

DRAGON



UPDATE

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The Gaffer's Bit . . . . .

Fair warning, I'm in no mood for writing nice polite material about anything or anyone at the moment. Several reasons, but none of them really your fault, so don't get worried, I won't bite YOUR ankles this time, although I may well snap and snarl a bit. Anyway, one thing I CAN have a legitimate moan about is the London Show. Personally I think the turnout was disgusting, and while well over 90% of those present were Group members, the total number was so low that the prospect of another show at the same venue is now virtually nil. I would like to say thank you to all those of you who did attend, and Jenny Pope has asked me to pass on her thanks to you too.....you tried, but there just wasn't enough of you. The same applies to the trade side of things, it was a nice try, and we all appreciate your efforts....you put in a lot of time and money for a VERY small return this time, and I can only hope none of you actually lost money.

Jenny says that she still hopes to organise another Dragon show later in the year, but it will have to be at a smaller hall than previously in order to reduce costs, and of course it will HAVE to be commercially viable, and this is something YOU can help with. How?..well apart from making sure that you attend, how about making sure that you persuade someone else to come along as well? How about having a word or three with the type who runs your local computer shop, and point out to him that Dragon owners are always in the market for things like disc drives, printers, discs, cassettes, etc, and even "junk" hardware, non-working stuff of all kinds, "for spares or repair", and that it would pay THEM to take a stand for the day. How about asking them to advertise the next show for us?. Think about it...it really does make sense. OK, lecture over. From our point of view the show was pretty good...we ended up with the biggest stand ever, and I think we probably had more on offer/show than anyone else there.....even if Ian's sex-starved robot did almost create legal history as the first robot to be charged with indecent assault!. It was nice to see you again, but it would have been nice to see some NEW faces around as well, See if you can make a few converts in time for the next one, PLEASE!. Paul.

THE EDITORIAL BIT . . . . .

Well, the show is over, not particularly well attended although most of the visitors did seem to be NDUG members. Let's just hope Jenny Pope made a few bob for herself and intends running another one. Would you believe that I'm not going to moan at anyone at all this month? I haven't even got anyone in the firing line yet, apart from ..... Yes here it comes, a certain person who has been mucking us about. But as Paul is likely to be blitzing them I'll leave them alone for now. Can I post this and get on with something useful now? I can, good, maybe I can even finish debugging that program of my own. See you next month. T.L.

INTRO TO FLEX (3) . . . . . G C.

Let me go on about the three parts of Flex. The Utility command set, the Disc Operating System and the File Management System. The UCS is by far the best and easiest part of Flex so far as the user is concerned. Any program, command, utility or whatever is loaded and executed automatically simply by typing its name after the +++ prompt and pressing <enter>. The CAT example above is one of the many and varied commands available as part of the UCS. The system disc contains a standard set of utilities, I will briefly describe some of the more useful. Before I begin these, there are some resident commands within Flex; GET which loads a command into memory but doesn't execute it and MON which exits Flex and coldstarts the machine.

Now, for some of the commands in the UCS; APPEND - Join 2 files together. ASN - Assign the status of your drives, with 2 drives you have a system drive (where the commands are) and a work drive (where the files are). Flex then knows what is where and doesn't search the system drive for a work file (& vice versa). BACKUP - Backs up a disc EXACTLY, automatically for 2 drives or with prompts to change discs for a single drive. BAUD - Allows you to change the baud rate of the RS232 port. BUILD Creates an executable file as if you had typed the commands in from the keyboard. CS - Changes the character set (8 available). DELETE - Allows the deletion of one or more files. NEWDISC - Allows the formatting of a new disc. H - Loads a command but does not execute until a key is pressed (for single drive users to change discs). DRIVES - Specifies the number of drives. RENAME - just that, any name you like! SDC - Single disc copy. Allows single drive users to copy files, prompts to change discs. STEP - alters the drive stepping rate (Most work at the fastest (1)). Well, that's the end of the standard UCS. Not very large but more than enough to get started. Some of the additional utilities are as follows:-

Copy - A powerful copy command that allows you to specify parameters so that only those files satisfying certain criteria are copied. Delall - Allows all files or only specified ones to be deleted. Allows a 'wildcard' facility. Epson - Dump routines to print the hi res screen. Tload - Allows standard Dragon format tape based programs to be loaded and saved to disc. Tsave - Opposite of Tload. I haven't mentioned them all but those are the most useful. In addition, there are hundreds of useful little utilities written by enthusiasts which are public domain, Disc utilities, Editors and the like and of course more powerful programs, Pascal and 'C' come to mind.

Now for the remaining 2 parts of Flex. The DOS (Disc Operating System) forms the communication link between the user via the terminal and the FMS (File Management System). I say terminal as Flex is used on a number of 6809 systems as well as the Dragon. All commands are accepted and processed through the DOS which handles matters such as the command argument parsing, terminal input/output and error handling. (While on the subject, Flex gives meaningful error messages. The error messages are in a file called 'Errors' on the disc, the DOS passes the error number to the FMS which looks up the error and passes the message back to the user.

The File Management System (FMS) forms the communication link between the DOS and the disc drive hardware. The FMS performs all file allocation and removals on the disc. All file space is allocated dynamically (good word that, it means it stuffs it in where it can find space) and the space used by files is reusable on deletion. The FMS is a command language whose commands are represented as numbers called function codes. Each code tells the FMS to perform a specific task, such as open or close a file etc. The file structure under Flex is a linked structure, this means that each sector on a disc has a pointer to indicate to the FMS where the next sector of the file is. It is possible for a file to be all over the place or 'fragmented'. This can be an advantage in that every sector can be used up, its disadvantage is that access times can be increased because of the increased number of head seeks required to load the file.

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ADVENTURES . . . . . P.C. ASBURY SMITH

Two packets recently dropped through my letter box. Each in their own way show that things still stir in the Dragon scene. The first was from M.R.Vine, containing 2 m/c utilities which really work. The first scans through the memory and dumps the ASC code to the screen. The second will make an unprotected copy of many adventures so that Rem (the 1st one) can be used. If you are interested in either of these, write to M.R.Vine 120, Auriel Ave. Dagenham, Essex enclosing a blank tape, a 22p stamp and 50p for Rem or 1.99 for Refform. The second package came out of the frozen north. Microvision's Flex adventure 'The Curse of Cormac' is for once what the advert says, sheer excellence. A classical adventure of the old school but none the worse for that. The initial problems are easy yet interesting, as you go on, they get harder. Though there is some fantasy, logic is still king. Price is 10.00 from Microvision 8 Wensley Rd, Liverpool L9 8DW

DELTA DOS (2) . . . . . MARTIN LAYLEY

More useful locations for Delta users.

7B00-7BFF . . . . . Directory & systems information buffer.

Structure:- 24 bytes per file  
 0-7 = filename + padding spaces  
 8 = protection and file type

File types:- 0=BASIC . . . . . BAS  
 1=BINARY . . . . . BIN  
 2=DATA . . . . . DAT  
 3=ASSEMBLER . ASM  
 4=TEXT . . . . . TXT  
 5=EXECUTIVE . BLD  
 6=PASCAL . . . . . PAS

9-11 = Extension (see above)  
 12-13 = Start sector  
 14-15 = end sector  
 16-17 = Load address  
 18-23 = Reserved

All unused entries are set to E5

7C00-7CFF . . . . . Bit map area for file creation  
 7ECO-7EFF . . . . . Disc control  
                   arranged as 4\*16 blocks  
 7F00-7F7F . . . . . FCBs ... array of 8\*16 byte data blocks  
 7F80-7FFF . . . . . Auto command block  
 FF40 . . . . . Command register  
 FF41 . . . . . Track register  
 FF42 . . . . . Sector register  
 FF43 . . . . . Data register  
 FF44 . . . . . Drive latch

Next month file structure and the start of the routines.

APOLOGY . . . . .

Sorry this issue will be arriving later than usual, but this time the fault is all mine. Having neglected my over worked printer until the pins cut a groove in the head, it eventually stalled, overheated, and shorted out, and gave my 64 a kick up the printer port at the same time!. All of this took several days (aand a lot of money!) to sort out, hence the delay. We ought to be back to normal(?) by the next issue. Paul.

This is a short article which combines a review of Duplidisk 2 with a bit of advice on converting a couple more games to DragonDOS.

Firstly, I think I can safely suggest that if you have quite a few games to transfer to disc, Duplidisk 2 would be a good investment. I was sceptical about getting it after the poor reviews Duplidisk 1 got, but I'm impressed, it instantly copied one game I've been struggling with for months (Screaming Abdabs). It still fails on a few games such as Beanstalker, JSW and MM, but games such as Time Bandit it eats for breakfast. In addition, it adds a routine to the start of the game which detaches the DOS in software, thus making a very neat package. The only problem is that the program actually loads to a different location than normal then relocates it to the correct position, making it difficult to use published 'cheat' pokes, although a bit of disassembly should allow anyone with a bit of knowledge to sort things out. Or perhaps people will send in pokes for Duplidisk 2 converted programs. Anyway, if you think that 8.95 is a high price to pay, there is always the long way round.

Let's take Shocktrooper and Time Bandit which I did the hard way before I got Duplidisk2.

If you listen to these games loading, you will notice that they consist of about 8 separate blocks. These are usually the header and auto run, the bit that sets up the loading screen PMODE, the loading screen itself, another short burst, the actual game, another short burst and finally the usual Microdeal colour choice screen appears. If you note on your tape counter where this final bit occurs, then rewind the tape and start it loading again until just before that final little bit when you press the <reset> button. The Dragon will appear to 'cold start' but, the game is in fact still in memory, by a bit of peeking, the start, end and exec locations can be worked out. At this point I usually save most of RAM to disc for safety (&HC00-&H7F36). Then I start hunting. If the Cuthbert logo was used as a title screen, it is a safe bet that &H600-&H1E00 is just that screen and need not be saved. By using the following 2 direct routines and pressing the <break> key when something interesting comes onto the screen, you can usually find the start and end of the game with ?I. The first thing that most Microdeal games do is give you a colour choice. Then they jump (JMP &H7E) to the proper start location. If you use:-

```
FORI=&H1E00 TO &H7FFF:?CHR$(PEEK(I));:NEXT
```

And look for the colour choice text, it is a fair guess that that is the EXEC location for the game. If you use:-

```
FORI=&H1E00 TO &H7FFF:?HEX$(PEEK(I));".":NEXT
```

and look for M/C starting with 12.86.55.97.71. This is the routine used to set up the reset vector and should also be a good place to EXEC the game from. Using this method, the locations for Timebandit are 12288,30844,12288, and for Shocktrooper 7168,32700,7168.

You might find that you need to CLEAR20 before reloading Shock from disc due to the size and location of the program. A neater solution would be to load the game back into memory and add a short M/C program to copy it back into the right place. ie.

```
LDX  TEMPEND      STA  ,-Y      BHI  LOOP
LDY  NORMEND      CMPX TEMPST   JMP  NORMEXEC
LOOP  LDA  ,X+
```

If you stick in a CLR \$FF48 while you are at it, you can stop the disc running on.

OS9 FOR BEGINNERS . . . . ROBERT SCHOFIELD

It has been suggested that it would be useful to have a few OS9 for beginners articles, so, I'm your friendly expert while Jason takes a rest. Rather than give a lot of stuff you would find above/below your level of interest, I'll start with a history and a little inside information, hopefully adding a little useful info on the way.

By way of background, I'm a professional programmer and engineer, once associated with a bunch of layabouts who designed telephones. No, not that horrible green one which goes 'rivet'. For development work, we had a Unix multiuser system with a C compiler and assembler for 6809 hardware and software design for our friends at BT. A friend noticed that Dragons were being sold off cheap and bought some kit, plus OS9 and a C compiler, we were both suitably impressed by price and performance and the OS' similarity to Unix, since at the time it was the only full realisation of the C language in the UK, for the price of a few weeks beer. We ended up writing programs at work for Unix and connecting up the Dragon for program exchange via the RS232. The system on the Dragon is a 'modified' version of an OS which began as a by-product of the development that Motorola did on the 6809; early on in the development the designers realised that to dislodge the current 8 bit DOS/processor combination of Z80 or 8085 and CP/M and push into the home computer market in a big way, a good version of Basic would be needed to sell for 6809 the way that Microsoft sold enhanced Basic for the 8085. Microware were commissioned by Motorola and Basic09 was conceptualised. To support Basic09, OS9 was developed in tandem with the intent of creating a complete sophisticated package that could be offered to the micro designers as a juicy (and very advanced) alternative to CP/M. Think what might have happened if Acorn computers had seen this lot at the design decision stage for the Bodge Box of Components. The 6809 arrived just a little too late to do much to dislodge the 6502 (also a 6800 upgrade) from the forefront of the designers' minds for the upcoming micro sales of '83 (HOW do you go bankrupt in the middle of a sales BOOM??) when most big selling computers were designed with the 6502 and Z80; it's ironic that the Dragon didn't get Basic09 in ROM instead of the enhanced colour Basic from Microsoft! As with everything that has associations with the 6809, OS9 has (in my opinion) been limited by under-marketing and restrictive licensing arrangements, this doesn't hide the fact that the system is a real gem and deserves better than it gets in the way of popularity; since the 6809 never really flew, Microware moved on to the 68000 to produce a version for that, in which they seem to be pinning their hopes. In May, a new version called 'OS9 Professional' will be released which includes an enhanced version package of utilities and a C compiler for the 68000. With a port of OS9/68K for the Atari 4096ST already available, the future looks significantly more rosy, but there is the question of cost which is nearly the same as the machine! Will they ever learn ???

So, where does this get you? For new buyers you're restricted to H.C. Anderson's as the newly licenced European supplier for a new OS9/6809 system (As mentioned in the January editorial, wonder if they read it? ... TL), but there's still a lot of cheap clearance copies floating around in the ads, plus the programmer's manual, a gold mine of information and insight into the inner system workings, an essential read if you are programming.

ARTICLES WANTED . . . . .

No, I haven't got this mixed up with the ads page!. The articles I want are written ones.....I've had demands for material on the following:- Using "C", Slowscan transmission using a Dragon, Interfacing a video camera to a Dragon, Robots ...construction and use, and screen dumps for just about every printer ever invented!. Now Tim and I don't have the time (or brainpower) to write them, and you're always asking me "what can I write about?", so here's the answer....I'll expect articles on all these subjects by first post Monday!!

DIY FLIPPIES . . . . . CHRIS JOBSON

Everyone must know by now that you can buy 'flippy floppies', discs that can be turned over in single sided drives and effectively doubling your disc storage space. It has also been well publicised that you can convert your existing discs to use the other side by adding holes to the disc cover. This article is just to assure you that it's all quite easy.

I am told that all single sided discs are really double sided ones that have failed the manufacturers quality tests on one side. Some people have successfully used both sides of these discs. The risk may not be necessary since certified D/D discs are quite cheaply available from Argos at 6.99 for 10. The equipment I used was;

- 1) sharp modelling knife (Tandys 99p)
- 2) Miniature single hole punch (WH Smith 1.60)
- 3) Pentel silver paint marker to mark the disc covers since most of the felt tip pens I nicked from my children wouldn't show up against the dark background.
- 4) An old disc which everyone has that either jams or has been zapped but you couldn't bring yourself to throw away.

Cut this disc envelope open around the edge and use one half as a template to mark the write protect notch and index hole. Turn the disc over reverse the template and mark the other side. An additional help would be to add holes to the template to enable the marks to be placed on the disc to exactly position the hole punch which is otherwise a bit tricky. I found no trouble creating a gap between the disc and envelope to fit the punch in. Since the punch has a smooth plastic base, it does no damage to the disc. Care must be taken when cutting the notch with the knife not to put pressure on the disc but hold it firmly at the corners.

I have heard it said that if the disc is spinning in one direction all the dust is happily pointing in that direction but turning the disc over may cause the dust to move and scratch. It would be interesting to hear from people who have had this experience.

### For what it's worth, you can USUALLY get away with "flipping", but not always, it all depends on the quality of disc you're using, the thinner coated once can give problems with "print-through", so you may get unexplained errors turning up!.P.G.

WHAT CAN YOU DO ? .. FRED HOPEWELL

As a 'new boy' to the fraternity, may I add my twopennyworth to your remarks in the late late bit of the March issue.

Far too many people joining an organisation are influenced by 'What can I get out of it?', Dragon owners on the other hand, having the discernment to have purchased a Dragon in the first place, are much more likely to consider their responsibility in the matter. Yes, belonging to an organisation is a responsible business! So rather we should be asking 'What can I put into it?'. From a personal point of view, the answer seems to be very little, since the advent of computers occurred too late for me to aspire to the title of 'wizz kid', nevertheless, I feel that I have a contribution to make, even if it has nothing to do with Peeks & Pokes.

I suggest that there are far too many Dragon Owners who are NOT members of the group (I was one). With the very modest subscription rate, the help available, the excellent newsletter (This is the sort of letter I like . . . . . TL), there is no possible excuse for this state of affairs. It is axiomatic that if every member managed to enrol ONE new member, the membership would be doubled. The main object of my letter therefore, is to suggest a recruitment campaign. Let us make JUNE recruitment month, when everyone who has a Dragon is at least made aware of the benefits of the group. R.A.Davis (G3RLO) was the person responsible for getting me sufficiently interested to join so he's already done his bit. Now, WILL YOU DO YOURS ??

EASY MACHINE CODE (7) . . . . R.A.DAVIS

You recall that I mentioned the 6809's 'own' RAM, known as registers? We are now going to use the A register and the X register to write a small program which will clear the text screen. If you don't have an assembler, you can do it with this Basic listing:-

```
10 DATA 86,60,8E,04,00,A7,80,8C,05,FF,23,F7,39
20 I=&H7000
30 FOR J=1 TO 13
40 READ A$: A=VAL("&H"+A$)
50 POKE I,A
60 I=I+1
70 NEXT:END
```

The code is poked in from &H7000 and occupies 13 bytes. EXEC &H7000 will clear the screen. But.. what are those numbers in the DATA statement? They are all in hexadecimal and if you consult the opcode list which you must have, they read like this;

86 Load the A register.. 60 with the number &H60  
 8E Load the X register ..0400 with the number &H0400, which happens to be the address of the first byte of the text screen.  
 A7 Store the contents of the A register .. 80 at the address pointed to by the X register and increment the X register by one to point at the next address on the text screen.  
 8C Compare the number in the X register with .. &H05FF which is the location of the last byte of the text screen, to see if the operation is completed.  
 23 Branch if lower (than &H05FF) or the same .... F7 .. Back 7 bytes to A7 80 and keep going back until the end is reached and the screen is cleared.  
 39 Job done (return for next command in M/C or Basic).

The Dragon has of course got its own routine for this in ROM. EXEC &HBA77 will do this and in a M/C program a simple 'jump' to this routine would save you the effort of coding it yourself. If you have got your disassembler, have a look at that address and note how the B register is used instead of the A register.

The assembly listing is:-

```
LDA #$60          Load A reg &H60
LDX #$0400       Load X reg &H0400
STA ,X+         Store content of A reg at add. pointed to by X reg
CMPX #$05FF     Has X reg reached &H05FF?
BLS $F7        if not go back to STA ,X+
RTS            Finished (return)
```

Now see the effect of altering the second bit of DATA (60) and loading the A register with say, 9F for a yellow screen, or AF for a blue screen. In Basic you can alter line 70 to EXEC&H7000 and put in 80 GOTO 80 to hold the screen.

AIRBALL . . . . .STEPHEN COTTERELL

The latest Microdeal game, AIRBALL, arrived recently, it is the best game that I have ever seen on the Dragon and better than games that other machines run as well. I usually use my Dragon 64 for more 'serious' uses but I have been unable to leave this game alone. It is addictive. The graphics are crisp, clear and detailed. The action is smooth. The layout is imaginative and tricky. It is easy to start yet hard to master. The game is the best that I have ever played, I get impatient waiting for the tape to load. How do I get it onto disc? (Try looking back to the articles by Graham Smith ... TL) It outclasses The King! Please Microdeal, try to keep up the standard.

# 8

## SETTING UP THE DRAGONDOS DISC CONTROLLER

There aren't a lot of chips in the DragonDOS controller, if yours goes down it's likely to be the WD2797 or the EPROM (or both!) that have failed. Both of these are socketed and spares are fairly readily available (ie Computil or Grosvenor for the EPROM, Watford, Radiospares or Technomatic for the WD2797) so you should be able to effect a repair for only a fraction of the cost of a new controller. If you do change the WD2797 however, you may find only partial success at first. This is because the new chip needs setting up. The following information is culled from the data sheet for the WD2797, the circuit diagram of the controller and a bit of practical experience.

The WD2797 has 3 adjustable parameters, (the 'write precompensation delay', the 'read pulse width' and the 'centre frequency of a voltage-controlled oscillator'), and has a special 'test' mode in which the values of these can be checked and altered easily. The designers of the DragonDOS controller provide 5 labelled test points on the board for this setting up - all you need in addition is a good quality oscilloscope (with a fastest timebase of at least 1 microsec/cm), (and optionally for step 3, a frequency counter).

1) Place the DragonDOS board in place, (without its case and component side up!) in the DosCartridge port, connect the ground side of the scope to the test pin labelled TP5 (signal ground on the board) and a flying lead to TP1 (which is connected to the TEST pin on the WD2797), then switch on the Dragon - The DOS will now power up and initialise the controller board. Now (and ONLY now) connect the flying lead from TP1 to signal ground - the controller is now in test mode.

2) Look at the output from TP2 on the scope, this should be a series of logic pulses (3-4V high) and each should be about 200ns wide. If they are not, adjust the potentiometer labelled R5 (right hand of the 2) until they are. This sets up the write-precompensation delay.

3) Look at the output from TP3, another train of pulses. Each should be 500ns wide - adjust R4 (left hand potentiometer) to achieve this. This sets up the read-pulse width.

4) Finally, look at the output of TP4 - this is a square wave (with 1:1 mark:space ratio approx) and should have a frequency of 250kHz (ie mark & space should be each 2 microsecs long). Adjust the frequency using the variable capacitor C7. This sets the centre-frequency of the VCO, and completes the setting up. (If you have a frequency counter, this is the place to use it in place of the scope, if you haven't got one, it's probably worth checking the time base calibration of the scope by looking at the signal on pin 24 of the WD2797 - this is an accurate 1MHz square wave of 1:1 mark:space ratio, derived by dividing down the output of the 4MHz crystal oscillator on board).

The values of the read-pulse width and VCO frequency are those given in the data sheet for the WD2797 (and double density 5.25" floppies). The value of write-compensation delay is taken from a measurement of my own controller, however it's probably the least critical of the three parameters.

That's it. It only remains for me to thank Anne Milstead for providing the recalcitrant controller board and to apologise for having sat on it (metaphorically) for 3 months before summoning up courage to mend it.

.....Bob Hall

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### PLEASE, don't try this kind of job unless you know what you're doing, and unless you have the requisite test equipment. It isn't that I want to discourage anyone from learning, but DOS cartridges are NOT improved by "twiddling", and they DO need very accurate setting, so if you think an oscilloscope is some sort of breathalyser fitted with a VDU, forget it!, OK?.  
PAUL.

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SCROLLING THE GRAPHICS SCREEN. . . R. A. DAVIS

This machine code routine will scroll a graphics screen prepared in pages 5-8 in PMODE 3 or 4 upwards to replace the screen prepares in pages 1-4. The Basic listing gives a simple demonstration but the routine can be used with several screens, stored and dumped in turn into pages 5-8. The simple routine uses the X register to point to the addresses in pages 1-4 and the Y register to point to the byte immediately below the one in the X register. The A register takes the byte below and stores it into the byte above, line by line for the whole screen until this has been counted 192 times by the B register, and pages 5-8 have been scrolled up to replace the original pages 1-4. Lines 20-50 in the Basic listing load the machine code routine, EXECd at \$7000, lines 60-120 are a simple demonstration. The assembly listing is DASM. Users of DOS will have to alter the screen addresses. In line 20, replace the DATA 06 with 0C in both cases and 36 with 3C. In the assembly listing \$600 becomes \$C00, \$620 becomes \$C20 and \$3600 becomes \$3C00. You can make a partial upwards scroll by changing the screen addresses, for example by moving pages 5 & 6 to replace 3 & 4, leaving 1 & 2 intact.

```

10 CLEAR200,&H6FFF
20 EXEC&HCFFA
30 ALL
40 @BEGIN EQU
50 LDB #192
60 @COMM LDX ##$600
70 LDX ##$620
80 @SCROLL LDA ,Y+
90 STA ,X+
100 CMPX ##$3600
110 BNE @SCROLL
120 DECB
130 BNE @COMM
140 RTS
150 END
PCLEAR8:PCLS
20 DATA C6,C0,8E,06,00,10,8E,06,20,
A6,A0,A7,80,8C,36,00,26,F7,5A,26,ED,39
30 FORI=&H7000 TO &H7015
READA$:A=VAL("&H"+A$)
50 POKE I,A:NEXT I
60 PMODE3,5:PCLS3
70 COLOR2:LINE(10,10)-(240,170),PSET,BF
80 CIRCLE(128,96),40,1,1.5
90 PMODE3,1:PCLS4:SCREEN1,0
100 CIRCLE(128,96),70,2
110 EXEC&H7000
120 GOTO120

```

A RECOMMENDATION . . . . . P. BEED

Further to Chris Jobson's article (December issue ..TL) here is a recommendation of mine. Pamcomms, run by the famous (in the Dragon world) Pam D'Arcy. When writing programs Pam really does know what she is doing, and one can be assured that the product will work well and be value for money. In addition, she appreciates that people may want to tailor a program to their own needs, for this reason, she doesn't protect programs and often simplifies specific aspects to make the job easier, along with extensive documentation to allow simple alteration. All tape based programs are written so that they can be transferred to disc and all documentation can only be described as excellent, going far beyond the actual requirements of the program involved and into observations on the Dragon itself. I recently had cause to write and enquire as to whether a program I wanted to buy could perform a certain task, many of you probably know that if you do this with most companies you either get no reply or a price list. I received a prompt, personal handwritten reply. Pam was honest and said that the program would not do what I wanted but that if I did choose to buy it she would supply an amended version which would at least cater for some of my requirements. (In case you want to know, I wanted 'copy' to cater for twin drives on Disk Kit). Also with my reply, I received a price list and a product description list. The point that impressed me most was that for each program this describes not only what the program can do but also its limitations, a very important factor which most companies prefer to keep quiet about lest they lose a sale. The result is that you buy it, it won't do what you wanted, they never actually said it would, you are

stuck with a dud buy. With Pam you will know beforehand what it will and won't do and you feel free to ask about anything not in the documentation. The last thing I have to say is that Pamcomms is not profit making, they make enough to cover the running costs of the company but nothing over to pay the author. Believe it or not (I do) it is run out of enthusiasm for the Dragon. To this end, an SAE with any enquiries will only cost you 13p and will be much appreciated by them.

## REPLIES TO ROBERT MORGAN.....

Well, all the group supporters seem to have come out of the woodwork in reply to Robert Morgan's letter in the last issue. Unfortunately I can't print them all as I don't have the space, so I'll just pick out a few bits from each to give you the gist of the sentiment (those I can print that is);

I would probably agree with the first three lines but after that he goes a bit astray.....

The complete naivety of his view of the 'real world' astounds me so much, I wonder if he has ever worked in it?..... CJ

.....it's no good telling firms they are great if they aren't and as the voice of DRAGON users throughout the country (world?) you are entitled to your opinion (which echoes most of ours but we are too chicken to shout about it). If somebody doesn't say it, it never gets said and a lot of your comments are unfortunately only too true. J.E.Slade

..... The NDUg is more than a publication called Dragon Update, it is a collection of people who have a mutual interest in a computer called a Dragon and is a very useful way of putting Dragon owners in touch with each other. ... I am far from being an expert on computers and I have recieved a tremendous amount of help and advice from members of the group..... Because of the withdrawal of commercial enterprises from the market, then without the group it would have been like trying to steer a ship without a rudder.... So, let's keep on publishing Dragon Update and let's keep the group going. Let all of the members attempt to make some contribution to the group and to Update. The more we do the better it is for all of us..... E. Freeman

Well, I'm sorry I couldn't publish all the comments but space is limited, as of today (31st March) ALL of the letters and calls I've received have been in agreement with my views as expressed below the letter in the last issue. I actually had a chat with a lot of people at the show, again, all of those I spoke to held the same opinion. So, here resteth the matter, I'm not going to let it carry on through any more issues, I just thought I should show what seems to be the general concensus of opinion, thanks for all the support.....TL

## CROSSWORD #20 ANSWERS

Across: 1A)Hyper 1J)Skis 2B)Beano 2I)Icon 3A)Locusts 3I)Crane 4G)Steer 5B)Telephone 6A)Rainbow 6J)NATO 8C)Solder 9H)Aft 10C)Extinguish 11A)Acid 12H)Weed 13A)Compact disc

Down: A1)Hologram A11)Arc B5)Tablet C1)Peck C5)Einstein D11)Dip E8)Lotto F1)Tot F8)Drift H1)Pinto H8)Rag J9)Time I3)Centrifuge J1)Screen K6)Ashes L1)Inner L6)Trash M1)Stereophonic

The winner of Crossword 20 was J.E.Slade. (yet again!).

AN APOLOGY . . . . . TL

The Forth screens in issue 30, page 7 contained 2 errors (mine, not the author's).

Screen 13 line 2 the last char should be '>' not '\*'

Screen 82 line 6 for 'EMPTY BUFFERS' read 'EMPTY-BUFFERS'

John has also suggested that a few further words of explanation are appropriate about the Forth words in use:-

n1 n2 DSKTORAM reads screens n1 to n2 from disc into a buffer in memory.

#CHK checks that the number of screens requested does not exceed the buffer capacity (10Kbytes)

n3 n4 RAMTODSK writes from memory to screens n3 to n4 of the disc (again up to the 10Kbyte limit). Reading or writing of screens always begins at the start of the buffer whatever the values of n1 n2 n3 and n4 are. The buffer occupies addresses \$C00 to \$33FF and obviously can't be used for anything else at the same time. This means you can't use the hi res screen at the same time as DSKTORAM or RAMTODSK.

DSKTORAM and RAMTODSK can be used to move a block of screens to a different place on the same disc, as well as disc to disc transfers, when moving sectors between DragonDOS and MSDOS, you have to switch formats (with the words MSDOS or DRAGONDOS) after using DSKTORAM and before using RAMTODSK.

FORTH OS AND DELTA . . . . . KEITH BEAN

John Payne's Forth is terrific. You probably already knew that, did you know that it provides Delta users with a disc doctor? It may also work for DragonDOS but this is for Delta users. We haven't got anyone providing new versions of the ROM. You have to want to use Forth, but then everybody does don't they? Among the utilities provided are the Forth words DSKTORAM and RAMTODSK. If you have the system and haven't found them, load screen 13. These words allow you to read and write up to 28 disc sectors at one go. The tricky bit is that Forth doesn't know if you change discs. So, once the words are loaded you can read, correct and write data to any other disc of the SAME format that is giving problems. You may not have needed this facility but if you ever do, it is invaluable. I recently found a disc for which I didn't have a backup copy (surprise) had a readable directory but wouldn't let me read any files. Investigation with the 'Forth Doctor' showed that the first sector was filled with 00s although later sectors looked normal. I took a disc which did work and read in sector zero using 0 0 RAMTODSK. I then replaced the faulty disc and wrote back the sector using 0 0 RAMTODSK. Problem solved. If you want to look at the contents of a disc sector, you can do so with;

START END DSKTORAM

and

3072 BYTES DUMP

Where START is the first sector, END is the last sector and BYTES is obvious, 255 times the number of sectors. 3072 is the start address in RAM. It works best with a printer!

Using this technique, I am beginning to understand how Delta uses disc space. I may get to the point where I can restore a lost file by rewriting the directory entry. Maybe I won't need it again but it's comforting to have it as a possibility.

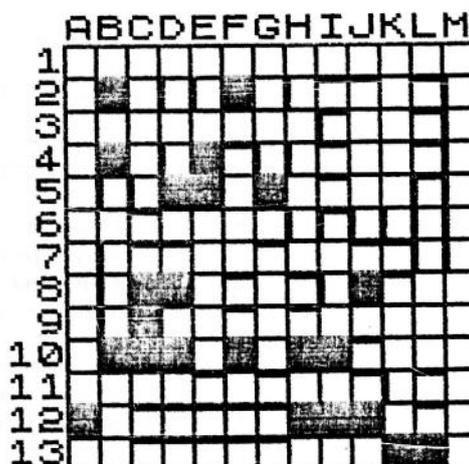
⌋Don't forget FORTH OS is the ONLY OS you can run on a D32!⌋

CROSSWORD NO. 21

ACROSS... 1A)Change of form or shape as in some insects (immature to adult) 2H)fish for degrees 3A)Lines joining points of equal height 3I)The latest one was on March 28 4H)Treasure ----- (hidden places of unknown ownership) 5H)Famous lioness 6A)Neil Scrimgeours company 7B)Rewrite an AIR MAG SONG to get radiological pictures of blood vessels 8E)A small glass container 8K)Horsey info 9D)Manipulation in M/C to do with 11K 10J)Unidentified creature seen(?) on the Himalayas 11A)Study of a persons character by numbers 11K)A pair 12B)Sailor found in wrestling 12K)Produces eggs 13A)New program produced by Occult

Down... A) Liverpool based software firm B5)Used to be on page 3 B1)Prefix indicating one C)Singing voice D)Against E)Famous snooker player E6)A point on which anything turns F)Search a chiroprapist to find this place in the USA G)Scarce G7)Stare in open mouthed astonishment H)French scientist I6)Strong wind J2)Found in a haunted house perhaps K)Language spoken in Slovakia K8)Incisors perhaps L5)Rearrange ?'s" to get a compiler M)Yearly payments.

Just to make up for this issue being later than usual, I've decided to be really kind to you this month....the first correct entry to this crossword wins a Microdeal Lightpen and software....so don't say I never give you anything!. Paul.

ASCII CORNER...Pauline Hampson.

The last few months have been taken up with Tanglewood. I finished it at last, but with regret as I expect that it will be the last quality adventure I will play on my Dragon. I haven't reviewed it before because it took ages to complete, and I only like to describe games when I have finished them, in case there are bugs. Yes, I DID find one, but more of that later.

Tanglewood is a graphic adventure with several sections...the woods, the dwarf dive, Castle Schark, and several text sections.

The object of the game is to save the woods from a property developer called Schark who looks like Humpty Dumpty, and who chases you and turns you to stone. You have five creatures to help you, Bruce, Goliath, Foghorn, Peabody, and Leanbag..a lion turned into a frog!. The animals have different skills, and you need them all. You have to keep changing characters anyway because they need to rest all the time...no stamina?!. There are lots of puzzles to solve, some of them complicated, and lots of areas to search to find the many objects you will need.

The text mazes are very difficult, because you can't mark your way with dropped objects...you aren't allowed to drop anything in these areas. Try using the "Hold" facility as you map. The worst area is the pond as Peabody goes round in circles. North can be West on other occasions!. Castle Schark, a 3D maze, is straightforward but needs mapping. There are lots of floors and lifts, and you need to know where the lift goes and where it arrives, as they are one way only. There are also some one way passages which need a magic object to pass them. The bug is in this part of the game, as the program crashes if you cross a certain square. I just learned to avoid it. The plot of the game unfolds nicely as Owl gives you information. I think the game is brilliant and worth twice the price, and the graphics are good too.....how did it all fit into 32K?!. If anyone has any NEW adventures for review please let us know.

AIRBALL REVIEW... Barry Caruth.

This review is ever so slightly overdue...the copy which Microdeal sent me appears to have gone via Australia, as it was posted several weeks ago, but still, we can't blame ALL life's little troubles on the GPO (or can we?!). Those of you who have had the pleasure(?) of using other machines may have seen the many "Ultimate" games which have a 3D view of a room with various objects to collect or avoid. Well, Airball is in a similar vein, and has been converted quite well for the Dragon. The idea is to move your ball around the series of rooms to find a spell book which will return you to human form (The evil wizard of Wizard's Quest has turned you into a ball full of air and shut you in his dungeon!...don't you just LOVE sequels?!) All of this is further complicated by the fact that you have a slow puncture!. There are air pumps at strategic points, and often it is a bit of a race to get to the next pump. Control is via joystick or keyboard, and either 4 or 8 directional...some places seem to require 4, others 8. Also there to hinder your path are various spiky things which have a negative effect on you!. At first it seems hard, and I spent a while bouncing around and doing nothing, but you soon get used to the controls, and I have now mapped a pretty big area of the dungeon. I would certainly recommend this game, but how about a completely ORIGINAL concept?!. S. If you would like to review the odd arcade game or two, drop me a line and I'll send you one as and when they come pouring in! (Yes, that IS a hint to software companies!).

The Late, Late Bit.....

Are you all sitting comfortably?, because I want to tell you a story all about the nice people who are busily working away to find ways of helping all you Dragon owners out there. Are you ready?, then I'll begin.....

Once upon a time, about three weeks before the London Show, to be a little more precise, a nice old gentleman named Sid Proops telephoned me and said that his firm had some new Dragons for sale, 32's and 64's, and also some other nice things, and he thought that we might like to sell them for him on commission. When I told him about the London Show he was VERY pleased, and even offered to deliver some to us there as well, and as Sid Proops is probably the most honest person I know, I was happy to accept his offers on your behalf. Time passed, as it frequently does, and on the Monday before the Show I decided that I ought to phone Sid and confirm that everything was still OK, but when I did so a person named Gary answered the phone, and informed me that Sid was seriously ill and would be in hospital for some time. However, he assured me that Sid had told him all about the arrangements, and that everything was still in order....the Dragons etc were still ours, and the Show delivery would still take place.

Meanwhile, in response to the mention in Issue 31, some of you had sent in orders for Dragons, and I had passed these on to Proops in the usual way. On the day before the Show, I phoned again, and this time the phone was answered by one Steven Proops (Sid junior), who freely admitted that he didn't know very much about what was going on, but said he DID know about the arrangements, and that there was a serious snag....Gary had taken the van to Wales, and due to the adverse weather conditions would not be able to get back in time to deliver anything to the Show for us.

Well, there was nothing that anyone could do about that, so I had to accept it, but I DID enquire whether the rest of the deal was still OK, and whether I should continue to accept orders. Steven told me that there was no problem at all...."just send them in as usual and we'll attend to them straight away". And so, not having any reason to doubt what I was told, I did so, and by the Monday morning following the Show had sent off several hundred pounds worth of orders (and Group cheques for the appropriate amount, of course).

When I got home that afternoon there were another pile of cheques and orders waiting, so I thought it might be a good idea to phone Proops yet again and check on the exact number of machines still available. Gary had returned, and having casually apologised for missing the Show delivery, went on to tell me that there were NO Dragon 64's left at all, "Someone came in and we had to sell them the lot"....the same "someone" also cleaned out the supply of monitors that we'd been promised as well!.

To cut a long story short (the necessary adjectives would offend some of our more sensitive Members anyway), I then asked Gary why he had sold the stuff when he knew it had been promised to us by Sid, and the only answer I got was "Ah well, Sid's in hospital...". Gary DID however offer to return the cheques, which I thought was so kind of him, and even offered to write to everyone and explain.....presumably that nice play while the cat is off sick....and when Tim phoned him a couple of days later to enquire if he had any comment we could print in this Update it seems that he only wanted to say that he feels that Steven Proops is the one to blame. Meanwhile, back here in Chaosland, orders were still coming in, and altogether I have had to return around three thousand pounds worth of cheques.

I am not pleased or amused, and I very much doubt that many of you are either. Just WHO is to blame at Proops isn't really important, I know that Sid isn't, but other than that I can't really comment, at least not in print. However, someone thought they were being VERY clever cutting in on the deal, didn't they?, and presumably they think you'll be stupid enough to buy the machines they grabbed, at a higher price, of course. If you do so, then they'll be encouraged to play the same game again, at your expense, but of course, what you do is up to you. All I'll say on the matter is that these are the only batch of new 64's around, so if you're offered them you'll know where they came from.

I just thought you'd like to know the full story. Paul.

Next month we will be running a review of the London Show, written by Philip Beed (it arrived too late for inclusion in this issue), and hopefully one on the Ossett Show by Mike Stott, plus "Helpline", and all the usual bits and pieces. By the way, don't forget to renew your Dragon User subscription...YOU need them, and THEY need you!.

Classified and Special Offers Page.

Basic Programs Listed. 1 Program Listing...75p. up to 4 pages. Additional pages 5p. each.  
2 or more Programs...50p. each.

ALL tapes and listings will be returned as far as possible the following day...

G.W.Hale, 'Rose Cottage, Hungerhill, Coolham, NR.Horsham, W.Sussex. RH13 8QE.

In Germany next month?...then why not call in on the Siegfried Computer Gruppe Dragon show?. It will be held on May 30th, at 6057 Dietzenbach, Gasthof zur Linde, and entrance will cost you 2DM.

For further information contact Bernd Neuner, Dina-Ernstberger-Strasse 23, D-8524 Neunkirchen am Brand 1, West Germany.

**MODEM PACKAGE SPECIAL!!!.** Complete package for D64 owners, comprising of a Prism Modem 1000, connecting lead and software to access Viendata and all scrolling type BB's. The modem will operate on 1200/75 baud for Prestel, and on 1200/1200 for user to user operation. The price for the complete package is ONLY 35.00 to Group Members, 40.00 to non members.

Cheque/PD or cash (registered post) to T.Hayton, 36, Laurel Drive, Willaston, South Wirral L64-1TW.

Games to disc transfer...Unprotected game code of any game sent in return for a blank tape and 22p stamp, but you MUST include the inlay card to prove you have bought the original. Contact M.R.Vine, 120, Auriel Avenue, Dagenham, Essex RM10-8BU.

**THE ADVENTURE RELEASE OF THE YEAR!.** "13th Task" from ARC Software. Only 2.50 + 30 pence postage.  
ARC. 272, Mearns Road, Newton Mearns, Glasgow.G77-5LY.

**FORTH OPERATING SYSTEM:** Simply the best there is. Written by John Payne, and available for DragonDOS, Superdos, and DD or SD DeltaDOS. Available ONLY through the Group. 8.50 inclusive. Orders/cheques to the Group, 6, Navarino Road, Worthing, Sussex.

**Circuit Sheets:** Available for D32 (most variants), D64, Dragon DOS controller, and Cumana DOS controller. All the same price 1.00 each.  
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**Dragon Upgrade manual:** 32/64 conversion method fully explained so that you can upgrade your 32 yourself without difficulty. Written by Bob Hall and available only through the Group. Price 2.00.  
Cheque/order to the Group, 6, Navarino Road, Worthing, Sussex.

**Delta DOS utility:** A m/c utility to copy all BASIC and m/c files from disc to tape in one operation. BASIC listing of loader and Hex dump 1.00 or on cassette for 2.50.  
J.C.Bussell, 33, Tennyson Avenue, Clevedon, Avon BS21-7UJ. (0272-875528).

**OS9 MODEM PROGRAM:** Up and downloading of files. Any Baud rate from 50/50 to 9600/9600 (but not multiple rates). Up/Download buffer from 4k to 32k or program will adapt to largest capacity available. All other 6551 options supported. Price 8.00.  
Please phone Barry Knapp, 0932-242800 evenings only.

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**DRAGONDOS EPROMS:** Your DOS 2764 rebloated to "patched" V1.0 specification, or to Eurohard V4.0 or V4.1, or to PETER WILLIAMS TRANSLATED & DEBUGGED ENGLISH VERSION OF V4.1. Price for any version just 3.50.  
Computil, 24, Jays Mead, Wotton-under-Edge, Glos.GL12-7JF.

**BACKDATE UPDATES:** Copies of all earlier Updates available from John Cox, 3, St.Peters Road, Portslade, Sussex. (0273-422492). (Chris Channing, is currently having copier problems!).

**BDCOPY:** DragonDOS to OS9 file copy utility. Includes 'Teletwriter' & Basic conversion filters....8.00.  
**COM09:** OS9 comms. program. Xmodem (CRC & SUM), multiple upload modes, monitor buffer, function keys and more!. Suitable for any OS9 system (CoCo needs ACIA-Pak) and includes source files....8.00.

**PD-PAK:** Selection of useful public domain OS9 utilities on one disc....5.00.  
Jason Shouler. 70, Victoria Road, Parkstone, Poole. BH12-3AE. (0202-722599).

**LAST FEW LEFT!.** NEMESIS programs, Dragon55 and Meddler utility programs on cassette at the special price to members of only 3.50 each inclusive.  
Cheques / orders to Paul Grade, payable to the Group.

**WANTED!.** Any good educational and business accounts programs, either on cassette or Dragon DOS disc (D32 only). Details please to:-  
L.Ho, 101, Battle Road, St.Leonards-on-Sea, Sussex TN37-7AD.

**Book for sale:** CELESTIAL BASIC by E.Burgess. Original price 13.00, asking 10.00 ono. THE WORKING D32 by Lawrence.same price.  
Phone Barry on 0424-714048.

**WANTED!.** Contact with any CoCo owners, especially anyone owning CoCo AND DRAGON machines.  
Write to: Martin Bateman, 121, Coppice Way, The Coppice, Aylesbury, Bucks.

**GRAPHICS SCREENS...**The Group Graphics Library, "DRAGONART" has a good selection of screens available now, so why not make use of the service offered?. Why not submit YOUR graphics as well?, you could win a prize!. All you need is write for details.  
Dragonart Library, 3, Glen Rd, Parkstone, Poole, Dorset.

**Do you have a monitor without sound facilities and wish you had sound?.** Then you need our miniature audio amplifier (less than 2" square!). Simple to fit into your Dragon or Monitor. 13.00 inclusive of post and packing.  
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Orders and cheques to the Group.

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