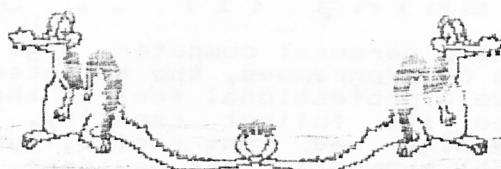


The Newsletter of the National Dragon Users Group

DRAGON



UPDATE

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The Gaffer's Bit

Exit Batman, enter Robin! yet another Editor for you to criticise!. (Editors get criticised, I get blamed!). Anyway, on behalf of Stephen I would like to thank the TWO appreciative members who sent a donation to the Buy the Retiring Editor a Drink Fund . . . to the rest, who presumably didn't like Steve's style, just a question . . . why didn't YOU volunteer to take over the job and do better?. Anyway, I'm sure Robin will note how much appreciation three years work brings, and adjust any illusions he may have had on the subject accordingly. So what else is new? . . . Rob Preston is risking another Ossett Show on 27th April, and as usual Mike Stott will be running the Group stand there (he's another masochist), so I would suggest that you try to attend, if at all possible as I have NO information on other Dragon shows this year, and there is certainly no "big" show planned. You know the reasons as well as I do, so please don't bother to ask "why not?". There is very little happening at all, no new software about, not much of anything else either!. Pulser have asked me to mention that they have a limited supply of DragonDOS cartridges available, so if you want one, move fast!, but that's about all, so I'll leave it at that for now and let you make a start on criticising Robin's first issue.
Paul G.

The New Editor's Bit

Well here I am ladies and gentlemen, for your entertainment, The Fifth Editor Of Dragon Update. I also have a feeling that I now qualify for Most Stupid Person In The Entire World, because I have undoubtedly let myself in for a lot of work. Still it can't be that bad really, can it? As I'm typing this I've nearly finished the whole issue and there are three weeks left before the deadline. Not bad for a beginner, eh? @ I hope you all feel thoroughly guilt-ridden for not applying for this job and saving me all this work! Right then, I am now coming to the end of my first editorial. I hope I have something more interesting to write in my future ones, otherwise I might have to leave the front page completely to Paul.
There'll be more from me later on so I'll be off for now. See you later!

Notice to traders.

As I usually get around twenty or so enquiries each week about software and hardware suppliers I am considering compiling a suitable list that I can send out in reply. If YOU wish to be included would you please contact me AS SOON AS POSSIBLE with brief details of stock available i.e. CoCo or Dragon, tape or disc, Dela or DragonDOS formats, type of software, hardware, etc.
A lot of the enquirers are NOT Group members, so this list could add considerably to your sales.
Please do NOT assume that I will include you automatically no details, no inclusion. OK?. Paul.

Desktop Publishing (1) .. J.R. Winchurch

With the advent of the cheap personal computer, high quality dot-matrix printer and sophisticated packages of programmes, the talented amateur has the means of producing images that have a professional feel to them. However, in order that this equipment is used to its fullest capacity, the user needs to make judgements about page design and font choice, judgements that were once the province of the professional typesetter and designer.

As a teacher of Design and Technology, I find that I am increasingly expected to be familiar with computer hardware in my daily work. Furthermore, it is expected of me to use this hardware to produce handouts, examination papers, worksheets and so on. This means that I am open to criticism as to the quality of my output. It is very easy to produce dull and uninspiring work, and I have realised the importance of good page design. To this end I have attempted to remedy my ignorance of the subject of Desktop Publishing, and I would like to share my findings with you, especially as applied to the Dragon. Please do not regard me as anything approaching an expert: I am still in the learning process. Firstly a word about the software. Although I know of three Desktop Publishers for the Dragon, I personally have only used two, the Group's own package, and Steve Knight's "Publisher". Most of the Group's versions will run on a Dragon 32, but "Publisher" needs a Dragon 64. Both programmes have their uses in my opinion, but by its very nature the Group's own is less flexible than "Publisher". It is much harder to achieve a multi-column layout on the Group programme, whereas "Publisher" allows you to scroll around an A4 page, and also to see the full page at quarter-size on-screen; thus page layout is made easier. This point of flexibility will come up again in future articles, but I hope that you will find the guidelines that I shall suggest will be of use to you whichever package you use. I shall tend to refer mainly to "Publisher" as I find this program more suited to full desktop publishing.

Now, a word about hardware. For "Publisher" I use what I can only call "a partially upgraded Dragon 32". If you own a very early Dragon, open her up and see whether she has 64K half-good chips. These may be numbered OKI3732. If you do have this type of chip you may find, as I did, that by doing the simple modification to the decoder circuit (see the Group's Upgrade Manual) that you have sufficient memory to "Publisher". You will not need to do the full conversion. If you can do this very simple modification and are serious in your intention to buy "Publisher", I would advise you to contact Steve Knight, as he can advise you how you may check whether your extra memory is sufficient to run his program.

FIRST STEPS:

There are no etched-in-stone rules for what constitutes good page layout, but choice of design must be governed by reason and not by whim. Too much fancy work, quite acceptable in small amounts, can blur the readability of your document. So don't be seduced by the range of fonts and other goodies available in your particular package. As a first task I would suggest that you make a table of all the available fonts, cutouts and paraphernalia that your program offers. Include in this the number of characters per line, spacings, variations in font size, maximum size of the printed page and so on. It is a time-consuming job, but the resultant sheets will be invaluable when you start work in earnest. One last point: find out what the dimensional relationship between the screen and the hardcopy is. This will aid you greatly in visualising your design.

The same applies to any graphical capability that your program may have. If you wish to position "imported" illustrations you will need to allocate blocks to them. To do this it is wise to draw boxes to indicate their position. Therefore it makes sense that you leave the correct amount of space to accommodate them.

Note especially where printing actually starts and ends both across and down the page. This will be of the utmost importance when we start discussing margins and text columns. It is simple to do this by printing a set of characters across the screen, and then taking a printout.

Next time we will look at the basic design process, and how it may help us in our choice of page design.

Crossword 56 Answers

ACROSS	DOWN
1A. FRACTURE	A1. FERMENTATION
11. JAPE	B7. HUTCH
2A. ERMIE	C10. TILL
3A. RINGLET	D1. CIGARETTE
4C. JAVELIN	F2. TEE
4J. RUIN	G2. ATLANTA
5I. RIGID	G10. TREE
7D. THATCHER	H5. URCHIN
8A. AUSTRIA	I1. JOHN
8H. HORROR	J6. WEREWOLF
9C. TENERIFE	K1. PLOUGH
10C. TROUT	L9. WAND
11E. FORENOON	M1. CHANDLER
13A. GULLIVER	

PEEKING THE DRAGON (31) - BY MIKE STOTT

December 9th - Things are very quiet on the Dragon scene although I did help Stuart Beardwood and Geoff Smith to run a stand for the group in Halifax on 24th November. It was arranged at such short notice that there was no time to advertise the show but it was nice to see so many Dragon owners there who did not know about the group. Geoff or Stuart will be doing a review on the show so I will not dwell on it.

Have had a letter from Bill Saxelby from Billingham who has been trying to get ANALYZER, from Dragon User November 1986, running to no avail. I have corrected some of the typing errors but it still will not run. Did anybody manage to get it up and running as Bill would like to do some spreadsheet work and save the results out to disk? Please let me know if you have a working copy or can help in any way.

December 23rd - No help yet for R.Cleminson with PERSEUS AND ANDROMEDA, or ADVENTURE WRITER but Ron Kilbride has come up with help for Peter Hawes: EL DIABLERO - Throw blue pebble at man with machete, Golden Bridge becomes substantial after BREAK FIGURINE (clay bull) which is in room of clay statues, Gold Statue appears with bridge; PUSH STATUE reveals depression, LOOK DEPRESSION for oil.

BLACK SANCTUM - Ignore stone statues, but later replaced by statue of WOMAN. Also ignore skeleton, but LISTEN when revealed (same verb must be used when all objects dropped in this location).

Ron wants to buy originals of MYSTERY FUNHOUSE, THE COUNT, and WHITE CLIFFS OF DOVER so let him know if you have them for sale.

December 26th - What a Christmas!! A few weeks ago we were told in work that we were shutting down in the new year, Christmas Eve my garage door broke, and Christmas Day my fence blew down. I just hope that things are going to pick up in 1991. Brian O'Connor even sent me a card wishing me more software for 1991 so I could stop writing a "Gossip Column". I hope other readers get a lot more out of my page than that.

January 5th - Yet again R Cleminson has come up with help in adventures. To get blue pebbles in EL DIABLERO you must GET KEY by breaking clay bowl found in shack which allows you to open box found at end of tunnel, hidden in thick brush. He also gives the same hints as Ron Kilbride in this adventure and BLACK SANCTUM although, in the latter, he says you are told what is required when you open the coffin.

Now to a letter I received in early December from Sotos Mandalos who has been on the Dragon scene for a long time. He is having problems with VORTEX FACTOR and has sent a list of the items he has gathered. He is now stuck. There is a Blue Cartridge in the safe behind the calendar, combination is birthdate on document in desk. The key from the desk opens the door to the lift to the Curator's office situated South from the starting position. In this adventure virtually everything needs examining twice. A sack and a hacksaw should be found on the bench, and a sandwich and lime should be found in the sack. The lime's juice can be squeezed into the vial to recharge the battery. Cartridges have to be inserted in a set order and some items are only revealed after cartridges are inserted and battery is charged. Go back to previous locations and search again. Hope this will be of some use to you, Sotos.

Richard Sutcliffe has sent me an accounts program to test which looks to be very useful as all the data is held on disk and not in memory. At present each file will hold about 8000 entries which should be more than enough for a years transactions. Hopefully it will be available through our PD Library, though registrations (similar to shareware) can be made, enabling the user to write to the author for upgrades and help.

Still no help for R.Cleminson. Has nobody got the invisibility helmet in PERSEUS AND ANDROMEDA and progressed further. Finally has anyone got a copy of Bob Harris's STOCK BOX for sale as Richard Sutcliffe is on the lookout for one.

OSSETT DRAGN SHOW!!!

Please note that there will be another Dragon Show at OSSETT, ON SATURDAY 27TH APRIL 1991usual location and times. Anyone requiring more details, or wanting to take a stand MUST CONTACT ROB PRESTON AS SOON AS POSSIBLE. The phone number is 0656- 820965. Paul.

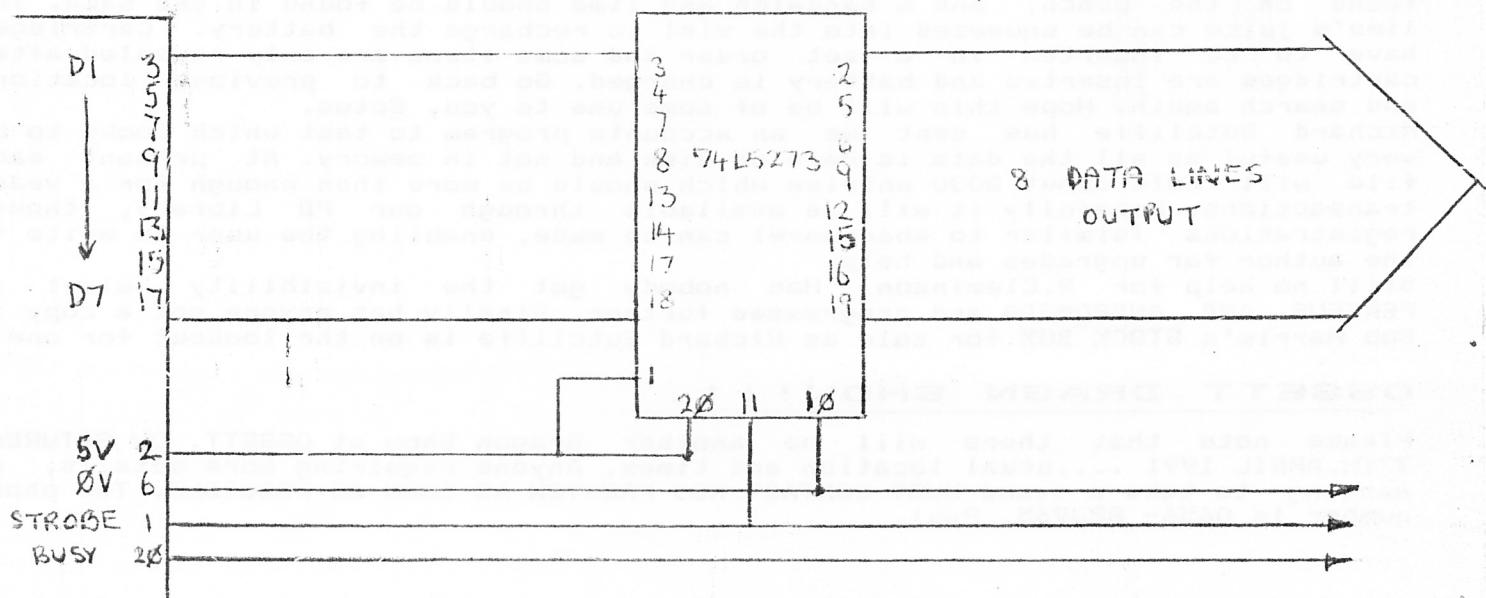
Apology to the Unknown Author

The article on controlling an interface board from the Centronics Port (of which the second half will be printed next issue) was given to me by Steven (remember him?) but no name is attached to the article. So, sorry Mr Author, but this just goes to show that you should always sign everything you write. If you recognise your own article then let me know who you are and I'll give you your due credits next time!

Robin.

Centronics Port (1)

I was given my Dragon 32 in 1983 and as I was already interested in process control I became disappointed by its lack of a user port. However, having seen other micro users' successful experiments in interfacing with the outside world through the other peripheral ports, I decided to have a go myself. After looking at the simplicity of the Centronics printer port, I made a small device with which I could control LEDs, relays and so on, through the nine-output, one-input line provided. The project is based on the 74LS273 8-bit latch, mounted in a DIL socket on a 40 mm square piece of Vero board. The 74LS273 is a 20-pin device with 8 input and 8 output pins, a clock (CLK) pin, a clear (CLR) pin, and 5 volt and earth pins. Data present on the input pins is passed onto the output pins upon a positive-going edge applied to the CLK pin. The output pins retain this value even though the data input may be constantly changing; ie, the data is "latched". The output remains in this state until a new CLK pulse arrives, at which time it takes on a new value presented to the input. In actual fact the printer STROBE line is held high by the Dragon internal circuitry. The line itself originates from one of the two Dragon VIA chips in a low state but is then inverted by a buffer chip. Therefore to pulse this line we write to the VIA chip port address to send this line high and then return it low again. When inverted, this will provide the positive-going edge required. The CLR pin is not necessary in this project so I tied it to the 5V rail. Because of the pin layout of the 74LS273, a number of links are necessary underneath the Veroboard, and care should be taken in soldering these to the correct pins and ensuring no solder bridges between tracks. Various methods could be employed to interface to the Dragon. I used some spare odd lengths of 20-way ribbon cable cut down to 12-way, soldered to scrap pieces of 64-way edge connector strip suitably cut down to size to fit the Dragon Centronics printer port. The proper component is available in most electronic shops I believe. For the output end, again, I used female edge connector strip to interface to an appropriate length of mating male strip on another board I made, containing 4 relays and the relevant circuitry to operate them; but that is another story. You can use any method so desired in order to control your central heating or model railway. Next time we will look at the task of programming the interface board.



RENJU AND RADIO HAM - HARVEY GREY

Renju/Radio Ham are two new games available from Pulser Software, 36 Foxhill, High Crompton, Shaw, Oldham, OL2 7NQ priced at 3.50 for the two. Renju is a Japanese version of noughts and crosses played on a 15 x 15 grid and requiring a straight line of 5 characters either vertically, horizontally or diagonally to win. Sounds easy except for the fact that you are up against the computer which proves to be a very worthy opponent. On the plus side this game proved to be very challenging and as it is something that I've never seen before either on a computer or on paper is totally original, a first for computers these days. On the down side the speed up poke is included in the first line of the program. This is not such a bad thing if your computer can handle it but on my 64 I lose my screen display so it is not of much use. Had the option to use, or not to use as in my case, been available it would have made life easier. After all it took me very little memory and two minutes to include this option. The other thing against it is that it uses similar characters for the players, CHR\$(127+colour), this is OK if you have a colour monitor or TV but as I only use a monochrome monitor it made life a little difficult in keeping track of where I was.

With all that said this proved to be a very enjoyable game and if you enjoy a challenge or are looking for something to do on a wet and windy winters night then this is well worth having in your collection, even more so if Pulser do something about the gripes I mentioned above.

(RADIO HAM - Harvey found it impossible to play as no instructions were enclosed. I could not make head nor tail of it either - S. Ed.)

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 in the screen. And further repeats of the same routines follow for the first four bytes.

Another one gone!!

Yet another obituary notice, I'm afraid. The Dutch Dragon Group run by Roelf van Til has now closed for the usual reasons, lack of general support and disappearing membership. Roelf kept his Group running for as long as possible, but with membership down to fifteen he had no choice but to close down. Things aren't QUITE that bad here yet, but are heading in the same direction at a remarkably steady rate, with people buying "bargain" PC clones and relegating the old Dragon to acting as a door-stop. I'm damned if I know why, because a disc driven 64 is a far nicer machine to use than the average "PC", and a lot more versatile, but that's the way things are going now. Oh well, I wonder how long it will be before I have to write the NDUG obit notice?. Paul.

Come Back Mike Kerry .. Dave Riley

Assembly language has never been the most popular way of programming the Dragon. One of the reasons for this may be the difficulties in accessing the disk or tape. These problems have usually been overcome by running the machine code from a BASIC shell, where all the awkward input and output functions are performed. However, I have always had problems with interfacing the machine code to the BASIC, and even more difficulties when trying to modify the program. Early in 1987 Mike Kerry issued his CALBAS subroutine, which enables BASIC and DOS commands to be accessed from machine code, yet this routine is still little known. It addresses the BASIC tokenised line interpreter. The tokenised lines sent to the interpreter must start and end with a zero, and an extra zero on the end of the last line sent avoids the possibility of extraneous error messages on the return to BASIC. There follows a source listing of a program that loads and displays a graphics screen using CALBAS. Enter the code to Dream, and assemble it, and from DreamBug enter "X0" and the screen will load and be displayed. To return to DreamBug just press any key.

```
*DEMONSTRATION OF MIKE KERRY'S
* CALBAS SUBROUTINE
WAIT EQU 41194
@ BRA BEGIN
*****
CALBAS PSHS D,DP,X,Y,U
        CLRA
        TFR A,DP
        STX <#A6
CB2 JSR <#9F
        JSR $80DC
        LDX <#A6
        STX <#2F
        LDA ,X+
        CMPA #':
        BEQ CB2
        PULS D,DP,X,Y,U,PC
*****
BEGIN LDX #DEMO
        BSR CALBAS
        JSR WAIT
        LDX #TEXT
        BSR CALBAS
        RTS
*****
*TOKENISED LINE TO LOAD A
*GRAPHIC SCREEN AND DISPLAY IT
DEMO FCB 0
        FCB $DC
*$DC IS LOAD TOKEN
        FCC /"TEST.PIX"/
        FCC /,LHC00:/
        FCB $B7
*$B7 IS PMODE TOKEN
        FCC /4,1:/
        FCB $AE
*$AE IS SCREEN TOKEN
        FCC /1,1/,0
*EQUIVALENT BASIC LINE IS
*LOAD"TEST.PIX",LHC00:PMODE4,1:
*SCREEN),1
*****
*COMMAND TO REVERT TO
*TEXT SCREEN
TEXT FCC 0,$AE,/0/,0,0
```

Continued in our Next

This issue sees the start of a new series on Desktop Publishing by J R Winchurch, and so this seems like a good time to lay down the law for would-be authors of series of articles. Basically, if you're thinking of writing a series, fine, but it would probably be a good idea to write one or two instalments and ask me whether I would like to use the whole series, before writing a whole series which I am unable to use. Obviously this applies especially to long series. If I reply in the affirmative you can go ahead and finish the series - but for obvious reasons we can't start whole series of articles at a moment's notice, as we can for just single articles. Don't let that lot put you off though!

Robin.

Dragon Disk Systems . . G.R. Barry

Dragon owners who are interested in a disk system (to get away from the painful limitations of cassettes!), but are confused by their apparent complexity, may find the following helpful.

THE CARTRIDGE: Disk systems consist of a cartridge interface (which fits into the cartridge recess on the right-hand side of the Dragon), and a disk drive with power supply. The Disk Operating System (DOS) software is contained in a Read Only Memory (ROM) inside this cartridge. (It can be referred to as "Firmware".) A cartridge can control up to 4 disk drives, though one is sufficient in many cases. Although there is now no main-stream manufacturer of the disk cartridges, these are still available from specific suppliers, both as assembled cartridges and as bare PCBs and DIY kits.

THE DRIVES: Suitable disk drives used are mainly in two sizes, 3.5 inch and 5.25 inch, and in various capacities, which increase with their cost. Any similar drives which are to the SA400 standard could also be suitable. Further complications can be met by such options as single/double density, single/double sided, and 40 or 80 tracks. However the reliability must inevitably decrease as more is being packed onto the disk and beginners are advised not to be lured by the "faster car" philosophy, but go initially for the most reliable system. There can be nothing more frustrating than to find after saving a laboriously written program, that it cannot be retrieved at a later date! The size of the drive would depend on what software was expected to be used. If it is mainly commercial software, the facility to read 5.25 inch, 40-track, single-sided disks is necessary.

However, if it is intended that the system will mainly be used for such things as letter-writing then the use of smaller drives, eg, single or double sided 3.5 inch drives, should be seriously considered. Apart from being lower cost and taking up less space, they are a later "state-of-the-art" and both the drive and the disk medium are more robust and reliable. A lot depends on whether you know someone who could copy the occasional 5.25 inch disk to 3.5 inch format for you.

Drives can be purchased enclosed in a case which also contains a Power Supply Unit (PSU), and usually come with a strip type connecting cable. This cable needs to have the right types of connector sockets at each end, to sit the disk cartridge and the particular make of drive(s). (There are three types of plugs in common use.)

A cable of the correct type is normally considered if an interface and cartridge are being purchased separately from different suppliers; buy both from the same supplier and the cable should be compatible. "Bare" disk drives are also compatible, without a case or PSU, for users who have the ability and facilities to undertake the assembly and wiring themselves.

Disk drives can occasionally be seen offered at reduced prices, but unless you have access to the equipment required to test and adjust disk drives these could be a bad buy. Apart from the risk that they could be faulty rejects, there is also the chance that they are 80-track only, or even one of the early 35-track drives!

The cost of drives has fallen considerably and it could be better to buy a new, guaranteed drive, rather than to take a chance.

"Editext" . . . Roy Cashmore

"Editext" is a versatile, budget-priced word-processor which is available from Preston Computer Games. Whilst it is not "WYSIWYG" (the screen display is the normal 32 X 16 screen) it has the basic features of a word-processor. It allows editing of text, as well as formatting and saving, and also contains a "search" and "replace" facility.

Further, if you are using an Epson-compatible printer then alternative typefaces can be used. It is not easy, however, to use different typefaces within the same document.

This is certainly a useful program for writing letters and short reports (I wrote this review using it), and for anyone wondering whether a word-processor would be a worthwhile investment, this is a good buy. There are better WPs around, (I prefer Telewriter), but they tend to cost about 5 times as much and you may not use the additional features.

"SMUG Disc 1" . . . R.A. Davis

Thanks to Harvey Grey the Sprite Magic Users Group has taken off, with membership already into double figures, and no subscription charges. The first disk arrived here on November 20th, and a DIR showed 34 programs resident. In addition to the expense which he must have incurred to make this free issue, Harvey has spent a great deal of time in the use of an attractive high-resolution routine for the display and text. He is to be congratulated on the result.

In addition to his interesting Editorial, the disk has three tutorials and three demonstrations for the beginner to study; a problem-and-solution page open to members, an ideas/hints page, an advert. page for both members' and commercial advertisements; and an excellent "November 5th" animated display by D.J.Gray.

The disk version of Sprite Magic allows the programmer far greater scope than the cassette version, which many of us purchased. This is mainly due to the ease with which programs and screens can be quickly loaded.

If you are interested in programming with Sprite Magic, why not drop Harvey a line? Your programs and ideas will be welcomed, and assured an audience.

EFFORTS TO CONTACT THE ORIGINAL COPYRIGHT HOLDERS OF SPRITE MAGIC TO OBTAIN THEIR BLESSING FOR THE DISC VERSION HAVE MET WITH NO SUCCESS. IT WILL BE ASSUMED THAT IF NO CLAIMS ARE MADE WITHIN 28 DAYS OF THIS BEING PUBLISHED, COPYRIGHT HAS BEEN WAIVED.

NOTE: There is no intention to use the program for commercial profit.

Harvey's address is Three Trees, Green's Farm Lane, Billericay, Essex, CM11 2NV.

Dragon Stereo by Stuart Beardwood

The Dragon, not having a dedicated sound chip, can only produce single-channel sound. Through software techniques, mixed waveforms can be created, giving the impression of four-channel music, and programmes such as Microdeal's "Composer" push the Dragon's music capabilities just about as far as they will go, but all limit themselves to "mono" sound production.

The Dragon's ability to output sound to the cassette player is well known. Because of this facility the recording of music to tape is a simple process, although the quality of music reproduction on most data recorders leaves a lot to be desired! We can improve the quality by replacing the data recorder with a better cassette player or hi-fi unit, however. My own music centre has two sockets for microphones, allowing me to plug the Dragon's MIC lead directly into the machine. This produced good results, but only having recorded onto one track, the sound only came out of one speaker! I tried a "split lead" set-up but this gave poor results, so another method had to be found.

As I own more than one Dragon, my solution was to use two Dragons plugged into the two microphone sockets, playing the same tune simultaneously. Some novel results were produced by not pressing the ENTER keys to play the tune on each Dragon at exactly the same time. The recording had a pleasant "echo" effect, the music from one speaker being slightly "out of sync" with the other. This was fine, but how could I get a more realistic stereo effect from the recordings?

What I needed was two slightly different-sounding tunes, so I had to find a way of altering the sound of a piece of music without altering the music itself.

The method I used was to write a noteswap routine which effectively re-allocates the waveforms in a standard "Composer" tune by swapping around the four notes used in each note group. This produced some good results, but I was still stuck with the "Composer" organ-type sound.

The release of "Composer-X", with its multitude of wave-forms, and the ability to alter pitch and volume on individual voices, was a Godsend! Now I could add different waveforms and use noteswap to alter the sound of different sections of the tune. This produced the two slightly different versions needed to record the music with a realistic stereo effect. There is still a problem with background noise from the Dragons when recording, but the music does sound much better than the squeaks and rattles that come from my portable TV speaker!

Quicksort in BASIC ... Chris Jolly ...

"Quicksort" is a sorting method developed by C.A.R. Hoare in 1962. It is probably the most efficient general purpose sorting method known, particularly for large, unsorted arrays. Unfortunately it is most easily written recursively, and therefore does not lend itself to implementation on the Dragon in BASIC.

The idea behind the sort is this: given an array of elements to be sorted, pick one of them and move it to its correct final place. This means moving it in the sorting sequence and all the elements to its right come after it. At this stage the elements to the left are not themselves sorted, nor are those to the right. This step is called partitioning, because it partitions the array into two smaller arrays, the left and the right elements, which then both need sorting. The recursive step is then to Quicksort the left elements, then the right elements. The recursive Quicksort is done until subarrays of only one element are left, which are already sorted in a trivial way. When all the subarrays have been sorted, the whole array is sorted.

The hard part to do in BASIC is the recursive step. Fortunately, there is a way of eliminating recursion. This is done partly by what is known as tail-recursion elimination - when the last call in a function is to itself, it can be replaced by a jump with some gain in efficiency, and partly by using an explicit stack to hold pointers to some of the intermediate subarrays. Combining these techniques, it is possible to implement Quicksort in BASIC.

The program below shows an example of this. An array R is filled with random numbers and then sorted. S is the explicit stack, the stack pointer being SP. In fact S only needs space for about $\log N$ elements, where N is the number of items to be sorted. LF and RT are the pointers to the leftmost and rightmost elements of the current subarray, and the algorithm presented here always chooses the leftmost sorted array when it has finished. It should be relatively easy to adapt this program to other sorting applications; the comparison of elements is done in lines 70 and 80, and swapping in lines 90 and 100; only at these points is there any reference to the elements themselves.

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1. "Sorting and Searching", Vol 3 of "The Art of Computer Programming", by Donald E. Knuth. Addison-Wesley 1973.
2. "Algorithms", by Robert Sedgewick. Addison-Wesley 1988.

```

10 DIM R(100),S(100)
20 FOR I=1 TO 100:R(I)=RND(100):NEXT I
30 LF=1:RT=100:SP=1
40 S(SP)=LF:S(SP+1)=RT:SP=SP+2
50 IF RT<=LF THEN 130
60 I=LF+1:J=RT
70 IF I<=RT THEN IF R(I)<=R(LF) THEN I=I+1:GOTO 70
80 IF J>LF THEN IF R(J)>R(LF) THEN J=J-1:GOTO 80
90 IF I<J THEN T=R(I):R(I)=R(J):R(J)=T:GOTO 70
100 T=R(LF):R(LF)=R(J):R(J)=T
110 IF (J-LF)>(RT-J) THEN S(SP)=LF:S(SP+1)=J-1:SP=SP+2:LF=J+1 ELSE S(SP)=J+1:S(S
P+1)=RT:SP=SP+2:RT=J-1
120 GOTO 140
130 SP=SP-2:LF=S(SP):RT=S(SP+1)
140 IF SP>1 THEN 50
150 FOR I=1 TO 100:PRINT R(I):NEXT I

```

The Editor's Late Bit

Well here I am, your new editor, and I hope I haven't made too much of a mess of my first issue. This is the bit of newsletter where I'm supposed to add my own comments on anything I feel like, so here goes.

Firstly I think we would all like to bid a fond farewell to Stephen and wish him luck at ***** University (classified information, that!). I am informed by Paul that the "Buy The Last Editor A Drink" fund is going very badly. Come on folks!! He worked on this newsletter for nearly 3 years, at least let him get a booze-up out of it.

Now I suppose I should take this opportunity to clear up any misunderstandings and let you know where I stand. To begin with I should make it clear that, while I will always read and consider any article which is sent to me, there is no guarantee that every article will be used. If an article is too long, or covers a topic recently covered by another article, or contains little or no useful or interesting material, then I am unlikely to use it. I am saying this because I know that Stephen had some complaints from authors of articles which were never used. It is a fact of life that not every article will be of interest to the Dragon public. That being said however, WE NEED ARTICLES!!! Stephen only passed a few unused articles on to me, and I have used most of those in this issue. Although I've had one or two more come in I'm still going to need more for next month. You've all heard the argument enough before so I'm not going to tell you WHY you should write articles.

As I hope most of you have realized, I am not only editing Update, but also running Dragonfire (with my father's help). Don't run off with the idea that this is some sort of joining together of NDUG and Dragonfire, however. Effectively the two are still quite separate. The only difference will be that the NDUGSoft titles will shortly be taken under Dragonfire's wing - we didn't think it made sense for me to be running two different software companies. That seems to be all I have to say at present. This issue has been a bit of an experience for me, getting to know the ropes and so on, and has been made up almost entirely of material sent to me by Stephen. Finding the ropes wasn't too hard (despite Paul's ropey word "processor" - sorry, Paul) and next month I hope to restore some sort of normality to Update, although I don't think it was ever "normal" in the first place. See you next time.....

Disk Drive LEDs - Stuart Hurstbourne...

With a view to the fact that I am shortly going to be living in two places (not simultaneously!) I set about duplicating my computer system to enable me to "Carry On Regardless" wherever I was resident at the time. My present system comprises a 64 with twin Dragon Data drives. Through the August edition of "Update" I was able to obtain a 32 and a pair of drives. The drives were a 3.5 inch Chinon and a 5.25 inch Cumana. This combination, with a memory problem in the 32 (fixed by P. Tate) and the addition of a SuperDOS cartridge worked well. The only problem was the invisibility of the "Drive Busy" LED on the Cumana drive. Unless one looked at it horizontally it was nearly invisible. Being used to Dragon Data drives (where the "Busy" LEDs are clearly visible) I found this disconcerting, and so set about improving the Cumana light. After removing the case (one screw on each side) I took off the locking lever (a small screw down the centre). The front panel can now be detached (two screws behind, which only need to be loosened). The plastic "telescope" is prised free and the hole drilled out to match a jumbo LED (easily obtainable from Maplin or Tandy). The circuit board (three screws, three plugs and an edge connector) is removed so that the standard LED can be unsoldered and replaced by two flying leads that are now connected to the jumbo LED. The board is now replaced and the new LED secured in the front panel. All is re-assembled and tested. The result is a working light that is easily seen overcoming any worry as to which drive is actually running.

THE DRAGON NOTEBOOK

The Dragon Notebook can be obtained from the NBUG Graphics Library, 5 Glen Road, Parkstone, Poole, Dorset, BH14 0HF at 3.00 per copy post free. I suggest you obtain one while they are still available. The Editor would be pleased to receive any routines you find valuable, in either basic, machine language or source code, for inclusion in any future edition. @

Perhaps a little long in the tooth now Desktop was introduced to the Group in October '88, but the fact that it is still selling emphasises what a useful and versatile utility it is. No one who owns an Epson compatible or Tandy printer should be without it. There are now 8 different versions, each incorporating a particular function which was needed by someone. VERSION 1: The original version has the SD.BIN printer driver adapted by Ken Grade from the Star DP515 dump in UPDATE No.48. This dump was written for the Shinwa CP80, which has a denser printout than other Epson compatible printers, most people found they were unable to print 2 screens side by side on an A4 sheet, the exception being Mannesmann Tally MT 80 owners. VERSION 2: This version was produced for those people with unusual printers, for use with MacGowen Associates' DUMPER program. VERSION 3: For Dragon 64's only. Features Menu screens which are loaded into high memory to allow room for customising the Basic program. Please let us know if you've written a function into the program which would be useful to other members. VERSION 4: A standard version which includes Dave Riley's own 2 sized printer driver for Epson type printers, plus a special version for the Star SD10. VERSION 5: Richard Sutcliffe's version: has the facility to move the cursor vertically a pixel at a time. This allows you to edit screens produced in Desktop without alignment problems occurring. It also contains specially amended fonts which enable you to toggle between the pound sign and the hash sign. VERSION 6: Simply contains 18 different design motifs. VERSION 7: Perhaps the most useful and exciting version of all. It allows you to (a) import text in the form of ASCII files created by suitable word processors. (b) to centre lines and headings. (c) includes a dump written by Chris Rouse which will dump two screens side by side simultaneously. Two column text may be dumped on an A4 page and, if necessary, print up to 8 screens on a page. VERSION 8: A version by Dave Riley which uses the special functions from his RABBIT program :- (a) Mirror Image (b) Inversion (c) Upside down (d) Rotation through 90 degrees. All 8 versions can be obtained by registered purchasers of Desktop for 3.50, including postage from the Graphics Library, 5 Glen Road, Poole, Dorset, BH14 0HF. Those members who have not yet purchased Desktop, can obtain all versions of the program for the full price of 10.00. IT IS IMPORTANT that you state when purchasing these enhancements whether you have ONE or TWO drives. DESKTOP FORMATTER There are two distinct Formatters for Desktop, both for D64's only. The first was written by Chris Rouse and allows you load 6 screens and save them or print them as a page. The page can be dumped to the printer with or without a centre margin. The second version written by P D Smith with an amended printer dump by Dave Riley, also allows you to create pages of 6 screens. These can be viewed as a page and individual screens swapped around into any order. You can zoom in on any individual screen and also scan through all the screens in the page. The dump is particularly sharp and dark which makes it ideal for photocopying. The Chris Rouse Formatter is 3.00 and the Smith Formatter is 5.00 and is obtainable in either Epson or Tandy version.

[illegible]

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GROUP SERVICES.

DRAGONART GRAPHICS LIBRARY. Contains THE biggest and best collection of graphics screens for the Dragon, all available at nominal charges. The Library also wants YOUR original graphics efforts. Full details and list available from:- The Librarian, 5, Glen Road, Parkstone, Poole, Dorset.

TX Lo-res screen editor and manipulator. Written by Ian Rockett. Price 2.75 inclusive. The Librarian, 5, Glen Road, Parkstone, Poole, Dorset.

BACK ISSUE UPDATES. Reprints of all issues of Update (from original master sheets) available at ONLY 95 pence per copy inclusive of postage. 14 page index of Update articles only 2.50. Single articles 50p each. (see for details). @ Send to Eric Hall, 32, Thackeray Mall, Fareham, Hants. PO16-0PQ. Cheques made payable to "Back Issues Dept. (NDUG)".

THE PD LIBRARY is now fully operational once again. For full details of material available contact Stuart Beardwood. More contributions always wanted, so if YOU have any suitable material please let Stuart know. @ Stuart Beardwood, 38, Salisbury Place, Boottown, Halifax. HX3-6ND.

GROUP SPECIALS:

D32 UPGRADE MANUAL. Full instructions for 64K RAM upgrade. 2.00.

CIRCUIT DIAGRAMS. D32, D64. Cuzana DOS, Dragon DOS, CoCo DOS. 1.00 each.

NDUG FORTH O.S. DragonDOS version includes FORTH ASSEMBLER. 6.00. DELTA DOS version (no assembler) 4.00.

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ALL THE ABOVE OBTAINABLE FROM PAUL GRADE AT 6, NAVARINO ROAD, WORTHING, SUSSEX. CHEQUES PAYABLE TO "N.D.U.G." PLEASE.

GROUP & MEMBERS PROGRAMS etc.

NDUG DESKTOP! The Group's DTP package. This package is available on either Dragon DOS disc (with Epson type screen dump) or CoCo DOS (with DMF105/6 dump). Produce your own small posters, advertisements, magazines, program or video title screens, etc. 19 font version 12.50. Orders to:- Ray Smith, 5, Glen Road, Parkstone, Poole, Dorset. Cheques made payable to 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 price 1.00, or on tape 2.50 inclusive. J. Russell, 33, Tenayean Avenue, Clevedon, Avon. BS21-7UJ.

NDUGSOFT! The following Pam D'Arcy programs are available from the Group.

Formula One ... 7.95; Disk-Kit ... 8.50; Sourcemaker ... 8.50; Lightpen (disc only) ... 2.50. @ We can also offer the Malcolm Cowen programs, Colossal Cave Adventure and Adventure Writer. Available on cassette only Colossal cave is 5.00 and Adventure Writer 7.50. on tape or disc. NDUGSOFT, 8, Ingleby Road, Wigston, Leicester. LE8-1DB.

Data Loader & Printer. Turns w/c into Basic loader and data statements. Writes to printer OR tape for hard and soft copies!. Price only 3.00.

Fonebill. Being overcharged?. How much of the bill is really yours?!. Just time your calls and Fonebill does the rest. Now only 2.00.

Setter. Set up your Dragon for better colour & sound. Also assists qualified persons in setting up TV's & monitors. 2.50. Prices include p&p and 10% donation to Group funds!. Please state DragonDOS, SuperDOS, tape, or ASCII tape for Tandy.

Cheques / POs to Mike Townsend (Dragsoft. (Dept.D.U.). 41, Hereford Street, Presteigne, Powys. LD8-2AT.

13th.TASK! The classical Adventure written by Alan Cook. Available ONLY to NDUG members 2.50 inclusive. If you haven't tried this adventure yet you haven't lived!. Orders to:- ARC SOFTWARE, 272, Mearns Road, Newton Mearns, Glasgow.

Database programs for D32/64 & DragonDOS. All with full facilities including search, sort, and print. 11 Names & Addresses, 170 items, 3.50. 21 Facts of the World, 170 countries. 3.50. 31 Home accounts, 3.50. 41 LP/cassette filing system 2000+ records 4.50. 51 Details from magazines 5000+ entries 4.50. 61 QSO log filing system 3000+ 4.50. Special requests or enquiries send s.a.e to:- @ Graham Strong, 78, Coleridge Crescent, Goring-by-Sea, Sussex. BN12-6LT. (Phone 0903-485751).

"Slow but Sure". Screen dumps for text, Lo-Res, and Hi-Res. Many sizes, upright and sideways. 1/4 size to full A4. Written in Basic and easily edited to suit your own Epson compatible printer. 5.00. Dragsoft, 41, Hereford Street, Presteigne, Powys. LD8-2AT.

Genuine P.D. Software direct from the U.S.A. Top quality Public Domain software for the Dragon and CoCo's 1, 2 & 3, all supplied on the appropriate format discs. Good software at low, low cost!. Send NOW for lists and details to:- Randy Longshore, 6733 Vanderbilt Place, Rancho Cucamonga. CA 91701. U.S.A.

DOS ADAPTOR KITS to fit your DOS inside the Dragon leaving the port for other uses. Price 16.68 each inclusive. Letter Writer utility 5.00. Sutcliffe Electronics, 15, West Street, Hothfield, Ashford, Kent. (0233-634191).

PUBLISHER! New from KCS. Full WYSIWYG D.T.P. package for D64's. Includes 38 fonts and clip-art. DISC ONLY. 15.00. **DRAGON GRAPHICS STUDIO PLUS.** Icon, menu and joystick controlled graphics / drawing program. DISC ONLY. 5.99. **PRINTER CONTROL / DESKTOP** fonts. 20 add on fonts for McGowan's word-processors. DISC or TAPE 4.99. S.Knight (KCS. Dept NDUG), 76, Ethall Road, Hall Green, Birmingham. B28-0LE. (021-777-2477). P&P (UK) 50p, Europe 1.00. @ **DRAGON T SHIRTS!** Top quality "T" shirts. Navy with red Dragon logo. Available in small, medium, large, and extra large sizes. All one price 5.99 inclusive of postage. Cheques and orders to:- I. Smith. The Cottage, Tabora, London Road, Brighton, Sussex. BN1-8BA.

WANTED. Composite colour monitor for the Dragon. Contact Malcolm Cowen on 061-225-4674 eves or weekends.

WANTED. Top half of a D32 case ... can anyone help, please?. Contact B.Yeoman Walker, Forest House, Liverpool Road, Prescott, Merseyside. L34-1NR. (051-489-1066).

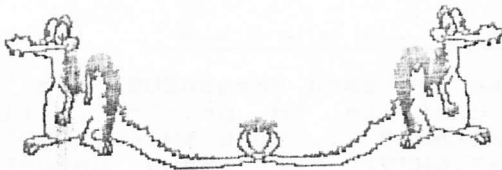
Wanted. Dagn User magazines, complete years, batches, or single copies, or if possible complete set!. Also issues of Update from 1 to 52. Please write or phone with details. Eric Dale, 29, Hulme Road, Leigh, Lancs. WN7-5BT. (0942-673442).

FOR SALE. Touchmaster Tablet 25.00, Dragon transformer 2.00, Pair joysticks 4.00, Cassette deck and leads 5.00, 'Inside the Dragon' 2.00, Various other books 1.00 each, Various game and educational tapes 1.00 each.
Phone William Findon on 021-783-4679.

Changed to an ST, so selling the following: Dragon 64, DragonDOS cartridge with DOS 4 and Hi-DOS, twin 5 1/4 track disc drives, discs, disc boxes, much cassette software, magazines including complete Dragon User set and some American mags and books, including Input magazines etc, printer lead, and three cartridges. Best offer over 100.00 for the lot!. Worth at least double!.
Phone R.Haigh on 0484-543814 evenings or weekend.

Wanted, dead or alive!! Atari 'Le Stick' or similar mercury switched joystick.
Phone Stuart on 0268-753762 NOW!.

Offers invited for the following: D32 with PSU, all leads, and manual; D>User magazines Jan '84 to July '88; Alpha cassette deck; Joysticks; Mini speaker and cables; Trojan lightpen; Boots 'Guide to the D32'; Basic Tutorial cassettes; 50 used C15 tapes; miscellaneous original tape software including Printer control for Queen 1120 daisy printer and Seikosha dot matrix.
Phone Kevin Hall on 0724-864512 evenings or weekend.



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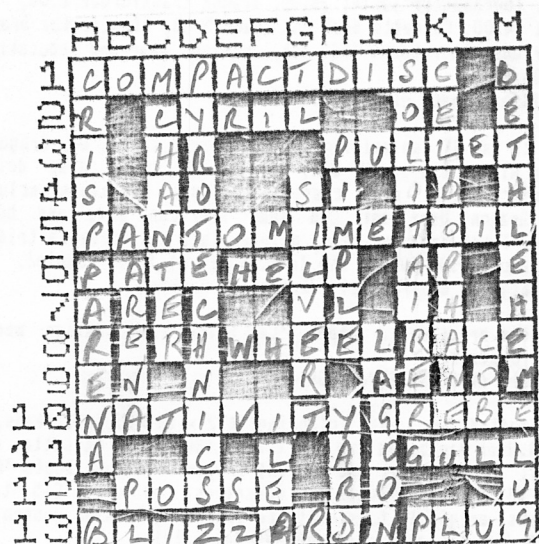
Duncan Bryan,
2, Park Court,
Claude Street,
Dunkirk,
Nottingham,
NG7 2LB.

CROSSWORD 57.

ACROSS: 1a, one of these in your back would be painful, but in your stereo very desirable. 2c, Mr. Smith, a big man in the Liberal party. 3h, A young hen. 5a, Christmas play. 5j, work hard. 6a, smooth paste made from meat. 6c, to give assistance. 8e, a potter will throw things at this. 8j, a contest of speed. 10a, a play about Christmas. 10i, diving bird with almost no tail. 11j, common sea bird. 12b, group of people picked to assist sheriff. 13a, blinding snow storm. 13j, pinned device for making electrical connections.

DOWN: a1, Thin piece of fried potato. a7, male or non worker be. b6, centre of amphitheatre where fights took place. c2, melody pipe of bagpipes. d1, art of making or displaying fireworks. f11, piece of meadow or pasture land. g4, element, some of whose salts turn black on exposure to light. h3, small spot on the face perhaps. h10, Approx 914.5 mm. i8, shallow salt water lake parted from sea by mud bank or coral reef etc. j1, card game for one person. k1, tough glossy transparent plastic for wrapping etc. l8, Male swan. m1, Little town sung about in Christmas carol. m11, worm used by sea anglers.

All entries to Paul Grade, please. Winner gets a choice from the Dragonfire software list, second all correct entry gets a tape from our collection.



Text screen printer dump

Due to the incompatibility of ScottDOS with the standard DragonDOS, the "quick and dirty" method of sending the text screen's contents to printer will not work. (You don't know the "quick and dirty" method? ... POKE &H168,&H80: POKE &H169,&H0F: POKE &H167,&H7E. To cancel POKE &H167,&H39). For those unfortunate enough to have to use ScottDOS, the following routine will send the entire screen's contents to printer exactly in the form in which it appears on the screen.

It was originally sent in by R.J.Rolph, but I don't think he will mind it being reprinted. Ken Grade.

```

1 REM TEXT SCREEN DUMP
2 POKE 328,0:POKE 155,32:'SETS 32 CHAR LINE.
3 FOR Q=1024 TO 1534: P=PEEK(Q)
4 IF P=96 THEN P=32:'CORRECT CODE FOR SPACE.
5 IF P>96 THEN P=P-64:'GIVE CORRECT CODE FOR NUMBERS.
6 PRINT #2,CHR$(P);
7 NEXT Q
8 POKE 328,0:POKE 155,132:'RESET C.P.L TO DEFAULT.

```

A Reasonably Polite Suggestion!!.

I thought it was about time I mentioned a peculiar phenomena ... and I am NOT referring to our Editor!. No, a couple of people, and I assure you that the number is no higher than that, have taken the trouble to write and tell me that they are most dissatisfied with the content of Update. NOT with the lack of material, it seems, but with what they consider to be the "abusive", "obscene", and "irrelevant" style used by myself and sundry contributors, and with the "depressing" attitudes expressed.

Unfortunately they do not wish their letters published, but while I may not agree with their views they ARE entitled to express them, in print if they so desire, and the same applies to anyone else in the Group. So, if YOU have any similar complaints please send them to Robin for publication.

DO NOT expect us to agree with them, of course!, but someone might!. So far as I'm concerned, I run the Group my own way, and if anyone reckons they can do better I will be delighted to give them the job trouble is that no-one ever wants it!. Anyway, if you've any complaints or even compliments, why not send 'em to Robin so that everyone can know about them?. OK?. Paul.

Helpline List

If you have queries on any of the subjects mentioned here, write to the appropriate volunteer, enclosing a stamped envelope for reply. If you need help with a subject that isn't included in the list yet, or you aren't satisfied with the reply that you get, then contact Paul Grade as usual.

FORTH: John Payne, 3, Sibland Close, Thornbury, Bristol.

DOS PROBLEMS: Phil Scott, 4, Badgerwood Drive, Frimley, Camberley, Surrey. GU16-5UF.

PROGRAMMING LANGUAGES AND STRUCTURED PROGRAMMING METHODOLOGY: Stan Davies, 153, Allestree Lane, Derby DE3-2PG.

GAMES SOFTWARE (MAINLY ARCADE BUT SOME ADVENTURES): Stephen Wood, 52, Downsway, Springfield, Chelmsford, Essex CM1-5TU.

M/C (EXCLUDING FLEX & OS9); DRAGON MUSIC; ARTIFICIAL INTELLIGENCE; "C" (UNDER OS9): Chris Jolly, 4, Pinehurst Walk, Orpington, Kent.

GENERAL HARDWARE AND UPGRADE CONVERSION PROBLEMS: Bob Hall, 22, Cumbria Close, Thornbury, Avon BS12-2YE.

WORD PROCESSING & GENERAL BASIC PROGRAMMING: F.J. Fisher, 29, Thornham Road, Gillingham, Kent.

SPREADSHEETS: E. Freeman, 80B, Main Road, Old Duston, Northampton. NN5-6RA.

MODEMS, BASIC ELECTRONICS, ADD-ONS, and FLEX: Tim Hayton, 36, Laurel Drive, Willaston, South Wirral L64-1TW.

DELTA PROGRAMMING: Stuart Mills, 49, Templegate Crescent, Leeds, West Yorkshire LS15-0EZ.

DRAGON HARDWARE PROBLEMS AND REPAIRS: Alan Butler, 16, Barnston Green, Barnston, Great Dunmow, Essex.

COMPOSER PROBLEMS:- Dave Cadman, 32, Breedon Hill Road, Derby DE3-6TG.

RADIO PROBLEMS, INTERFACING DRAGONS FOR AMATEUR RADIO WORK, ETC: J. Brown, 45, Marlborough Avenue, Falmouth, Cornwall. TR11-4HS.

DMP 110 PRINTER PROBLEMS/SCREEN DUMPS ETC.: Dr. J. Hatton, 48, Wern, Llanfairpwll, Anglesey, N. Wales.

EPSON COMPAT. PRINTER SETTING UP & GENERAL PRINTER PROBLEMS. Gareth J. Sims, 24, Logwell Court, Standens Barn, Northampton. NN3-3TN.

RADIO AMATEUR PROBLEMS, INFORMATION & ADVICE: Fred Hopewell, 48, Gladstone Street, Loughborough, Leicestershire. LE11-1NS.

GENERAL PROBLEMS AND MOST REPAIRS. Steve Tate, 22, Fairfield Drive, Wormley, Broxbourne, Herts. EN10-6DY.

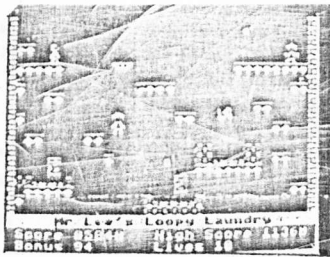
CO-CO HARDWARE & SOFTWARE PROBLEMS: Chris Rouse, 18, Gregson Close, Bridgemary, Gosport, Hants.

BASIC PROBLEMS, ESPECIALLY USE OF GRAPHICS FROM BASIC, EPSON COMPAT. PRINTER (SOFTWARE) PROBLEMS, SIMPLE PASCAL: Steve Knight, 76, Etwall Road, Hall Green, Birmingham.

The Late, Late Bit

Now what should I write about to fill this last bit of space? something topical, and risk offending you?, or about all the new events on the Dragon scene, which should take up all of half a line?!. Damned if I know, and to be honest about it I don't really care either way, it's too bloody cold tonight to worry about little things like that!. According to the local paper the local Friends of the Earth Group have called off a "rally" about Global Warming on the grounds that "the weather would make us look silly", although why they should imagine it could improve on nature I haven't a clue. Boring, going on about the weather, isn't it?, but what else is there?, there's the Lies, Damned Lies, and Official Statistics about the Great Texaco War on the 'box, which is even worse, or there's the report that someone tried to blow up the Government again, and missed!!. Criminal negligence!. It's news like that that makes even the Dragon scene look hopeful!. Well, at least there's the Ossett Show ahead, your favourite Group is still running (that's THIS one, you idiot!), and this issue of Update is almost finished, which is more that I thought it would ever be after the master disc was attacked by the Post Office Origami Expert I've had to retype half of this issue!.

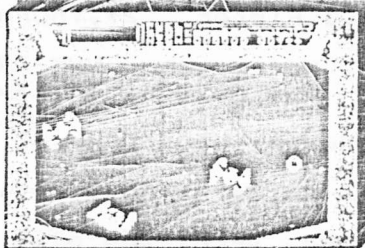
No, I think I'll take the easy way out and head for a drink and the fire ... all the other(?) interesting news items will have to wait. Just one more thing, a message to Robin PLEASE open up the line spacing when typing in the next issue ... and pages need top and bottom margins, you know! ... other than that, nice work, quite a good first attempt. Paul.



CAVERNS OF CHAOS — The ultimate platform game! If you've tried the rest, now try the best ever from Blaby. Words fail! We guarantee sheer delight. 20 screens. KB/JS.

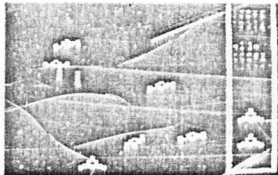
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DRAGON 32 £1.99



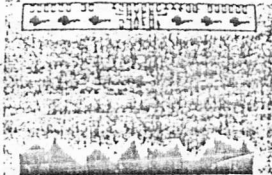
COSMIC CRUSADER — Venture where no man has dared to go before. View the galaxy from within the safety of your starship, but not for long — no less than 34 screens of inter-planetary alien life will challenge your reflexes and fire power. Superb sounds and graphics. JS/KB.

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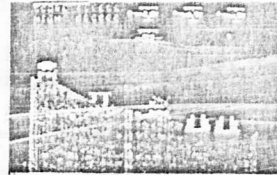
STAR SWCOP — Eliminate the Zargon fleet, wave after wave of them, they never stop you will give in before they will, they are invincible. Fantastic sounds and graphics. KB.

DRAGON 32 £1.99



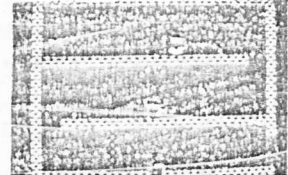
STAR DEFENCE — A defender type game, smart bombs and advance radar scan. This game is only for the quick fingered player. 3 screens. One or two players. KB.

£1.99



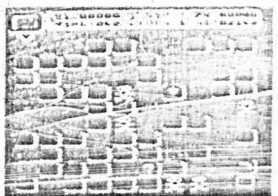
COPTA SNATCH — A scramble type game in which you must steal the enemy's secret plans, on the way you must cause as much damage to their installation as possible. Scrolling screens, fantastic sounds and graphics. KB JS.

DRAGON 32 £1.99



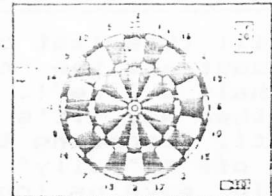
DESPERADO DAN — Desperado Dan was a guest of Her Majesty's Prison, that was until his timely escape. Help him get back to where he hid his loot, but no one had told him a supermarket had been built over it. JS.

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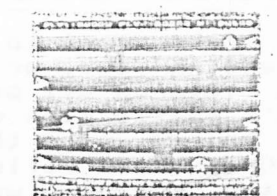
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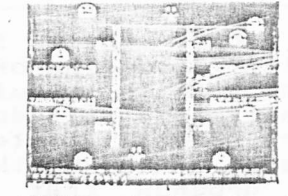
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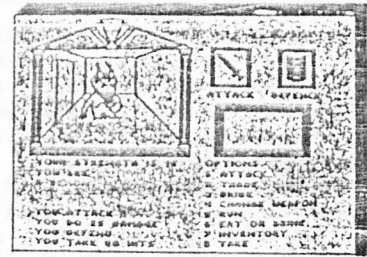
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