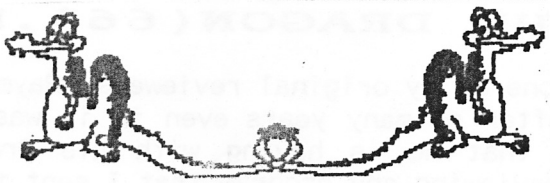
The Newsletter of the National Dragon User's Group

DRAGON UPDATE



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CHAIRMAN: *Paul Grade. 6,Navarino Road, Worthing, Sussex. Phone:01903-207585*
EDITOR: *Stephen Wood. 52,Downsway, Springfield, Chelmsford, Essex.CM1-5TU.*
S/WARE EDITOR: *Mike Stott. 10,Mellor Close, Prescot, Merseyside. 0151-480-7712*

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ISSUE 110 *Another Year Gone Already!* *DECEMBER 1996*

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THE GAFFER'S BIT - - - - - - - - - - - -

It's here once more, the season of hangovers, indigestion, bills, and family rows, so be happy, celebrate, be of good cheer, because it's 365 days until you have to endure it all over again!. Of course, this assumes that you're still in circulation and not in nick. Our Glorious Leaders seem to have come up with the perfect solution to the unemployment problem .... make everything illegal, so everyone will be in one or other of H.M.Nicks and there will be no-one left outside to be unemployed at all. Of course, there are one or two slight snags to the plan .... like there wont be anyone left to do the actual nicking either, but I'm sure they'll soon find a solution to that. Funny bit is that old "Crack Down On Crime" Howard, who seems to be the author of this super-plan has been ruled to have acted unlawfully at least a dozen times by now, and under his own proposals anyone nicked for the third time should be sent down and the key thrown away .... I reckon he gets away with it by pleading insanity, no-one could argue with that defence, surely?!. Anyway, if you're still managing to evade capture, please don't forget to tell everyone that you do NOT want a Genuine Intel Inside Pentium Pro Complete with Full Multimedia Specification and Internet Ready for Christmas ... you'd MUCH rather have another pair of fluorescent purple socks and another Economy Size bottle of Eau de Chat after-shave again this year as usual .... you WOULD, wouldn't you?. There are far too many Dragon owners turning to PC machines now (yes, I know I'm typing this on an x5/133, but the D64 still has just as much desk space, and still gets used as well!), but I still get phone calls and letters from people who took their old D32/64 outfit to the local car boot sale a couple of years ago when they bought their PC, and who now want to know where to find a replacement for it because the PC didn't solve all their problems after all, and is such a clumsy heap of plastic to program!. So, even if Auntie Ethel does insist on sending you a New Oven Ready Pentium, take it back to the shop and change it for those socks!. (Like you did the Miss Piggy Boxer Shorts last year!)

Seasonally Adjusted Greetings...

Seeing as how Christmas (yes, it's nearly Christmas) is a time for repeats (same shows on TV as last year, same presents/socks/sweets as you got last year, same turkey day after day) I thought I'd indulge in a bit of repetition too, just to join in with the spirit of things. Unusually, I thought I'd repeat myself by asking for some articles for the new year. Frankly, you're going to need something to take your mind off of the TV, pressie, and turkey repeats, and what better solution is there than to send us a page or two to use in future issues.
A hearty yo-ho-ho and thanks to everybody who HAS written articles this year, enough to see us through one more issue at least, hope to hear from you all again in 1997. A hearty no-no-no to our Revered Chairman for keeping the Group going for another year. Frankly, I suspect that he's now doing it for a bet, just to spite us. SW .

PEEKING THE DRAGON(66).MIKE STOTT

Have just heard from one of my original reviewers, Raymond Roach. It was nice to hear from him again after so many years even if it was only to ask for my help concerning a problem that he is having with his Dragon. Raymond was always willing to help with reviewing any program that I sent to him in my early days as Software Editor for the Group. Now I have got no reviewers at all, not very surprising when there is very little software to review. Raymond left the group a few years ago and is now using a PC although he still has a fondness for the old Dragon and wishes to be remembered to all his old friends in the Dragon scene.

Last issue I told you about the non-arrival of the two "new" items from the group - BALLDOZER and ROTABB. It turns out that Paul had sent them but they got lost in the post like so many other things. I have now tried them and they both appear to run the same as the disk versions that I have already got.

Last time I reviewed BALLDOZER so this month I will tell you about ROTABB.

ROTABB, or REVENGE OF THE ALIEN BONGO BEAST IN THE CRISSY CROSSY LINES DIMENSION to give it it's full title, first appeared on the Dragon scene at Ossett as a demo and I can remember Jonathan Cartwright and others raving about it when they saw it. I have not reviewed it before but Ian King produced a very good and thorough review in Update and then young (at the time) Philip Stoneman also gave us his views. The save-game feature from the cassette version is still there but, unfortunately, only to tape. Still that is better than nothing as most Dragon games did not have the ability to save high scores and I find that this is very important to me for a good game. I find that the control of the spaceship is very hard to get used to, being fairly similar to ASTEROIDS although slightly easier than that. Although youngsters appear to like the story line judging by the two reviews I must agree with Ian King. Thankfully, with the disk version, you load the game and then have the choice of reading it or not. I think it is a reasonable game but not one of the best ever as Ian says in his review.

Maybe it is me that is out of step here as everybody else seemed to think that it was marvellous at the time. Having said this I still find it fairly addictive now that I have been testing it out to write this review. I find that I want to have just one more go to see if I can get past the next "end of level" monster and progress to the next level. Philip Stoneman gave the cheat for this game in his review so if you want to find this out look through your back copies of Update.

Personally, I think that the cheat completely ruins this game unlike BALLDOZER or BEANSTALKER where it came in handy to be able to work out a strategy to be able to complete a certain complex screen. Briefly for those who have not read the previous reviews you have five lives to find your way through enemy craft etc to destroy the enemy installations, using a radar screen on the right of the playing area to help you get through. When these are destroyed you are faced with a monster which homes in on you and is very difficult to destroy at first.

You then get a rest while you are shown the bonus points etc and a name for each level. Then it is off again following the crissy crossy lines to find the next enemy base to destroy. I have not yet found even the smallest bug in this program which must be a first for a computer program. The scrolling is very smooth and the graphics are certainly passable. At three pounds and fifty pence this has got to be good value for money if you have not yet got a copy. If you do not own either ROTABB or BALLDOZER I would personally recommend BALLDOZER but if you prefer "shoot 'em ups" then ROTABB would probably be more up your street.

Oh, hang the expense!. Why not treat yourself to a copy of each and help support group funds.

Do not forget to tell Paul that you are buying it because of yours truly to ensure that I receive my commission. I think Paul said I would get one hundred pounds per copy sold but maybe I misheard him.

*** Sorry, Mike, your hearing aid must be due for new batteries again! ... what I said was ".001 pence commission per hundred copies sold!". What do you think this is, Microsoft??!. Paul.*

Upgrading to 64K. Stewart Orchard

As advertised in Update, the manual by Bob Hall assumes a certain level of knowledge of electronics and skill with soldering tools, ie not for the absolute beginner. However, the instructions are clear and easy to follow, and as long as you have the right tools and can navigate around circuit diagrams you won't get stuck. You first have to source some memory chips; suppliers are listed in the manual. Next, the 32's decoder circuit needs to be modified to behave like a 64. This involves soldering in few patch wires and cutting one PCB track. To do a really neat job with the patch wire, push on some silicone rubber sleeving before soldering the wire in place. The sleeving can then be pushed back right up to the joint, both insulating the bare portion of wire and making the modification look tidy. After completing this intial stage, the Dragon can be reassembled and tested. You should notice no difference in function. Now, onto the real work! The manual details various upgrade methods for the different designs of Dragon out in the field. Mine happens to be the most common version, so what follows will be applicable to most people. First, we have to remove the old memory chips to make way for the new ones. Remove the SAM and CPU chips, which are static sensitive and could have their life expectancy reduced by discharges from a soldering iron. Use an anti-static wrist strap if possible, or else connect yourself to earth with a piece of wire via a 1MOhm resistor. If you wish to remove the memory chips intact, and have an IC desoldering tool, you can make life a lot easier by first removing all of the decoupling capacitors which are in the way. Go over all of the IC pins with a soldering iron and straighten them with a screwdriver. Add a little solder to each joint - this will help the desoldering process. Desolder the pins on one side of the chip at a time. Apply the soldering iron, wait for thesolder to melt on both sides of the board, and then lever the chip out by gently twisting a screwdriver between the chip and the board. Do not use undue force, as it is all too easy to damage the plated through-holes in the board. The chip can now be removed with your fingers by desoldering the pins on the other side. If you're not worried about removing the chips intact - they'll be worthless except as spares for a 32 - you can snip the pins with miniature side cutters. The portion of the pin left in the board is easily removed with a soldering iron and pliers. The next stage is to install eight IC sockets for the new chips. The holes, which are now filled with solder, must be re-established so that we can get the sockets in. The best way to do this is with a desolder pump. Hold the soldering iron on one side of the board and the pump on the other. With any luck - and practice - the solder will be sucked out of the hole. Without a pump, the next easiest way is to melt the solder and simultaneously pass a 5 inch piece of tinned copper wire through the hole, hopefully picking up all the solder as it passes through. This requires a lot of patience and wire! Some people say that desolder braid is the stuff to use, but it's expensiive. You could also go through the holes with a 0.3mm drill, but this carries the danger of drilling out the plating. That represents the bulk of the work. All that remains to be done is to reroute some of the lines on the circuit board so that the new chips are receiving the correct voltages and signals. Also replace any decoupling capacitors that were removed earlier. For cost reasons, there tends to be a shortfall of capacitors, so if you can fit more, do so, as it improves the quality of the display. Before fitting the new memory chips and replacing the SAM and CPU, thoroughly check that the correct voltages appear in the correct places with a multimeter, as a mistake here will be very expensive in terms of time and money!. Assuming that life is fair, the reassembled Dragon will switch on as normal. For those so inclined, the machine is now OS9 compatible. The upgrade manual also describes a number of programs which allow you to access the extra 32K from machine code or Forth. You could, for example, store a lot of program code in the extra memory, leaving all the low memory available for source code. Other possibilities include a HiRes text display that doesn't steal memory from BASIC, and customising BASIC and DOS by running them in RAM instead of ROM. With a bit of ingenuity, you could even load in a slightly patched copy of the D64 ROM and have 48K to program with.

Dragon Sound 2...Gareth Tuttiett

After playing with the previous programs, I wanted to plot these values on a graph in real time. I carried out a few experiments with static number lists, but how was I to convert the 1s and 0s into a single figure? I realised that these values could be treated as a single 4-bit binary value and therefore a single decimal value - listing 3. The trace worked, but instead of drawing a scale grid before each scan, I created the screen and then saved it as a BIN file, although for tape users it might be better and quicker just to DRAW the screen in PMODE 4,5 rather than CLOADM it. Therefore, each time the program runs, it loads the screen into PMODE4,5 and after each scan it PCOPYs it and erases the last one. It's fast and actually looks like a real oscilloscope, although nowhere near as accurate. Put on your favourite music tape, run the program, and watch!. Great, 4-bit monitoring, but what if I could use the four values and create an 8-bit value? Look at lines 140 to 160 in listing 4. Line 140 is assigned to variable D this time, but using the same values again, imagine that these bits are the top-end of an 8-bit binary number and convert accordingly to variable E. Line 160 adds the upper and lower four bits to get variable X.
This change makes the trace too big to use the Y axis (192 pixels), so the trace was turned around and now goes down the screen on the X axis (256 pixels).
It is interesting to watch the trace and hear the music, in particular how the trace often 'fits' the music particularly well. This varies according to volume, sound frequency, and how much is happening in the music, so try simpler music to get a slightly more accurate trace. So there we are. I had nothing to write about so did anyway - well, at least I raided my program archives to bring you the above. When was the last time you looked at your own programs? You never know, there may be an article just waiting to get out.

```
10 PCLEAR8:PMODE4,5:SCREEN1,1:PCLS
20 LOAD"OSCILLO2.BIN",9216  '**OPTIONAL
30 FOR A=1 TO 4:PCOPYA+4 TO A:NEXT A
40 'SIMPLE OSCILLOSCOPV1.5
50 'BY GJ TUTTIETT 28/6/87
60 'REVISED VERSION 1996
70 'SOUND INPUT THROUGH CASSETTE PORT
80 AUDIOON
90 PMODE4,1:SCREEN1,1
200 A=0:P1=65312:P2=65320:P3=65328:P4=65336
210 'DRAW START LINE
220 LINE(0,130)-(1,130),PSET
230 FOR T=1 TO 255
240 A=((PEEK(P1))*1)+((PEEK(P2))*2)+((PEEK(P3))*4)+((PEEK(P4))*8)
250 IF A=15 THEN A=0
260 'PLOT TRACE
270 LINE-(T,(130-(A*5))),PSET
280 NEXT T
290 GOTO 30
```

```
10 '8-BIT SOUND TRACE V1.3
20 'GJ TUTTIETT 1990/1996
30 FOR A=1 TO 4:PCOPYA+4 TO A:NEXT A
40 P1=65312:P2=65320:P3=65328:P4=65336
50 AUDIOON
60 'REVISED VERSION 1996
70 'SOUND INPUT THROUGH CASSETTE PORT
80 AUDIOON
90 PMODE4,1:SCREEN1,1
120 PMODE4,1:SCREEN1,1:PCLS
125 LINE (0,0)-(1,1),PSET
```

(Continued on following page)

```
130 FOR Y=0 TO 191
140 D=((PEEK(P1))*1)+((PEEK(P2))*2)+((PEEK(P3))*4)+((PEEK(P4))*8)
150 E=((PEEK(P1))*16)+((PEEK(P2))*32)+((PEEK(P3))*64)+((PEEK(P4))*128)
160 X=E+D
175 LINE-(X,Y),PSET
180 NEXT Y
190 GOTO 120
200 A=0:P1=65312:P2=65320:P3=65328:P4=65336
210 'DRAW START LINE
220 LINE(0,130)-(1,130),PSET
230 FOR T=1 TO 255
240 A=((PEEK(P1))*1)+((PEEK(P2))*2)+((PEEK(P3))*4)+((PEEK(P4))*8)
250 IF A=15 THEN A=0
260 'PLOT TRACE
270 LINE-(T,(130-(A*5))),PSET
280 NEXT T
290 GOTO 30
```

Disc P.S.Us etc..Peter Thornburn.

When I acquired the 2 Dragon 64's and dual drive system it was obvious that whoever had the system before me had removed at least one of the drives and lost most of the bolts attaching the drives to the case frame. This had led to one of the drives shorting against the case and fusing one of the 12 volt power supply circuits. As only one drive operates at a time, I powered both from the remaining good 12 volt supply. It seemed to work but was extremely unreliable and on most attempts at getting a directory I would simply get an RF error. On the occasions when it would boot a directory it seemed that the drive system needed to "warm up" first. I managed to find some bolts which would fit the drive frame/drives, gave the matter some thoughts over several pints and came to the conclusion that the problem was not to do with the 12v. supply but with the 5 volt circuits - the disks weren't being read properly. After a close inspection of the PSU circuit board I noticed two dry joints on the 5v. power side. Having re-soldered the joints I now have a dual drive system that seems to work perfectly without having to "warm up". Several more pints of ale were "downed" to celebrate.I tried the 4 disks I had acquired with the 64's in a Dragon R.M.S. box and it seems that I have an OS9 system disk. Could a short series of tutorials be published in Update or have some been done in previous issues? Has anyone got a spare manual I could buy/borrow/have? Surely I can't be the only Dragon owner who has joined in the last couple of years and requires information. It has been mentioned in Update that the number of members has been steadily falling. How many members are left? Is it worth publishing a full contact list and perhaps placing some free adverts. in Micromart about the group and who to contact? Would it be worth trying to resurrect an annual group get-together? What do the remaining members feel about this? Are there enough to form small local sub-groups so that members could get together on a more regular basis? I for one would be interested and would willingly offer my time. One thing I must get for my Dragon is a decent word processor. Is there one that will run on OS9? I'm having to do all my word processing on an Oric at present which means packing the Dragon away each time I want to write a letter!. Was a comprehensive list of Dragon software ever published?. Well, I think I've rambled on enough on this occasion but I feel the points I have raised are serious ones and I would be interested to get feedback from the other members. Contact me at:5,Greenacres Drive,South Normanton, Derbyshire. DE55-2LA.

There was a software guide published by Peter Hawes, an ex-group member. Has anyone still got it? Otherwise see the group SALE, or contact Brian O'Conner, of Pulser Software, who must have the best selection of software available.Ken Grade

DRS Problems.Richard Thorburn

Members will know that the Grosvenor DRS database in disk format can create upto seven 22K file segments under one name, so a mailing list for example could be split alphabetically. Upon transferring my tape-based DRS file to disk under SuperDOS E6, I planned to store as many files as possible on one double-sided 40T 5.25" disk, but experience has shown that there is less hassle if the letters A-C, D-F and so on down the alphabet are stored under separate files rather than storing them under one filename as suggested by the manual. I have found that this does not always work! - after working on segment 2, for example, the flashing X for eXtend may be indicated in the save routine, but if the file is eXtended in this way, then the previous segment 3 (if there is one) is likely to be overwritten. On occasion, a data file is allowed to eXtend to a second or third segment if there is enough room on the disk. When the file is next update, the program is qquit and the file in question if either killed or saved to another disk. If the data file is killed following a quit, and DRS is re-executed and the file re-saved (very often with the same filename) only one 22K segment is now being used. If a file is re-saved in this way, there is a risk of losing the whole file, hence it is adviseable to save the file to another disk and kill the original; the new version can be copied back to the original disk at a later date. Using double-sided 40T disks for DRS only, another slight problem reared its head. Six separate files - FILE1.DRS to FILE6.DRS, for example - are saved normallyy, but FILE7.DRS reports a DOS ERROR PT - protected file. There are NO protected files on the disk in question, nor is the write-protect tab in place. Exiting the program and reading the disk directory gives 13346 or 13348 bytes saved instead of the normal 22528. On loading the file the contents were all present and correct. Further experimenting showed that file numbers 8 to 12 saved normally, but then another "short-length" file would be saved - can anyone explain?. To determine a possible cause for this, with regard to the fact that most Dragon disk programs were designed with single-sided drives in mind, a double-sided 40T disk was reformatted to SS40T. This seems to be the answer, but with the resultant reduction in storage space from 351K to 171K there is just enough space to get seven DRS files on one disk. Corrupted files are another problem for disk users, so it is adviseable to have at least one backup copy of your disks should a problem arise. A mailing list of over 600 names and addresses split over seven files was slow to print off in batches; the organisation concerned wished to have the addresses in near-enough alphabetical order ffor checking off. A simple solution was found - design the layout using the key field facility to your advantage, by placing a three-number field (000) at the top left of the display, leaving a blank space between it and the rest of the first line (which is now field number 2). Now, a one, two, or three digit number inserted in the first field automatically sorts the database into numerical order. For ease of operation, the contents of the second field follow the alphabet as much as possible.

Many grovelling apologies!.

Ok, so there are more typo errors in this issue than ever before, and the layout leaves so much to be desired that it ought to qualify for a part in Baywatch, but I DO have an excuse, it's all down to this "modern technology". Our Revered Editor sent me the master disc containing all your literary masterpieces, and I carefully formatted it into nice neat pages, corrected the (few) typo and spelling errors I could find, and got it all ready for printing the masters for copying. Being a careful type I not only saved the lot to the hard drive, I even made backup copies to a 3.5 disc as well. Guess what?!. I accidentally managed to delete the h/d files, and having over-written them before I noticed, they were lost and gone for ever, but all was in order as I had the copies on a 3.5 disc, didn't I?. Briefly, NO, I DIDN'T!. The damned thing was totally corrupted, with the result that this "reformatted" issue is being made up in one Hell of a hurry. Never mind the quality, feel the speed!. P.G.

Sector Refresher...Mike Townsend

Continually playing your favourite cassettes will cause them to fade in clarity, and this can also happen to discs that are regularly read from but never written to. Bad sectors can sometimes occur and prevent the file from loading. If you try SREADing the sector you will get an error and possibly believe that the READ operation failed, but if you PRINT the sector you will realise that you did actually read something. If you now SWRITE the sector, I have found that it will not only cure the fault but also make the sector readable. Your data may be corrupted but you may be able to load the file and correct the bad data. On one of my DS40 track discs I once found 16 bad sectors, but after using the program below this had dropped to 6 and several files were retrieved. If you hit a bad sector when running a program it will bring it to a halt, if it wasn't for that beautiful command ERRORGOTO. This can redirect the program to an attempted correction routine. The Sector Refresher is ideally a prevention, but in some cases it can also be a cure. Line 22-29 are the refresh routine. Line 25 keeps track of all the fun and is almost as exciting as watching paint dry, my DS40 track discs take about 15 minutes to complete, and I conned our Software Editor into trying it out on his 80 track 3.5" drives. Apparently it works OK, eventually. I know typing is a pain, but don't miss out line 35. Alternatively, send me a formatted 5.25" DS or DD disc at 48 Hewlett Road, Cheltenham, GL52 6AE and I'll send you a copy.

```
0 CLS:CLEAR1000:TI$="********************************** NDUG DISC SECTOR
  REFRESHER **********************************":PRINTTI$
1 PRINT@167,"rUN REFRESHER (R)":PRINT@231,"eND PROGRAM (E)"
2 Q$=INKEY$:IFQ$=""THEN2
3 IFQ$="E"THEN35
4 IFQ$<>"R"THEN2
5 CLS:PRINTTI$:PRINT"    ENTER DRIVE NUMBER (1-4)"'drive
6 Q$=INKEY$:IFQ$=""THEN6
7 D=VAL(Q$):IFD<1ORD>4THEN6:ELSEPOKE1546,D
8 'read track & sector numbers
9 ERRORGOTO11:PRINT@200,"CHECKING FORMAT":WAIT550:SREADD,20,1,A$,B$:
  CLOSE:TR=ASC(MID$(B$,125)): SE=ASC(MID$(B$,126)):GOTO22
10 'track 20 fault
11  ERRORGOTO14:PRINT:PRINT"  ERROR  IN  TRACK  20,  ATTEMPTING    TO  READ  TRACK
16":WAIT550
12 SREADD,16,1,A$,B$:CLOSE:TR=ASC(MID$(B$,125)):SE=ASC(MID$(B$,126)):GOTO22
13 'track 16 fault
14 PRINT:PRINT" ERROR READING BOTH DIRECTORY    TRACKS. PLEASE IDENTIFY FORMAT
OF DISC.":PRINT:PRINT" 40 OR 80 TRACKS (4 OR 8) ?"
15 Q$=INKEY$:IFQ$=""THEN15
16 V=VAL(Q$):IFV=4ORV=8THENTR=V*10:ELSE15
17 PRINT" SINGLE OR DOUBLE SIDED (S-D) ?"
18 Q$=INKEY$:IFQ$=""THEN18
19 IFQ$="S"THENSE=18:GOTO22
20 IFQ$="D"THENSE=36:ELSE18
21 'refresh
22 CLS:PRINTTI$:TB=0:SB=1
23 ERRORGOTO31
24 PRINT@166,"REFRESH IN PROGRESS":PRINT@230,"TRACK     - SECTOR"
25 FORT=TB TOTR-1:PRINT@236,USING"££";T;:FORS=SB TOSE:PRINT@248,USING"££";S;
26 SREADD,T,S,A$,B$
27 SWRITED,T,S,A$,B$
28 NEXTS
29 SB=1:NEXTT:GOTO0
30 'errors for refresh
31 ERRORGOTO32:SWRITED,T,S,A$,B$
32 IFS<SE THENSB=S+1:TB=T:GOTO23
33 IFT<TR-1THENTB=T+1:SB=1:GOTO23
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{Continued on following page}

```
34 GOTOO
35 CLS:PRINTTI$:PRINT" IF THIS PROGRAM WAS USEFUL TO   YOU, PLEASE SEND A
   DONATION TO  N.D.U.G. FUNDS.                                  THANK
   YOU.":PRINT
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Safety In Numbers...Bob Smith

...or is there? If you are interested in numbers then you might find this interesting. In the western world we all use the decimal system - numbers to the base 10. That is to say, we have 10 hieroglyphics that are the digits 0 to 9. To count to larger numbers than 9, we build these digits into a system where the position of the digit tells us how far we have counted. Thus 56 means that we have counted from 0 to 9 five times and then 6 more. All number Bases are position systems. A system that does not use positions in this sense is the one used by the Romans where they had letters I V X L D C and M. They then combined these letters in groups so that one knew whether to add or subtract combinations, thus MCMXCVI means 1996. I don't think the Romans had much use for numbers as great as this, and I think that Hollywood will be getting a shock in four years' time when the credits will suddenly be bearing such easily calculated years as MM and MMI, but they'll probably dream up MDCCCCC or some such nonsense. Computers are built on large numbers of switches (bits) which can be on or off. Off is zero, on is one. Thus a computer can only count from 0 to 1 in its first position. To count to three, is has to count from 0 to 1 once, count that it has done this is position two, then count once more in position one, giving the number 11 as the final result. For every base, the number of different hieroglyphics needed is the same as the base number; base 2 needs 2, base 10 needs 10, base 256 needs 256 etc. Unfortunately, we humans need to have a base that relates to our everyday experiences. We have ten fingers, so base 10 is appropriate. Most numbers we deal with are comfortably small and comprehensible - 100 runs on the cricket field, 365 days in most years, but the base 2 equivalents (1100100 and 101101101) are not so easy to live with, unless you are a computer! Thus, we need to tell the computer to do some complicated arithmetic to convert millons into a number understood by humans. The computer works best in perfect bases, which is a base where one or more bits are used to represent a digit, and where all possible combinations of the bits are used. Thus base 2 uses one bit per digit, and all possible combinations (0,1) are used. Base four uses two bits, and again all combinations are used (00, 01, 10, 11). The next perfect base is 8, and as you have probably guessed all perfect bases are a multiple of 2. In the early days of computing, mainly on IBM mainframes, a byte length of 6 bits was used. Thus one byte could represent one digit to base 64 or two digits to base 8. As base 8 is not too far removed from base 10, base 8 was chosen - the Octal system. Other mainframes used 8 bit bytes, some even 9 bits. Thus the maximum numbers were 77, 377, and 777 respectively. When the Personal Computer made its entry, the byte was standardised as 8 bits. It was not very satisfactory to use the Octal system because the most significant digit could only use 2 bits. The byte was divided giving two digits each of 4 bits (a nibble). The perfect base using 4 bits is base 16 - the Hexadecimal system, usually called Hex, and computer buffs are bewitched by this. Base 16 needs 16 hieroglyphics to represent numbers, and the digits 0 to 9 were used plus (unfortunately) the letters A-F for the higher digits. Thus even people who understand Hex will say "Three Dee" for 3D when they actually mean "Thirty Dee", and "Dee Three" for D3 when they mean "Deety Three". Base 10 is an imperfect base. To represent one digit we need four bits, but the highest digit 9 is 1001, so we have not used all the combinations of bits. This is wasteful of computer power, so we continue to use the four bits up to the maximum number of 15 (1111). We then start using 5 bits for the next numbers, and so on up to 255 which is the largest decimal number we can hold in 8 bits - 11111111. It is fairly easy to convert one perfect base to another, and only needs a little bit of practice to see that 10100110 is 2212 to Base 4, 246 to base 8, and A6 to base 16. It needs,however, some complicated arithmetic to find out that it is decimal 166.

IBM/PC Report(2).Sotos Mandalos.

IBM's entry into the microcomputer market did more than just legitimise it. While there were no official standards at that time, the architecture of the original IBM PC and the PC-DOS operating system emerged as the defacto standard. This single standard has accelerated the migration from older 8-bit machines to new 16-bit, 32-bit and now 64-bit technology and allowed Other Equipment Manufacturers (OEM's) to develop an incredible array of compatible software and hardware peripherals. The pioneering phase of personal computing has given way to a period of colonisation. Most organisations have come to some agreement on how personal computing should be conducted and how hardware and software should be acquired and supported. These same companies are beginning to address issues like providing training,building applications and how to tie personal computers into mainframe-based information systems. Data processing has traditionally been a battleground between parties competing for the few people who possessed the skills necessary to retrieve data from the mainframe. The DP backlog became a fact of life.The fault was invariably too much work for too few people. With the PC, this situation changed. The revolution that PC's sparked was the discovery that data could be manipulated without the help of a programmer or systems analyst. With the aid of spreadsheets, database managers, and word processors, personal computer users became accustomed to exceedingly rapid turnaround of information requests. But at the same time, many of these users have been isolated from corporate databases. The next phase in the microcomputer revolution wadis the integration of stand-alone PC's into mainframe DP/MIS framework and sophisticated servers which accommodate the Network Operating System (NOS) which handle all the requests and traffic on the network, providing the services like a big mainframe system. Such an NOS is Novell's NetWare which currently holds around 75% market share on Intel-based servers and Local Area Networks. On the other side of the sophisticated environment is that of the powerful mainframes surrounded by intelligent PC's that are networked to each other and to the mainframe. Users do their basic processing locally on the PC and exchange data with a central mainframe. The smooth integration of the PC, LAN servers and mainframe will offer users the best of both worlds; the power and security of the mainframe processing centre tied to the flexibility of the PC. Of course there is a lot to be said about the operating systems, the software packages that are now only too well known. Microsoft has capitalised on this front. They have provided a lot of flexibility and strength onto the PC. Their disagreement to carry on with IBM was well justified. They know what they are doing. The PC is now so flexible that all are able to use it. It had some problems entering in the retail arena, but look at it now. Sales at Comet, John Lewis, Dixons and many others have soared and will continue to do so with all the sophisticated pieces of software that now exist. Do not forget it and do not knock it; we have created all this despite our basic start and the first steps we took with the Dragon. We have to progress and that is exactly what has happened.

GROUP SOFTWARE SALE.

The grand sale has gone quite well so far, and this is a revised list. I'll give more details on the utility programs, as these might be more in demand.

CARTRIDGES: DASM/DEMON;Demon is a machine code monitor which compliments DASM.Very useful for examining ROM, RAM or anything else.
EDIT+; A hi-res screen editor with extra commands added to BASIC. Upper and lower case on screen.
RAIL RUNNER; Arcade game-need I say more?

PRICE: £5.00 EACH,or offers for the lot.

UTILITY TAPES: RAINBOW WRITER; FILMASTR(database); SPRINT COMPILER(BASIC compiler); D.R.S. (database/filing prog.Transfers easily to disc. 2 copies.); SPRITE MAGIC(graphics designer,probably the best); ALLDREAM (tranferable to disc); DREAMPRT (word proc. using Dream editor); SHAPER(create your own sounds); PICTURE MAKER; PICTURE WRITER; TURTLE GRAPHICS (Salamander); DUPLIDISK;

DRAGON DATA UTILITIES:-Personal Finance(2 copies),Special Selection 2;Composer Companion; The Tape Doctor; TELEMOD (improvement patch for Telewriter); DUPLIDISK (tape to disk conversion program).
PRICE: £0.50 each; will haggle for batches of five and over.
TROJAN LIGHTPEN - SOLD
BOOKS: THE DRAGON COMPANION, M.Jarvis; PROGRAMMING the DRAGON for Sound and Graphics, Geoff Phillips; GUIDE to the D32, Ian Sinclair; ADVANCED SOUND and Graphics, Keith and Steven Brain. All in good condition.
PRICE: £1 each.
They are also 20 original games tapes,including adventures, like Colossal Cave, Madness and the Minotaur, etc, flight simulators, and general arcade.SPECIAL:- The four SNIPS software tapes; CRAPS, MUBUNGLY, TELEPATH AND CECIL PLAYS 21.
PRICE: £0.50 each, or offers for lots of 5 and over (postage gets heavy for tapes, so can't haggle very much).
JOYSTICKS: A PAIR OF unbranded sticks - £4.00. One D.D.joystick:-£2.00
BOOKS: £1.00 each, or offers for the lot.
HARDWARE SALE:
3 DRAGON 32's, with all leads and power supplies, tested; £10 each.
Must be worth it for spare SAM chips!
1 EPSON LX850/LQ1050 cut sheet feeder. New, still in its box: £10.
If you want more details, phone me on Worthing 207585 most evenings & I can give a full list and come to an arrangement on price/postage. Ken Grade.

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The Late, Late Bit.....

OK, OK, so it's Christmas, just like it was last year!, but you don't really want me to waffle on about that, do you?. Currently I feel more frozen than festive, and anyway you'll have had more than enough "Christmas" when the end of year bills all arrive at once, accompanied by your credit card statements, the reminders for your car tax and insurance, and the customary charity begging letters. At the moment I'm still too peeved with the current political idiocies to feel much enthusiasm anyway. It's running up to election time, so it's Beano time once again ... "There Will Be No (anything you care to think of)" time. People get killed with guns, so ban all guns, people get killed with house bricks too, so why not ban houses?. Someone gets cut with a blade, so ban all knives, and why not ban screwdrivers?, people have been stabbed with those as well. Ban all violence on film and video .... poor old Tom and Jerry!. Ban pornography ... no more shoe adverts, pictures of sheep, underwear sections in mail order catalogues, and most of the National Gallery pics ... well, they all turn SOME people on. Ban the Internet because people can find out how to make explosives from it .... ban the public library, encyclopaedias, chemistry books and lessons, 'cos you can find out there too!. Ban sex, Ban cars, Ban roads, Ban dogs, Ban smoking, Ban everything and everyone except People Who Vote for Us!. I know, it's an acute case of Political Panic, but it has a severe emetic effect so far as I'm concerned. One day perhaps one of these so-moral political types will explain to me why it's such a Good Thing for people to go out and kill a lot of others, (military, civilians, kids, etc) that they have never met, know nothing about, and have nothing at all against, just because a bunch of political prats think it would be a good vote winning idea to designate these others as "The Enemy", and pose as "Great Statesmen and Leaders". Never seemed all that "moral" to me, especially when thumping someone who you DO have something against is supposed to be a "terrible crime", almost as serious as having a taste for smutty pics!. Oh well, 'tis a strange world, but in accordance with Traditional Values I suppose I ought to wish everyone (with the exception of politicians, naturally) all the best for Christmas and the New Year, so consider it wished. What's all this waffle got to do with computers in general and Dragons in particular?. Absolutely nothing at all, but if you insist, the very best of digital luck to anyone who gets a PC for Christmas!. You need it!. See you next year. Paul Grade.

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JUST TO SAY THANKS

I'M NOT SURE *WHY* YOU'RE STILL SUBSCRIBING TO THE OLD GROUP ... FOR THAT MATTER I'M NOT AT ALL SURE WHY I'M STILL RUNNING IT, BUT WHATEVER YOUR REASONS, MANY THANKS FOR STAYING WITH US AND WITH THE OLD DRAGON. EVEN IN THE PRESENT PC DOMINATED COMPUTER WORLD, THE DRAGON IS STILL A DAMNED GOOD MACHINE, IT MUST BE, TO HAVE SURVIVED THIS LONG!. SO MANY THANKS FOR NOT DESERTING!.

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