

DRAGON



UPDATE

ISSUE 34. JUNE 1987.

Chairman: Paul Grade. 6, Navarino Road, Worthing, Sussex. Phone: 0903-207585.
S/W.Ed: J. Barry Caruth. 132, Donaghadee Road, Bangor, Co. Down, N. Ireland BT20-4NH
Editor: Tim Lomas, 211a, Amesbury Avenue, London SW2. Phone: 01-674-0327.

The Gaffer's Bit

Well, Have you got around to pestering all those people I asked you to in the last issue?..I bet you haven't, have you?!. You keep on complaining to me or to Helen Armstrong about "lack of support", as though WE ruled the Dragon world (now THAT's an idea, Helen, what do you reckon?), but you never seem willing to have a go at the firms concerned. Stop playing with your pencil trying to dream up excuses and GET ON WITH IT!!.

Right, having got that bit out of the way, what else can I write about?. Well, the poor old copier is feeling its age now...three VERY expensive breakdowns last month in rapid succession, which is why the newsletter was late, but the copier fund still isn't up to the price of a replacement...around 270.00 total at the moment, which is about a tenth of the price of a comparable machine. Anyone feeling generous out there?!....just sign your cheque and send it to me...I'll fill in all the tedious details for you.

Have you heard all those stories about "the new technology" in schools?..how the brats are being taught all about computing and computers?. Well, don't believe it!..I've discovered why so many of the said brats end up knowing nothing at all about the subject. I've been reading through some of the "Computer Studies" work set by our local "Community College" (that's what used to be a Sec. Mod. School before they lowered the standards), and most of what the poor brats are being taught is at best fifteen years out of date, and most of it is totally inaccurate. Any kid unfortunate enough to learn it wouldn't know enough to load a program!. What are the schools trying to produce?..people so ignorant that the only job they'll be fit for is writing politician's campaign speeches?!. It's disgusting. Isn't it time the computer industry started training courses for TEACHERS?...If they did that they might even end up with a few school leavers worth employing!. Well, that's enough for this month, so I'll leave you to get on with the interesting stuff.

Paul G.

THE EDITORIAL BIT

It seems it is time to bore the masses once again; how to do it I wonder? Would anyone like to see the proof of the maximum possible solutions to last months competition? No, not the solution but the maximum number of letter combinations that are possible for words of 2 or more letters selected from 10. Well, that was going to be here this month but it's getting late, I've got to get this in the post and the quick solution I've come up with is several orders of magnitude out with the one someone sent in so I'll redo it when I've got more time and let you all know next month. All I can guarantee at the moment is that it's more than 64!

I do have a small apology to make as well, in issue 33 I attributed the article about numeric variables in DRAW and PLAY to Eddie Freeman; well, Eddie dropped me a line and told me it wasn't him. I've dug out the original and it's got no name on and all I can remember is that someone gave it me at the show around the time I was talking to Eddie, if it was yours I'm sorry and if you drop me a line I'll credit you next issue.

T.L.

2.

BANKER BOARD... J. BUSSELL & R. HALL.

Back in the mists of time (Update 19, March '86) I wrote about the 256k Banker board designed by J & R Electronics in the States for the Coco, which appeared suitable for the Dragon as well. I promised to write again when I'd had a chance to evaluate its potential. Since that time both John and I have knocked up our own version of the Banker board and can both report back our impressions. In the interim, Barry Caruth has drawn my attention to a 128k upgrade (from Rainbow, December '84) which some people may wish to have a go at; and of course Tandy have released the Coco III, a 128/256k machine which counts running OS9 level II amongst its tricks.

HARDWARE: 1) The banker board. Both John and I built our circuits using wire wrap, following the published circuit (fig 1, Sept '85 Hot Coco). We both found we could get away with using the old (LS783) SAM chip, rather than the newer 74LS785 (available from Tandy at 15.00). This is at first sight surprising because the '783 only issues 128 different RAS addresses during its refresh cycle, instead of the 256 the 256k chips need. Presumably the chips are being refreshed by the action of taking video data from them (rather than the refresh cycles themselves) If this is the case, the VDG refresh is taking about a factor of 3 longer than the maker's spec. advises (12ms against 4ms). Initially I left out the switch and tied the clear gates on the two LS175's to 5V - This was a mistake! It meant that the unit could (& did) come up with its video bank and cpu bank set differently - which left you typing the first few orders at an unchanging screen of green @s; more seriously, OS9 wouldn't BOOT. So I repented & fitted the switch. As a bonus I now find OS9 boots without getting itself hung up initially (see Update #11, July '85). (I'd thought I knew why, I now realise I don't). Two further constructional points:- don't stick the wire wrap socket pins directly in the SAM socket (on the main board), you'll ruin the socket contacts. John successfully found a beefy 40 pin socket, soldered to a header plug to use as an intermediate; this didn't work for me; to avoid a spate of bad connections I had to solder a header plug directly on the wire wrap pins of the SAM socket on the banker board. Secondly, note that a line connecting pins 1 on the RAMs already exists on the Dragon (in contrast to the Coco) but you'll have to remove the coupling capacitors from it, as well as cut it from the rail voltage it's tied to.

2) The 128k design (DSL Computer Products). Overall the Banker Board seems to be a worthwhile adventure, especially if you did your own upgrade to 64k, and socketed the RAM chips. However if you didn't or you're not feeling profligate, you might like to consider the 128k upgrade which Barry Caruth spotted in Rainbow. This uses a small controller board which plugs into the SAM socket like the Banker but this controls a second set of 64k chips, which are piggybacked on top of the first. Pins 9 & 15 on the second bank are not piggybacked; instead similar pins on the 8 new chips are linked together and the 2 lines taken to the new controller board.

PROGRAMMING THE BEASTS: The 128k design has the following characteristics:- the extra 64k of memory (bank 1) is paged in 2 units of 32k, and these appear instead of the original memory between addresses \$0000 and \$7FFF - the upper 32k of memory either remains as ROM (map mode 0) or the upper 32k of bank 0 (map mode 1). The memory selection is performed by poking addresses between \$FFAC and \$FFAF. The pokes control a 2 bit latch which in turn controls the gating of the CAS and 27 signals between the 2 banks. A disadvantage of this design is that the VDG bank is not separately controllable.

The 256k Banker board is rather similar in concept - however it uses separate latches for the VDG and CPU banks, which are set by PEEKING to addresses in the range \$FFC0 to \$FFDF. The video is banked in four units of 64k. In map mode 0 the CPU can access any of 8 32k banks (with care); in map mode 1 the CPU can access any of 4 64k banks (even more care) or the upper 32k alone can be bank switched, leaving the lower 32k in bank 0 page 0.

SOFTWARE: When you've done all this hardware modification, what software can you run on it? Well, regrettably the size of the memory segments you can

3

switch in and out, 32 or 64k is far too chunky to run say OS9 Level II. The most straightforward use for the extra memory under OS9 or Flex is as a RAM disc or as storage for hires graphics or text. John has written himself a suite of routines running under Flex to hide the commoner utilities in the 3 upper 32k pages of the Banker - send him a disc and return postage for a copy; for OS9 buffs the software for an OS9 ram disc is available - written by William Good (Rainbow, Feb '86) - if you want a copy (slightly modified to work with Dragon OS9), send me a disc and return postage. I always used to feel that RAM discs were a bit of a waste of valuable memory but their advantages for disc intensive operations are real enough. As an example, compiling the 'Sieve of Erasthenes' (a common bench mark program) written in 'C' takes 4m 40s using double disc but 1m 10s using a RAM disc and 1 floppy for the library files.

THE FUTURE: It would be nice to be able to run OS9 Level II, for that you do need to have a decent memory management unit which can map the 6809's 64k logical address space into the physical address space in say 2k chunks. The unit around which Level II was designed, the MC6829, went out of production in 1985; moreover, it's not been at all clear until recently that Level II would be available at an economic price. Fortunately all this may now have changed; in the summer of '86 Tandy introduced the Coco III with 128k of memory. Not only will this run OS9 Level II, available on ROM at a reasonable price but has also greatly enhanced graphics, I gather. All this is made possible by a custom built chip, the GIMIX chip, which replaces both the SAM and VDG of the earlier designs. Hopefully this will become available in this country fairly soon - if not it's salient (MMU) features should be reproducible using discrete components (fast static RAMS like the 74S189) fairly easily. Then you can use Stylograph to write really long letters to Auntie.

ADVENTURES P.C.ASBURY SMITH

A large envelope dropped through my door recently, containing an addition to the instructions for Malcolm Cowen's Adventure Writer. The idea basically is that you think up the plot of your adventure, making a list of locations, verbs, objects etc. You then enter your list into a specially prepared database which is linked to another program that runs it through a specially linked Basic program which makes it run as an adventure. This you can save to tape or to disc if you are using DBASIC. Certainly this is all very ingenious, perhaps the cleverest sausage machine on the market. The tendency, admitted even by the staunchest advocates of adventure utilities is to produce stereotype adventures. That, I'm afraid is the hidden condition in the small print. If that was all, I might give it 5 out of 10, the documentation is very good and the presentation excellent; but there is another very serious drawback to this utility. In reality it is not as simple to use as I have made it appear. What you are being asked to do in effect is learn a new computer language which is far harder than Basic and certainly not as user friendly. Adventure Contact is three quarters filled each month with desperate pleas for help for poor souls struggling with the obscurities of similar utilities. Over ninety percent of their problems would be very easily solved had they only stuck to Basic. In my original review of this utility (In adventure Contact) I pointed out that it is impossible to program interactive characters. I for one will stick to Basic and advise you to do the same.

URGENT ! ! ! ! !

Remember a couple of issues ago I told you I'd had a printer "blow-up"?.....I'm STILL waiting for MPI to come up with a new print head for my Shinwa (CP80. Mk.1), and the latest news is that it's likely to be another couple of months yet!! If anyone can either supply a NEW head, or give me the number of a firm who can do so IMMEDIATELY, will they please let me know as soon as possible?. Paul.

4.

FLEX UTILITIES PACKAGE . . MIKE GANLEY

As supplied, the Flex OS comes with a good selection of commands ranging from the simple P and S commands to the more complex CAT or COPY. But.. also available is an extra set of commands from Compusense, the Flex Utilities Package. This consists of 28 extra commands and utilities, space does not permit looking at all of them but I'll describe a few, to whet your appetite. Firstly the DIR command. No prizes for guessing what this does, it replaces the CAT command supplied with Flex. DIR gives you the full directory from the disc, including the full disc header information, date of creation of each file, start and end addresses of each file and the number of free sectors on each disc. Every Flex disc also has space for 3 lines of information, access to these is through the info command which allows you to make any changes or additions to these information lines. The COPY command is supplied with the original Flex disc but an enhanced version is included with the package. The new COPY command is much faster in operation, with more error checking than the original. It also has a vast range of options, such as kill duplicate files on destination, copy only files not on destination and so forth. Last month I mentioned the HECHO command, this is used in conjunction with the P and S commands to send hex numbers out of the serial or parallel ports. Obvious uses for this are to send control codes to printers or modems. Also included are the Y and N commands. These can be used like P and S but they allow automatic answering Y or N at terminal prompts. For example:- Y
VINIT will cause the virtual disc to be formatted, answering yes to the 'are you sure' query. Also useful are screen dumps for Epson and Seikosha printers. TERMINAL (not quite as final as it sounds) allows you to connect a terminal to the Dragon serial port and run Flex through this. TSAVE and TLOAD allow you to load Dragon compatible machine code to or from cassette. The DELALL command allows you to browse through the directory and delete all those old files for good housekeeping. The package also includes a disassembler and a Demon style machine code monitor, the use of which mere mortals like myself can only dream about. All these and more come with the usual excellent Compusense manual and make the system even more usable.

INLAY REVIEW PHILIP BEED

Inlay is written for the Dragon and CGP115 (or MCP-40) printer plotter, to produce cassette inlay cards for your program and audio tapes. It is menu driven and allows the use of inbuilt titles which can be customised, or your own titles from the keyboard. In title input mode you can leave some of the default titles if you wish and options for error correction are included. The program then centres the titles .
The inlay cards are printed with attractive borders and title boxes, your name is printed in thick letters on the spine, the front of the card is divided into 4 boxes, you may put one title into the top box and two in each of the others. The contents list is then printed on the part of the inlay which folds over to become the inside. You may print the contents in 40 or 80 column mode depending on taste and the number/length of contents.
The finished product is very smart and would smarten up a large collection of tape based programs. The program is written in Basic so anyone wanting to alter it to their own needs should have no difficulty.

<<This program is written and reviewed by Philip, the only reason I allowed this is that he is offering the program FREE. Anyone wanting a copy should send a blank tape or Dragon/Cumana disc plus return postage to Philip Beed, 27 Findon Rd, Elson, Gosport, Hants. Anyone with an earlier version, note that this is a new improved version TL>>

5.

EASY MACHINE CODE (9) . . . R.A.DAVIS

Now you know how the screen is cleared by storing a blank at the addresses allocated to the area of the low resolution screen, using the A,B or X registers. in the same way you can print to that screen, by storing the ASCII code of the letter or number etc required at the location at which we want it to appear. The low res screen occupies RAM from &H400 to &H5FF. We will print something at the centre of the screen.

```
10 DATA BD,BA,77,8E,04,CD,86,48,A7,80,86,45,A7,80,86,52,A7,80,86,45,A7,80,39
20 I=&H7000
30 FOR J=1 TO 23
40 READ A$: A=VAL("&H"+A$)
50 POKE I,A
60 I=I+1:NEXT
70 EXEC &H7000
80 GOTO 80
```

Here we have used the ROM routine to clear the screen at the start. &HBD is an opcode for Jump to subroutine and &HBA77 is the ROM routine which clears the screen. &H8E is the opcode for load the X register immediately with this number. The number is &H04CD which is a location near to the centre of the low res screen. So, now we load the A register with the letters we need, store this in the location pointed to by the X register, increment the X register by one after doing this. &H86 means load the A register, the hex number for each letter follows the opcode for load A. &HA7 is the opcode for store the contents of the A register and &H80 the operand which means in the location pointed to by the X register then increment the X register by one. So, we have a sequence of loading, storing and incrementing, until &H39 which is the end of the routine. The assembler as it would be written with DASM is as follows:-

10 CLEAR 400,&H7000	50 JSR \$BA77	90 LDA #\$45	130 LDA #\$45
20 EXEC &HCFFA	60 LDX #\$04CD	100 STA ,X+	140 STA ,X+
30 ALL	70 LDA #\$48	110 LDA #\$52	150 RTS
40 @START EQU *	80 STA ,X+	120 STA ,X+	160 END

When you EXEC &H7000 you should see the result. This of course is a crude method but it does explain how the code works. A better way is to store the script as data, near the start of the program, using a label to identify it, with a short routine to load the A register from the data held and store it on screen. We'll have a look at this next time.

DAVE CADMAN AND HIS MUSIC.....

When I mention to people the amazing quality of the music for the Dragon which Dave makes using the Composer utility, they never believe me. But to hear, in this case is to believe, you should see their jaws drop in amazement when I give them a demonstration, which often leads to the purchase of a Dragon. Luckily Dave has now joined the group and his talents will now be available to us all, on disc and tape. You will find it amazing too, and yet another demonstration of the Dragon's capabilities as a versatile home micro. As a musician Dave was for 20 years a church organist, and is also a first class accordion player. His wife is a professional musician, and his severest critic. His range is wide, from rag time to classical. For several years he has transmitted, in data form, to members of the local Dragnet, the weekly music spot which has always been one of the most popular spots, eagerly awaited by all. Judge it for yourself, you won't regret it..... R.A.Davis.

6.

MORBID MANSION REVIEW . . . BARRY CARUTH.

This game is a reasonable idea but falls flat on its face due to pretty abysmal programming. The sound is awful (SOUND 1,1 type stuff), the graphics are pretty bad as well and poorly animated. The idea is to jump around the 10 rooms collecting gold, keys etc. The movement control is acceptable except for having to use the 'G' to get anything; when you do it prints up things like 'YOU OPEN THE BOX AND INSIDE YOU FIND' and so on. This spoils the continuity of the program. There is a clock in the corner which counts up your time, when it reaches midnight a ghost appears. You then have to shoot it with the bullets you can only get on screen 1 (they run out all too quickly). The control of the cross hair is really bad. After battling through 9 screens you meet MORBID who is a nasty character and has to be killed by the appropriate means.

The game is a good (even if not very original) idea but loses everything in lack of playability. It's worth at most 3/5

DRAGON USER.....(T.L.)

I seem to be doing nothing but publicising other mags this month but read on.... The June Dragon User has dropped onto my hall carpet (with a bit of luck I might find time to read it later tonight). This month seems to be wordprocessor month with two articles, a report from the Ossett show, a piece on writing adventures and displaying data with field delimiters (ie putting them in neat little boxes). The "Expert" is back in all his glory(?) and all the usuals, answers, competitions, letters and news. Next month apparently we are due a mega round up of printer reviews etc.

CROSSWORD #22 ANSWERS

Across: 1A) Chihuahua 1J) Snap 2D) Nimbus 3D) Rickshaw 4A) Nightingale 5A) Clef 5E) Rome 5I) Peep 6A) Harris 7I) Roan 8A) Legs 9F) Aintree 10G) Natives 11A) Rabies 11G) Glum 13C) Dire Straits
Down: A1) Chinchilla B5) Label C6) Rogue C11) Bad E4) Trials E10) Pear F1) Am F6) Solar G5) Merlin G11) Gas I2) Shaper J1) Stale J8) Crimea K2) Tweed L5) Ponne M1) Photofinish.

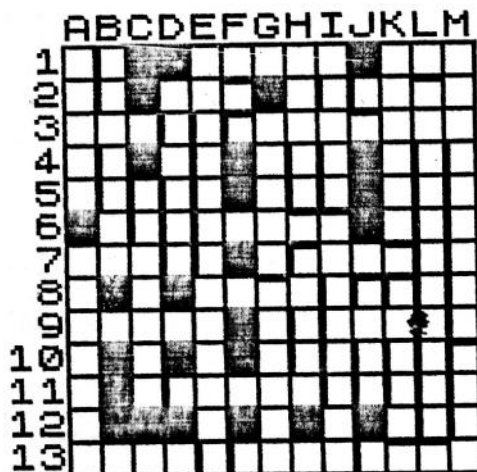
Crossword No. 23.

ACROSS:-1E).Combination of simultaneous notes. 1K).Busy Insect.
2D).You might do this to a magic lamp. 2J).Fight of honour.
3A).Anti-smoking organisation. 3F).Gather together. 6E).Young wise bird. 7A).Oxlike antelope. 7H).Rock gently to and fro. 8E).Small bay or inlet. 9A).Exhibition of cowboy skills. 9I).Booty. 11D).Cousin of our old faithful. 13A).Water retaining music program. 13F).Strong sweet red wine. 13J).Artificial home for IK.
DOWN:-A1).Criminal informer found in most gardens. A7).Adventure writer. B1).SHE IS AN old sack or a Native of Hesse in Germany.C5).Rumbling noises in the atmosphere. D2 & M10).Best selling toy(?) of 1981. E1).The only Flex adventure I know of. G3).Non-moving alcohol producer. G8).West Indian magic. H1).Covered in iron oxide. H7).Shabby or unwell. I1).Slimmers meals. I6).Halflight between daybreak and sunrise. J8).Adult tadpole. K1).Type of sort. K8).A means of illuminating adventures. L2).HELP NINE TEA is large and clumsy. M1).Negatively charged particles of an atom. M10).Shape of a sugar lump.

Crossword 22 winner was Richard Hibbler of Norwich.

Opinions wanted...

Are these crosswords too easy or too difficult for you?....Some months I get dozens of entries, others only two or three, so it's hard for me to judge. Please let me know your views on the subject and I'll pass them on to our Crossword Compiling Genius. Paul.



OS9 FOR BEGINNERS . . . ROBERT SCHOFIELD

Boot is a very simple disc reader program and is pretty dumb; it is in fact a small part of the code from DDISK (the OS9 driver module). All it does is find where the 'System boot module' is on the disc and read it into memory. This means that the file must be one large block of code with no gaps in it, since the OS9 system is still in the process of loading itself into memory before running. It is still not 'intelligent' and cannot direct the Boot program to read sector blocks that are spaced apart as in normal files. Files are actually broken up into lots of chunks that can be slotted into any available space on the disc. Normally when a file is read back, a special table called the 'File Sector List' which contains a list of all the blocks in the file (in the right order) is read first so that the OS can hop around the disc linking the blocks up as they are read. Without the software 'intelligence' during startup this 'linking' is not possible and so a repetitive read pattern must be used. The system components are all contained in the boot file (OS9BOOT) along with a module called 'Init' which contains specific information about the configuration of the system. This 'components' file is loaded by BOOT into an area of RAM designated as the 'Module directory' where it becomes individual modules. INIT is read by the kernel which then starts to construct the full OS9 OS from the modules in the module directory. The system needs IOMan to manage input and output, this module in turn controls the serial I/O file manager CSFMan, block file manager RBFMan and the pipe manager Pipeman. Each of these file managers require device descriptors to provide the software interface to the hardware. Each driver (which can control more than one piece of hardware ie 4 disc drives, 2 serial port etc) requires device descriptors which are small tables containing information about each device connected to the system. (ie for a drive, hardware controller address, number of sides, number of tracks etc). To link all its parts together the system builds a 'device list' which the processor keeps in memory. INIT also includes information about the first task the newly built system has to perform, a module called SYSGO which looks for the system start up file, executes any commands it finds (like starting up the clock) and then fires up the shell. Sysgo then goes to sleep and waits for a catastrophe such as a crash when it's job is to restart the shell. Now you know what all the whirring is when you try to boot up!

Since you've all understood all that! Here's a passing bit for you to consider if you're interested in rooting into the OS. If you remember the OS itself is loaded by a small code reloader at the start of the boot track data block, which in turn has to be loaded by the BOOT command of the Dragon DOS. It should be possible to create an EPROM with the two characters 'DK' located in it's first two bytes; if this EPROM is located in the cartridge address space the Basic will pass control to the next byte of the EPROM. A little routine could be written in machine code to copy the rest of this EPROM into high memory and change the SAM modes etc to 64k RAM. If you put the two kernel components above this little routine then OS9 could boot from EPROM with reduced disc access and effectively power up as an OS9 machine. Bright chappies might try shoehorning most of the system components as program modules into a 16k EPROM. Really clever ones could piggy back this EPROM over the DOS EPROM with a switch in the select lines to select wether you power up a Dragon or as an OS9 system, depending on preference.

This is the point where you should dig into your user manual for the basic commands and operation to allow you to get a bit of familiarity with the system.

8.

EXTRA COLOURS IN PAINT R.A.DAVIS

Location 178 holds the foreground colour and by POKEing this address with any number not exceeding 255 varying 'striped' effects can be obtained on the high res screen. This is the address at which the PAINT command looks when seeking the colour to be painted. The command is PAINT (X coord, Y coord),colour,stop at colour - if the colour is omitted, it will default to whatever happens to be in location 178. You must of course put in the required number of commas. This little listing will give a demonstration of painting a circle both in PMODE3 and 4 and show you the number which has been poked into location 178 for each effect. As the circle is drawn in yellow, the stop at colour is 2. You can paint any shape you need using this method and also use PSET,BF for a quadrangle.

```
10 X=0
20 PMODE 3:PCLS1:SCREEN1,0
30 CIRCLE (128,96),50,1:POKE178,X
40 PAINT (128,96),,2:FORD=1 TO 1200:NEXT
50 PMODE 4,1:SCREEN 1,1
60 FOR D=1 TO 1500:NEXT:CLS:PRINT X
70 FOR D=1 TO 500:NEXT:X=X+1:GOTO20
```

Location 179 holds the background colour. To produce this PRESET is required. Try this:-

```
10 PMODE4:PCLS1:SCREEN1,1
20 X=RND(255)
30 POKE179,X
40 LINE (0,0)-(255,191),PRESET,BF
50 GOTO 20
```

You can BREAK and PRINTX when you see the coloured stripes you want, to find the value POKEd into 179 for that effect. Try it in PMODE3 as well.

MACHINE CODE MIRROR CHRIS FRY

My thanks to R.A.Davis for his article 'Mirror Image' in issue 31 as it inspired me to write a routine to do the same in machine code. I'm now working on a suite of similar utilities which will allow extensive processing of the graphics screens. The routine as shown is position independant and will work for any PMODE4 screen.

10	FML	220	46	ROLB
40	ORG 32000	230	6A8CE3	DEC @COUNT,PCRB
50	*****	240	26EB	BNE @LOOP3
60	* MIRROR SCREEN *	250	3404	PSHS B
70	*****	260	6A8CDB	DEC @COL,PCRB
80	2003 BRA @START	270	26EB	BNE @LOOP2
90	@ROW RMB 1	280	8620	LDA #32
100	@COL RMB 1	290	A78CD4	STA @COL,PCRB
110	@COUNT RMB 1	300	1F21	TFR Y,X
120	10BE00BA @START LDY \$BA	310	3502	@LOOP4 PULS A
130	86C0 LDA #192	320	A780	STA ,X+
140	A78CF4 STA @ROW,PCRB	330	6A8CCB	DEC @COL,PCRB
150	1F21 @LOOP1 TRF Y,X	340	267F	BNE @LOOP4
160	8620 LDA #32	350	31A820	LEAY 32,Y
170	A78CEE STA @COL,PCRB	360	6A8CC2	DEC @ROW,PCRB
180	8608 @LOOP2 LDA #8	370	26CC	BNE @LOOP1
190	A78CEA STA @COUNT,PCRB	380	39	RTS
200	A680 LDA ,X+	390		END
210	46 @LOOP3 RORA			

CONTROLLER SETUP REVISITED . . A. BUTLER

I have a couple of points to make about Bob Hall's article 'Setting up the DragonDOS controller' (issue 33). Having built around a dozen or so controllers I am well familiar with the setting up procedure and Bob's article contains a couple of oversights/errors.

1) Before connecting TP1 to ground pin 19 of the controller IC (WD2797) should be momentarily grounded. This ensures that the WD2797 is reset and enters the test mode correctly when TP1 is grounded. If pin 19 isn't strobed the WD2797 doesn't always go into test mode correctly and the correct waveforms won't appear on the test points. In particular the 250KHz on TP4.

2) The write precompensation delay on TP2 should be 250ns wide not 200ns (as detailed on the WD2797 data sheet), this could cause disc read errors later.

3) The 250KHz signal on TP4 is prone to drift (slow down) so I have found that if it does drift, set it up a few KHz higher (I suggest 253-255 KHz) and it should settle down at around 250KHz after a couple of minutes, I must stress that you shouldn't go over the top with this setting or the disc controller won't work when it's cold (ie first switched on).

These comments are not meant to be a criticism of Bob's article which is on the whole correct, I'm just mentioning a few points that could cause problems.

TELEWRITER AND SUPERDOS G. SMITH

Those of you who have an old Telewriter disc and have splashed out on a new SuperDOS E6 chip are no doubt aware that your Telewriter will no longer work. In the literature they state that there is an upgrade available from Microdeal but for those who like to do it yourself, I'll tell you how I've done it. The first thing I did was to run a disassembler all the way through TELEWRIT.BIN and found very little of interest, the only cartridge calls were at the very end. Next I used a disc detective type utility to see what was on the disc and 'Hey presto' there were all those nasty cartridge ROM calls hidden in the BOOT routine and other sector based routines. All that was left to do was to look up what routines these called in the standard DOS and find where they'd been moved to in E6. The ROM calls I found were D4A4, DBA3, D4A7, C104 (no change) and C700. All that was left to do was to write a short Basic routine that would change all these calls in one easy run (listed below). At this point I should point out that the Telewriter version I was using comes up with version 3 and the date 19/4/84 on the title screen, I don't know how many other versions there may be and also this is a conversion to SuperDOS E6, I can't talk about any other versions. REMEMBER! run this utility on a BACKUP of Telewriter NOT THE ORIGINAL, just in case.

```

10 PCLEAR8: CLEAR2000
20 CLS: X$=CHR$(19)+CHR$(21)+CHR$(16)+
  +CHR$(5)+CHR$(18)+CHR$(4)+CHR$(15)
  +CHR$(19)+CHR$(45)+CHR$(5)+CHR$(54)
30 PRINT@38, "TELEWRITER CONVERTER"
50 PRINT@390, "INSERT A BACKUP COPY"
90 PRINT@486, "PRESS A KEY.": EXEC41194
100 SREAD 1,0,1,A$,B$
110 A$=LEFT$(A$,41)+CHR$(&HCB)+
  RIGHT$(A$,86)
120 SWRITE 1,0,1,A$,B$
130 SREAD 1,0,3,A$,B$
140 A$=LEFT$(A$,51)+CHR$(&HA6)
  +RIGHT$(A$,76)
150 SWRITE 1,0,3,A$,B$
160 SREAD1,0,5,A$,B$
170 B$=LEFT$(B$,74)+X$+RIGHT$(B$,43)
180 SWRITE 1,0,5,A$,B$
190 SREAD1,1,3,A$,B$
200 B$=LEFT$(B$,112)+CHR$(&HCE)+
  RIGHT$(B$,15)
210 SWRITE 1,1,3,A$,B$
220 LOAD "TELEWRIT.BIN"
230 IF PEEK(&H605)>0 THEN 230
240 POKE&H39EF,&H2A
250 KILL "TELEWRIT.BIN"
260 SAVE "TELEWRIT.BIN",7697,14934,7697
270 CLS: PRINT@267, "ALL DONE"
```

AN ADDITION

I've now had the chance to examine Telewriter version 4, it is different and can be catered for by the following amendments to the routine. Simply delete lines 100-150 and 220-260. This is all that is required, less changes are needed to convert version 4 than version 3.

10.

JOYSTICK/CURSOR KEY MOD R.D.NASH

A number of Dragon games only allow the use of cursor keys to control the movement of gun sights, little men etc. round the screen, so I bought a pair of Microdeal self centring switched joysticks with the intention of allowing joystick control. You will need the following:-

- 1 Microdeal self centring switched joystick
- 1 metre 6 core screened cable
- 1 6 pin DIN plug
- 1 6 pin DIN chassis mounting socket
- 1 short piece 6 way ribbon cable or 6 short lengths of connecting wire

All of the above with the exception of the joysticks are available from Maplins at less than 2.00.

Open up your Dragon and find a suitable point for mounting the DIN socket. I fitted mine on the left hand side, just to the right of the printer socket. CAREFULLY drill the correct size hole and mount the socket. Unscrew the keyboard fixing screw and turn the keyboard upside down. The keyboard ribbon cable connections numbers from right to left 1-16. Using either the short lengths of wire or ribbon cable, connect as follows:-

- connector 7 to DIN socket pin 1
- connector 12 to DIN socket pin 2
- connector 13 to DIN socket pin 3
- connector 14 to DIN socket pin 4
- connector 15 to DIN socket pin 5
- connector 16 to DIN socket pin 6

Refit the keyboard, making sure no cables are trapped and put the Dragon back together.

Now, solder the 6 core cable to the DIN plug. Pin 1 is common to all movements of the joystick. Pin 2 is up. Pin 3 is Down. Pin 4 is left. Pin 5 is right. Pin 6 is the fire/space bar.

Open up the joystick and remove the old cable and resistors. Bear in mind that the joystick is now upside down and connect the other end of the 6 core cable so that pin 1 is commoned to one side of each switch and one side of the fire button. Pin 2 to the switch at the bottom of the joystick, pin 3 to the switch at the top, pin 4 to the switch on the left, pin 5 to the switch at the right and pin 6 to the fire button.

Reassemble the joystick, plug it in and play Chuckie Egg, Manic Miner, Pit Fiend etc. with a little less frustration than before.

DRAGON MAGAZINE T.L.

I've just received a copy of Dragon Magazine so I thought you might like to know more about it. I'm going to tell you anyway so read on. When I first took it out of the envelope the thing that struck me was its size but after looking this is slightly deceptive as it's only printed on one side. The issue I have is actually 17 pages long and seems rather more games orientated than Update but of course none the worse for that. The April edition also contains an article on RTTY and a review of the Amstrad DMP2000 printer.

There are a number of adverts and news items, along with 'about to be released' bits, and considerable information on arcade and adventure games. Why should I subscribe to this when I already get the excellent Update you are asking yourself? Well, it covers a different field from us, we don't actually have that much coverage of games, they fill that gap, also they are trying to keep the Dragon alive in the same way we are. Support them, the sub is only 6.50 a year (12 issues), payable to Andrew Hill and sent to Dragon Magazine, 13 Parry Jones Close, Blaina, Gwent. NP3 3NH. It's not a lot and the Dragon needs all the support it can get.

One last thing, it is run by Broomsoft and Dragonfire but from my reading of the April edition, it doesn't seem to affect them, in fact they seem to mention Quickbeam more than themselves. They've also got a little mention for us!TL

II.

DELTA DOS (3) MARTIN LAYLEY

This month we get to the Delta routines-

FIRST --- swaps the direct page register --- entry C018
Conditions - none
SELECT DRIVE --- selects the required working drive --- entry C375
Conditions - B reg contains drive no. (0-3) on entry
READ SECTOR --- Reads a given sector to given address --- entry D181
Conditions - Entry: 7A21 & 7A22 contains the address the sector is
to be loaded to, Reg D contains sector no.
WRITE SECTOR --- Writes a block of data to a sector --- entry D174
Conditions - Entry: 7A20 & 7A21 contains address of block to be saved
Reg D contains sector no.
USE DIRECTORY --- Initialises directory workspace --- entry C90C
Conditions - Entry: A drive must have been selected
Notes - Exits via FIRST
FIND FILE --- Checks directory to see if the specified --- entry C815
file is present
Conditions - Entry: Set up file name as a string enclosed in quotes
Set 7AA6 to the address of the first quote
Exit: If the filename is found:-
7A63 set if file found
7A42 holds address of name in directory buffer
7A72/3 holds sector number on track zero
7A50 Holds the protection
7A51 Set to the file type
7A68/9 Hold the start sector
7A6A/B Hold the end sector
7A20/1 Hold the load address

That's this months lot, more next month.

DELTA OWNERS DATA EXCHANGE...T.L.

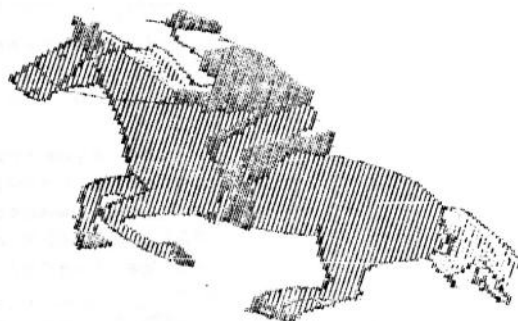
Firstly my apologies to Dave for the lateness of this article, I did promise at the show that I'd put it in the last issue but it got delayed. This is a new group for Delta users, the best way to tell you about them is probably to quote part of the handout they had at the show.

... We plan to compile a directory of DeltaDOS users. Then, when we have a suitable number of members we will send out a contact sheet, which will contain addresses and possibly phone numbers of people willing to give advice, supply programs or written material to others needing such information. If the initial interest is lively and it looks as if the project is going to 'take off' then we might be able to extend the contact sheet to a regular newsletter. As there are about 70 DeltaDOS users withing NDUG alone, we should see plenty of support from them. (There will probably be a small charge made for the contact sheet, only to cover postage, depending on numbers)

OK, 70 of you should have bothered reading this far, anyone interested should contact Dave Martin, the DUDE organiser on Southampton (0703) 38042

Anyone else thinking of starting a Dragon or Tandy related group?.....If so, please let me have all the details and I'll make sure that you get a mention in Update.....Paul.

12.



Thanks to everyone who sent in Graphics Screens, although regrettably very few were originals. As I said before, we can ONLY use those screens which are in Public Domain or those donated by their authors. Screens from Dragon games are NOT acceptable.

One or two people sent in graphic associated programs for use in the Library, and I'm particularly grateful to Jurgem Mitchell and Ian Rockett for theirs. Ian's VIEWER program is being sent out with all future requests for Library graphics as it loads the screens from disc and switches them through all the PMODEs and all colour permutations. Thanks again Ian. Chris Jolly sent in an unusual screen which included a random "tint" and an explanation of the program which performed the tinting process.

The prize for the best original screens received during May, however, goes to Philip Beed for a clutch of excellent originals in PMODE3. If he cares to get in touch with me he can choose a game from Microdeal's latest selection. Philip tells me he produces his artwork on a Touchpad which he finds easy to use (I didn't!). He says he draws PMODE4 screens in PMODE3, using green where he wants black, red where he wants buff, and yellow where he wants shading (it comes out shaded in PMODE4 and vertical stripes on the print dump). It's an effective method, as you can see from the above example. There are now almost 100 screens available through the Library.

THE LIBRARY IS OFFERING A PRIZE of a Trojan Lightpen, kindly donated by Philip Beed, for the best original received during July and August. Not the best time of year to persuade you to get down to the computer, but I've just felt my seaweed, and it's going to be a wet summer, so you've no excuse!. Get out the tracing paper and graph paper and translate your drawing to the screen the easy way using Tony Davis' DRAWEZEE or Pam D'Arcy's DISKPIX, or whatever program you prefer. Let me have your original entries before August 31st. Ray Smith.

ASCII CORNER.....Pauline Hampson.

This month a solution to Shenanigans, which has a strange atmosphere...it has graphics too, so watch out for clues.

I search round and get dressed. I put on my shoes and find my wallet. I must pay my rent and check my mail. Muggers are nasty people. I pull out my knife and I enjoy looking at other people's rubbish, it helps me work up a thirst. There's nothing like a beer!. Now off to the subway. Wow!, this is a funny place. I'd better have a look around. This woman is hiding something. Now I need a lucky token. Off to a cave. I play a tune. This trapdoor is interesting. I wonder how I get to the other side. It's lucky I had something for that snake. I say an Irish name, put on my dancing shoes, and sing "Somewhere over the rainbow".

More solutions next month...anyone got any particular requests?.

Classified & Special Offers Ads.

DRAGON HARDWARE!!!

Dragon 64's with twin Dragon Data disc drives and DragonDOS cartridge...150.00.
Twin Dragon Data disc drives, with Dragon DOS cartridge...120.00.
Twin Dragon Data disc drives...80.00.
Dragon 64's...70.00. Dragon DOS cartridges...50.00.
Most of the above are new and unused units. All items PLUS postage and packing. Phone Brian O'Connor on 0706-849189.

DRAGON MUSIC!!! A selection of music on tape or disc, arranged by Dave Cadman and produced by him on a specially extended version of Composer. The tunes are divided into four categories, "Rags", "Classics", "Standards", and a "Miscellaneous" selection. This month's release is a "Rags" selection.
Prices are TAPE 3.50, DISC 4.00, inclusive of postage. Orders to Dave Cadman at 32, Breendon Hill Road, DERBY DE3-6TG.

Need new joysticks? New Dragon Data potentiometer sticks, boxed. 7.50 per PAIR inclusive!. Orders to Paul Grade, cheques payable to the Group.

Dragon Claw (unused), with full documentation...10.00.
MacGowan Printer Control program for HRS, with full documentation, plus cable and Screen Dumper cassette...7.00.
Phone R.Bellamy on BARRY (Glam.) 1743256.

Dragon 32, plus very good tape recorder, three joysticks, monitor, hundreds of games and other stuff, leads, etc. 110.00 the lot o.n.o.
Phone Chris Corker on EASTERGATE 2489.

Two NEW Dragon 64's for sale...75.00 each o.n.o. Upgraded 32/64...50.00. D64 main board, perfect working order...35.00.
Large quantity of 27256 EPROM's, NEW...2.00 each.
Phone Alan Butler on 0371-4234 evenings.

Touchpad power supply unit....5.00. Complete set of chips and sockets for the ANDTEK ADBUS board, all new and unused. 10.00.
Phone Martin Walsh on 0765-3646.

Dragon 32 for sale, slight fault (probably the system ROM chip), easy repair or ideal for spares....sensible offers please.
Original Dragon software for sale, phone for details, also all 52 issues of INPUT magazine (buyer must collect!)...14.00.
Phone Keith Hunt on 021-525-6018.

WANTED: Un-bugged original of TOTAL ECLIPSE....will swap for prism 1000 modem + Modem House cartridge, all in working order.
Phone Paul Smith on 0761-415496, after 6pm.

WANTED: Morrison "SPEAKEASY" unit, will buy or swap for the following....MAPLIN 232 interface, not quite complete (needs one main chip), sensible offers please. Also Morrison "ANIMATOR & SCENARIO CARTRIDGE", generates 10 m/c sprites. 5.00.
Phone Philip Beed on 0705-504340 for details.

DRAGON 32. Complete with several assembler/disassembler cartridges, tapes, and many Dragon User magazines. 50.00 complete.
Phone Howard Knight on 021-777-2477.

DRAGON 32 upgraded to 64K, 100's of games, joysticks, leads, etc...70.00 the lot. DELTA disc controller + games discs...45.00.
DragonDOS disc controller, with Superdos and Alldream on ROM, plus games, plus 80 track discs...79.00 the lot. Cumana DSDD disc drive, 40/80 switchable, cased with PSU...110.00. OS9 system disc, plus Dynacalc, Stylograph, RMS, Basic 09, for 80 track drives, including manuals...85.00 o.n.o. Trojan Lightpen + tape and disc...7.00.
Phone Keith Powell on 0695-624402.

MORE HARDWARE! D64 + twin Dragon Data disc drives + OS9 with Stylograph, RMS, Dynacalc & a mixture of serious/general software plus books...200.00. Dragon "Plus" board...50.00. Epson RX80FT...150.00. Epson NLQ board + 64 print buffer...30.00. Kaga Taxan greenscreen monitor KX1201B...60.00. Dragon DOS cartridge...30.00. "Complete Rainbow Guide to OS9"...10.00; BASIC 09 Tour Guide...10.00; OS9 Pascal...10.00; OS9 Edit/Debug/Assembler...10.00; OS9 System Programmers Manual...15.00; Rainbow (Jan 83 to date) 20.00; Dragon User (all

copies)...15.00.

Free delivery within 50 miles of Maidstone for computer items, but anyone welcome to call by arrangement. Phone Peter Denny on 0732-840103 after 5.30 pm.

Dragon 64 with Plus board...180.00 Dragon Data twin drives and DOS...180.00. Seikosha GP500A printer...120.00.
OS9 level 1 inc. manual 10.00; Basic 09 inc manual 15.00; RMS inc. manual 10.00; Dynacalc inc. manual 10.00; Dragonplus OS9 drivers 5.00. FLEX OS, Dbasic, Dynafast, Edit, Flex utilities...all at 10.00 each. Dragonplus updates for FLEX 5.00. NOTE! The FLEX OS disc is NOT an original and will only be sold WITH one of the other (original) FLEX packages.
Edit+ 10.00; Edit+ D32/64/128 15.00; Dynafast/Dynaflex 10.00; Duplicas, Duplidisc2, Physics Tutor, Tape Doctor, Home Budget, DRS, Worlds of Flight, KET, RTTY/ANFOR/CN, Rainbow Writer...all at 5.00 each.
Plus a large selection of Dragon books all at 4.50 each.
Contact Willie Borrmann, 30, Mount St. Ievers, Sixmilebridge, Co. Clare, Ireland. 061-72592 (weekends only). Phoning from UK dial 010-353-61-72592.

Shinwa CP80 printer....1.5 years old, good condition. 300 DM.
Wanted "Advanced Utilities for OS9" package with KShell, by Computerware, or address of supplier.
Contact Andreas Domanski, Verberger Str. 88. D-4150 Krefeld, West Germany.

Contact wanted with anyone owning a SHARP Pocket Computer re connecting it to a Dragon.
Also wanted Dragon Claw or any information about it, and an OS9 Pascal compiler for the Dragon.
Contact Bernd Knechtel, Arnold Wilhelm Str. 9, D-5630 Renscheid 11, West Germany.

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 8BE.

MODEM PACKAGE SPECIAL!!! Complete package for D64 owners, comprising of a Prism Modem 1000, connecting lead and software to access Viewdata 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/PO 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. Cheque/orders to the Group, 6, Navarino Road, Worthing, Sussex.

Dragon Upgrade manual: 32/64 conversion method fully explained so that you can uprate 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.

DRAWZEE! A graphics drawing program, on tape, which we think is one of the best!. Written by R.A.Davis, it must be a bargain at 2.50 including postage. Orders to Paul Grade, 6, Navarino Road, Worthing, Sussex.

DRAGONDOS EPRONS: Your DOS 2764 reborn 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 'Telewriter' & Basic conversion filters....8.00.

COMO9: OS9 comm. 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.
PU-PAK: Selection of useful public domain OS9 utilities on one disc....5.00.

Jason Shouler, 70, Victoria Road, Parkstone, Poole. BH12-3AE.
(0202-722599).

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 do is write for details.
Dragonart Library, 5, 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.
Alan Butler, 16, Barnston Green, Barnston, Gt. Dunmow, Essex. CM6-1PH.

NEWCOPY: A m/c tape utility program for the production of backup copies of m/c programs. Capable of loading either headed or headerless programs or sections of programs, and saving these in their original or alternative formats. Also allows easy tape positioning using motor on/off routines. Written by Stuart Mills, and available to Group members at 2.50 plus 25p postage/packing. Orders and cheques to the Group.

Household Accounts program: Written by Graham Strong this program is ideal for almost all home accounts purposes. Capable of providing estimates of next years bills!!!, and many more features. Price (DragonDOS disc) 5.00 inclusive.
Orders to G.Strong, 78, Coleridge Crescent, Goring, Worthing, Sussex.

Fed up with that grotty black text on a green or white background whenever you use FLEX or OS9 etc.?. You need our INVERSE VIDEO board. This board produces green or white text on a black background when using Hi-Res graphics text. Easily adapted to operate on text screens if required. Suitable for D32 & D64, and simple to fit. Price 15.00 inclusive.
Cheques / orders to Alan Butler, 16, Barnston Green, Barnston, Gt. Dunmow, Essex.

PRINTOUT SERVICE.

1 BASIC program listing (up to 5 pages). 50 pence.
2 or more programs 40 pence each (up to 5 pages). All additional pages 5 pence each. (5 pages = app 250 lines).
Screen dumps 30 pence each, 2 or more dumps 20 pence each. (dump size appx. 6" x 4.5").
Text files, data files, DREAM source code files, please enquire.
All tapes or SuperDOS compatible discs (ONLY) must be accompanied by suitable stamped addressed envelope to hold tape/disc and printouts. All enquiries must include SAE. 24 hour return service where possible.
Contact Z.Green, Aberllywd, Insh, Kingussie, Inverness-shire.
PH21-INT.

The Late, Late bit.....

Now this is getting serious....there's simply too many ads coming in for the space available!. I think the only thing I can do is change the rules slightly. As of Issue 35, all advertisements for the sale of software/hardware on a commercial basis... rather than "one off" private sales...will have to be dropped unless the firms and/or individuals concerned are making a contribution to Group funds on a percentage basis. Some already do this, and their ads will not be affected, of course. Private sale and want ads will continue to be free to Group members as always. Anyone requiring full or half page commercial advertising should phone me for details. I'm sure some of you will disagree with this change, but something has to be done to either reduce the number of ads, or cover the cost of the extra paper and copying required for an additional "ads page". OK?.

I don't have room for much this month, so the bits and pieces of news etc will have to wait until the next issue.

Paul.

Paul G.

