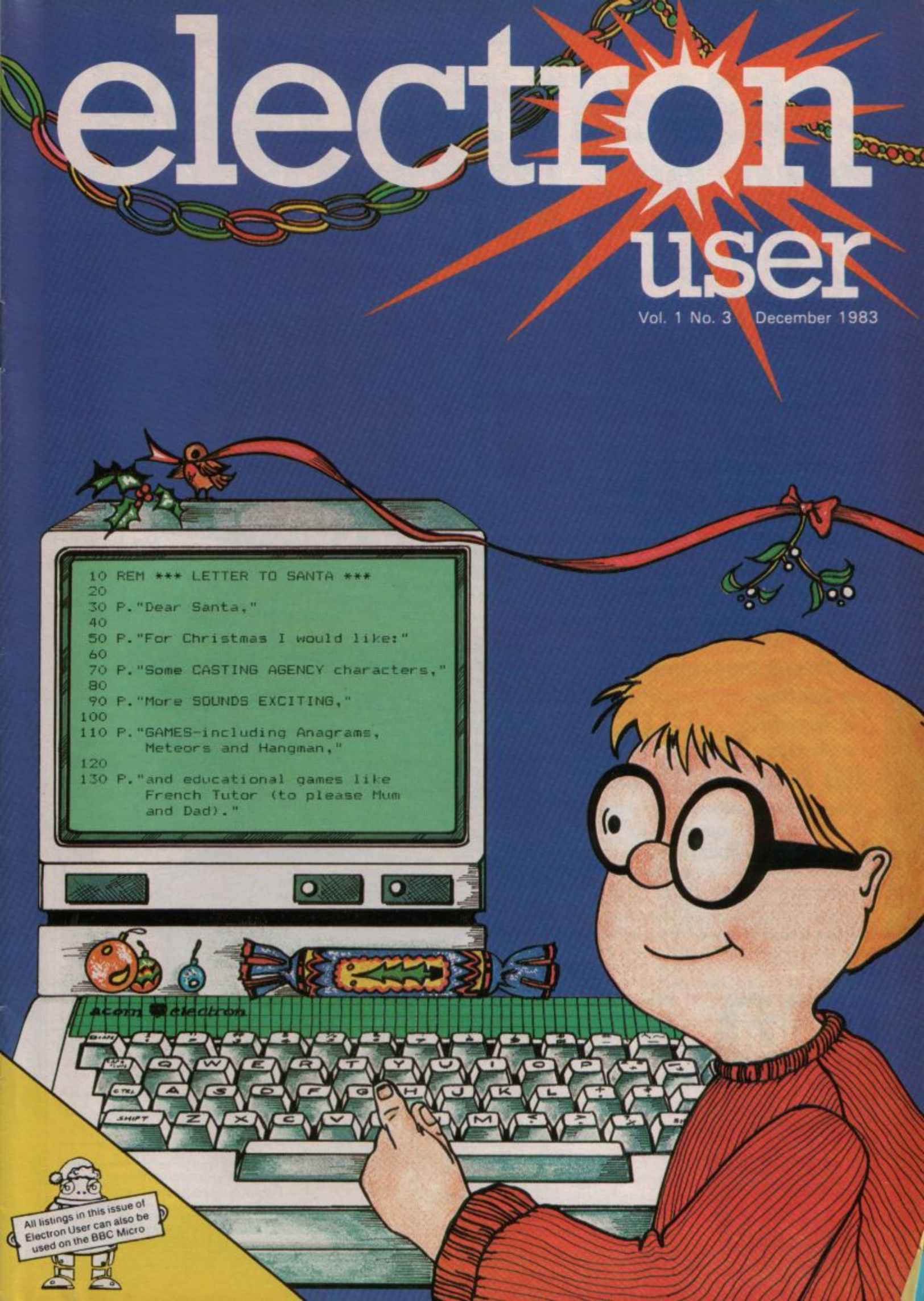
electron user

Vol. 1 No. 3 December 1983



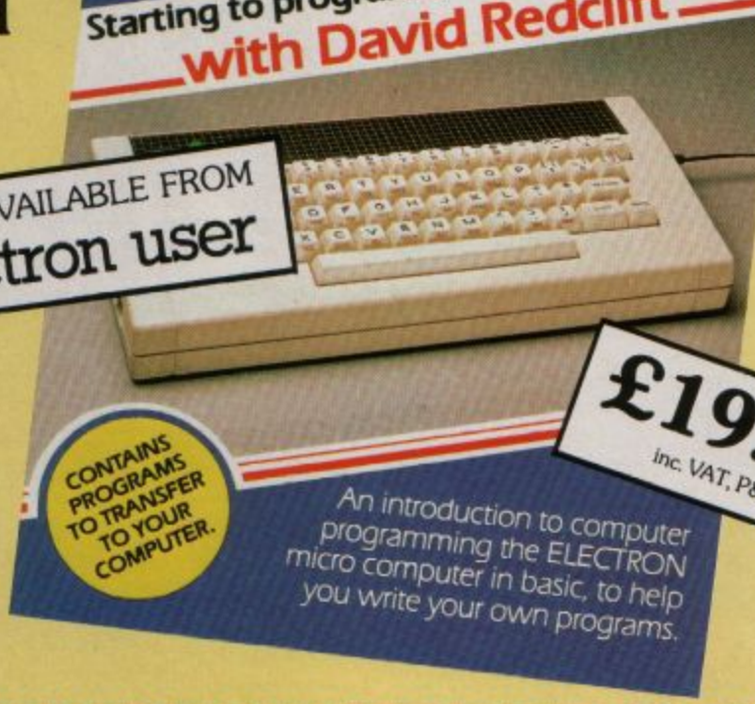
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WELSH TAKE THE LEAD WITH ELECTRON ADD-ONS

WITH a candour far too often lacking from the world of microcomputing, Acorn today admitted it is having problems with the production of Electrons.

Acorn admits problems

However, despite strong rumours to the contrary from informed sources, it denied the ULA was giving difficulties.

Said an Acorn spokesman, "We are meeting production targets, but the targets are too low".

He went on to explain that demand was totally unexpected, exceeding anything previously experienced in the field of microcomputing.

Commented one dealer, "You'd think they would have learnt from the problems with the BBC Micro".

THE Welsh seem to have the edge in the potentially massive Electron add-on market.

Following the news that AB Electronics of Gwent will be producing Electrons at the rate of 4,000 a week from January comes word of two more Welsh firms producing products for Acorn's latest micro.

The first is the Hobbit, a floppy tape system for recording programs which is being adapted for use with the Electron.

Produced by Ikon Computer Products of Dyfed, the Hobbit is both faster and more reliable than a conventional tape recorder and promises to be the first mass storage system available for the Electron.

More hardware for Xmas

A proven success with the BBC Micro, it will offer Electron owners the performance normally associated with disc drives.

Meanwhile, in Cardiff, Sir Computers is producing two hardware add-ons for the Electron in time to catch the Christmas rush.

The first is a combined A to D (joystick) and Centronics printer interface which will considerably increase the scope of the Electron.

Sir will also be marketing an 8 ROM expansion board which will allow extra chips to be added to the micro.

This will allow instant loading of alternative languages and other chip-based software, making the Electron easily the most powerful machine of its class.

New trio from A&F

A&F Software of Manchester has added three more titles to its Electron range.

The trio, Cylon Attack, Chuckie Egg and Pharoah's Tomb, are new versions of the successful BBC Micro programs specially adapted for the Electron.

electron user

Electron User welcomes program listings and articles for publication. Listings should be accompanied by cassette tape or disc.

Send to:
Electron User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

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THIS is the ad that is causing red faces at W.H. Smiths. For, like all Electron dealers, the chain just cannot get enough of them.

The ad proclaims: "We're the only major store that stocks it". But "stock" isn't quite the right word.

Said a Smith's spokesperson, "As soon as we get the Electrons in we sell them. We would like to have more, but Acorn is unable to meet the demand".

So what were my chances of getting an Electron from Smiths?

"That's rather a naive question. We are in the hands of Acorn.

"And you must remember that our advertising is planned well in advance – this one's turned out to have rather a sting in the tail".

Disc drive race on

THE race is on to develop disc drives for the Electron.

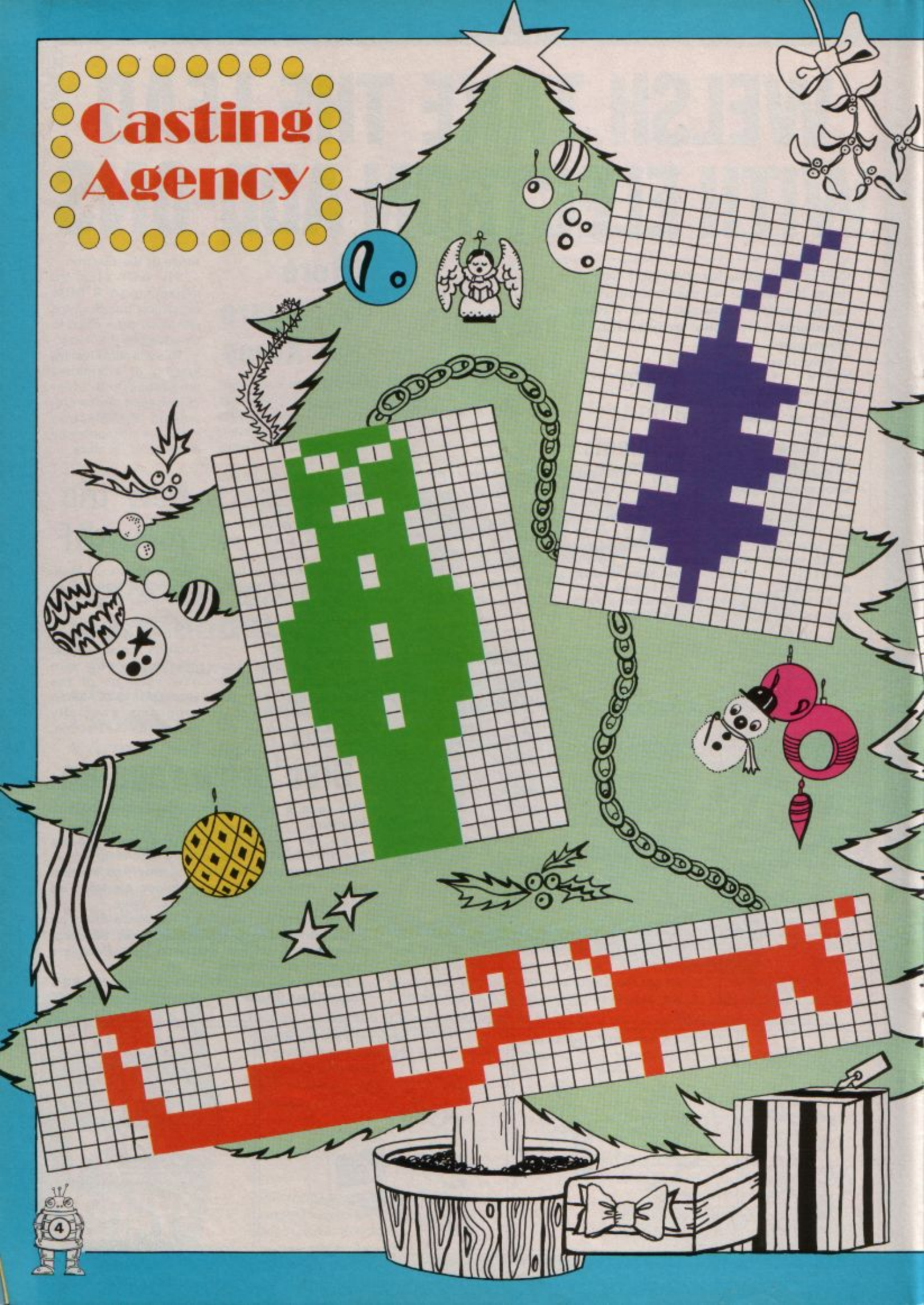
So far the front runners seem to be Bradford-based Pace, whose disc interface is nearing completion. Using a modified version of the Amcom DFS, the device contains an integral power supply and disc drive.

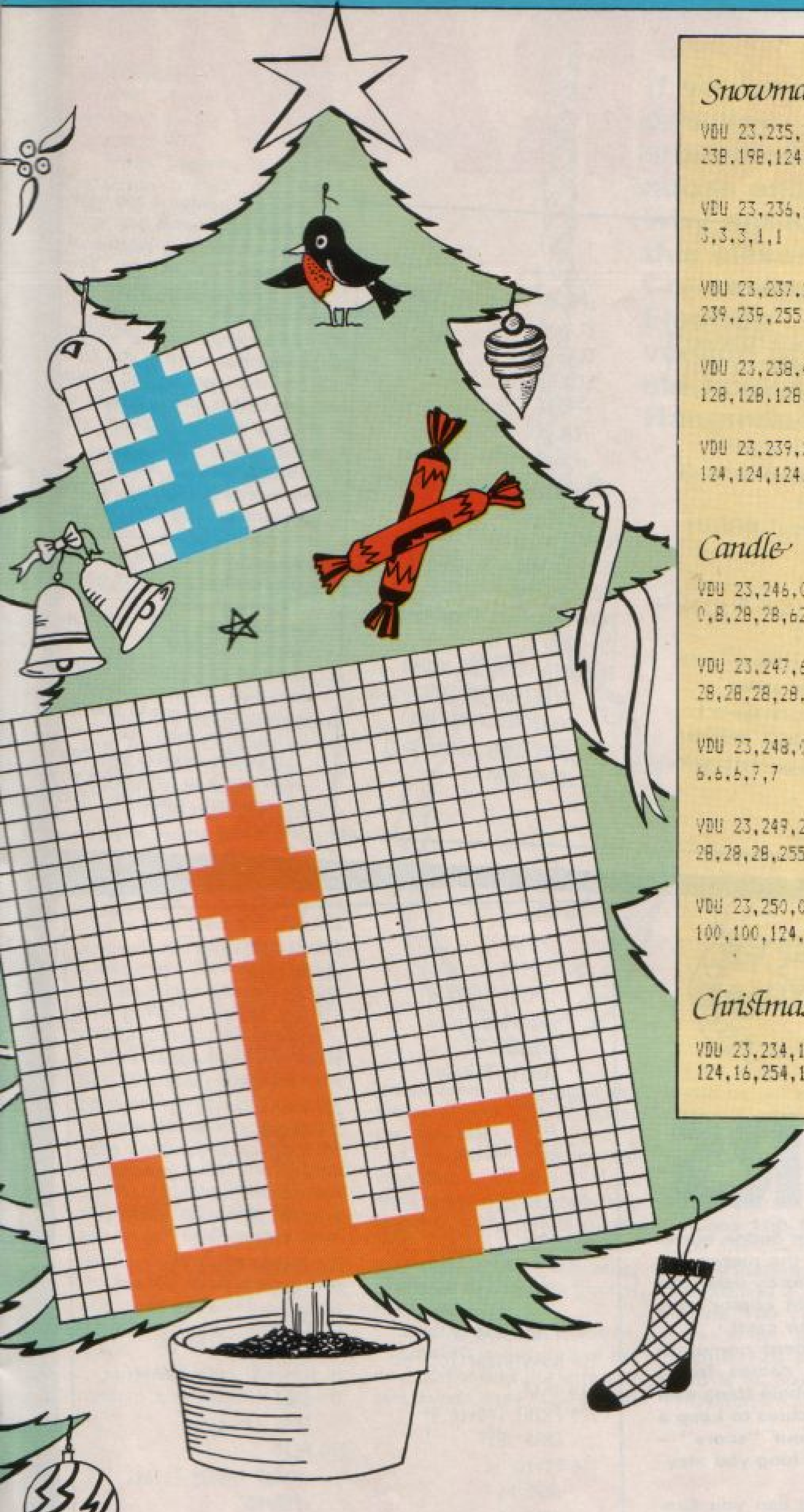
The unit also features a duplicate Electron edge connector to allow for other add-ons, such as the printer interface that Pace are currently working on.

Pace will be launching the drives at the BBC Micro User Show in December.



Casting Agency





Snowman

```
VDU 23,235,124,146,
238.198,124,124,238

VDU 23,236,0,1,3.
3,3.3,1,1

VDU 23,237.238,255,255.
239,239,255.255,239

VDU 23,238.0,0,128.
128.128.128.0,0

VDU 23.239,238.254,124.
124,124,124,124,124
```

Candle

```
VDU 23,246.0,0,0.
0,8.28,28,62

VDU 23.247,62,28.8.
28,28.28,28.28

VDU 23,248,0.0.6.
6.6.6,7,7

VDU 23,249,28.28.28.
28,28,28.255,255

VDU 23,250,0,0.124,
100,100,124.224,224
```

Christmas Tree

```
VDU 23.234,16.56.16,
124.16,254,16,56
```

Reindeer & Sleigh

```
VDU 23,228.224,100,128.
192,192.96,63,31

VDU 23,229,0,0,0.
0.255,255,255,255

VDU 23,230.7,5,1.
3.7,12,248,240

VDU 23,231,16.8.7.
7,255.7,2,2

VDU 23,232,0,1.255.
255.253,252,8,8

VDU 23,233,32,62,128.
192,192,192.0,0
```

Holly

```
VDU 23,240.0.0.0.
1,2.4.8,16

VDU 23.241,0.0,128.
0.0.0.0.0

VDU 23,242.0,0,0.
1,0,0.0.1

VDU 23.243,16,56,124.
255,254,56,254,255

VDU 23,244.0.0.0,
1.0.0.0,0

VDU 23,245.254,56,254.
255,124.56,16,16
```

Bring these handy characters to life in your own Electron programs with these ready-to-go listings. There'll be more next month!



HAVE you a favourite character you would like to see in this monthly feature in Electron User? Send your drawing of the character, together with the VDU23 statement, to: Shape Dictionary, Electron User, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY.

ANAGRAMS

```
100 REM ANAGRAMS
110 REM **INITIALIZE**
120 READ numwords%
130 A%=RND(-TIME )
    :DIM word$(numwords%)
    :MODE 5
140 FOR count%=1TO numwords
    %
    :READ word$(count%)
    :NEXT
150 REM **SELECT WORD**
160 thisword$=word$(
    RND(numwords%))
    :mixword$=""
    :bitleft$=thisword$
    :count%=LEN (thisword$)
170 REM **MIX WORD UP**
180 REPEAT
190 rnd=RND(count%)
200 mixword$=mixword$+
    MID$(bitleft$,rnd
    ,1)
210 bitleft$=LEFT$(bitleft$
    ,rnd-1)+RIGHT$(bitleft$
    ,LEN (bitleft$)-rnd)
220 count%=count%-1
230 UNTIL bitleft$=""
240 IF thisword$=mixword$
    THEN 160
250 REM **INPUT ANSWER**
260 CLS
270 COLOUR 1
    :PRINT TAB(5,5)mixword$
280 COLOUR 2
    :INPUT TAB(0,8)"Type
     in your answer"
    TAB(5,11)myanswer$
290 REM **CHECK ANSWER**
300 IF myanswer$=thisword$
     CLS
    :COLOUR 2
    :PRINT TAB(5,10)"CORREC
    T"
    ELSE CLS
    :COLOUR 1
    :PRINT TAB(5,10)"WRONG"
    :COLOUR 3
    :PRINT '''"The correct
     answer"'''"to "mixword$
     '''"is "thisword$
310 delay$=INKEY$ (500)
320 REM **START AGAIN**
330 GOTO 160
340 REM **DATA FOLLOWS**
350 DATA 10
360 DATA COMPUTER,MICRO
    ,ELECTRON,MONITOR
    ,KEYBOARD,FUNCTION
    ,PROCEDURE,LOOP,INPUT
    ,STATEMENT
```

IT'S simple but fun – and easy to play. Anagrams has your Electron flashing a jumble of letters on the screen. You then have to sort them out into a word.

When you've decided what the decoded word is you type it into the Electron and it tells you whether you are right or wrong. It then gives you another go.

When you get fed up with the words we've put in the program (or you want to put in something like XEBEC for your know-it-all little nephew) it's easy to change the game.

All you have to do is rewrite line 360 with the words you want.

And don't forget to change line 350 to the number of words you've got in line 360 (if it's more than 10).

If you're devious you could even use it to help solve your crossword puzzles. GOK CLOUD.



METEORS

PICTURE it. You're travelling in space and your ship's detector screens warn you that a meteor storm is approaching.

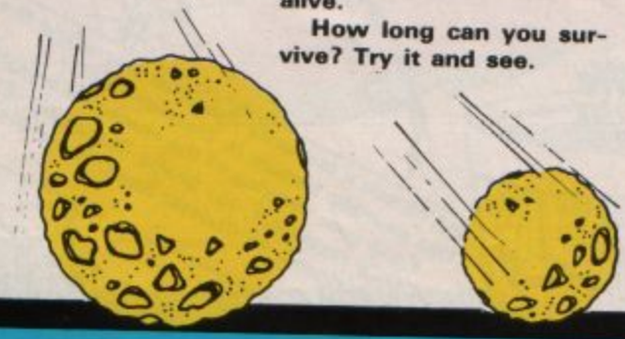
It's so big and going so fast that you don't stand a chance of getting out of its path.

You just have to let it overtake you and hope that you can dodge out of the way of the meteors.

You do this by using the left and right cursor keys to guide your craft.

Your inboard computer (a bit of a games freak) treats the whole thing as a joke and decides to keep a record of your "score" – that is, how long you stay alive.

How long can you survive? Try it and see.



```
 10 MODE 5
    :PROCI
 30 REPEAT
    :PRINT TAB(5,0)
    INT (TIME /10)
    :PROCS
    :UNTIL FINISH
 40 PROCE
    :END
 60 DEF PROCI
 70 TIME =0
 80 VDU 23,1,0;0;0;0;23
    ,224,24,60,60,60,60
    ,66,129,129,23,225
    ,24,60,126,126,126
    ,126,60,24
 90 FINISH=FALSE
100 A$=STRING$(20," ")
110 *FX4,1
120 PRINT TAB(10,8)
    CHR$ (B%)
130 P%=10
    :NP%=P%
    :A%=135
    :B%=224
    :D%=225
    :E%=31
    :F%=8
    :G%=136
    :H%=137
140 ENDPROC
150 DEF PROCS
160 K%=INKEY (0)
170 *FX15,0
180 IF K%=G% IF P%<>0
     NP%=P%-1
190 IF K%=H% IF P%<>19
     NP%=P%+1
200 PRINT TAB(P%,7)" "
    :P%=NP%
    :VDU 31,P%,F%
    :IF ((USR (&FFF4)
     AND &FFFF)DIV &100)=12
    9 FINISH=TRUE
220 PRINT TAB(P%,F%)
    CHR$ (B%)
230 A$=""
    :FOR I%=Z% TO 19
    :IF RND(7)=1 A$=A$+
    CHR$ (D%)
    ELSE A$=A$+" "
270 NEXT
    :PRINT TAB(Z%,E%)A$;
    :ENDPROC
340 DEF PROCE
350 *FX4,0
360 PRINT 'TAB(31,0) "YOUR
     SCORE WAS ":INT (
    TIME /10)
370 *FX15,0
380 END
```

HANGMAN

If you're just dangling around at a noose end, why not key in this clever Christmas Electron version of that old favourite, Hangman?



By PETE DAVIDSON

HANGMAN is the Electron version of the old children's game – and it's just as much fun to play.

What happens is that the Electron "thinks" of a word. Next it calculates the number of letters in the word and displays the same number of dashes on the screen.

Then it's up to you to try and guess the hidden word. You pick a letter that you think might be in it and press that letter's key.

If you've guessed rightly the micro will replace a dash or dashes with the letter. If you're wrong a part of the gallows or man will appear and the mistaken letter will appear in the "tried" list.

The eighth mistake you make will hang the man and you've lost the game.

The principle the program works on is very simple. The hidden word is selected at random from an array.

When a letter is typed in, the Electron looks at the hidden word to see if it contains that letter.

If it does then that letter is replaced with a space. If it isn't another part of the gallows is drawn.

As given in the listing the words the Electron chooses are all concerned with Christmas. However, these can easily be altered so that the game changes with a child's growing vocabulary.

The following is a more detailed description of how the program works:

Line 30 selects the mode, calls a procedure to define the characters, seeds the random number generator, dimensions the array of words to give room for 500 words and, finally disables the cursor.

Line 40 reads in the words and sets a variable, *numword%*, to the number of words.

Line 50 picks a word at random and keeps a copy. It resets colour 0 to black (for future words). C%=0 makes the rope black.

Line 60 initialises four variables:
err% is the number of errors, *length%* is the length of the word, *move%* is the number of the move, *spc%* is the number of spaces to be put in front of the dashes.

Line 70 sets up the screen.

Line 80 is the start of the loop that checks the letters. It sets *correct%* to FALSE so that it can be set to TRUE if the letter is in the word. The program then waits for a letter to be pressed.

Line 90 increments the move counter.

Lines 100-150 check the letter and change *correct%* to TRUE if the letter is in the word and displays it on screen.

Line 160 prints incorrect letters in the "tried" column.

Line 170 checks if the word is all spaces and calls PROCwon if it is. If not it adds one more to the error count and calls PROChang.

Provided fewer than eight errors have been made the program returns to line 80 for another go.

Line 180. Before reaching this line either PROCwon or PROChung will have been executed. Both then call PROCanothergo and this line accepts the answer.

Lines 190-220. PROCwon changes everything that is coloured black to the background colour and prints the gallows on the screen.

As the gallows are now in the background colour, only the man is shown. C% is also set to 5 so the man's neck shows up. PROCanothergo is also called in this procedure.

Lines 230-250. PROChang jumps into the subroutine from lines 340-430. Exactly where it jumps to depends on how many errors have been made.

Lines 260-300. PROChung prints the correct word on the screen and calls PROCanothergo.

Lines 310-330. PROCanothergo prints the question on the screen.

Lines 340-430. This subroutine calls the various procedures to draw the pieces of the gallows and man. It is entered at various points depending on the value of *err%* in line 240.

Lines 440-510 cause the various parts to be drawn on screen.

Lines 520-700 define the characters.

Line 1000 contains the list of words that the Electron picks from. It's here that you can put in your own words by just typing them in after the DATA statement. Each word must be separated by a comma. You can't have more than 500 of them.

Line 5000 is the final piece of data, EOF. Your own data must come before this line which must not be removed.

HANGMAN LISTING

From Page 7

This listing was produced using a special formatter which breaks one program line over several lines of listing. When entering a line don't press Return until you come to the next line number. Full details of the formatter are in the July issue of The Micro User.

```
10 REM HANGMAN
20 REM (C)ELECTRON USER
30 MODE 2
   :PROCdefine
   :X%=RND(-TIME )
   :DIM word$(500)
   :VDU 23;8202;0;0;0;
40 count%=0
   :REPEAT
   :count%=count%+1
   :READ word$(count%)
   :UNTIL word$(count%)=
   "EOF"
   :numwrd%=count%-1
50 word$=word$(RND(numwrd%))
   :copy$=word$
   :VDU 19,0,0,0,0,0
   :C%=0
60 err%=0
   :length%=LEN (word$)
   :move%=1
   :spc%=(20-length%)/2
70 COLOUR 130
   :CLS
   :COLOUR 1
   :PRINT TAB(14,1)"TRIED"
   :COLOUR 8
   :PRINT TAB(spc%,26)
   STRING$(length%,"-")
80 correct%=FALSE
   :COLOUR 4
   :PRINT TAB(3,29)"This
    is move ";move%
   :COLOUR 12
   :PRINT '"   PRESS A LETTE
   R";
   :letter$=GET$
90 move%=move%+1
100 FOR count%=1TO length%
110 IF letter$<>MID$(word$
   ,count%,1)
   THEN 150
120 word$=LEFT$(word$,count%-
   1)+" "+MID$(word$,count%+
   1)
130 COLOUR 5
   :PRINT TAB(spc%+count%-1
   ,26)letter$
140 correct%=TRUE
150 NEXT
160 IF correct%=FALSE
   THEN COLOUR 7
   :PRINT TAB(16,3+2*err%)le
   tter$
170 IF word$=STRING$(length%
   ," ")
   THEN PROCwon
   ELSE IF correct%=
   ELSE err%=err%+1
   :PROChang
   :IF err%<8
   THEN 80
180 get$=GET$
   :IF get$="Y"
   THEN 50
   ELSE IF get$<>"N"
   THEN 180
   ELSE CLS
   :END
190 DEF PROCwon
200 VDU 19,0,2,0,0,0
   :C%=5
   :GOSUB 340
   :COLOUR 11
   :VDU 7
   :PRINT TAB(0,26)"
     WELL DONE    "'''"
                  "
210 PROCanothergo
220 ENDPROC
230 DEF PROChang
240 ON err%GOSUB 410 ,400
   ,390 ,380 ,370 ,360
   ,350 ,340
250 ENDPROC
260 DEF PROChung
270 COLOUR 14
   :PRINT TAB(4,26)"YOU'RE
    HUNG"
280 VDU 7
   :COLOUR 9
   :PRINT '"   THE WORD
    WAS "'SPC ((18-LEN (copy
   $))/2)copy$;SPC ((18-
   LEN (copy$))/2)
290 PROCanothergo
300 ENDPROC
310 DEF PROCanothergo
320 COLOUR 12
   :PRINT '"    ANOTHER
    GO?  ";
330 ENDPROC
340 PROCFEET
350 PROCLEGS
360 PROCARMS
370 PROCBODY
380 PROCHEAD
390 PROCTOP
400 PROCUPRIGHT
410 PROCBASE
420 IF err%=8
   THEN PROChung
430 RETURN
440 DEF PROCFEET
   :COLOUR 1
   :VDU 31,5,16,235,236
   ,237,238
   :ENDPROC
450 DEF PROCLEGS
   :COLOUR 4
   :VDU 31,6,11
   :FOR I%=1TO 2
   :VDU 234,234,10,8,8
   :NEXT
   :FOR I%=1TO 3
   :VDU 231,232,10,8,8
   :NEXT
   :ENDPROC
460 DEF PROCARMS
   :COLOUR 5
   :VDU 31,5,6
   :FOR I%=1TO 2
   :VDU 233,9,9,233,10
   ,8,8,8,8
   :NEXT
   :FOR I%=1TO 3
   :VDU 231,9,9,232,10
   ,8,8,8,8
   :NEXT
   :COLOUR 3
   :VDU 239,9,9,240
   :ENDPROC
470 DEF PROCBODY
   :COLOUR 5
   :VDU 31,6,6
   :FOR I%=1TO 5
   :VDU 233,233,10,8,8
   :NEXT
   :ENDPROC
480 DEF PROCHEAD
   :COLOUR 3
   :VDU 31,6,3,227,228
   ,10,8,8,229,230
   :COLOUR C%
   :VDU 10,8,8,232,231
   :ENDPROC
490 DEF PROCBASE
   :COLOUR 0
   :VDU 31,1,20
   :FOR I%=1TO 10
   :VDU 224
   :NEXT
   :ENDPROC
500 DEF PROCUPRIGHT
   :COLOUR 0
   :VDU 31,2,2
   :FOR I%=1TO 18
   :VDU 224,10,8
   :NEXT
   :ENDPROC
510 DEF PROCTOP
   :COLOUR 0
   :VDU 31,1,1
   :FOR I%=1TO 10
   :VDU 224
   :NEXT
   :VDU 31,6,2,226,225
   :ENDPROC
520 DEF PROCdefine
530 VDU 23,224,255,195,165
   ,153,153,165,195,255
540 VDU 23,225,128,192,128
   ,192,128,192,128,192
550 VDU 23,226,3,1,3,1,3
   ,1,3,1
560 VDU 23,227,31,31,255
   ,31,33,127,243,254
570 VDU 23,228,248,248,255
   ,248,132,254,207,127
580 VDU 23,229,124,124,119
   ,59,28,15,15,15
590 VDU 23,230,62,62,238
   ,220,56,240,240,240
600 VDU 23,231,240,240,240
   ,240,240,240,240,240
610 VDU 23,232,15,15,15
   ,15,15,15,15,15
620 VDU 23,233,255,239,199
   ,171,239,239,255,255
630 VDU 23,234,255,255,255
   ,255,255,255,255,255
640 VDU 23,235,0,0,1,63
   ,127,255,254,120
650 VDU 23,236,240,240,248
   ,252,252,248,120,120
660 VDU 23,237,15,15,31
   ,63,63,31,30,30
670 VDU 23,238,0,0,128,252
   ,254,255,127,30
680 VDU 23,239,240,248,124
   ,126,213,85,85,85
690 VDU 23,240,15,31,62
   ,126,171,170,170,42
700 ENDPROC
1000 DATA CHRISTMAS,SANTA
   ,HOLLY,ANGEL,SLEIGH
   ,TINSEL,CRACKERS,PUDDING
   ,TURKEY,SNOW,FAIRY,DECORA
   TIONS,PRESENTS,GIFTS
   ,PARTIES,TRIFLE,FAMILY
   ,CARDS
5000 DATA EOF
```

This listing is included in this month's cassette tape offer. See order form on Page 99 of The Micro User.





FRENCH TUTOR

DID you think that your micro was limited to Basic English? Well with our French Tutor the Electron starts to speak French.

The micro will put a sentence on the television screen and you have to type in the correct answer.

If you get it wrong it'll tell you and display what it should have been.

At the end you get a score, and the chance to do it all again.

And you're not limited to French. You can use any language you like by changing the DATA statements.

But let's start with French. Over to you.

Or do I mean vous?

```
10 REM ** FRENCH VERBS
   **
20 REM (C)ELECTRON USER
30 CLS
   : PRINT TAB(5) "In
   this test, you must"
40 PRINT TAB(5) "copy
   the punctuation marks
   "
50 PRINT TAB(5) "exactly,
   because if you "
60 PRINT TAB(5) "don't,
   the computer, being
   "
70 PRINT TAB(5) "literal-m
   inded, will think "
80 PRINT TAB(5) "you have
   made a mistake!"
90 PRINT
   : PRINT TAB(5) "N.B.
   'You' is translated
   "
100 PRINT TAB(5) "as 'Vous'
    (2nd person plural)."
110 PRINT
   :PRINT TAB(5) "Unfortun
   ately, all accents
   "
120 PRINT TAB(5) "have
    to be omitted."
130 PRINT
140 REPEAT
150 LET T=0
160 FOR K=1 TO 21
170 READ E$, F$
180 PRINT "WHAT IS '"E$
   "'?"
190 INPUT X$
200 IF X$=F$
   THEN PRINT "C'EST JUSTE
   !"
   : LET T=T+1
210 PRINT
220 IF X$<>F$
   THEN PRINT "FAUX! VOICI
    LE MOT JUSTE: "F$
   : SOUND 1,-15,89,10
230 PRINT
240 NEXT K
250 PRINT "YOUR SCORE IS:
    ";T;" OUT OF  21"
260 PRINT
   :PRINT
270 RESTORE
280 UNTIL FALSE
290 DATA "I don't know"
    , "Je ne sais pas"
300 DATA "When will you
    come?","Quand viendrez
    -vous?"
310 DATA "I will write
    to you","Je vous ecrir
    ai"
320 RESTORE
330 DATA "I like French
    wine","J'aime bien
    le vin francais"
340 DATA "How much is it?"
    , "C'est combien?"
350 DATA "I'm waiting for
    an answer","J'attends
    une reponse"
360 DATA "What time is
    it?", "Quelle heure
    est-il?"
370 DATA "It's six o'clock"
    , "Il est six heures"
380 DATA "What colour is
    it?", "C'est de quelle
    couleur?"
390 DATA "I'm going out
    now", "Je sors mainten
    ant"
400 DATA "I'm going to
    the airport", "Je
    vais a l'aeroport"
410 DATA "Hurry up, I'm
    late!","Depechez-vous,
    je suis en retard!"
420 DATA "Is it far?"
    , "Est-ce que c'est
    loin?"
430 DATA "Go away!", "Allez
    -vous en!"
440 DATA "I have no money"
    , "Je n'ai pas d'argent
    "
450 DATA "I'm going home"
    , "Je rentre chez moi"
460 DATA "I'll be there
    in an hour", "Je serai
    la dans une heure"
470 DATA "Will you wait?"
    , "Attendrez-vous?"
480 DATA "What's your name?
    ", "Comment vous appele
    z-vous?"
490 DATA "Shall I see you
    again?","Vous reverrai
    -je?"
500 DATA "Until the next
    time..", "A la prochai
    ne fois.."
510 END
```

The new boy from Acorn already has a gang of playmates.

The Acorn Electron, Britain's most exciting new home micro, already has a range of software programs specially designed for it by Acornsoft, makers of software for the BBC Micro.

There are six mind-boggling games, two programming languages, two exciting graphics cassettes, a home educational program and a personal money management program.

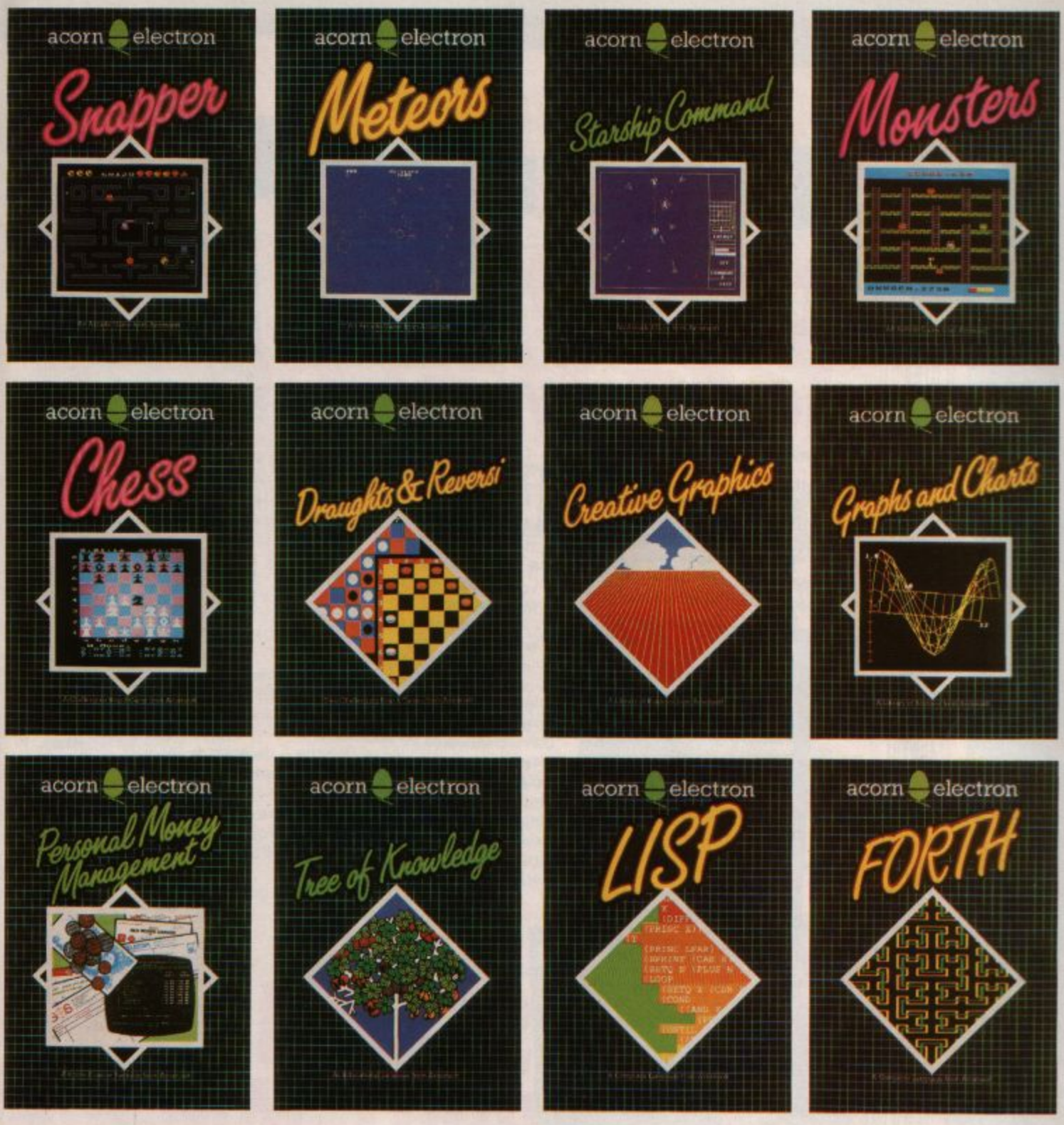
All of which will soon help familiarize you with the Electron and show you how to get the maximum enjoyment out of it straight from the word go.

Of course, we'll be constantly designing new software to help you fully realise the Electron's limitless potential.

You'll find all the programs featured here, plus the full



The Electron. The new boy from Acorn.



range of programs for the BBC Micro, available at selected W.H. Smith branches and at your local Acorn stockist. (To find out where they are call 01-200 0200.)

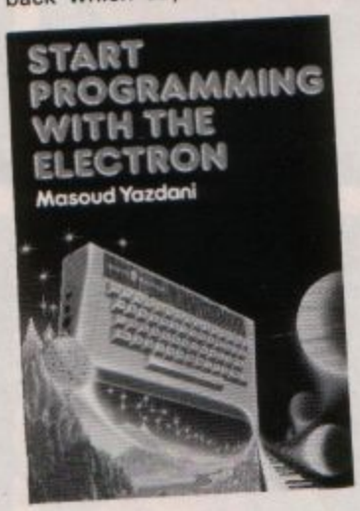
Alternatively, you can send off for the Acornsoft Electron or BBC Micro catalogue, by writing to: Acornsoft, c/o Vector Marketing, Denington Estate, Wellingborough, Northants NN8 2RL.

ACORNSOFT

The friend that lets you down

THIS is the book that you'll find, along with the User Guide, in the box your Electron comes in.

You'll get some idea of its style from the blurb on the back which says: "This book



Start Programming with the Electron
Masoud Yazdani

is the friend you need to hold your hand through a bewildering new world".

However you can't judge a book by its cover, it's what's inside that counts. Sadly, it carries on using patronising phrases like "your journey through computer land".

This would be acceptable if the content made up for the style. But it doesn't.

It starts off with procedures in chapter one, goes on to functions and conditional branching in chapter two and eventually deals with INPUT in chapter seven.

On the way there is a detour into Turtle graphics and the statement that machine code is "the jargon phrase for strings of noughts and ones".

During these wild lurches through computer land the level of presentation varies badly.

For instance, variables are explained well, yet the treatment of expressions is far too terse for a book aimed at beginners.

And the appearance of recursion in chapter one of such a book is mistaken, to say the least.

Acorn are to be congratulated for attempting to provide "a gentle introduction" to the Electron to supplement the User Guide.

Unfortunately this book fails to do so.

Peter Green

ASSEMBLING THE ABOUT MACHINE

FOR my money one of the nicest things about the Electron is its in-built assembler.

And now there's an equally nice book that teaches you how to use the assembler to talk to the micro in its own language – machine code.

People seem to shy away from assembly language, as it has a reputation for being hard to learn.

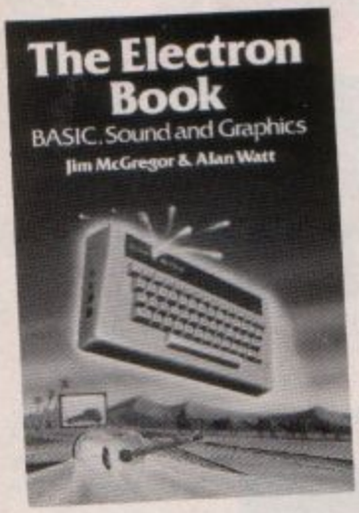
I've always maintained that it is more complex than difficult. If it were explained properly it wouldn't appear too formidable.

Now Ferguson and Shaw have made my point beautifully in the 13 chapters of "Assembly Language Programming on the Electron".

Each chapter is short and well illustrated, the diagrams adding something to the text rather than just being decoration.

The numerous short example programs are excellent, and these, combined with the lucid treatment of the subject, soon give a feeling of confidence.

There are three short summaries for you to check your progress and eight appendices – which are, for



Brain strain won't be in vain

The Electron Book
Basic, Sound and Graphics
Jim McGregor & Alan Watt

I HAVE little doubt that before long there will be a series of books all about learning BBC Basic on the Electron.

I doubt very much indeed whether many of them will be as good as The Electron Book, by McGregor and Watt.

It is quite simply excellent, the best book on a micro that I've read for a long time.

The first seven chapters are an introduction to the joys and complexities of BBC Basic.

Structured programming is introduced at an early stage, and the examples given are both illustrative and useful.

Each section is supported by a set of programming exercises which are an integral part of the book.

By the time you've worked through these you'll be able to program your Electron with ease and a fair measure of expertise.

The last four chapters deal with the Electron's sound and graphics capabilities – playing tunes from the keyboard, user defined graphics, animation. It's all there and more, dealt with expertly and thoroughly.

Not that it's an easy book to read. It assumes a certain amount of effort and intelligence on the part of the reader.

If you're not prepared to do the exercises which are a vital part of the book then you might find the later sections hard going.

Having said that, the exercises are interesting in themselves. They illustrate and add to the text.

Any brain strain is well worth the effort!

Given the above and 10 useful appendices you can see why I'm so impressed with this work. It has set a standard by which other books on the Electron will be judged.

Impressive.

Graham Parr

FACTS CODE

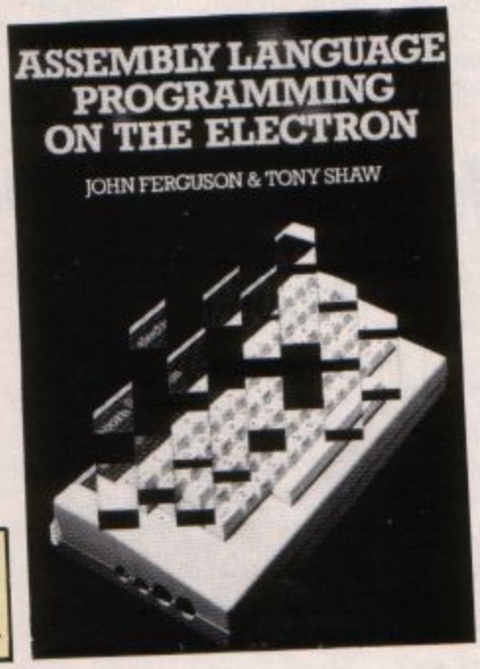
once, of use rather than just being afterthoughts.

This is a lovely little book. Its easy-to-read style and gradual progress give confidence to the learner while encouraging exploration.

So if you feel confined by Basic and want to know how to use your Electron's assembler, here's the one for you. A nice book.

Graham Parr

Assembly Language Programming on the Electron
John Ferguson & Tony Shaw



Software Surgery

THE COLUMN THAT TAKES A LOOK INSIDE THE LATEST RELEASES

Your nightmares are landing...

SWOOP
Program Power

HAVE you ever had one of those nightmares where horrible creatures swoop at you out of the sky? Try as you like, you can't get away from them.

With Program Power's exciting new game Swoop you get the chance to get your revenge using your Electron.

You do this by controlling a laser base at the bottom of the screen. The birdmen are hovering in formation at the top bombing you. Not content with that, they peel off and strafe you.

All you can do to escape is either to blast them with your laser or dodge out of the way by moving left or right.

Even if you do avoid them they still cause problems because on landing they lay eggs which turn into landmines. Run into these when you're dodging left and right and **BANG!**

Happily you do have three lives – and you need them! And if you manage to shoot enough of the birdmen the eggs they've laid fade away. The trouble is that as soon as you've shot down one formation another one takes its place. And they start coming at you thick and fast.

It's a great game, enhanced by good graphics, nice sound effects and easily used controls. Fast and furious, it needs skill and good reactions to avoid the swarms that come at you as the game progresses. It's addictive – and a lot more fun than the nightmare.

Peter Bibby

Education is an extra

TREE OF KNOWLEDGE
Acornsoft

SAYING that Tree of Knowledge, the new program from Acornsoft, is an educational game could be the kiss of death. I mean, who wants a game that's educational?

It sounds like an impossibility – a contradiction in terms! However, Tree of Knowledge is both.

It's a program that shows how computers can organise facts, which must be educational. But it makes it all so interesting that you don't realise you're involved in learning.

Taken at its simplest level it's just a question-and-answer guessing game. Either you decide to "be" an object and the Electron must guess what it is or the micro is "it" and you must ask the questions until you can guess.

Of course, there has to be a list of objects to pick from, and the game supplies you with two.

On another level, you're learning how to set up lists of facts, or databases, and then using them to get the information that you want. At first, no doubt, you'll use the databases the game gives you but soon you'll want to create your own.

The program allows you to do this, simply and easily. It also lets you adjust the ones you already have, so you can throw in the odd unexpected object to catch out a know-it-all.

It's fascinating to use and can be anything from an intriguing game to an educational tool. The range is enormous. The Acornsoft cassette gives a database that can be used for A-Level biology students. I'm working on one using words from my daughter's school books. You're only limited by your imagination.

The instructions you get are complete and easy to follow and the whole package professionally produced.

If you're looking for a program that's both different and enjoyable then this is worth considering. Even if it is educational! **Eileen Young**

```
                FRUIT
What would you like to do :
   1  Think of a fruit
   2  Guess a fruit
   3  Edit the tree
   4  Print out the tree
   5  Save the tree
   6  Load another tree
   7  Start a new tree
?
```

The main menu of Tree of Knowledge

Shades of schooldays

HAVE you ever wondered what became of the grammar schools when the comprehensives came along?

Well I know what happened to one of them, Grunley Grammar. It was shut up, forgotten, and left to decay, the only inhabitants the ghosts of its old teachers.

These ghosts are doomed to spend all eternity teaching spectral classes the subjects they refused to learn in their lifetime.

They would far prefer to teach, test and taunt a living child. And with Magic Software's cassette, The Ghosts of Grunley Grammar, they get the chance.

THE GHOSTS OF GRUNLEY GRAMMAR
Magic Software

You take the part of a child who has foolishly entered the ghastly grammar school and fallen into the hands of its ghosts. You go from room to room and in each room the spirit of a master asks you three questions on his subject.

Should you fail any of them he gloatingly tells you the answer and back to the beginning you go. But only after the ghosts have taunted you about your stupidity!

It's amusing and becomes compulsive. All the usual school subjects are covered and there's a fair selection of questions. It's the kind of game that kids love – not just playing it themselves but also watching others make mistakes and get insulted. And they're learning all the time.

The program is fun and original. No doubt educationalists will say that it just teaches facts, not understanding, but that's just a quibble.

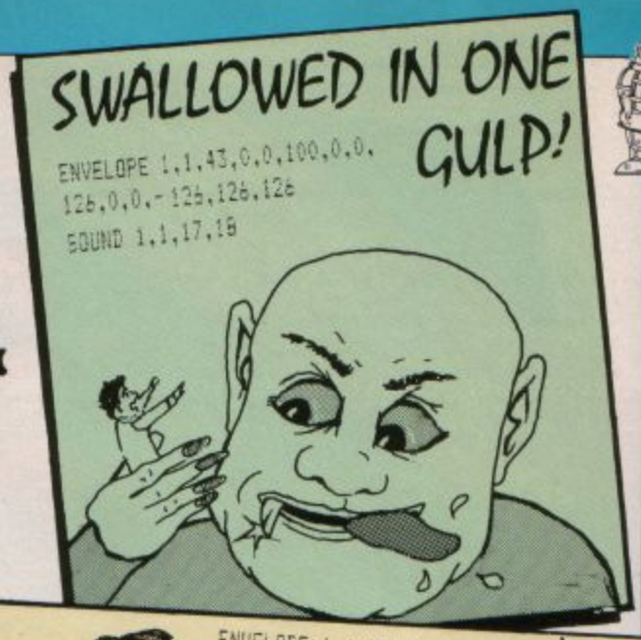
The program is amusing and addictive. In fact it's magic.

Trevor Roberts



SOUNDS.. EXCITING







HAVE you tried using any of the sounds from "Sounds Exciting" yet? If you haven't, you should. It's fun and quite easy to do.

Let's take the factory sound from the second issue of *Electron User*.

Under the picture of the hammer and the machinery you have:

```
SOUND 0,1,1,50
ENVELOPE 1,5,1,20,8,200,0,0,
126,0,0,-126,126,126
```

To make the sound all you have to do is to type these letters and figures into your Electron. Don't forget to press Return!

The SOUND command and the figures following it tell the micro to make the noise. The ENVELOPE command with its attendant figures controls the type of noise made by the SOUND command.

One thing to make clear is that the ENVELOPE statement must be typed in before you type in the SOUND statement. This is fairly logical if you think about it, because for ENVELOPE to modify SOUND it must come before it.

Putting in the SOUND before the micro has been told which ENVELOPE to use just results in a puzzling silence.

Happily once you've entered the ENVELOPE statement the Electron will remember it and use it to modify the SOUND statement whenever it is used. However, don't expect it to be remembered after you've switched off!

You can also use the commands in a program but remember that there must be an ENVELOPE statement before you can use the SOUND command to make a noise.

Suppose we want to use the wailing bugs sound effect from issue one. All we do is put them in our program by giving them line numbers such as:

```
10 ENVELOPE 4,4,-1,1,0,20,20,
0,126,0,0,-126,126,126
20 SOUND 1,4,200,100
```

Notice that the ENVELOPE statement comes first. After this, however, you can use the SOUND command and it will automatically refer back to the correct ENVELOPE. You needn't use it again.

It can do this because each SOUND command is linked to its ENVELOPE by a label. The label is the number that comes immediately after the ENVELOPE command.

In the factory sound the number is 1, in the wailing bugs it is 4. You can have up to 16 ENVELOPES labelled in this way.

When the Electron comes across a SOUND command it checks to see whether there is an ENVELOPE label attached. This is the number that follows the first comma in the SOUND statement. It's 2 in the case of the factory noise, 4 for the wailing bugs. The micro then obeys the SOUND command but modifies the noise it makes by using the ENVELOPE with the same number.

Try the program on the right which contains the two ENVELOPE statements we've already come across. They are used to alter each of the SOUND commands we met earlier.

The wailing bugs SOUND command is modified by its own ENVELOPE statement and then by that of the factory sounds. Then the factory sound is modified by each of the ENVELOPE statements in turn.

```
 10 ENVELOPE 4,4,-1,1,0
    ,20,20,0,126,0,0,-126
    ,126,126
 20 ENVELOPE 1,5,1,20,8
    ,200,0,0,126,0,0,-126
    ,126,126
 30 CLS
 40 PRINT "PRESS A LETTER
    KEY"'"FOR THE NEXT SOUND
    "
 50 A$=GET$
 60 SOUND 1,4,200,100
 70 A$=GET$
 80 SOUND 1,1,200,100
 90 A$=GET$
100 SOUND 0,1,1,50
110 A$=GET$
120 SOUND 0,4,1,50
```

All we've done is to change the labels on the SOUND commands so that they use both ENVELOPE statements.

By swapping the labels in the SOUND commands you can use any of the ENVELOPEs we've given you with any of the SOUNDs – sometimes with surprising results!

It's up to you and your Electron. Sounds exciting!



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