:INK I,COL:NEXT I
340 DATA 20,13,10,17,17,17,17,6,14,17,17,7,7,7,7
350 FOR A=1 TO 50:PLOT INT(RND*639),INT(RND*380),1:NEXT A
360 x=11
370 TAGOFF
380 y=2
390 wee=0
400 PRINT CHR$(22);CHR$(1)
410 FOR q=1 TO LEN(sh$(sh)) STEP 2
420 x=ASC(MID$(sh$(sh),q,1))
430 y=ASC(MID$(sh$(sh),q+1,1))
440 GOSUB 500
450 NEXT q
460 REM print sheet
470 REM
480 PRINT CHR$(22);CHR$(0)
490 GOTO 730
500 REM print cube at x,y
510 LOCATE x,y
520 PEN 1
530 PRINT CHR$(214);CHR$(215)
540 LOCATE x,y+1
550 PRINT CHR$(213);CHR$(212)
560 PEN 2
570 LOCATE x,y+1
580 PRINT CHR$(215);
590 PEN 3
600 PRINT CHR$(214)
610 LOCATE x,y+2
620 PEN 2
630 PRINT CHR$(143);
640 PEN 3
650 PRINT CHR$(143);
660 LOCATE x,y+3
670 PEN 2
680 PRINT CHR$(213);
690 PEN 3
700 PRINT CHR$(212);
710 PEN 1
720 RETURN
730 REM Program
740 FOR N=-15 TO 15
750 SOUND 1,ABS(N)*10,5,15,0,0,ABS(N)
760 NEXT N
770 wh=0
780 tot=0
790 LOCATE 1,1
800 PRINT "SCORE"
810 LOCATE 17,1
820 PRINT "HIGH";
830 LOCATE 16,2
840 PRINT hi;
850 LOCATE 7,25:PRINT "LIVES:";li;
860 PRINT CHR$(23);CHR$(1)
870 TAG
880 QX=294:QY=108:QD=1

```


CPC TYPE-IN

```

890 FOR q=0 TO 5:bx(q)=294:by(q)=388:NEX
T q
900 Q1$=CHR$(246)+CHR$(247)
910 Q2$=CHR$(248)+CHR$(249)
920 b1$=CHR$(250)+CHR$(251)
930 b2$=CHR$(252)+CHR$(253)
940 f1=1:GOSUB 1070
950 c1f=0
960 dead=0
970 REM MAINLOOP
980 GOSUB 1160
990 GOSUB 1900
1000 GOSUB 2410
1010 IF f1=1 OR dead=1 THEN GOTO 310
1020 GOSUB 1160
1030 GOSUB 2410
1040 IF f1=1 OR dead=1 THEN GOTO 310
1050 IF c1f=1 THEN GOTO 2270
1060 GOTO 980
1070 REM PRINT/ERASE
1080 PLOT 1000,1000,15
1090 IF f1=1 AND TEST(qx+20,qy-31)=1 THE
N PLOT qx+20,qy-31,15:PLOTR 6,0:tot=tot+
1:sc=sc+1:GOSUB 2350:IF tot=ts(sh) THEN
c1f=1
1100 IF wee=0 AND TEST(qx+12,qy-32)=0 TH
EN GOSUB 2140:RETURN
1110 MOVE QX,QY
1120 PRINT Q1$;
1130 MOVE QX,QY-16
1140 PRINT Q2$;
1150 RETURN
1160 REM MOVE
1170 N=0
1180 J=JOY(0)
1190 IF (J AND 1) =1 AND (J AND 4)<>0 TH
EN N=1
1200 IF (J AND 1) =1 AND (J AND 8)<>0 TH
EN N=2
1210 IF (J AND 2)=2 AND (J AND 4)<>0 THE
N N=3
1220 IF (J AND 2)=2 AND (J AND 8)<>0 THE
N N=4
1230 IF INKEY(69)<>-1 THEN n=1
1240 IF INKEY(71)<>-1 THEN n=4
1250 IF INKEY(37)<>-1 THEN n=2
1260 IF INKEY(38)<>-1 THEN n=3
1270 IF N=0 THEN RETURN
1280 ON n GOSUB 1310,1420,1510,1600
1290 SOUND 4,0,2,15,0,0,5
1300 RETURN
1310 REM UP/LEFT
1320 GOSUB 1070
1330 QX=QX-16
1340 QY=QY+24
1350 GOSUB 1070:CALL &BD19:GOSUB 1070
1360 QX=QX-16
1370 QY=QY+24
1380 f1=1:GOSUB 1070

```

```

1390 RETURN
1400 QX=QX-16
1410 QY=QY-24
1420 REM UP/RIGHT
1430 GOSUB 1070
1440 QX=QX+16
1450 QY=QY+24
1460 GOSUB 1070:CALL &BD19:GOSUB 1070
1470 QX=QX+16
1480 QY=QY+24
1490 f1=1:GOSUB 1070
1500 RETURN
1510 REM DO/LEFT
1520 GOSUB 1070
1530 QX=QX-16
1540 QY=QY-24
1550 GOSUB 1070:CALL &BD19:GOSUB 1070
1560 QX=QX-16
1570 QY=QY-24
1580 f1=1:GOSUB 1070
1590 RETURN
1600 REM DO/RIGHT
1610 GOSUB 1070
1620 QX=QX+16
1630 QY=QY-24
1640 GOSUB 1070:CALL &BD19:GOSUB 1070
1650 QX=QX+16
1660 QY=QY-24
1670 f1=1:GOSUB 1070
1680 RETURN
1690 REM print/erase ball
1700 IF er=1 AND TEST(xb+24,yb-24)<>5 TH
EN RETURN
1710 IF pr=1 AND TEST(xb+24,yb-24)=5 THE
N RETURN
1720 PLOT 1000,1000,4
1730 MOVE xb,yb
1740 PRINT b1$;
1750 MOVE xb,yb-16
1760 PRINT b2$;
1770 RETURN
1780 REM udg
1790 REM Squashy things
1800 SYMBOL 250,0,3,13,13,19,47,47,47
1810 SYMBOL 251,0,192,240,240,240,252,25
2,252
1820 SYMBOL 252,63,63,63,63,31,31,31,15
1830 SYMBOL 253,252,252,252,252,248,248,
248
1840 REM Englebert
1850 SYMBOL 246,3,7,5,7,7,15,31,63
1860 SYMBOL 247,192,224,160,224,224,224,
224,96
1870 SYMBOL 248,30,3,1,1,1,1,1,2
1880 SYMBOL 249,96,224,192,64,64,64,64,1
28
1890 RETURN
1900 REM BALL mover
1910 FOR q=0 TO num

```

```

1920 IF INT(RND*2)=0 THEN GOTO 1950
1930 IF TEST(bx(q)-16,by(q)-60)>0 OR by(
q)=100 THEN dir=-32 ELSE GOTO 1950
1940 GOTO 1960
1950 IF TEST(bx(q)+60,by(q)-60)>0 OR by(
q)=100 THEN dir=+32 ELSE GOTO 1930
1960 ox(q)=bx(q):oy(q)=by(q)
1970 by(q)=by(q)-48
1980 bx(q)=bx(q)+dir
1990 IF by(q)=52 THEN by(q)=388:bx(q)=29
4:SOUND 130,500,0,15,2,2,0
2000 nx(q)=bx(q):ny(q)=by(q)
2010 NEXT q
2020 er=1:pr=0
2030 FOR q=0 TO num
2040 xb=ox(q):yb=oy(q)
2050 GOSUB 1690
2060 NEXT
2070 er=0:pr=1
2080 FOR q=0 TO num
2090 xb=nx(q):yb=ny(q)
2100 GOSUB 1690
2110 SOUND 129,800+(q*200)+(dir*4),0,15,
1,1,0
2120 NEXT
2130 RETURN
2140 REM Englebert falls
2150 IF dead=1 THEN RETURN
2160 dead=1
2170 INK 12,10:INK 13,13:INK 14,20
2180 SOUND 129,200,0,15,3,1,0
2190 SOUND 1,0,0,15,1,0,5
2200 FOR r=qy TO 0 STEP -12
2210 qy=r
2220 wee=1:f1=0
2230 GOSUB 1070:CALL &BD19:GOSUB 1070
2240 NEXT r
2250 FOR t=1 TO 400:NEXT t
2260 f1=0:wee=0:GOTO 2530
2270 REM cleared prything
2280 D1
2290 FOR a=-500 TO 500 STEP 20
2300 SOUND 1,ABS(a)+50,10,15,0,1
2310 NEXT a
2320 sh=sh+1
2330 IF sh=7 THEN sh=1:num=num+1
2340 GOTO 310
2350 REM print score
2360 TAGOFF
2370 LOCATE 1,2
2380 PRINT sc
2390 TAG
2400 RETURN
2410 REM check for contact
2420 f1=0
2430 FOR w=0 TO num
2440 IF qx=bx(w) AND qy=0=by(w) THEN f1=
1
2450 NEXT w

```



```

2460 IF f1=0 THEN RETURN
2470 REM DEAD (SQUASHED)
2480 MOVE qx+0,qy+16:PRINT "#00!!";
2490 FOR q=1 TO 20
2500 SOUND 1,1000+INT(RND*500),8,1,1
2510 NEXT q
2520 SOUND 1,2000,0,15,1,1,5
2530 li=li-1:IF li<>0 THEN RETURN
2540 TAGOFF
2550 PRINT CHR$(22)+CHR$(1)
2560 PEN 4
2570 INK 4,5,20
2580 IF sc>hi THEN hi=sc
2590 LOCATE 7,13:PRINT "GAME OVER"
2600 PEN 1
2610 PRINT CHR$(22)+CHR$(0)
2620 IF INKEY<>" " THEN 2620
2630 IF INKEY$="" THEN 2630
2640 GOTO 280
2650 REM sheet data
2660 DATA 28
2670 DATA 10,2,9,5,11,5,8,8,10,8,12,8,7,
11,9,11,11,13,11,6,14,8,14,10,14,12,1
4,14,14,5,17,7,17,9,17,11,17,13,17,15,17
,4,20,6,20,8,20,10,20,12,20,14,20,16,20,
99,99
2680 DATA 16
2690 DATA 10,2,9,5,11,5,6,8,8,8,12,6,14,
8,5,11,7,11,13,11,15,11,8,14,12,14,9,17,
11,17,10,20,99,99
2700 DATA 20
2710 DATA 10,2,9,5,11,5,8,8,12,8,7,11,13
,11,6,14,14,14,5,17,7,17,9,17,11,17,13,1
7,15,17,8,20,10,20,12,20,6,20,14,20,99,9
9
2720 DATA 20
2730 DATA 6,2,8,2,10,2,12,2,14,2,7,5,9,5
,11,5,13,5,8,8,10,8,12,8,9,11,11,11,10,1
4,9,17,11,17,8,20,10,20,12,20,99,99
2740 DATA 22
2750 DATA 10,2,9,5,11,5,8,8,12,8,7,11,13
,11,6,14,14,14,5,17,7,17,9,17,11,17,13,1
7,15,17,4,20,6,20,8,20,10,20,12,20,14,20
,16,20,99,99
2760 DATA 40
2770 DATA 6,2,8,2,10,2,12,2,14,2,7,5,9,5
,11,5,13,5,5,5,6,8,8,8,10,8,12,8,14,8,16
,8,5,11,7,11,9,11,11,11,13,11,15,11,6,14
,8,14,10,14,12,14,14,14,16,14,5,17,7,17,
9,17,11,17,13,17,15,17,6,20,8,20,10,20,1
2,20,14,20,16,20,99,99
2780 REM title screen
2790 MODE 0
2800 TAGOFF
2810 PRINT CHR$(22)+CHR$(1)
2820 FOR a=1 TO 50:PLOT INT(RND*640),INT
(RND*400),1:NEXT a
2830 FOR a=1 TO 50
2840 x=INT(RND*19)+1:y=INT(RND*22)+1:GOS

```

```

UB 500
2850 SOUND 129,INT(RND*640)+100,0,15,1,1
2860 NEXT a
2870 PEN 4
2880 INK 4,5,15
2890 PRINT CHR$(22)+CHR$(0)
2900 LOCATE 6,3
2910 PRINT "Englebert"
2920 INK 5,20:PEN 5
2930 LOCATE 4,15
2940 PRINT "By John Keneally"
2950 SOUND 1,500,0,15,3,3
2960 FOR q=1 TO 2000:NEXT q
2970 FOR a=1 TO 5
2980 FOR b=26 TO 0 STEP -1
2990 INK a,ABS(b)
3000 SOUND 130,100+a*ABS(b),0,15,2,3
3010 FOR g=1 TO 2: CALL &BD19:NEXT
3020 NEXT:INK a,0:NEXT
3030 SOUND 4,0,0,15,3,0,15
3040 RETURN
3050 REM SCROLL CLEAR
3060 FOR a=0 TO 25
3070 CALL &BC4D
3080 SOUND 135,(A+10)+4,0,15,2,1
3090 NEXT
3100 RETURN
3110 REM instructions
3120 MODE 1
3130 PEN 1:INK 1,15
3140 INK 0,0:BORDER 0
3150 INK 2,11

```

```

3160 PAPER 2
3170 LOCATE 15,1
3180 PRINT SPC(11)
3190 LOCATE 15,2
3200 PRINT "ENGLEBERT "
3210 LOCATE 15,3
3220 PRINT SPC(11)
3230 PAPER 0
3240 PRINT:PRINT
3250 PRINT " The object of the game is t
o cover the pyramid with footprints.
You do this by guiding Engl
ebert using either the joystick or the k
eys shown below."
3260 PRINT " If you cover the pyramid,a
harder blockpattern will appear."
3270 PRINT " You will lose a life if you
jump of the blocks,or if you touch a squ
ashy ball. These squashy balls delight
in falling on Englebert so be careful."
3280 PRINT:PRINT:PRINT
3290 PRINT "KEYS:-"
3300 PRINT "
A K
  / \
  / \
Z M"
3310 PRINT:PRINT " Press a key to
begin."
3320 WHILE INKEY$="" :WEND
3330 MODE 0
3340 RETURN

```

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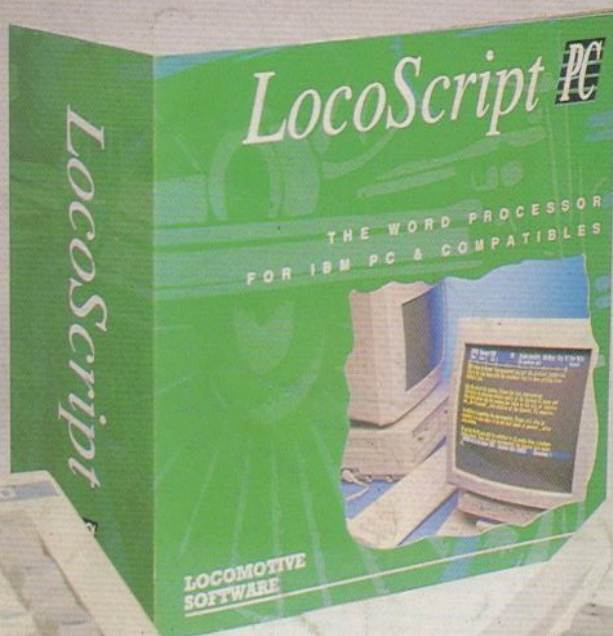
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