

The Newsletter of the National Dragon Users Group

DRAGON



UPDATE

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CHAIRMAN: Paul Grade. 6, Navarino Road, Worthing, Sussex. Phone: 0903-207585.
EDITOR: Stephen Wood. 52, Downsway, Springfield, Chelmsford, Essex. (0245-467049)
S/W.EDITOR: Richard Boston. 257, Upper Elmers End Rd. Beckenham, Kent. BR3-3QR.

The Gaffer's Bit.....

Yes, I'm still here, you can't get rid of me as easily as all that!. I admit that my typing speed is down about 99% and that I've got Civil Service vision everything on the damned monitor appears to be in triplicate ... but my temper is as bad as ever, and I can still snap and snarl at people, so what more do I need?. Actually, I'd better start by being polite and saying thank you to all those of you who sent me cards etc ... much appreciated, and by the time you read this in about a fortnight from now with any luck I should be more or less back to my usual miserable self, so don't say you haven't been warned!.

Well, this is Stephen's first Update, and he hasn't made a bad job of it at all, but I think I ought to warn you that at the moment we have a grand total of three articles for issue 44, so unless you want a VERY slimline issue next month you'd better get writing, because if you don't no one else will, and I can only print what we've got. OK?.

Anyway, writing is something I'm trying to keep to a minimum at the moment, so I think I'll leave it at that for the moment and let you get on with the more interesting stuff.

Paul G.

The Editor's Bit...

Well, well, the great Barry rides off into the sunset (or should that be 'exam hall'?) and passes this esteemed job onto me. I should perhaps point out that I am a complete Dragon fanatic, having owned a 32 for over 5 years, and so anyone trying to sell me the latest ST or Amstrad Mk.5,000,000 is likely to annoy me no end (yes, I do mean you, Dixons!) as the Dragon is superior in every way (well, nearly!)

I'd like to thank all those who contributed articles, notably RAD -from our "stock" of articles he could've written this issue himself! However, PLEASE try to see your way to sending us a piece - we really need it.

The "Thank-you of the Month" award this time goes to Carol Frith of DU Administration for sorting out my subscription and promptly sending me the February issue - Thanks, Carol.

(Yes, I know this is mostly garbage but Paul asked me to write lots so as to give him a bit of a break!)

If anyone's wondering, I will still try and answer your games queries (if you have any!) as before.

And finally (who said 'phew!'??) thanks to everyone at the show (yes, it WAS all that long ago!) especially Harry Massey of Computape who thought that the "NDUG" sign on my badge was some crazy new word flying about the community, pronounced NeDUG (or something like that!)

Anyway, hope you enjoy this issue, and get those articles flooding in, or issue 44 won't be very interesting!....Stephen.

Remember, Remember, the 5th of December?

I have sat down to write this report of the show in response to the plea in Update 41, and can still remember my feelings of exhilaration when I returned home afterwards... I arrived at the Connaught Rooms at about 9.30am and formed the front of what I hoped would be a queue. Fleeting glimpses of the interior of the hall were given as exhibitors passed to and fro with interesting packages. All I could really see, however, was the Harris stand. Whilst waiting, however, I did have time to become suitably overawed at the venue. "If this is the Dragon's Grave", I mused, "what a way to go!". I was accompanied by my younger brother, a traitor who has deserted the 'true way' for a more inferior existence with a strange beast called an 'Einstein'. He is in the habit of standing in the throng of true believers making outrageous statements about the imminent demise of our beast. I'm sure we all know the general drift. This unsavoury presence did not, however, interrupt my determination to greet what the day brought with as much enthusiasm as I could muster, no matter how good or bad it was. The time moved ever onward and lo!, did ten people qualify as a queue, I convinced myself that it did. Still fifteen minutes to go the 'traitor', presented with an audience, was winding up to his oft repeated tirade. I dwelt peacefully within myself. Ten minutes to go and to my great gratification the queue has reached the top of the Grand Staircase, some TEN YARDS away. Things are looking up, I told myself as the droning of a Lord Haw Haw-like figure continued in the background. Five minutes and counting, where's the end of the queue? My God!! I can't see it! There are too many people wending down the stairs for me to count. My heart lifted and I turned to pay my due with a warm glow. Into the fray...

The hall itself was absolutely amazing, complete with stucco ceilings, glorious 'posh' decor and more stands on the balcony. If you have found this boring upto now it gets worse! I could not possibly tell you who was there (well let's see, NDUG, Dragon User, Harris Micros, John Penn, Computape, peaksoft, HC Anderson, Pamcomms, Dragon magazine....). I have been to a lot of shows in London, Maidstone, and Ossett and recognised many familiar faces, but to know their names? Sorry. Anyway, off I went looking through the goods on display to see what was available, to mentally recollect any movement in price since the last show and then to execute the most delicate of calculations, how much could I 'blow' without incurring the wrath of 'her indoors'. By the time I had completed my circuit of the hall and balcony some 45 minutes must have passed and I was able once more to direct my attention to my surroundings. In my view the hall was undeniably CROWDED. No and's, if's, or but's, there were lots and lots of people there. It was getting more and more difficult to get to the stands. Two or three people deep in places. I thought back to the last show at the Horticultural halls (28/3/87). Where were these disciples then? I feel sure that the show was a definite milestone in the history of our machine just as sure as this one was rapidly becoming. I went to the centre of the hall where chairs and tables were provided for weary fans. I looked around me and was filled with joy. I don't care what anyone says - this show was great. In the face of all the doom and gloom all this mass of people is still sufficiently interested to turn up and see. I realise this 'report' contains very little detail but it contains a whole lot of feeling. Roll on Cardiff - I'll be there... ((...Quickbeam, Grosvenor, DUDE, R&A Preston, he says with 'show guide' in hand.)) Yes, they were all there, but - no Microdeal. Our software 'founders' have finally given us the boot. 'Tis true, Microdeal & the Dragon are no more. Personally, I feel rather sad, nay annoyed, that Microdeal are leaving us - think of all those Tandy games in the US just waiting to be licensed... By PHIL CHATFIELD.

####

I've just received a report of the Cardiff show, which will be printed in issue 44, but we will need one from Ossett too, so any of you amateur reporters thinking of attending PLEASE take your note book with you!. (Take your cheque book as well, of course, as we will have a stand there!).

Phil

4

MAKING THE MOST OF RAINBOW WRITER. R.A.D

You do need a disc drive to make the most of Rainbow Writer, whether you are using it with Basic or Machine code programs. The rumour that it will not work from Disc is not true as far as the version which I got from Microdeal as one of their bargain lots! It was the cassette version, and was easily transferred to disc by CLOADM, selecting the DNL - 32 chrs per line for a Dragon 32, (although I use it with a 64), and then SAVE "RW32.BIN", &H6C8C, &H7FFF, &H6C8C.

To load again from disc it is essential to CLEAR 200, &H6C8B - one byte below. This is because RW looks to find the space reserved for variables and end of Basic when it EXECs. If you load it without CLEARing it will apparently run, but hang up. In 32 chrs per line, 16 lines, it is compatible with any Basic program that does not PCLEAR below 4.

It is best in PMODE3 or 4, but can be used with any of the others, 0 to 2, for larger letters, when the 32x16 is lost. See page 16 of the handbook. Change the CLSs in your Basic to PCLS. You need only have RW on your disc once, for all your Basic, if you include in the Basic listing the

```
CLEAR200,&H6C8B:IF PEEK(&H6C8C)=48 THEN
```

(skip over the next line which is:-

```
LOAD"RW.BIN":POKE&HFF48,0:EXEC) to the start of your Basic program.
```

This is because loading the RW when it is already in situ can cause problems.

I found that the IMPORTANT NOTICE on page 15 of the handbook was untrue. My version does detect the filename of the programs, both on disc and tape. Perhaps earlier versions do not.

When you have saved RW to disc, CLEAR, LOAD and EXEC it. When you see the cursor, then type EXEC &H7423 and press ENTER. If your version is compatible with Disc, you will get a screen showing all the disc commands, and the DOS version you are using. If you are not using V1.0 you may get problems. With SUPERDOS you will find that when you DIR the final page scrolls off screen. This does not happen with V1.0 and is not the fault of RW! There may be other snags with SUPERDOS, but I use V1.0! Now type EXEC &H7418 and press ENTER. The screen should clear. These locations only fit RW loaded at &H6C8C, of course. It is RIC and if you load it elsewhere you would have to recalculate the locations a/m. With RW at this address, locations &H6D86 and &H6DEF contain data for the copyright, but this is ignored by the saved RW. Locations &H7181 and &H7294 contain the data for printing out the HELP screen. Locations &H7AAC to &H7ABE contain a remarkable "dedication". If you want to see this then PEEK the addresses and print the CHR\$ of the PEEK! This has been put in to stop the pirates, but doesn't normally print out.

From &H7ABF to &H7FFF is the store for the drawn characters. The companion programs CGEN42 and CGEN64 can also be saved on disc. They are Basic. You will see from line 2071 and 2081 that you are asked whether you are using tape or disc. I found the bit of information about using it with machine code (page 13) to be useless as the normal CHROUT does not seem to work. However, if you point the 'Y' register at the address of your data text and JSR &H7423, which is RW's CHROUT routine, you can print out. The text Data must end with ,255 -for RTS. It is advisable to PSHS at least A and Y registers after JSR &H6C8C, and better to PSHS all the registers, pulling them back afterwards. If you finally JSR 34091 (wait for KEYPRESS), the Dragon will hang up unless the BREAK key is pressed.

That's as far as I've got -at present! If you've got any further, please let us all know!

<<If you've tried converting RW under Duplidisk 2, you will know it seems to load and run, but you can only use it in 16K mode, and even then you have to press RESET to gain control and any incoming program will be garbled. The solution? - SAVE it using R.A.Davis' method-it's quicker anyway!...SW>>>

SEMIGRAPHICS 24...STUART PARNEL

Firstly, I'd better say that I am not exactly an expert on the internal workings of the Dragon, so I can't give a description on how the SAM chip is able to create this extra mode - all I know is that it does!!

The program I have written incorporates three machine code routines which operate in SemiGraphics mode. The first routine (located at 32000) puts the Dragon in SemiGraphics mode. This has the effect of squashing the first four graphic pages (1536 - 7679) and the text screen together. It is executed by :-

X=USR01(Z)

where X and Z are dummy variables.

The second routine (located at 32008) is equivalent to CLSn and is operated by :-

X=USR02(A)

where X is a dummy variable and A is the character used to clear the screen eg A=128 would clear the screen to black and A=191 would clear red etc.

The third routine (located at 30022) is used to print a character on the screen. This is operated by :-

X=USR03(ZZZZ)

where X is as usual the dummy variable, and ZZZZ is the screen address where you want the character to be printed. It is important to get the address correct otherwise you could end up printing right in your BASIC program.

An interesting feature of this mode is that you can get some unusual effects by using the high resolution graphics commands such as CIRCLE, PAINT etc, but if you use the SCREEN command the effect is lost. It is also possible by careful POKE-ing to the screen to print parts of characters.

Although you could write a game in this mode (eg STORM, GHOST ATTACK etc are written in this mode), BASIC tends to be a bit too slow for an arcade standard game.

##...For anyone who's interested, SG24 is obtained by overriding BASIC to gain control of the 6847 VDG chip, by poking values into the SAM bits at the top end of memory. SG24 is, in fact, just one of 5 'lo-res' modes available on the Dragon. However, don't jump for joy yet - only one, the 'text' screen (SET etc) is supported by BASIC. The others, SG12, SG8, SG6 and of course SG24 can only be accessed by poking... Stephen##

DON'T FORGET!!!!

For those of you using Dragon 64's...

You probably spotted it anyway, but to use the program in 32K mode you need to delete the extra 'O's in the USR commands in lines 200, 210 and 290.

```

1 'SEMIGRAPHICS
100 CLEAR 200,31999
110 CLS
120 FOR A=32000 TO 32041
130 READ X#
140 POKE A,VAL("&H"+X#)
150 NEXT A
160 DEF USR1=32000:'SET MODE
170 DEF USR2=32008:'CLEAR SCREEN
180 DEF USR3=32022:'PRINT CHR#
190 REM DEMONSTRATION
200 X=USR01(Z)
210 X=USR02(128)
220 FOR A=0 TO 31 STEP 2
230 FOR B=1024 TO 7679
240 POKE A+B,RND(128)+127
250 NEXT B,A
260 X#="SEMIGRAPHICS"
270 FOR A=1 TO LEN(X#)
280 POKE &H7FFF,ASC(MID$(X#,A,1))
290 X=USR03(4136+A)
300 NEXT A
310 GOTO 310
500 DATA 4F,B7,FF,C3,B7,FF,C5
510 DATA 39,BD,8B,2D,8E,04,00
520 DATA E7,80,8C,1E,00,26,F9
530 DATA 39,BD,8B,2D,1F,01,5F
540 DATA B6,7F,FF,A7,84,30,88
550 DATA 20,5C,C1,0B,26,F6,39

```

PASCAL FOR BEGINNERS (8)...Gary Coxhead

Okay, now we come to a biggy! ARRAYS!! Most useful programs use array processing in some form or another and a programming language without them would be useless. Pascal is very powerful in this respect as you will see shortly and in later articles. So, what is an array? An array is a set of locations which contains an ordered set of components, and all of the same type. By use of a suitable index individual components can be accessed and processed. Now, in BASIC an array of 100 components can be dimensioned by using the expression DIM A(100)-(and for the clever ones, yes I know that's 101!). Each element of the array can be filled using a FOR loop thus:

```
FOR I=1 TO 100:A(I)=0:NEXT I
```

Now, BASIC defaults to 10 elements for an array so if you are going to use less than this amount DIMensioning is not necessary. In Pascal, arrays are usually declared at the top using the following syntax:-

```
ARRAY[<start-index>...<end-index>] OF <type>.
```

e.g.

```
VAR results      :ARRAY [1..100] OF integer; (100 integer locations)
    frequency    :ARRAY ['A'..'Z'] OF integer; (26 integer locations)
    year-rain     :ARRAY [1900..1984] OF real; (85 real locations)
    marks         :ARRAY [1..class-size] OF integer; (class-size would be
```

declared as a constant - see below)

The index type, i.e. the part that specifies which element of the array we mean, can be any ordinal type (remember them?), that is to say any simple type other than real. Components of the array are designated by the index value enclosed in square brackets after the name of the variable. e.g. results[2], results[36], year-rain[1945], frequency['c']. As shown above arrays are naturally manipulated using the FOR statement:-

```
PROGRAM array1 (input,output);
CONST
    class-size = 10;
VAR
    count : integer;
    marks : ARRAY[1..class-size] OF integer;
BEGIN
    FOR count := 1 to class-size DO
        readln(marks[count]);
        (here would go statements to manipulate array)
    END. (The two dots '..' can be read as the word 'TO')
```

Array processing can be a useful tool to find, say, the largest number in an array. A program fragment to do this would be something like:-

```
Maximum := 0; total := 0;
FOR index := 1 TO 10 DO BEGIN
    total := total + marks[index];
    IF marks[index] > maximum THEN
        maximum := marks[index]; END;
```

Next time we will be moving onto 2 dimensional arrays, but before we do it is as well to explain the ORDINAL value and explain the ORD function. Each character in Pascal has associated with it a unique integer known as its ordinal value. This value can be found by applying the ORD function to the character. This is similar to the ASC(X\$) function in BASIC which returns the ASCII value of the first character held in X\$. The opposite function of ORD is CHR and produces a character from an integer, e.g. writeln(chr(65)) would write 'A' on the screen. I will leave you with two short programs which demonstrate these functions.

```
PROGRAM ordinal (input,output);
VAR ch : char;
BEGIN
    REPEAT
        write('character :');
        read(ch);
        IF ORD(ch) < 32 THEN
            writeln(' Unprintable')
```

ELSE

IF ((ch='a') AND ((ch<='z')) OR ((ch='A') AND ((ch<='Z')) THEN
writeLn(' alphabetic ordinal value :',ORD(ch):4)

ELSE

writeLn(' non-alphabetic... ordinal value :', ORD(ch):4);
UNTIL ((ch='q') OR (ch='Q'));
writeLn('..... good guess press "q" to quit ');

ENDD

PROGRAM count (input,output);

VAR ch : char;

frequency : ARRAY['A'..'Z'] OF integer;

BEGIN

FOR ch := 'A' TO 'Z' DO

frequency[ch] := 0; write('type in some capital letters .. press "." to stop');

writeLn;

REPEAT

read(ch);

IF (ch>'A') AND (ch<='Z') THEN

frequency[ch] := frequency[ch] + 1;

UNTIL ch='.';

writeLn;

FOR ch := 'A' TO 'Z' DO

IF frequency[ch] > 0 THEN

writeLn(ch, ' : ', frequency[ch]);

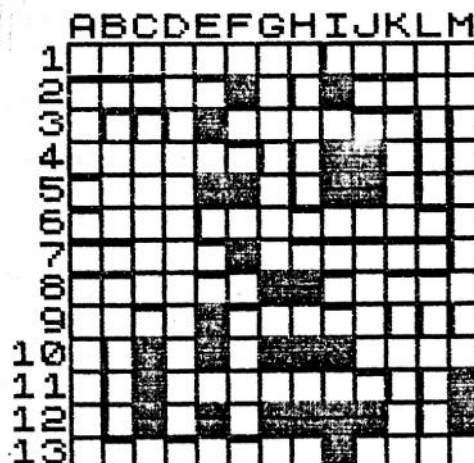
END;

Now for those of you who would like a small challenge, how about putting those two programs into procedures and writing a small menu-driven program which will allow the user to select which one they want. That's all for this time.

Crossword NO. 30.

Across:- 1A & 6I) Popular Board Game. 1I) Centre of an amphitheatre.
2A) Ground corn. 2I) One section of a bridge. 3F) Add a letter to a
skinfint to obtain acute unhappiness. 4A) Glass container. 5A) Take
a letter from a rogue to obtain a man-eating giant. 6A) Lions do
this. 6E) Heavy Scottish sword. 7A & 7G) Found on a Christmas tree.
8A) Small songbird. 8I) Small fast boat. 9A) At the end of a poem by
unknown writer. 9F) Collective name for a locomotive and rolling
stock. 10J) Deceased. 11B) Substance found in egg white. 13A) This
makes you appear at court. 13J) William and Benjamin's little friend.

Down:- A1) Found on a key ring. A8) Place where famous film festival
takes place. B3) Two or more separate letters or figures cast as one
type, used as a trademark etc. B8) Ruminant possibly found in
Aberdeen. C3) Injury by over-exertion. D1) Underground. F9) Part of
a T.V. G1) see 1A. H1) Take a compass point from snails to obtain a
rope making material. J7) Equine measurement. K3) Time occupied by
one revolution of the Earth around the sun. K8) Bring into existence
out of nothing. L1) Baby garment. L8) Funeral vehicle. M1) Old and
out of date.



Message to Tom Goodfellow.

Tom, you run one of the best Bulletin Boards around, but I've been getting a few complaints recently which I HAVE to agree with!. The Dragon / Tandy section seems to be getting over-run by former Dragon owners who have down-graded to ST's, using it for a load of infantile garbage messages. This makes it expensive for GENUINE users who have to wade through all the garbage, so could you tell them to go scribble on their own ST wall in future, please?. Paul.

HENCEFORTH (6)

This time I am concentrating on words that place a DOUBLE PRECISION number at the top of the stack by either moving or copying the number from its original position in the DRAGON memory. Numbers can be put into various places in memory by FORTH.

They can be:-

- i) on the normal parameter stack (usually just called 'the stack')
- ii) on the return stack.
- iii) embedded in FORTH as variables or constants.
- iv) scattered around in memory available to us, depending on our whim.

The words this time are:- 2OVER 2PICK 2R> 2ROLL 2ROT D@

All the words act on double length numbers in the same way as their single number counterparts. D@ copies a number pair from anywhere in the DRAGON memory; 'anywhere' is the address supplied to D@ by us. 2R> moves a number pair from the return stack to the parameter stack - an operation that can lead to dire consequences! The remaining words move or copy a number from lower down the stack to the top of the stack.

```
2OVER  d1 d2 --- d1 d2 d1
        makes a copy of the second double number
2PICK  n1 -- d(n1)
        makes a copy of the nth double number
2R>    --- d1
```

moves a number pair from the return stack to the parameter stack.

Note that the double number is stored 'backwards' on the return stack. This is done because numbers cannot be manipulated on the return stack and it is superfluous to reverse the natural order in which the number pairs are moved to or from the return stack.

```
2ROLL  n1 ---
        fetches the nth double number to top of stack
2ROT   d1 d2 d3 --- d2 d3 d1
        fetches the third double number to top of stack
D@     addr --- d1
        makes a copy of the double number at address 'addr'
```

BE WARNED!! Using the return stack as a private store for numbers is fraught with danger. The return stack is used by FORTH to store system variables, mainly word addresses and loop values. Every time we use the top of the return stack we must ensure that any system numbers above our numbers are removed and

replaced in the same order as our number. Some FORTH implementations store the return stack pointer in a variable, but unfortunately not DRAGON FORTH. This means that we have to keep tracks of where our number is relative to the top of the return stack, and tough luck if we don't! The main thing to remember is that any word definitions we run will put the return pointer on the return stack, and will expect to find it there when finished. Any DO loops will also put the loop counter on the return stack.

Our set of words for manipulating DOUBLE PRECISION numbers is nearly complete. Next time, I shall be looking at words that store double length numbers from both the keyboard and the stack.

SCR #157

```
0 ( double precision words )
1 ( d1 d2 --- d1 d2 d1 )
2 : 2OVER 4 PICK 4 PICK ;
3 ( n1 --- d1 )
4 : 2PICK 2 * DUP PICK SWAP PICK ;
5 -->
6
```

SCR #158

```
0 ( double precision words )
1 ( n1 --- )
2 : 2ROLL 2 * >R R ROLL R> ROLL ;
3 ( d1 d2 d3 --- d2 d3 d1 )
4 : 2ROT 6 ROLL 6 ROLL ; -->
5
6
```


7

7

SCR #159

```

0 ( double precision words )
1 ( addr --- d1 )
2 : DE DUP @ SWAP 2 + @ ; -->
3
4
5
6
7

```

SCR #160

```

0 ( double precision words )
1 ( --- d1 )
2 : 2R> R> R> R> ROT >R ; -->
3
4
5
6
7

```

PICTURE MAKER...Ken Grade

What?? ANOTHER graphics utility? I thought there was already quite a good selection, and here is another competing for the market. That does not mean that there isn't room for more - a utility is usually written to do specific tasks, and it is not intended to do everything. Picture Maker deals with PMODE3 graphics only, has screen storage and switching routines, a selection of "brushes" for drawing, and a routine for enlarging part of the screen, rather like DragDraw.

There are three screens to consider - the one on view, one used by the program, and the third for storing screens drawn on the view screen. As sections of any given screen can be stored, exchanged, and eventually saved as a whole picture, it means that part of an old drawing can be used in a new design. The commands for doing this emulate the Dragon's own BASIC commands. There are some additional clever tricks which mirror the screen, invert it and swap foreground and background colours.

Whilst the screen can be scrolled up or down, it refused to scroll left or right. The instruction sheet (there isn't a 50-page manual as with Rainbow

Writer!) gives "[" and "]". Perhaps there is a printing mistake. There appeared to be no visible difference between the various heights and widths of the brushes. Perhaps this is only evident on a printer dump, but it seems logical to show the difference on the screen. I couldn't switch back to magnify to normal mode. Presumably it is possible; in this instance the program refused to obey the appropriate key. As it is a tape only program, this may deter a lot of potential customers. Like Music Maker, it could be made to work from disc, but why not make it disc and tape compatible to begin with? The best part, I think, is the graphics printer dump included as a separate program. This is one of the most efficient and adaptable I have seen. It is adaptable to most types of printer which have a special graphics mode and adjustable line spacing. The codes for these modes are poked into the appropriate place by the program.

Despite the few criticisms, this is a program worth having. Price 5.00, written by David Makin and available from John Penn Software.

It has to be said...

Now, some of you may think that I've been popping up quite a bit in this issue, but his is due to just one tiny thing. Can you guess what it is? Yup, that's right - LACK OF MATERIAL!! There's space to fill, but nothing to fill it, so you're left with me and this rubbish. However, don't say you weren't warned - Paul has done it countless times, so you've had plenty of opportunity to rectify the situation. It seems, however, that a lot of you are happy to keep it this way, with the same people doing all the work. Well, let me put it this way:

Firstly, those "regulars", I imagine, are FAR from happy with the situation, and secondly, will you be happy when you get 14 completely blank pages? Because that's what issue 45 looks like at the moment, and if that's what it takes, then that's what will happen, and when you complain to Paul about it, I'm sure he'll tell you that it's all your own fault. I'd rather be stuck with what to put in Update because I've got too many articles than not enough! When you're sitting there just reading it, you don't know what it's like, as Barry told you when he started. Just ONE article a year and we'd be laughing. So, come on, give your bit to NDUG and we'll be a lot healthier, and Paul and myself will be a lot happier... OOPS! a terrible moan in my very first issue! Unfortunate, but necessary. Sorry that the GAUNTLET review isn't in this issue, but I haven't got it yet. Next month, possibly, Richard? I know I can't wait to bash away to it on my 64.... Stephen.

EASY MACHINE CODE(18)...RAD

Now the setting up is complete the scanning can start.

260 @LOOK LDX @SCREEN Although the X register holds this address at the moment, the routine will be used again and again when the address has been changed within the program. The X register points to the byte being scanned.

270 LDA,X taking the Data at the address in the X register.

280 BITA @BIT the store @BIT holds \$80 or 10000000 binary. The BITA opcode compares the data in the A register with that in @BIT. If the first bit of the screen byte is set, this is noted in the Z bit of the CC register, and can be detected.

290 BNE @DWN1 If the bit on screen is not set then the two dots in the printhead need not be set either, so a branch is made to @DWN1 which looks at the pixel below.

300 LDA @CUM The @CUM store is used to accumulate the number which will eventually be sent to the print routine to print the dots.

310 ADDA #3 the number needed by the DMP-105 to set the first two dots of the seven vertical dots.

320 STA @CUM to await further modification if more dots have to be set.

330 @DWN1 LEAX 32,X Using the LEA opcode to increment the X register by 32, moving the address to the screen byte immediately below the one which has just been examined. (In passing, note that this is an increment, and a decrement could be made with -32,X).

340 LDA,X getting this new data into the A register, and testing it for a set pixel.

350 BITA @BIT to see if the pixel is set.

360 BNE @DWN2 if it is not set and there is no need to alter the number at @CUM.

370 LDA @CUM because the pixel is set, and the dots on the printer need to be set.

380 ADDA #12 the number needed by the DMP-105 to set dots 3 and 4 on the printhead.

390 STA @CUM as further alteration may be needed before printing.

400 @DWN2 LEAX 32,X which moves the address in the X register to the next byte down n the screen. And further repeats of the same routines follow for the first four bytes.

Duplidisk 2...SW

NO, not another review!, just a bit of information to make transferring your collection a bit easier and quicker.

The following games WILL NOT convert at all under any option: Beastalker, Backtrack, Jet Set Willy, Manic Miner, Fire Force, Shaolin Master, LazerZone, Tubeway Army, Fingers and Karno Carzy. There may be others, but I haven't got them! Quickbeam and Blaby/Preston software seems particularly resistant to conversion.

Microdeal games will generally all convert. Buzzard Bait WILL save - BUT...it won't run! Any solutions? Usually, the late-ish Microdeal games with the Cuthbert logo which scrolls DOWN the screen on loading (Airball etc) will save under Option 3. The "long-loaders" eg King Tut etc will work by using option 4.

The others (ie non-Microdeal) usually convert under 3 or 4, and of course BASIC or non-autosave programs will convert automatically. Has anyone got Duplidisk 2 itself to save?

Do I have to remove
ALL my clothes for
a DRAHEZEE portrait
??



RAD

Advertising.....

To save me having to repeat the details half a dozen times every week, advertising in Update is on the following basis:-

Private ads from members are FREE, but accepted on the understanding that they will be printed as and when space permits. Trade Classified ads are also free, but a contribution to Group funds from any sales resulting from such ads IS normal procedure, usually 5% net. Full page commercial ads are 15.00 per issue, half page 8.00, all commercial copy to be sent "camera ready". Print deadline for ALL advertising copy is the first of the month. Paul.

Classified Ads page.

NDUG FORTH OPERATING SYSTEM: Written by John Payne and available ONLY through the Group. New version for DragonDOS V1.0 and SuperDOS includes an assembler as well as the original Turtle Graphics facility, 80 col. w.p., etc. New version 12.00 on V1.0 / ES & E4 disc ONLY, 12.50 inclusive. Original version (no assembler) for SD or DD Delta, 8.50 inclusive. Cheques and orders to the Group at 6, Navarino Road, Worthing, Sussex.

CIRCUIT DIAGRAMS: Available for B64, B32, Dragon DOS controller, and Canana DOS controller. All the same price 1.00 each inclusive. Cheques and orders to the Group at 6, Navarino Road, Worthing, Sussex.

DRAGON 32 UPGRADE MANUALS: The cheapest and easiest way to upgrade your B32 to 64K RAM. Easy to follow instructions covering all variants of 32. 2.00 inclusive. Cheques and orders to the Group at 6, Navarino Road, Worthing, Sussex.

BRAMEZEE: One of the best graphics utilities available. Written by R.A.Davis, simple to use, outstanding results. Available on cassette for only 2.50 inclusive. Cheques and orders to the Group at 6, Navarino Road, Worthing, Sussex.

NEWCOPY: Machine code tape utility for the production of backup copies of any w/c programs. Allows loading and resaving of both headed and headerless programs, plus many other facilities. Written by Stuart Mills. 2.50 inclusive. Cheques and orders to the Group at 6, Navarino Road, Worthing, Sussex.

DRAGONART LIBRARY: The Group Graphics library has a vast range of screens available at a nominal cost, so why not take advantage of them? It also wants YOUR graphics screens, and there's a prize offered every month for the best original picture submitted!. Details from the Librarian, Dragonart Library, 5, Glen Road, Parkstone, Poole, Dorset.

DOS EPROMS: Your Z764 EPROM rebloom to patched or standard V1.0 specification, or to translated and debugged V4.1. Price for ANY version is just 3.50 inclusive. Peter Williams, Computil, 24, Jays Road, Motton-under-Edge, Glos. GL12-7JS.

P.B. UTILITY LIBRARY: A good range of original programs and routines available and wanted!. For details contact:- Lee Cooke on Worthing 41633 (evenings).

THE OS9 BOOK!: "Everything you wanted to know about OS9 but didn't know who to ask". 150 pages of hints, tips, and articles for the Level 1 OS9 CoCo and Dragon user. Includes a disc of source files. 18.95.

CONQ9: Easy to use, full feature OS9 comms program, together with source, Xmodem (CRC & SUM), function keys, disc monitor. Send messages direct from disc!. Suitable for ANY OS9 system. 5.00. **PD-PPAK:** Selection of useful PD OS9 utilities on one disc. Includes DDCOPY. Cheques and orders to Jason Shouler, 70, Victoria Road, Parkstone, Poole, Dorset. BH12-3AE.

PRINTOUT SERVICE: 1 Basic program listing (up to 5 pages) 50 pence. 2 or more programs 40 pence each. All additional pages 5 pence each. Screen dumps 30 pence each, 2 or more dumps 20 pence each. (Size app 4" x 4.5").

Text, data, and Bream source code files please enquire for details. ALL tapes or discs (Superdos compatible ONLY) must be accompanied by a suitable stamped addresses envelope for tape/disc and printout. Zennan Green, Aberllynw, Insh, Kingussie, Inverness-shire. PH21-INT.

OS9 MODERN PROGRAM: Up and downloading of files, any baud rate from 50/50 to 9600/9600 (NOT split rate). Up & download buffer from 4 to 32K or program will adapt to largest capacity available. All 6551 options supported. 8.00. Phone Barry Knapp on 0932-242800 (evenings only).

WANTED FOR YOUR REPAIRS!!!!: Scrap dead and/or dying Dragons and CoCo's wanted for spares to help keep the price of members repair jobs down to absolute minimum. All varieties of dead and dying printers also required for the same purpose. Computer details to Alan Butler on 0371-4234 (evenings only please), and printer details to Paul Grade on 0903-207585.

BACK ISSUE UPDATES: Back issues of Update reprinted to order from original master copies. 1.00 per issue for up to 12 issues then 80 pence for each additional issue. Prices include postage etc. Orders to E.Hall, 32, Thackeray Hall, Fareham, Hants. PO16-0PB. Cheques made payable to BACK ISSUES DEPT. (NDUG).

DELTA DOS UTILITY: w/c utility to copy ALL Basic and w/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. Bushell, 33, Tennyson Avenue, Clevedon, Avon. BS21-7UJ.

GAMES TO DISC TRANSFER: Unprotected code of any game sent in return for a blank tape and a 22 pence stamp, but you MUST include the original cassette inlay to prove that you have purchased the original!. M.R.Vine, 120, Auriel Drive, Bagenham, Essex. RM10-8BU.

ORIGINAL PROGRAM: Gives facts on the countries of the world. Areas, Capitals, Populations, Currencies and Languages. Includes analysis facility and map showing position of the country required. Available on DragonDOS, Deltados, or tape at 4.00 inclusive. Also available is a very comprehensive Home Accounts program with many useful features. Available ONLY on DragonDOS or Deltados disc at 4.00. Cheques and orders to Graham Strong, 78, Coleridge Crescent, Goring-by-Sea, Worthing, Sussex.

NEW PROGRAMS FROM THE GROUP: Two new programs which are an absolute essential for those who own both Dragon and CoCo computers, and for most Dragon owners as well!. C2DMML will convert any w/c CoCo formatted disc to Dragon DOS format (V1.0) and C2DBAS will do the same for any CoCo formatted disc containing Basic programs, so now you CAN buy CoCo discs and run them on your Dragon!. The programs were written for the Group by Randy Longshore and are available on disc at 3.00 each or both on one disc for 5.00 inclusive. Cheques and orders to the Group at 6, Navarino Road, Worthing, Sussex.

THEY DON'T WRITE 'EM LIKE THAT ANY MORE!: Two music selections on disc from R.A.Davis, Victorian Songbook and Comic Songbook. Words displayed on the screen while your Dragon plays the tunes. Two discs full of words and music for just 1.00 and a blank disc each!. It HAS to be a bargain!. Please send a Dragon DOS formatted disc and a one pound coin for each selection required, plus a suitable stamped addressed envelope for their return. All proceeds are being generously donated to Group funds, so how can you possibly lose? Discs, cash, and orders to R.A.Davis esq, 39, Boxley Drive, West Bridgford, Notts. NG2-7GB.

DRAGON MUSIC SELECTIONS: These selections of music on either disc or tape are arranged and produced by Dave Cadman. There are several selections to choose from, Marches, Classics, Rags, Standards, Miscellaneous, and next month Classics 2 will be ready for release. All selections are the same price and contain several full length tunes. Prices are 3.50 on tape and 4.00 on DragonDOS disc, inclusive. Cheques and orders to Dave Cadman, 32, Brendon Hill, Berby. BE3-6TG.

Dragon 32, in full working order and complete with tape recorder and two joysticks plus lots of software and many books. 50.00. Phone Robert on Bristol 027581-2376.

CONTACTS WANTED!!!!: College teacher with Tano Dragon 64 wants contacts with other Dragon owners. Interests experimental, programming, B64 comms with other computers, IRS80 conversions, etc. Please write to Roy Williams, 6710 Virgilian Street, New Orleans, LA 70126, U.S.A.

DRAGON PACKAGE: Dragon 64, Dragon DOS cartridge, two drives (1 SS and 1 BS) plus 40 discs full of software including FLEX and OS9 etc. 225.00 the lot, or would consider sensible offers for individual items. Phone Tom Wilkinson on 0482-701999.

TANDY CARTRIDGES FOR SALE: Collection of Tandy cartridges for sale, prices from 6.00 to 15.00. Color Scripsit word processor, Speculator spreadsheet, Colorfile database, Personal Finance budgeting, and Color Logo graphics language. Also a disc version of Speculator, all with full original documentation. Contact Ray Stevenson on Warrington 64956.

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Please send cheques & Postal Orders made payable to "Back Issue Dept. (NDUG)." . . . NO cash please!.

"Sublim" competition winner.

Alan Cook won our competition for a program which would flash a message on screen at "sublim" frequency, so here's his entry. As given here it will NOT operate with a DOS attached, but the necessary alteration is a simple one.

```
0 CLEAR200,32699
1 GOSUB 25
2 PRINT"MESSAGE (MAX 32 CHARS):-"
3 LINEINPUT A$
4 IF LEN(A$)>32 THEN 2
5 CLS
6 GOSUB 12 ' CLEAR MEMORY FROM 90600 TO 907FF
7 GOSUB 16 ' POKE MESSAGE TO MEMORY
8 EXEC 41194
9 EXEC 417FBC
10 EXEC 41194
11 STOP
12 FOR I=90600 TO 907FF
13 POKE I,96
14 NEXT I
15 RETURN
16 J=(32-LEN(A$))/2
17 J=J+4H6FF
18 FOR I=1 TO LEN(A$)
19 IS=90600+J,I,1
20 IF IS="A" AND IS<="Z" THEN 22
21 IF IS=" " AND IS<="?" THEN IS=CHR$(ASC(16)+64):GOTO 22
22 POKE I+1,ASC(16)
23 NEXT I
24 RETURN
25 DATA 86,01,B7,FF,C7,8E,00,C0,30,1F,26,FC,B7,FF,C6,39
26 FOR I=32700 TO 32715:READ JB:POKE I,VAL("&H"+JB):NEXT I
27 RETURN
```

A FEW MORE ADS!

EXTRA SPECIAL OFFER on 13th TASK!!!. Now reduced from 3.00 to 1.99. This special offer MUST end on 16th April, so don't miss out this time!. "A great adventure ... go and buy it" (Update). Send your 1.95 to:-
ARC Software, 272, Nears Road, Newton Nears, Glasgow G77-5LY.

WANTED: Manuals for OS9 Stylograph, "C" and Dynacalc. Please send details and price to:-
Randy Longshore, 15547, Chequer Drive, Chesterfield, No. 83017. U.S.A.

High Res. M/C Revisited...R.A.D.

If you have ever read any of the books describing how to get into the high res. screens in machine code, then you will possibly agree that they get so involved that you soon lose your way, and possibly your interest as well. So, I am going to tell you how to do it, not how it is done, and without including the text screen as part of the graphics display.

(A) Without DOS as the DOS system loses graphics page one - 1536 to 3071 addresses. For normal PMODE3,1 pages, SCREEN1,0, you LDA #229. You then store A (STA) at these addresses: 65475,65777,65479 and 65481. You then LDA #225 and STA 65314. To get SCREEN1,1, you LDA #233 instead of 225 and STA 65314. For PMODE4 you substitute the number 240 for the number 229 above.

(B) With DOS you need some other numbers to move up one page. PMODE3,1 pages, SCREEN1,0, you LDA #229. You then STA at 65475,65477,65481 and 65483. You then do the same as above LDA#225 and STA 65314 for SCREEN1,0 or LDA#233 and STA 65314 for SCREEN1,1. For PMODE4 you substitute 240 for 229 again,241 for 225, and 249 for 233

You can, of course, experiment by POKEing these in with a BASIC routine. and you should find that these graphics will support all the routines, with the normal X,Y coordinates, and LINE, CIRCLE, DRAW etc commands.

For pages 5 to 8 on a cassette system, use as above 65314, 65475, 65477, 65479, 65483, and 65485. With DOS these will give pages 4 to 7.

Now you can prepare a screen with a drawing program, save it as a screen, to load back again with a machine code routine incorporated to display it.

Organise your routine to reside on memory just above the picture end address. Load the picture, (you needn't display it). Load your routine, having noted the start and end addresses. Then save the whole from the start address of your screen to the end address of your routine, with the start address of your routine. When you clear the computer by switching off/on, and load the program, the screen display appears, hopefully!

The Late, Late Bit.....

Well, this issue probably looks a bit sub-standard, but please don't blame Stephen for that, the fault is entirely mine. As I said on the front page, I can't see straight, and my typing is a lot less than perfect at the moment, so all I can do is apologise normal service should be resumed in time for the next issue!. Obviously the mail has rather tended to pile up too, and while Ken has done his best to answer some of it, quite a few letters still need answering. I'll get around to them as soon as I can, but one of the disadvantages of trying to operate a Group this size as a "one man band" is that there's no one to delegate the work to at times like this, so if your letter hasn't been answered yet, I'm sorry, but don't worry, I'll get a reply off to you as soon as I can. OK?.

I'm sure there must have been something of interest happening over the past few weeks that I ought to be writing about, but to be honest about it, my interest in the computer scene has been slightly less than zero!, so if I HAVE missed something worthy of comment why don't YOU write about it?, then I can learn what it is/was too!.

Anyway, with any luck things ought to be more or less back to normal by the time this reaches you, so next month's Update should be up to standard again I might even have caught up with the mail!.

Paul G.

FOREST OF DOOM

The Prince of the realm has set out to recover four treasures stolen from his castle by a gang of evil villains. During this mission of danger and adventure, he has been turned into something unpleasant. Your good friend Arthur rushed out to rescue the Prince, but fell ill along the way. Your task is to rescue Arthur and the prince and to recover the stolen treasures, but first, be warned, there are a number of red herrings! Objects which are of no use whatsoever and places which lead nowhere. There is a little girl within there somewhere with a liking for chocolate. Dwarfs like drinking, and goblins like dwarfs. The computer doesn't like being sworn at. Jack knows how to get over brick walls. Finally, if the computer tells you that you are lost, it is no use arguing. Originally written for the Oric by S.W.Lucas. Now converted for the Dragon for ORANGE SOFTWARE.

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STARCRAASH

You are Captain Kurgan Travis. As you return to Earth, your craft is damaged by a meteor shower and you are forced to divert to the nearest hospitable planet. After a heavy landing, you find that you require certain items before you can re-launch for Earth. This is the first in an exciting series of adventures by Simon "SOLVER" Hargrave.

£5.00 Dragon cassette
THE KING'S QUEST

Poor old Kurgan, he still has not reached home! After you enabled him to escape from Mars in "Starcraash", his ship got caught in a worm-hole in space. When it reappeared he landed safely on earth, but everything had changed. All the cities, roads and buildings had disappeared. Everywhere he looked, there was rolling oak forests and open moors! Kurgan leaves his craft only to become trapped in a mysterious castle. Can you free him from the castle, what do the people want of him, and why did that strange man look like a wizard??? This is the second in the SOLVER's series.

£5.00 Dragon cassette
THE QUEST FOR THE MEANING OF LIFE

Four friends meet in their local pub, "THE SOLVER'S ARMS", for their regular Friday night booze-up. The conversation turns to the "Meaning of life", this is where you come in. You have complete control over the foursome. It is up to you to guide them, your only goal is to discover the true meaning to the existence of the universe. Is it really just 42? You can switch between the four people using the PERSONA command and multiple problems exist that require two or more people to work together. This is the third in the SOLVER's series.

£5.00 Dragon cassette
THE HEIR OF TYOS

Your father, the king of TYOS has sent you on a QUEST to find the lost Amulet. Can you find the Amulet and escape alive. The computer will try to understand everything you type. You can type full English sentences such as "Take the breather mask and put it on.". So it is quite an advanced game. The SEARCH command looks at all the items lying in a room, which saves time when moving through the 200+ locations in this, the fourth in the SOLVER's series of adventures.

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