

DRAGON'S TEETH



THE MONTHLY NEWSLETTER OF
THE DRAGON CLUB AT THE DUNGEON

ISSUE 9, NOVEMBER 1983

VIEW FROM THE DUNGEON

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NEWS

It happened again! Despite our efforts to catch up the "lost month", yet another computer crash scrubbed out the attempt. Finally, we uttered dark threats to the supplier, who have had the drives out twice in their factory (the last time for five weeks) and a boffin turned up one afternoon at the Dungeon to strip the beast down. By nine o'clock in the evening the office was littered with drives, boards, boxes of spare chips and a variety of test equipment.

The problem was finally located - not in the drives at all! It appeared that the voltage in the timer dropped a couple of per cent below the critical level every so often and the CPU became "confused". The moral for all of you with disc drives, planning to use a '64' for serious applications, is clear. Take out a maintenance contract if you can get one!

So now the pre-Christmas issue looks like being a Christmas one. Apologies to the contributor who suggests presents to buy - maybe the "pressie" money could be used to buy them!

Turning to more serious matters, we are slowly becoming converted to OS9. The more information we collect on this operating system, the more we accept that Dragon Data didn't make such a bad choice after all. We still hold to the view that multi-user systems have little place in home computing (schools might be a different matter), but the multi-tasking capability of OS9 is indeed impressive. Random-access is both friendly and remarkably fast and the software support for modular program construction is excellent.

The only disappointment discovered to date is the 51 x 24 screen, a la 'Telewriter'. We have enough problems with the 64 column



screen on our own current business machine (we'll switch to Dragon later when the lease runs out) and wish that 80 column would move down market to home micros.

Dragon Data have announced a useful initial batch of OS9 software packages, which should become available "early 1984" (when D64's cease to have rarity value.) These include a 'Dynacalc' spreadsheet version at a very competitive price (around 25% of the usual business machine level), with a massive 1,750 "cell" capability. A 'Stylograph' word-processing package also offers excellent value at around £80. Not content with a full WP capability (including the mandatory side-scrolling enforced by the 51-column screen format), the package includes a 42,000-word dictionary for spelling checks and a mailmerge facility for personalised mailings. For a comparable Tandy package on the Model 4 you would have to pay three times this price.

Other OS9 goodies are reported to include PASCAL, a C-Compiler and an Editor/Assembler/Monitor on disc. May we appeal to any member securing any of this OS9 software to report on their reaction to it - especially their findings in respect of "user-friendliness."

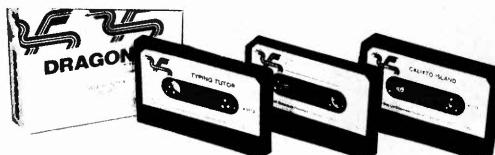
Now from the good news to the more questionable. As we noted last month, we feel that the £225 price tag on the Dragon 64 will give Commodore a head start. Yes, we know that a CBM-64 buyer will have to lash out on a £50 tape recorder (with another £50 if he wants a comprehensible BASIC), but new buyers don't tend to be that sophisticated! Now we hear that the "upgrade" from 32 to 64 is likely to cost Dragon owners as much as a Spectrum 48K.

To our mind, if this costing is confirmed then Dragon Data will have missed a golden opportunity to revitalise the Dragon scene. We know of many Club members who have been waiting to upgrade since May and wonder how many will bother at that price. We suspect that you will do better to sell your Dragon 32 and expect to obtain considerably more than the reported "exchange deal" price.

Finally, we must disagree with the computer press pundits who seem to regard the Dragon 64 as a "respray job." The new version has more to it than that - you have only to touch the keyboard to draw that conclusion. Now you can touch type, with auto-repeat!

The 64's three modes are also more than they seem at first glance. The fully "soft" 64K mode has potential that deserves a review all to itself (next month perhaps) and the ability to boot in a language of choice provides exciting possibilities. The built-in RS232 interface opens up your Dragon to the outside world and the prospect of hooking up to download library sources via the telephone gives the home micro a mainframe storage facility.

1983 has been a mixed one for Dragon owners, but the New Year offers much.



Mini-Reviews

CHILDREN'S SOFTWARE

-by Pauline Hampson

The software now available for the Dragon 32 is extensive and I would like to suggest some programs which are good value for money and sure to be a success when your child peeps into his Christmas stocking!

Young children of four to seven are not very well catered for in the software market. I would thoroughly recommend Wizard Software's "Clowns", a noisy, colourful program in three parts involving pressing either arrow keys or spacebar. The game is a joy in itself and skill with the keys is irrelevant. Part One is a juggler and moving the arrow keys causes him to catch the balls. The second part involves using the spacebar to rotate an arm, which sends balls into scoring alleys, as seen at the fair. In the final part, a clown holds a net. His arm is moved using the arrow keys as he tries to catch a ball. Once loaded, any of the three parts will keep on playing, avoiding the need for parents to leap up and down!

Dragon Dungeon's "Animated Alphabet" is a must for all young, would-be computer experts, as it teaches the alphabet, including lower case and capital letters. Anyone using a Dragon keyboard must be familiar with capitals and children rarely learn them in school until they are older. The alphabet is animated with a combination of sound and moving pictures. There are two options, the program runs itself, or each letter is animated on the press of the correct key. For example, at 'U' for 'Umbrella', the screen shows a picture of an umbrella, the word 'umbrella' and 'U'. When 'U' is pressed, the rain falls and a tune plays.

Dragon Data have produced a game called "Circus Adventure", which is written for 4 - 8 year olds. Some degree of reading ability is needed, so parents may need to assist in the beginning. This is a cheerful and bright program, where the object is to explore the circus and find the popcorn stand. At each location the child is offered two alternatives and must make a choice and key in a letter (L - Left or E - East.) The goal is unimportant, the interest being in the locations themselves, well portrayed graphically, like the "tiger in his cage", or the "famous clown." I put this game in the 4 - 7 year old category.

Children between 7 and 9 have a wider choice of games. For those who feel comfortable with arcade games, there are several good ones. Those I have chosen are suitable for those starting these games and often just the keyboard can be used - something children frequently prefer. An added bonus with these is that the rest of the family will also want to play, as they are not specifically for children.

The Programmers' Guild's "Ninja Warrior" is the absolute favourite with my own 8 year old, but she only ever uses the keyboard option. The warrior runs along and you make him kick or jump obstacles, thus progressing to harder levels. The game is graphically excellent and very hard at higher levels, but my daughter can manage four levels (to blue belt.)

Microdeal's "Frogger" is another good program with keyboard option. You guide your frog through the traffic to the other side. The music sounds like an organ and the colourful graphics appeal to children.

Microdeal's "Cuthbert Goes Walkabout" is another simple program which children would love. You guide Cuthbert around a grid where he colours in squares. Having completed four sides, Cuthbert is stalked by evil moronians who sometimes chase him, if caught, you lose one of your men. The game has a compulsive tune. You choose between joysticks and keyboard. The game is just a little harder than the previous arcade games mentioned, as you have occasionally to run away and my "Cuthberts" sometimes seem to go their own way.

"Giant's Castle", from the Dungeon, is another possibility for this group, with general knowledge included in an interesting and varied adventure. You meet "horrible genies" in "gruesome caverns" and "cobwebby dungeons" and have to answer questions to pass them on your quest for the princess. Sound and graphics are fully used and there are some funny parts which will make everyone laugh. Instructions are also included to alter the questions to suit an individual child.

My final selection in this age group is "Wizard War" by Salamander. It is a game for two to nine players, so parents may have to join in! Wizards do battle in pairs and choose their spells from a varied selection, including "plague of frogs", "spider" and "fireball." Joysticks are used to control some spells and reference to the spell book is essential while learning the game. The wizards face each other on screen across an abyss and the spells are shown attacking them. Children love the graphics. The game is quite sophisticated too - on another level certain spells have more power and work best under different suns.

Children over ten will enjoy any of the games in the previous arcade section and any of the popular ones. "Cuthbert in the Jungle" would make an excellent choice. Cuthbert has to run, jump, climb and swing on ropes as he battles through the jungle, using alligator heads as stepping stones in one part. He is controlled using a joystick. This program is sure to be a Christmas hit.

Adventure games are not for everyone, but children interested in trying one for the first time should try "Dragon Mountain" from Dragon Data. It is an easy game to play, with fairly easy locations and it is generally straightforward. It is a text-only game.

Any addicts of board games will enjoy Microdeal's "flipper", a version of Othello, playable at three skill levels. The game is simple to learn and addictive. You have to be quite skilled to beat the computer even on the second level and concentration is needed. The computer will also play itself, if you wish.

When making your selection, do not forget that children are individuals and that the average ages given are only a guide. Children, like adults, also have different interests; some like adventures, others prefer arcade games.

I hope this guide will help you and your children to have a Happy Christmas.



LETTERS

UNIFILE TROUBLE

Re Mrs. Willis' letter in Issue 7 of Dragon's Teeth. I have not used unifile but cannot understand why only 152 records can fit. What is the record size in bytes? An alternative would be to write the records out to a data tape and read this in each time.

Re. Madness & The Minotaur; there are reflections in the pool, if you look into it! But I've still not cracked the game!

Pat Keating,
16 Wentworth Ave.,
Rossall,
Fleetwood.

LEADING SPACES

I rang you today about a leading space apparently inserted into number strings by 'RND'.

As you have no doubt realised, it's nothing to do with 'RND'.

```
10 A$ = "789"  
20 PRINT LEFT$(A$,1)  
gives
```

7

```
10 A = RND(20)  
20 PRINT A  
30 A$ = STR$(A)  
40 PRINT A$  
50 PRINT LEFT$(A$,2)
```

gives, e.g.

```
18  
18  
1
```

BUT, the fact that a space appears in the 2nd line as well as the third line of the 'printout' shows that it is the STR\$ function which adds the space.

In fact, I remembered reading about 'leading spaces' somewhere and tracked it down on p.91 of 'The Working Dragon'.

Sorry to have bothered you with an imaginary problem! Now I can get back to 'Advanced Sound & Graphics' - superb book!

Kathryn Howard,
16 Dragon View,
Harrogate,
North Yorks.

(Apt address for a D32 owner! - D.M.)

FLIGHT SIMULATOR

I have not been able to take off on the D.A.C.C. flight simulator yet. I have been able to land numerous times, but what is the secret in getting a "jumbo" off the tarmac into the air (I normally find myself a few miles north of the runway.)

My main interests in the games side of computing are Simulations and Adventure games. Having completed Mansion House (not very taxing) and Calixto Island (a lot better), I got halfway through The Hobbit (Spectrum) before I had to give it back to its owner (a very addictive game.) Now I hope to challenge Franklin's Tomb.

I do play other games on my Dragon, 'Golf' by Salamander being one (very good) and 'Frogger' another - 10,774 being my best score.

S.A.C. Steve Short,
TAR-FT-61,
R.A.F. Cosford,
Albrighton,
W. Midlands.

'UL ERRORS'

Ref. my competition prize of 6 months free software, I would appreciate as the second tape Wintersoft's 'Ring of Darkness.'

I enjoyed playing the first tape, 'Crystal Chalice', and arrived at the solution after about two weeks adventuring. I found the difficult parts to be finding the way between the cave and the rocky path (a lot of reRUNs to find this) and how to deal with the fish.

A tip for other programmers to check for 'UL ERRORS'. Check highest line number in program. Type in a dummy line, e.g. 20000REM. Type in RENUM20010,20000,10 and the renumber facility will list all UL errors.

Brian Beesley,
5 Greens Close,
Bishopstoke,
EASTLEIGH,
Hants.

'RING OF DARKNESS'

Dear Clive Gifford, via the D.M.,

My Jester (Ring of Darkness) never did that! He kept rabbiting on about a key, but it was not until I had all the rings and couldn't think of anything else to do that I discovered how to get it off him. I also discovered too late that pub gossip can be useful - but had by then worked out Xandra's Quest for myself.

I did get "steal" to work once - but got caught - but I never got a "bridge" spell to work - perhaps a different character would succeed. Tip for Mr. Bennett - if you have got to the final ordeal you have presumably already slugged it out toe to toe with a Gorn. Gron is just an anagram - and the same tactics pay off. I suppose my over-muscled human warrior, given to stubbornness and persistance rather than lateral thinking - had quite an advantage. Just keep at it!

The game is galactically far ahead of any other I have yet tried.

Finally, can anyone help me? Peaksoft's 'Death's Head Hole' seems nice but rather simple. I have not yet succeeded in finding more than five cavers, but have done the Cave of Chasms and found the other exit - and neither these, nor many other features, seem to have much strategic relevance. It must be me - or is this all there is?

Ian Murray Watson,
Slade Farm,
Peterchurch,
Herefordshire.

EXPLORING THE DRAGON'S ROM

It seems that I have the same obsession as S.J. Middleton, exploring the Dragon's Rom. I was interested in his program for reading tape headers and it got me digging in to the CSAVEM and CLOADM routines. I came up with the following suggestions and queries.

- a) If you EXEC &HB933 in line 50 it includes MOTORON and MOTOROFF, thus enabling lines 20 and 60 to be deleted.
- b) The misprint in line 120 may have fooled some readers. After the brackets it should read....;H\$; Presumably most people will have spotted the F instead of \$ in line 110
- c) Bytes 12 AND 13 of the header should contain the EXEC address not the length of a M/C program. The CLOADM routine adds any specified off-set to the saved value in these bytes and then stores it at \$9D and \$9E (the pointer to the EXEC address.) However, some headers may contain the length in these bytes if length was typed as the last value when the program was saved. Such a program when loaded will not run with a simple EXEC command. It will be necessary to know the entry address and to type it after the EXEC. The problem, I believe, arises due to a misprint in early Dragon literature.
- d) To answer Mr. Middleton's (or Mrs. or Ms.) query about the last four bytes in Basic and Datafile headers. They are not used and will contain the data from the last saved or loaded M/C program, or they will be zero if not M/C programs have been used since power-up.
- e) My query refers to locations \$8A and \$8B. They crop up in most of the saving and loading routines but it is not clear why. For example, during CSAVEM the contents of \$8A and \$8B are stored at \$01E3 and \$01E4 which are bytes 10 and 11 of the header block. After the header is loaded by CLOADM the current value of \$8A and \$8B are added to the entry address if no off-set is specified in the CLOADM instruction. Since this leads to zero off-set it must mean that the \$8A and \$8B contain zero, so why bother? There must be more to it. Can anyone help?

On the subject of exploring the Rom, do you know if a source version of the Tandy Color extended Basic has been published? It would be a useful reference to those exploring Dragon Basic.

Peter Williams,
22 Grove Park,
Burbage, Hinckley, Leics,

P.S. Do you send reminders when membership is about to expire? My 6 months trial sub. must be nearly used up!

(To Peter and all other Club Members who have asked this question, rest assured that the Dungeon will remind you when your subscription runs out. With the Dragon Disc Drive in mind we would note that we use POWERMAIL as the software, although we don't know whether this has been OS9'd yet. This system has 24 possible flags, with the first twelve used as the month your sub. expires. - D.M.)

GOOD SERVICE IN AVON

Glad to see you are bringing out your own software.

Tip for Avon Dragonairs:- any problems, see Barry Smith at Mobile Micros, 2, Castle Street, Thornbury, Bristol BS12 1HN. Tel: (0454) 418383. He is the official Dragon Data repairman for the area and is exceptionally keen and eager to please.

Keep up the good work.

David Shennan,
Broadmoor Vale,
Weston,
Bath, Avon.

DRAGON AUTO-REPEAT

It looks as if I may have a problem with my Dragon 32. In page 98 of the Anatomy of the Dragon, Mike James gives a program for a keys auto-repeat. I find this only works if 2 keys are held down simultaneously when one of the keys pressed will repeat (when the other is lifted.) Poking and Peeking the rollover table OH150 to OH159, I find I cannot shift the code of 191 returned for location OH151.

On the other hand, if I amend the program with an additional poke to this location, it seems to work but I wouldn't say its faultless every time.

The amended line is 1005 POKE 337,255.

I wonder if anyone out there has any comment or have I really got a faulty machine?

R.D. Hall,
'Trenhayle, New Road,
Cawsand,
Torpoint, Cornwall.

(- Looks like the usual story of the various Dragon ROM's! - D.M.)

RANDOM NUMBERS

I have enjoyed my trial subscription period to Dragon's Teeth and have pleasure in enclosing my renewal subscription. Perhaps you may wish to consider this short program for your 'Tip of the Month' feature.

One shortcoming I have found with the Dragon is that the RND function always starts at the same value. When switching on a game containing this function it is possible to predict the result which is useful when you wish to impress your friends but hardly fair in a game of chance. I therefore add the following three lines to the start of games programs

and the chance of predicting the result is extremely small.

```
10 X=TIMER:IF X 1000 THEN X=SQR(X)
20 FOR Y=0TOX:Z=RND(X)
30 NEXT:X=0:Y=0:Z=0
```

Without this trick those of us who have the Dragon Data horse race program may win every time!

Good luck with your excellent magazine.

Denis O'Mulloy,
23 Swaynes Lane,
Comberton,
Cambridge.

(Randoms are always a problem, with the same pseudorandom numbers in a repeated series. One approach is given in this month's 'Dragon User' - first letter on letters page - but Mr. O'Mulloy's is another. - D.M.)

"THE MADNESS CONTINUES"

More tips about "MADNESS & THE MINOTAUR".

Has anyone else found the secret ledge? It is found by holding the parchment and playing the 'flute.' You then have to climb the ledge.

Looking in small pits, walking through rooms above ground with 'Lamp On' and turning 'Lamp Off' in the room with strange coloured walls and 'looking' will all give Treasures etc.

Eating the 'Mushroom' can give more 'strength' or it could 'Kill.' One can also eat the 'Magic Powder' - this is useful if your lamp is flickering.

The Hydra can be tied up with the rope and if all exits are blocked try 'Running.'

P.S. This game may drive me mad, but it is no five-minute wonder. Keep up the good work on D.T.

M.P. Cuckow,
174 Robin Hood Lane,
Chatham,
Kent.

("Secret Ledge", eh? That's new! - D.M.)

SECOND-HAND HARDWARE

The purpose of my letter is to ask if you could put an advert in your magazine please. I am looking for a second-hand printer, must be in very good condition and immediately usable with my Dragon. I am also very interested in a second-hand light-pen or modem and would be only too pleased to hear from anyone wishing to exchange software. If people write to me enclosing a SAE, I will pass on addresses of members.

who wish to swap (Please send an SAE! - last time I did anything like this, it took about 6 months' pocket money in postage!)

Adding a comment on Clive Gifford's book, I think it is brilliant and has helped me considerably. I recommend it to anybody who has just bought their machine, and knows little or nothing about programming.

Meanwhile, the book "Dragon Companion", although highly recommended by yourselves, is I find of little practical value. True, it does show added graphics modes, but these may not be all that necessary. Also to be mentioned is the size of the book (30-odd pages.)

David Longshaw,
64 Shore Drive,
Bebington,
Wirral,
Merseyside. L62 4RW.

(Any member got any of these second-hand items for sale? We passed a copy of David's letter to Clive Gifford, who was selling his printer. - D.M.)

THE WORKING DRAGON

On the point of Dragon Teeth (pun) I find the magazine very informative, but feel that the space used for Reviews on games is a little too much and could be put to more informative use, i.e., useful programs for the Dragon and its hardware - Printers, DOS, etc.

I think that the odd page or so could be included now and then to print information about Dragon 32 books whose programs require modification so that they run better when entered correctly. For instance, The Working Dragon 32 by D. Lawrence, its idea of modular form is good and would be brilliant if it worked. I've tried umpteen times to integrate two programs in the book, (Artist & Words) no matter how hard I try, I cannot get the files from Artist to load into the Words program. Another one was Unifile, which was not very successful and after a lot of toil and sweat, it now runs as it should. If these are samples for the rest of the book, then I've given up hope for it and have not tried any more of the programs.

Now for a book that deserves a lot of praise, it is the Programmers Reference Guide, well written and very informative, the memory locations are useful when using machine code.

J. Richardson,
111 Grampian Way,
Thorne,
DN8 5YS.

EDUCATIONAL SOFTWARE

When will you be publishing your catalogue again? As there are many cassettes in your Price List which I can't find any descriptions of, either in the catalogue or in Dragon's Teeth, I wondered.

I agree with Mrs. L. Rabouhams in the letter section of the October edition of D.T. - if you would give an indication of the age the programs are suitable for. We bought one cassette (not from you) which had a

hangman-type game on it and my husband and I (we are not dimwits) had difficulty playing it as the words stored in the memory were too difficult. How could we expect our 8-year old to play it? This cassette is now gathering dust in his room. He enjoys the other cassettes we have bought him, especially Dragon 'Fun & Games' by Shards.

Mary F. Butler,
23 Mary Dean Ave.,
Tamerton Foliot,
Plymouth.

(Valid comment, which we will bear in mind for our next Price List.
A new catalogue seems as far away as ever - see notes on our Word-Processing problems, but we will make an effort to compile one as soon as possible.
- D.M.)

SYNTHETIC SPEECH

With regard to Mr. Womphrey's letter re Computavoice, this was one of the first programs I bought. I have had no problems loading it but it is vital that the "CLEAR 200,24415" statement is entered in direct mode before the M/C "VOICE 32" is CLOADM'd.

Whilst it is true that this program can occasionally drive one to drink - I still am unhappy with how it pronounces 'NINE'. I have written and enclose for your consideration 'Saycoder', a Basic utility which reads aloud the contents of specified locations.

If you have ever had to debug a 4K M/C program by reading from the screen whilst someone else checks against the original, you may appreciate the value of this utility.

I have enclosed my copy of 'Computavoice', as this is needed to operate 'Saycoder' together with a stamped, self-addressed envelope, so that I may get it back! I have also attached a more detailed set of instructions to operate it.

SAYCODER INSTRUCTIONS

1. CLEAR200,15999 - This allows you to enter the machine code program from 16000 allowing about 8K below Computavoice. This instructions should be entered in direct mode.
2. If applicable poke in the program from 16000. (Saycoder can also interrogate ROM addresses.)
3. CLOADM "VOICE32" from the Computavoice tape.
4. CLOAD "SAYCODER" and RUN.

The program will then ask whether you wish to operate in decimal or hexa-decimal and requests start and end locations. At the end of the program you are given the opportunity to enter new locations. You should note that when in hexdecimal mode, 'Saycoder' uses 'Bravo' for the letter B, to aid distinguishing between B,C,D and E.

J. Whitmore,
49 Myrtle Road,
Leicester.

(Interested members should contact Mr. Whitmore direct. - D.M.)

DUMP

3-D GRAPH DUMP

We give below an interesting little 3-D graph dump program, written by Dave Mottram, who builds the Dungeon's joysticks. It takes quite a time to create the graphic on a Seikosha, but is quite effective.

```
1   REM
2   REM  3D GRAPH
3   REM
10  DIMN(250,2)
20  PMODE4,1:PCLS:SCREEN1,1:LETK=1
30  FORX=1TO250:LETN(X,2)=255
40  NEXTX
50  FORX=-50TO 50STEP5
60  LETD=X:A=50-ABS(X)
70  FORY=-70TO70
80  E=70-ABS(Y)
90  GOSUB200:NEXTY
100 IFX=50THENGOTO170
110 FORD=X+1 TO X+4
120 LETA=50-ABS(D)
130 FORY=-70TO70STEP5
140 LETE=70-ABS(Y)
150 GOSUB 200
160 NEXTY,D:NEXTX
170 REM
180 REM
190 GOSUB 40000:STOP
200 LETQ=A*E/800
210 LETH=D+Y+121
220 LETQ=COS(Q*2)/6
230 LETQ=191-INT(80+D-Q*80)
240 IFX=-50THENLETN(H,2)=Q
250 IFQ<=N(H,1)THENGOTTO330
260 IFK=1THENLETV=150-Q:K=0
270 LETN(H,1)=Q
280 LETQ=Q+V
290 IFQ>191THENLETQ=191
300 IFQ<0THENLETQ=0
310 PSET(H,Q,5)
320 RETURN
330 IFX=-50THENGOTO350
340 IFQ>=N(H,2)THEN RETURN
350 LETN(H,2)=Q
360 GOTO 280
40000 PRINT#-2,CHR$(27);":":CHR$(27);";A";CHR$(8);CHR$(13);
40010 POKE65495,0
40020 FORA=1536TO7679 STEP256
40030 PRINT#-2,CHR$(27);";K";CHR$(0);CHR$(1);
40040 FORB=A TOA+31
40050 C=128
40060 FORY=0TO7
40070 F=128:E=0:D=B
40080 FORZ=0TO7
40090 IF(C AND PEEK(D)) >0 THEN E=E+F
40100 D=D+32:F=F/2:NEXTZ
40110 PRINT#-2,CHR$(E);
40120 C=C/2:NEXTY
40130 NEXTB:PRINT#-2,CHR$(10);
40140 NEXTA:POKE65494,0:RETURN
```

(Ad)ventures

by Clive Gifford

When will the first adventures on disc be available, a question that has recently come into prominence. Certainly with the mass storage provided by discs and the ability, on most, to select programs in a random order from a disc, it would seem to be a perfect medium to create huge complex adventures on for the Dragon. Premier would seem to be one of the first with comments that a disc may be out soon, but I've heard that it may just be one of their standard cassette-based adventures just formatted onto disc. Discs have so much capability; you could have an adventure of immense proportions with the ability to travel through the whole adventure at will. In comparison, a game like 'Pettigrew's Diary' with 3 cassette-loaded parts, allows only one-way travel, forward into the adventure. When one part of the game is completed, the next part is loaded and the original part erased. This stops the player being able to retrace his steps to pick up a certain object which he has found, further on in the adventure, is a useful asset but was originally discarded as worthless junk. This is just one of many reasons why a two-way system of separate programs is preferable when designing and writing large adventures.

In the last issue, I discussed 'White Crystal' by Romik. Since then, both my family and I have been striving to obtain the final goal, the destruction of the black (well, on-screen it's red) crystal. Several members of my family have, at the fastest possible speed, taken all the treasures, eaten all the food, avoided all the monsters and finally got within striking distance of the fabled jewel. They struck the crystal with their sword and waited for the glorious finale as the jewel shatters into a thousand pieces. But no, nothing happens, the game does not register that you have hit the crystal and you continue to either play the game or strike the crystal repeatedly until you die of exhaustion or are slain by a monster. I cannot work this one out. It would seem that the game will not end or is there something that we have all missed? Anyone with similar experiences or the solution to the mystery, please write in and tell me, either to my address - given in last month's issue under the printer offer or at the Dragon Dungeon.

I would like to answer T. London's comments about games reviewing in general and also the one about me in particular. I am not too bothered about being on his list of 'other' reviewers who he will not consider. After all, anyone who puts 'Empire' as their number 1 Dragon game must have doubtful judgement! From his comments, it is easy to see that everyone has different views on good and bad games. We, not only here in Dragon's Teeth, but in all computer magazines, try very hard to be objective in our reviews. I have been lucky - the games I have reviewed in D.T. have mainly been excellent, but if Mr. London will note, when a program appears that I think poorly of and I have to review it, I do not pull my punches and certainly do not shower praise on mediocre programs. (Have a look at my review of Salamander's 'Star Jammer' as an example.) I feel that I can speak for all the reviewers of D.T., when I say that we genuinely believe in what we write on a program.

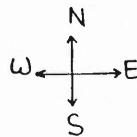
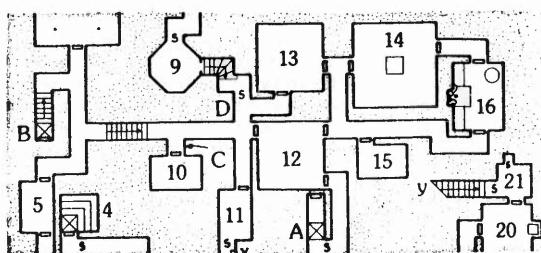
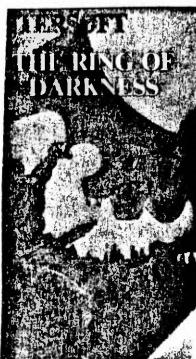
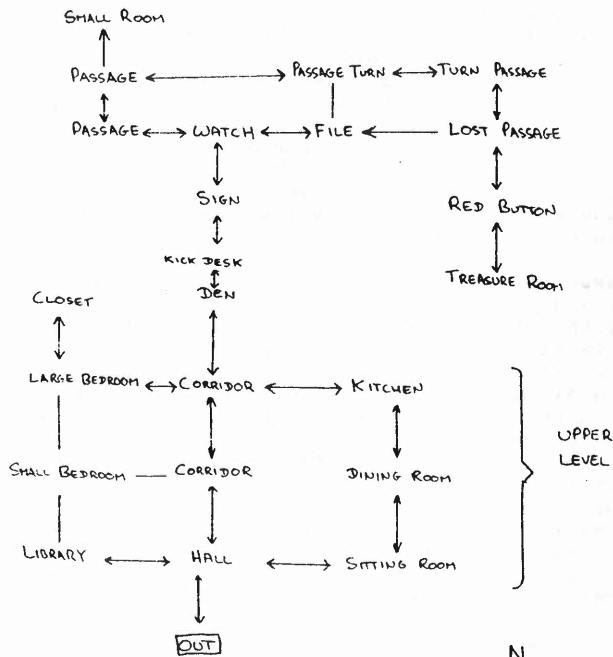
My speech over, let's return to the adventure scene. Brian Beesley sent

in a very nice text adventure entitled 'Golden Nugget.' It was beautifully documented and is a pleasure to play. Brian is now looking for a buyer - anyone on the commercial side interested?

The mysterious Mr. X., the adventure enthusiast who had solved a string of adventures has come out into the open. He is Mr. T. Lovesey of Mulbarton, Norwich. To help those of you stuck on Mansion Adventure, below is a copy of the map of this adventure, kindly sent by Mr. Lovesey.

Until next month, Goodbye.

MAP OF THE 'MANSION' ADVENTURE (Microdeal)



TIP

Several Club Members have asked how the software industry manages to produce printed instructions on an orange screen when, whenever they try it, the screen reverts to green.

The answer is quite simple. First print out your required screen, switch to PMODE4. Type in PCLS\$SCREEN\$,1 and, lo! and behold, printing on an orange screen!

Try this example:

```
10 CLS
20 PRINT@42,"INSTRUCTIONS"
30 PMODE4:PCLS$SCREEN$,1
40 GOTO 40
```

Competitions

OCTOBER COMPETITION

Once again, we appear to have underestimated your skills and were flooded with dozens of correct answers to the 'Computer Marathon' competition. All were correct and many of you included the well-written programs which had produced your result.

The correct answer, in priority order, ran:

VIC, SPECTRUM, LYNX, CoCo, ORIC, GENIE

The prize goes to Mr. S.R. Halsall of Newport, Gwent, who banged off his answer the same day that he received 'Dragon's Teeth'!

NOVEMBER COMPETITION

O.K., so we'll make 'em harder! Try these two delightful brain-twisters from Mark Towlson of Long Eaton, Nottingham. They're guaranteed to test your programming skills:

a) The Ladder & The Wall

A box which was a perfect cube with 3 foot sides, was placed on the ground against a vertical wall. A 10 foot ladder was placed, so that it touched the wall, the box and the ground. How high up the wall did the ladder reach?

b) The Goat & The Silo

A farmer tethered his goat to a ring fixed in the wall of a closed, circular silo, 20 feet in diameter. The length of the tethering rope was such that it would wind exactly half way round the silo - in other words, it was half the circumference. The goat then grazed the maximum area permitted by its tether. What was the area grazed? (Answers to the nearest hundredth of a square foot.)

Two prizes of software to the retail value of £15 are offered (that should keep you busy!)

Disco

THAT DISC DRIVE - by Bob Hall

As the satisfied owner of a Dragon Data Disc Drive, I read the recent article by Keith & Steven Brain in Dragon User which compared the D.D. and Premier Disc Systems with interest (and, by the end of the article, with some annoyance.) The Brains' have written enthusiastically of the Premier System elsewhere (PCW vo. 2, No. 26) and after reading their first article I toyed with buying one, but eventually opted for a D.D. unit for three reasons:- i) it was cheaper ii) it held more data and iii) it should be compatible with whatever future developments Dragon Data have in store (including, of course, the much-rumoured 64K upgrade, for whose arrival we daily pray!) With the arrival (?) of the Cumans drive, point (ii) only no longer applies.

I've used the D.D. unit regularly since I bought it in mid-September and find it very useful for program development - from my standpoint several of the features the Brains' view coolly seem very useful. The automatic creation of a backup file removes the possibility of a too frequent clot-error (creating a new file, sometimes with nothing in it, with the same name as a wanted older version. Equally importantly, it's reassuring to find the dictionary is duplicated on tracks 16 & 20 (see footnote.) Several of the toolkit commands, especially AUTO, are also surprisingly useful and make for a more user-friendly system (a characteristic the Brains rightly hold dear.) Everyone is entitled to his own view on the value of these commands (and I'm clearly quite happy with them.) However, when it comes to the question of file-structure, I find myself at variance with some reviewers over matters of fact:-

On the Brains' own definitions, the two principle file-types are 'random-access', in which each record can be read from or written to independently' and 'serial files' in which 'to recover a particular item you must start from the beginning and work your way through all the items in sequence until you find what you are looking for' and in which 'adding data to, or deleting data from the middle necessitates rewriting the whole file.' They then claim that the 'file-handling capabilities of DragonDos are relatively simple and effectively restricted to the serial type' and that the example given in the DragonDos manual entitled 'simulated random-access' 'really describes a rather inefficient serial file with lots of blank spaces in it'; this would indeed be an important criticism, if true. Since reading these comments, I've spent some time playing around with these 'simulated' random-access routines (see footnote) and looking at the results on disc using \$READ (a function the Brains pass quickly over.) It appears that the technique in the manual does indeed replace new data in a record in the bytes vacated by the old record, without rewriting the whole file (there are no "holes", except those that pad out the fixed-length record); and that it accesses all records on an equal and rapid basis (the complex structure of the DragonDos dictionary (see footnote) would be a waste of time if it were otherwise!) However, that this is a random-access, rather than a serial technique doesn't really require deep study - it's evident just on using it a few times.

As I've noted already, the Brains pass quickly by the sector-handling routines, \$READ & \$WRITE, two commands capable of great flexibility (especially if someone can discover how to call them from machine code) - I've certainly found them useful and fun.

Overall, it seems clear that the basic structure of DragonDos is sound (and simple!) Whether DragonDos or the Premier system is the more suitable for an 'advanced programmer' is open to debate and, in the end, probably

unimportant. Any such person who can afford (or has persuaded his parents to buy?) a disc drive is unlikely to baulk at upgrading to 64K, for which the structure of the cartridge DOS is largely irrelevant (except of course for the BOOT command, which will, I hope, resurrect rather more than the 'ghost' of OS9).

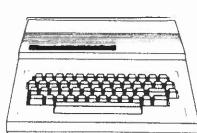
The Brains are to be commended for putting their review together in such a short time; however, in their conclusions they make some remarkably definite statements on the basis of the information they must have had available - even to the extent of predicting the quality of as yet unreleased software. They clearly know the Premier system well - their dislike of the DD system is also clear....too clear, really, for they seem to have fallen into the old trap of 'we like what we know' and condemned the DragonDos on a reading of the Manual!

FOOTNOTE

(Two Mickey-Mouse routines and some comments on the DragonDos dictionary.)

In investigating the random-access file-structure, I found it useful to rewrite the routines in the DragonDos manual in a slightly more general form (i) below - the only subtlety here is the use of the error trapping routines e.g. to create the file if it doesn't already exist. The file will, I believe, correctly self-extend beyond its initial size, provided it is extended 1 record at a time; if an existing file gets in the way of the extension the DOS appears to correctly allocate a new block of sectors for the extension elsewhere on the disc.

The second routine (iii) below used \$READ to read the data to two strings. It then uses VARPTR to find the start address of these strings, so that the whole contents can be read out in decimal, as well as characters. (Non-printing characters, especially 0, play a significant role in the dictionary.) (A brave man might try altering the string address, to write any 256 words of memory to a sector of disc - in view of the automatic string garbage collection this might be rather hairy.) I've an outline idea of the structure of the DD dictionary - there are apparently two identical copies, on tracks 16 and 20. The first sector appears to be made up of a Sector Availability Map of 90 bytes. Each byte summarises the availability of 8 successive sectors - the appropriate bit is set if the sector is available, cleared if it's in use. The dictionary proper starts at sector 3. Each filename is padded out to standard length with null characters and is followed by one or more 3-byte 'vectors'. These vectors give the breakdown of the file in 'blocks' across the disc: the first two bytes give the starting sector of the 'block' (range 0-720), whilst the third byte gives the number of sectors in that block. Blocks nearest the dictionaries are allocated first (to minimise head traverse time?): the length of the blocks is typically up to 36 (two tracks) though presumably on a heavily used disc, new files would end up splattered in 1-sector blocks across the disc! There don't appear to be any pointers at the end of the sectors to the next sector in the file. In this sense at least the DragonDos has no true serial files.



Routines

(i)

```
110 INPUT "FILENAME";N$  
120 ERROR GOTO 170  
130 FREAD N$,FROM O;L  
140 GOSUB 360  
150 ERROR GOTO 310  
160 GOTO 220  
170 INPUT"INITIAL NUMBER OF RECORDS";N  
180 INPUT"MAXIMUM LENGTH OF EACH RECORD";L  
190 CREATE N$,N*L+10  
210 FWRITE N$,FROM 0;L  
220 ERROR GOTO 310  
230 INPUT"RECORD NUMBER";I  
240 FLREAD N$,FROM(I-1)*L+10,FOR L+1;S$  
250 PRINT"OLD RECORD";I,S$  
260 PRINT"NEW RECORD?";I  
270 LINE INPUT R$  
280 IF LEN(R$)=0 THEN 300  
290 FWRITE N$,FROM(I-1)*L+10,FOR L;R$  
300 GOTO 230  
310 IF ERR=154 THEN 320 ELSE STOP  
320 IF ERL=240 THEN 330 ELSE 350  
330 PRINT"BEYOND EOF*-NO OLD RECORD"  
340 GOTO 260  
350 PRINT"ATTEMPT TO GO MORE THAN ONE RECORD BEYOND CURRENT  
EOF - TRY AGAIN!"  
355 GOSUB 360: GOTO 230  
360 ZZ=LOF(N$):ZZ=ABS(ZZ)  
370 PRINT"CURRENT LENGTH",ZZ  
380 PRINT"RECORDS", (ZZ-10)/L  
390 RETURN
```

(ii)

```
100 INPUT "I,J";I,J  
110 SREAD 1,I,J,X$,Y  
120 PRINT I,J  
130 PRINT X$,Y  
140 M=VARPTR(X$)  
150 M1=PEEK(M+2):M2=PEEK(M+3)  
160 M3=256*M1+M2  
170 FOR MN=0 TO 255:PR=PEEK(MN+M3):PRINT MN,PR;CHR$(PR):  
180 WAIT 1000:NEXT MN  
STOP
```

REVIEW

'PICTURE WRITER' - RAMPAGE SOFTWARE

by P. Woods

This must be one of the most underrated utilities on the Dragon market and one which deserves much wider publicity.

Written in machine code by Paul Barned, the program takes only half a minute to load from tape. Our copy loaded first time. The program takes up 4.75K of memory and interfaces with BASIC, so that all normal immediate commands and programming statements are accepted. Although advertised as an aid to graphics programming, 'Picture Writer' seems to offer much more and, after a few sessions with it, the conclusion was drawn that it resembled Compusense's 'Edit-Plus' (but at less than one-third of the price.)

The program occupies the top 4.75K and any machine code routines or BASIC programs under 19K should remain intact. 'Picture Writer' executes a CLEAR 200,27983 command automatically to ensure that it is not overwritten. It is worth noting that if an I/O error occurs while loading, the normal report is not given - the computer simply "freezes." In such cases you should switch off before reloading.

After loading, the Dragon is in PMODE4 hi-res and, like Compusense's 'Hi-Res' and 'Edit-Plus', sets its text a pixel at a time (so fast that you cannot detect it.) Typing in a normal line command such as the LINE(0,0)-(255,191), PSET suggested by the manual, produces the normal graphics response, but you immediately note that the text of the command remains on the same screen. Typing in PCLS wipes out the line, but the text remains intact.

The next thing noticed is that you now have a choice of three CLS commands - CLSG which wipes out the graphics leaving the text intact (as does PCLS); CLST which clears the text while leaving the graphics; CLS which clears both.

One other point which strikes you at once is the discovery that your Dragon now has auto-repeat and the annoying necessity to hammer away at the space bar when editing has disappeared. The ENTER key also has auto-repeat and, by holding it down, scrolling can be induced at will. This scrolling differs from the normal scroll, in that it takes place more slowly and an audible "beep" signals each movement. What is remarkable, however, is that only the text scrolls - the graphics remaining fixed.

Another addition to the keyboard commands are the new statements BELL ON and BELL OFF. These control the "beep" of the scroll, acting as warning to fast typists! It is also important to note that the backspace key (cursor left) has been redefined by 'Picture Writer' and now prints in your actual arrow! The BREAK key has been redefined as the backspace/delete key and, while this is disconcerting to some, it should be remembered that on many other computers the DELETE key is positioned where the Dragon's BREAK key is located. SHIFT/BREAK acts as LINE DELETE.

The BREAK key acts normally while running a program, but while an INPUT command has priority the CONTROL key should be used to exit. The CLEAR key has been redefined as the CONTROL key, again in the normal position for many other micros. This is an important addition, in that no less than 33 control characters are now available by pressing CONTROL and a command key simultaneously (as in the normal SHIFT/key.) Some of these control commands are very useful and full screen cursor movement is now possible,

including HOME CURSOR (to top left hand corner.)

Usefully, all the control codes from 0 to 31 can be used in a program in PRINT or INPUT statements. For example, INPUT "WHAT IS YOUR NAME***";N\$ (where the stars are the BELL character) produces the usual screen print plus an audible prompt.

The next innovation to strike you is the discovery that you now have lower case, à la 'Telewriter.' When SHIFT/Ø is pressed, you now toggle between capitals and lower case, instead of the usual inverse characters. As usual, you return to capitals whenever ENTER is pressed. Together with the auto-repeat, you now feel tempted to do a bit of word-processing.

Following the 'Picture-Writer' manual, you now move on to the real raison d'être for the program. Running through the character set via the usual single line program loop (FOR X=32 TO 255 : PRINT CHR\$(X);NEXT) you discover that you have a whole new clutch of maths symbols and graphic characters - including a dinky little "Pi-Man." All codes up to 127 are ASCII standard and available direct from the keyboard. Above 127 you press SHIFT/ENTER and enter "Graphics Lock" (returning to normal by pressing SHIFT/ENTER again.) In this mode, look especially at codes 32 to 63 which are graphics intended for games.

Lest all the variations seem to confuse you, there is always the new command set KEY OFF and KEY ON. These switch to and from the bog-standard Dragon keyboard. In a similar fashion REP ON and REP OFF and GRAF ON and GRAF OFF switch between the auto-repeat and non-standard graphics mode respectively.

One juicy innovation in 'Picture Writer' is the ability to define scrolling windows, making you feel that you now own a £7,000 LISA package. The command SCROLL N defines the number of lines which scroll (from 1 to 15, counting from the bottom of the screen.) SCROLL 16 returns things to normal. Another new command is FREEZE and what a useful command it is! When this is typed in, all text on the screen is treated as graphics and no longer scrolls.

But now we come to the best part of 'Picture-Writer' - the User-defined graphics. All 256 can be redefined with the exception of the control characters (Ø to 31), the standard "delete" character 127 and the "space" and "inverse space" characters (32 and 191). By starting with the command CHARX,32 the existing character is scrubbed and you can build up an entirely new one from scratch, although minor alterations (such as the addition of an accent) can be made by the CHARX command simple.

In both cases, a large-scale grid (8 x 12) appears with a flashing cursor, which can be moved by the arrow keys. Pressing any key, other than BREAK or ENTER, reverses the pixel immediately below - turning it on or off. A modified or entirely new character can thus be constructed and, by pressing ENTER, the whole character is redefined. If you do happen to change your mind, BREAK restores the character to its original form. Blocks of characters for redefinition can be called one by one by means of a simple FOR-NEXT loop.

Redefined characters may be saved to tape by means of a simple statement, listing each of the 12 rows of pixels in turn (i.e. black = 1, green = Ø). Full sets of redefined characters can be saved by the command:

CSAVEC"FILENAME",ST,FN

ST and FN are, of course, the first and last characters to be saved. For a full set it might be:

CSAVEC"ARABIC",33,255

The redefined characters can be loaded back in a BASIC program by the usual CLOADM.

'Picture Writer' includes FAST and SLOW modes for the lucky D32 owners whose Dragons accept the speed-up POKE. RamPage's manual covers Crash Recovery and the useful OLD command, which often recovers the lost program after a RESET. The OLD command can also be used in conjunction with PCLEAR, to allow more than one program to be loaded (co-resident programs) and the manual covers the somewhat complicated procedure.

Although all PMODE's can be called by 'Picture Writer', only PMODE3 is likely to be used outside the resident resolution. Since PMODE3 reduces resolution by half, even this is not likely to be employed often when Hi-res text is required.

The final, exceedingly useful, utility offered is that of abbreviated keyword entry. It will take time to learn these (there are no less than 103 of them!) and the typing time saved can be judged by the examples below:

<u>Standard</u>	<u>Keyword</u>
JOYSTK	SHIFT/J (pressed together)
HEX\$	SHIFT/H (" ")
RIGHT\$	R-SHIFT/I(" ")

Quite frankly, we think that 'Picture Writer' would be a worthwhile addition to the software library of any Dragon owner who has gone beyond games and we recommend it unreservedly (Usual disclaimers - we have no connection with RamPage.)

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M/C CORNER WRITER WANTED!

The Dungeon has lost its M/C writer and since the D.M.'s overworked brain seems to have difficulty with all those funny codes we are anxiously searching for some brave soul who can supply M/C info. - however brief the articles.

FREE LISTING SERVICE

Any Club Member who wants a program listing on our 132-column Line Printer should send his or her tape, together with return postage. We don't guarantee success, since some of you seem to have recorders which CSAVE at volumes incomprehensible to our Tandys.

Tips

"TIP OF THE MONTH" LETTER FROM P. SCOTT, 4 BADGERWOOD DRIVE, FRIMLEY, SURREY.

(Philip Scott's full letter is worth passing on for the useful information included. - D.M.)

Sire,

After reading issue 8 of Dragon's Teeth, I should like to cover a number of topics in response.

1) Disc Drives - As there seem to be two camps of disc followers, I shall risk attack from both sides and state that from the (pathetic) reviews I have seen to-date, it would seem that neither system merits the title DOS; both (as implied by R.W. Hall - p.9) are disc file handler extensions to BASIC and are probably adequate for that task. For "serious" work, I believe a language independent DOS is needed. My minimum requirements for a disc system would include:

- a) Serial file disc space should be allocated dynamically during the write phase and should (preferably) not need to be contiguous. (I have the misfortune to use a system with fixed file allocations during my work.)
- b) Default file extensions should be meaningful - .DAT for data, .OBJ or .BIN for m/code, .CMD for command files, etc.
- c) BASIC disc extensions should either extend existing BASIC commands with identical functionality or use completely different BASIC commands (see M.E. Brook - p.11)
- d) The DOS available should be fully supported and licensed if appropriate (Is anyone licensed for FLEX in the U.K.) and must allow multi-tasking (multi-user, multi-processor and networking are probably not appropriate for the Dragon.)

I don't think either system would meet these criteria.

2) OS9 - I am a little confused by your reference to "multi-Dragon installations" (p3); however, multi-tasking is useful if only to print the word-processor output file while editing the next file (see also 1-d above.) I noted recently that Motorola have adopted OS9 for the "Exorset" development systems, which may give software a boost.

3) Arithmetic (p.6) - This is caused by rounding errors in the calculation of SQR. While both 25 and 5 may be held exactly, the algorithm to generate the square root is subject to errors. The Dragon stores numbers in 4 byte (32 bit) mantissa which gives $32 \times \log 2 = 9.6$ decimal digits of accuracy. The calculation of SQR(25) results in an error in the least significant bit, i.e. $2^{-32+3} = 2^{-29} = 1.86264515E-9$ (Try A=1:FOR I=1TO29:A=A/2:NEXT:PRINTA) Greater accuracy could be obtained, but at the cost of speed.

4) Keyboard Effects (p.17) - The Dragon keyboard matrix is:-

0	1	2	3	4	5	6	7	-	Ø	input
8	9	:	;	,	-	.	/	-	1	
@	A	B	C	D	E	F	G	-	2	
H	I	J	K	L	M	N	O	-	3	
P	Q	R	S	T	U	V	W	-	4	
X	Y	Z	↑	↓	←	→	sp	-	5	
enter	clear	break					shift	-	6	

The action of the keyboard scan routine is such that pressing two keys on the same "row" will only give the first key pressed. Pressing a further

key on a higher numbered row will result in the second key being accepted. Pressing this third key again will produce the character in that row corresponding to the leftmost column with a key pressed. There is no check that a key actually exists in that position, hence

space, ↑ , shift = space, ← , inverse @ (since the table entry for the non-existent key at \$BCA1 contains \$60) and space, Y , shift = space, Y, \ (since \ is the code produced by shift/clear)

5) M/C Corner (p. 21/2) - Whilst this is what Dragon Data believe, there is at least the following errors and omission:-

\$112-4	should read \$112/3, with \$113 cycling 0-255 in approximately 5 seconds (\$112/3 is a 16 bit count incremented at 20ms intervals.)
\$15E-\$AF	should be \$15E-1A9, as \$1AA-F is used for string manipulation
\$18E	should be followed (next line) by \$191 system error trap
\$BC	is the even page number which is the base page for Hi-Res graphics.

6) Break Key (p.10) - worth repeating, though I do not like inserting routines in the jump space.

7) Dragon User (Dec.) - In case you missed the letters, Arrays in BASIC are not limited to two dimensions (I gave up at 8 with ?OM) and I do not recommend the "fast" clock tape recovery as loss of refresh causes random errors (see DT issue 6 p. 18)

Finally, (phew!), keep up the good work, see my tip below, and remind me when my subscription becomes due.

TIP OF THE MONTH

To set up a library of BASIC routines, some form of partial SAVE and true MERGE are required. I think everyone knows of the APPEND facility from "Dragon Companion" (p.26), but the following gives added facilities with simple commands.

PARTIAL SAVE

To save lines n to m inclusive of a program, type

```
OPEN "O", -1, "FILENAME"  
POKE 111,255:LISTn-m
```

Notes: 1) POKE and LIST must be the same input line
2) Any form of LIST is acceptable. If n and m are omitted, the effect is identical to CSAVE"FILENAME",A

MERGE

A true merge may be obtained by using

```
OPEN "I", -1, "FILENAME"  
POKE 111,255:POKE120,1:EXEC33658
```

This performs a CLOAD of an ASCII file without clearing the program pointers. Control is returned to the keyboard when EOF is encountered.

Notes: 1) POKE and EXEC must be the same input line.
2) The stack grows by 2 bytes each time a file is loaded. To clear the stack type CLEAR without parameters.

The Biter Bit ?

WITCHWAY

A graphics adventure by Ian Murray-Watson, reviewed
by Dragon Dungeon

The Dungeon was pleased to receive the first review copy of 'Witchway', a game written by a Club Member who has criticised commercial software on these pages in the past. So, how does Ian's first effort stand up against the "pro's"?

The instructions advise you that you have undertaken a noble task - to free the Workers from the chains laid upon them by Hexate, a hag of demonic power. You must break her hold by escaping from the intricate web of passages with which she has surrounded herself. There are 12 gates which will only open in correct sequence and many other tasks for you to complete before you can succeed. Fortunately for you, a power greater than Hexate's has ensured that you will find some help. Various objects may be found in the passageways, many of which will help you (although some will be evil spells) and some merely for your protection. With each second that you survive and with each of the secret gates that you open in sequence, the hag's power over you lessens (although right up to the end she is capable of destroying you.)

The maze which constitutes the first section of the game is undoubtedly the most complex we have seen on the Dragon to date - presenting a daunting task in itself. The object is to reach the entrances to the lift shafts down to the Mines, where the Workers are enslaved.

Movement is by the arrow keys. You will continue to move in the same direction as long as you keep the key depressed, but be sure that you release the key cleanly before changing direction (especially in the Mines of Part II, where blundering about is difficult.) In the Mines you will only be able to move AFTER one of the Workers - so if they pause, do not think that something has gone wrong.

Commands in the Maze are available by pressing the following keys:

'S', 'G', 'X', 'T', 'W' and 'H'

All have important functions, but you must find out for yourself what they do.

If your Dragon will accept the 'high-speed POKE', you may use it at any time in the main maze by pressing * (but give yourself a little room as 'shift' will momentarily move you in the last direction you went.)

Other commands are given on screen, but, again, it would spoil the game to reveal them.

Gates may be opened by moving to their centre, when they will automatically open. Under certain conditions you will be shown how many of the twelve in sequence you have passed through. Other gates will open at any time. However, you are advised to keep to the centre of the passages, as the walls are very "sticky" and may even attempt to squash you! If this happens, you must press 'H' quickly.

Every game is different, with different Mine entrances. An initial difficulty setting affects your initial possessions, the speed of certain

events, and the codes in the final part of the game, of which there are six (3 easy, 3 hard, although you may well find the 'hard' ones easier than the 'easy')

When you do find your way to one of the four shafts, you will be transported down into the darkness of the Mines. Here the Workers have been enslaved. Your new task is to obtain "clues", which the workers will give you if you can stop them for a moment.....but be careful that in their haste they do not knock you over.

The following advice, once overheard, may be of some help.

Mother: "Hello dear. You've come to see the boys, I expect.

Andy's the eldest. He can be very helpful, although he's sometimes a bit moody.

Jamie, now, he'll help you all he can - though he's a bit young yet.

Ben's only a baby, so he can be a bit of a liability - though he does sometimes have things he shouldn't.

Watch out for Father. Hexate takes it out on him, so if the work schedules are disrupted he gets very cross. If he catches you there'll be trouble.

You can leave any time by the lift, if it's there. The boys bring it up from time to time.

Oh yes - you'll turn the lights on as you go, of course, but I'm afraid the boys will turn them off again, given the chance.

We're under strict instructions not to waste power down here!"

If you do get through the Mines (and several visits are normally required to collect the necessary clues) you may feel that you have sufficient experience to risk going in search of the Witch's Wand, without which you cannot find the second Ring. Her "safe" is protected by an "Electrified Grid", which is coded. Fortunately, in the Hallway she has been forced to place a smaller, harmless grid. This may help you to make sure of the code. Once you enter her house, there is no exit without trying the "Electrified Grid" - so make sure you know what you're doing!

In the Hallway you will be presented with two coloured squares, on the first of which you will be standing. If the second one is in the correct sequence (for which you should have had clues) press 'Y'. If you are right, you will move onto this square and a third one will be offered to you. And so on, until you cross. If you are wrong, the second square will be changed, and you will stay on the first.

However, if you know the second to be wrong, it may be changed, at no cost, by pressing 'C', until you have the correct one. Once across the practice run you will reach the true "Electrified Grid".

On the "Electrified Grid" you must start in the left hand column and proceed by adjacent squares in any direction, including diagonally, until you reach the far side. You choose your starting point by entering horizontal and then vertical co-ordinates. These are shown at the bottom right. If at any time you wish to change the first co-ordinate before entering the second, press 'X'. If you enter a move that it to a distant square, it will not be allowed. All the squares on the crossing are entered in the same way. If your choice is correct you will automatically be moved to the square you have chosen.

If no correct square is available, you may change the square on which you stand (note the difference from the practice run) by pressing 'C'. At

this stage it will cost you time, measured by the number of moves you have taken. If you are successful in crossing the grid in time, you will have the chance of opening the safe. To do this, enter the correct combination from left to right by pressing the appropriate key.

All the information you need has now been given to you (or may be deduced during the game). If you fail to collect enough or interpret it incorrectly, then you must take the consequences.

In 'Witchway' Ian has constructed an amusing, mind-twisting quest, which is different every time you play it. We doubt that even experienced players could complete it in less than 1½ hours and it should give weeks of play time. A full 24K program (even with spaces and REM statements removed), it is a remarkable effort for a first game. More please, Ian!

'Witchway' can be obtained by mail direct from Ian at Slade Farm, Peterchurch, Herefordshire, at £6.00.

OFFERS

The usual monthly offer applies. All Club Members are entitled to purchase hardware and software at 10% off the normal retail prices.

Please note that the offer does not apply to books, where normal prices apply (plus 50p towards postage.)

We are also planning a New Year Sale, with 20% off a range of tapes where we are currently overstocked. All the non-Dungeon tapes in last month's "Christmas Offer" will be included, so anyone who wants to jump the gun is free to do so!

ZAP'S MINI-BIT

ZAP apologises to all his fans for his inability to persuade the D.M. that arcade games are much more important than stuffy old technical waffle and ramblings about disc drives.

All he can say this month is that the 'Hall of Fame' should be restricted to U.K. scores (U.S. programs for CoCo's being easier in some cases) and that he reckons to be the King of "Ugh!" He's so good that the Dinosaur retreats behind the bushes when his caveman appears!

COUSINS MINI-BIT

'Cousins' is virtually eliminated this month, due to the deafening silence across the Pond (is anyone still there?)

The only news we have heard is that of the recent legal hassle over the ownership of the U.K. end of 'Programmers' Guild'. All those still awaiting 'Ninja Warrior' and 'Taskship' may like to know that P.C.S., the Lancashire wholesalers, have bought out the U.K. operation and these tapes should reappear on the U.K. market shortly.

Bookshelf

'DRAGON MAGIC' by Richard Wadman

by Pauline Hampson

The book is published by Foulsham at £4.95. On the front cover is written "Your First Programming Book", which is exactly what it is - a book for children who know nothing at all about computers. The book is approved by Dragon Data, who have the copyright on the text and programs. The book shows a well thought out layout with plenty of illustrations and cartoons interspersed with the text. My favourite cartoon is a large, fat cloud.

The first few chapters are very simple and assume no knowledge at all - even terms like program and computer are explained. You are also told how to hook up computer, television and cassette player and how to load and save programs. Flow charts are illustrated with simple examples of how to cross the road. The uses of clear, shift and enter are explained. The first few commands learnt are PRINT, NEW, END, RUN and LIST, all clearly explained as the basis of a program which says "Hello" and ask your name.

Chapters 6 to 8 explain strings and variables, loops and making decisions, all dealt with at a simple, painless level. INPUT dn GOTO are learnt and FOR NEXT loops are used in a program which writes "Hello" ten times. IF THEN and RND follow in a number guessing game program.

The final two chapters deal with graphics explaining the colours, SET, PSET, RESET and PRESET. The use of LINE is dealt with, also CIRCLE and PAINT. All have simple illustrations included, although the book only uses PMODE 3,1: SCREEN 1,0. You are told to refer to the manual for different modes and colour combinations.

At the end of each chapter a useful summary is included and at the end of the book a glossary of the terms used is printed. Then there follows several short program listings, all designed to appeal to children - Furry Face, Patchwork and Secret Messages.

The book only has 56 pages and therefore is rather expensive, but it is so clear in explanation and such fun to read. I was surprised to realise that by the end you will have learnt 25 Basic commands for the Dragon. You will not be an expert then, but you will have a good enough grounding to attempt a simple program. It is much better than being faced with the manual.

With regret we publish the following report :

4687

13 12 83

NOT YET PUBLISHED - EXPECTED JAN 84

127

50 JAMES LANGUAGE
905104366

The Melbourne House m/c book is also unpublished, but, although our own stocks have not yet arrived, we believe that copies of the Ian Sinclair m/c book from Granada have been seen in print!

"RAINBOW" magazine available in U.K. & Europe. U.K. edition contains exclusive DRAGON compatibility chart. Sample copies £2.25 (+ 63p p & p) from ELKAN

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