



THE NEWSLETTER OF THE NATIONAL DRAGON USERS GROUP.

DRAGON UPDATE



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The Gaffers Bit.....

I've made a great discovery.....I now know why this job has the title Chairman.....according to my computer I've spent almost 3000 hours in this chair since starting the Group, either typing up Newsletters or answering mail... I think I'll start a "Save the Chairman Fund", so I can treat myself to one of those well padded executive chairs, and delegate all the typing to Tim!!!.(maybe not....he'll probably resign!).

Anyway, to business. I'm now told that we WILL have a stand at the November Show. Next, many thanks to all of you who helped with the Touchmaster survey.....and even more thanks to Cathy Hyde for the very generous offers she has made available to us. For those of you who don't know it, the new Touchmaster number! is 0639-820310. Datapen Microtechnology have sent us a pen for use as a competition prize, and we'll probably be running the competition in issue 15. Most of you seem to like competitions, and if we could get more suitable prizes we could run more of them, so if you have any original software that you no longer require it would be much appreciated for this purpose.We urgently need defunct hardware for spares, too.....we're always willing to do repairs at cost plus postage, but when we have to buy NEW spares it makes repairs expensive. Come on, stop hoarding the junk...we can USE it to help YOU!.

Right, I think that's all Tim will allow me space for this month, so I'll let you get on to the interesting stuff. Don't forget you can write in, or phone any evening or weekend. (Well, I have to earn a living during the day!)
....Paul Grade.

Paul G.

THE EDITORIAL BIT.....

Straight into the important bits this month. As Paul said, we have a stand at the show now so I will expect to see lots of you there, I shall be there both days (hopefully) well I can't really get out of it as I only live just down the road, so come and see us (and tell everyone you speak to in the bar or otherwise to come and join).

With regard to the letter from Ted in this issue, yes I know it runs on a bit but as it's the only thing I've got praising Compusense I thought it had better be aired lest I be accused of bias, but I shall use this space to point out that although I agree that Compusense have to make a profit, the Eurohard/Compusense pricing policy is ridiculous. The pricing of the D64 at 200 quid when at least 3 or 4 other 64k machines retail for less is not going to convert those poor mortals running other machines or looking for a first machine and the same applies to the dropping of the 32. Finally, why do Compusense only advertise in Dragon User?. Surely an ad in the other mags might bring more people into the fold. After all, the only people who are going to buy Dragon User are Dragon users!. Doesn't make any sense at all to me..T.L.

COMMUNICATIONS (3).....GARY COXHEADPART THREE - STEP BY STEP CONNECTION

Although connecting up to a bulletin board sounds easy, one word of caution. Always remember to connect up with everything SWITCHED OFF. I know some of you will say 'we know all that', but, after spending a lot of time, effort and not to mention money (I said not to mention money !!), it would be criminal if all that went down the tube for a careless moment ! To connect up, start at the dragon end. Plug in the RS232 interface, if required, then connect the interface to the modem. Most modems and interfaces come with advice on what connectors are required, but if in doubt ASK. The normal RS232 connector is a 25 way 'd' shaped plug or socket, but as I said in an earlier article, each manufacturer has his own standard !! My own interface has a 9 way 'D' plug. If you have a hard wired modem then now is the time to plug it into the telephone socket. If you have an acoustic modem then you cannot fully connect up until you have dialled the system, but more of that in a moment. Now everything is connected up, switch on everything (computer last) then load and run your terminal software. Some interfaces may now require switching for length and baud rate, but for most of you, this should be handled by the software. For most bulletin boards 300 baud, 8 bit word, no parity and 1 stop bit should be OK. For 1200/75 systems 1200 baud receive, 75 transmit should be selected with 7 bit word length, even parity and 1 stop bit. If your modem is multi-speed, don't forget to set it for the system you are calling. So, now is the time to dial up the board you want. For starters, try the Dragon board on 0376 518818 or Jim Bell's Co-Co board after 10pm. Remember that evenings are particularly busy so you may find it hard to get through the first time. Now at this stage, if you are lucky, the phone at the other end will ring once or twice (it varies with the system), the phone will be answered with a high pitched 'carrier tone'. This means that the system at the other end is 'on-line' and is waiting for your carrier tone. To obtain this switch your modem to 'on-line', 'line hold' or 'call mode', and you should hear your modem's carrier tone. Those of you with acoustic modems should now place the phone handset firmly down in the rubber cups. For those of you with hard wired modems, put the phone down. The modems should now be locked together 'on-line' and the system will start to send you a welcome page. If nothing happens try pressing 'enter' once or twice, this should start the system off. After you have seen the welcome page, follow the prompts to enter your first and last names and the town you are calling from. The board will now search it's user log to see if you have called the system before. If so, you enter your password and off you go. If not, it will go through some format pages asking you what type of terminal you have, screen width, whether you can handle lower case and about line feeds and nulls. Most of you will understand the first two, but the last two will be explained in the next article. For those of you itching to go ahead, it is safe to say that the Dragon does not require line feeds after carriage returns and does not require nulls. Once on, the system will ask you for a password which you must use from then on, each time you call. You should then be given some help pages for first time users and how much time you are allowed for your call. If you have a printer, now is the time to get a hard copy of the instructions and help pages !!! After the Log-on sequence you should be shown a menu, and this is the time to explore !!

Some helpful hints:-

- 1) Watch the time, you'll be on there longer than you think.
- 2) Most boards have a help feature for beginners. Print these out if you can and save time on your next call.
- 3) Don't use false names - it's annoying and unhelpful.
- 4) Check carefully that the board you are calling is operating at the time you call. Not all systems operate 24 hours and the Sysop (system operator) will not appreciate being woken up at 2am.
- 5) Most Sysops are enthusiastic amateurs. If you mess them about or mess the system up, they may decide to close down and that's one less board to call.

ASCI CORNER NEIL SCRIMGEOUR

This month's ASCI is going to be a lot of odds and sods. Firstly I would like to bring your attention to Microdeal's offer on the Rainbow Writer package. O.K., I know it's nothing to do with ASCI but as I reviewed it a few months back I thought I'd better tell you the good news if you didn't already know. If you look back at the review, I thought the package was excellent but with 2 snags, 1 was that the package was not disc compatible and 2 was the price, 19.95. Well I'm glad to say that the price is now an amazing 4.95. This annoys me (almost anything does) as I paid 20 quid for it, but at the new price, you've got to get it. For those of you who live in outer Mongolia, Rainbow Writer gives you text in hi-res and allows you to have loads of things such as subscript, superscript, column width from 32 to 64, and it can be incorporated into your own progs as it runs independently of the main package. A great piece of software.

As I said in the last ASCI, I am a member of the Master Adventurers club. The latest document had an interview with Level 9, and one of the first questions was 'why no conversions for the Dragon?'. The answer was the biggest load of tripe I have ever heard from a software company (and that includes Microdeal and Compusense), 'we haven't got a cross assembler to 6809 code. If we did we would convert them'. I can't see why they need a cross assembler. Why not just employ someone to convert them ?? If Incentive can for the KET trilogy (nice one John) and Software Projects for the Miner Willy stuff (and the soon to be released Loadrunner) then there is no excuse for Level 9. It seems that they like to do everything themselves from conception to production and if they can't see further than their noses as regards Dragon then they are a load of Wallies (oops, wrong company). Maybe we're better off in some cases as many of you know what I thought of Return to Eden, but it seems that the majority of Dragon owners play adventures instead of arcades and there is a large market out there.

This months ASCI will be my last one, alright you can calm down and stop putting out the bunting that you used for the royal wedding, you ain't getting rid of me that easily. After enormous pressure from my adventuring colleague, Pauline Hampson, I've got to stand down. I mean even the pussy was getting poison pen letters, and the budgie had a nervous breakdown months ago. I reckon it's something she drank, I've heard that the water in Stoke on Trent is a bit dodgy. Anyway, she will be taking over ASCI from next month so all relevant correspondence to her (before anyone asks, the address is in last months ASCI ..TL). Maybe she'll get a better response than I did!. Seriously, Pauline is a much better adventurer than I am and I need a change of scene. So next month (hopefully) there will be a new column called Dragon Diary for which I'll be responsible, but you'll have to wait till next month to see what it's all about.

So as a parting thought, I would like to give you one tip on adventuring. A couple of months ago, I found a book that is an absolute boon to any adventurer (or crossword freak). It's called a Thesaurus. I can see plenty reaching for their dictionaries ! one of the annoying things about playing adventures is that you can't find the exact word to use. An example is 'GET'. It could also be PICK, TAKE, CARRY etc. Using a dictionary to find similar words doesn't always work and recently my sister pointed something useful out to me. She's a smart ass and a Bachelor of Arts or something, anyway, because she did plenty of English lit etc., she had bought herself a package which consisted of a dictionary and a thesaurus. A thesaurus is like a dictionary but instead of giving the meaning of words, it tells you the synonyms, ie. words having the same meaning. Marvellous it is and it is cross referenced with categories like motion, intellect and organic matter to name but 3. The one I've got is by Penguin and was published in '62 but has had various reprints. It also comes with a straight dictionary. I don't know how much thesaurus' cost nowadays so pop into the nearest library and have a look at one to see if it's worth having. If you already knew about these books then why

didn't you tell me earlier?. [You didn't ask me.P.G.].

Ah well, that's all for this month folks. It's been a pleasure doing these little ditties, and thanks to all those who have written to me. Ain't it great, as soon as I finish ASCII, I get some letters from people who were stirred up by my moaning piece a month or two back. So a special thanks to Pete of London, thou shalt be mentioned in Dragon Diary at some future time. Apologies to Alan Cook for getting the address wrong.....it should have been 272 Mearns Road, Newton Mearns.Glasgow. Sorry Alan.

EDIT+ (COMPUSENSE) W. BORRMANN.

EDIT+, which contains HI-RES is available as a cartridge and on DragonDOS or Flex disc, I have used the cartridge version for over a year and am now using the disc version. The disc contains two versions, one for the 32 and one for the 64. When loaded, you are in the hi-res mode (51x24 display), you can now write programs, mixing text and graphics, design sprites, move them around and redefine the alphabet for different national character sets.

Type 'EDIT' and <enter> puts you into the edit mode, now you can edit your program, or load another basic program for editing. the cursor is moved around the screen to the desired position, then overwrite, insert or delete. In addition the following functions are available:- scroll up/down, go to a specific line, find/change a string, copy sections of text or one or more lines, enter basic commands, dump screen to printer. EDIT+ is without doubt a useful toolkit and I have found myself depending on it when debugging basic programs and converting programs from other micros. The fact that I got a disc version now that I have disc drives, after having the cartridge version for so long speaks for itself.

BULLETIN BOARDS

More from the list of bulletin boards.

NAME	BAUD	TELEPHONE	HOURS	COMMENTS
BEEBFD-NOTTS	300	060 231 3373	1900-2200	N/A
BIRMINGHAM-NTH	300	0827 288810	24	N/A BBS
CITY	300&1200/75	01 301 4110	24	GOOD TBBS
BLOXHAM-BANBURY	300	0295 720812	WD1800-1900 WE1400-1800	N/A
CABB-LONDON	1200/75&300	01 631 3076	24	GOOD TBBS
CAMBRIDGE	300	07677 7792	WD2000-2200 WE1300-1700	NEW BOARD
CBBS-LONDON	300	0895 420164	24	CP/M BOARD
CBBS-N.E.	300	0207 543555	1430-0900	N/A
CBBS	300	02073 28723	1830-2230	N/A CBBS

APOLOGY FOR THE DELAY.....

Before you all write in and tell me that this issue of Update was later than ever, and that I should extract fingers, shoot Editors, and similar suggestions.....

This Issue SHOULD have reached you well over a week earlier, but the Post Office really excelled themselves this time, and managed to lose the master copy somewhere between South London and Worthing.....a really epic journey of almost 60 miles!.

One can only assume that the Mail Coach was held up by Dick Turpin or similar characters while crossing Streatham Common or something!.

Anyway, please accept our apologies for the delay, but for once it really wasn't our fault. Honest!. Paul Grade.

M/C GRAPHICS FOR BEGINNERS..John Martin.

This page will attempt to explain how to get hi-res graphics working in machine code. Later the feature will explain how to get sound in machine code, but the page articles will only become regular if you want it to, so if you like what you see, write and tell us. To start with, all demonstrations will be in PMODE 4, as using colours causes problems which will be discussed later. How do we set up the hi-res screen? In M/C, to replace the instruction PMODE4, a number must be stored in locations &HFFC3, &HFFC5 and &HFF22. For SCREEN 1,0 the number is &HF0 and for SCREEN 1,1 it is &HF8. Therefore in assembler, to replace the instruction PMODE4:SCREEN1,1 use:-

```
LDA #$F8
STA $FFC3
STA $FFC5
STA $FF22
```

Many of you will know that in Basic the hi-res memory area starts at 1536 and ends at 7679. Well in m/c, just to be awkward, it is shifted down by 512 bytes and now begins at 1024 and ends at 7167, so to perform a PCLS, we must clear all these locations, ie.

```
LDX #1024
LOOP CLR ,X+
CMPX #7167
BNE LOOP
```

Now to produce something on the screen. To do this, a number must be poked into the hi-res memory area. Doing this will produce a series of 8 pixels, some of which will be 'on' and some 'off', depending on the number poked. The area of the screen where the graphics will appear depends on the location poked (there are 32 columns and 192 lines). Whether each of the pixels is on or off depends on the binary equivalent of the number poked. For example, 231=11100111. Poking this number into the hi-res area will produce 8 pixels somewhere on the screen, the first 3 will be on, the next 2 off and the last 3 on.

If we want to put this into the centre of the screen, the location to be poked will be $1024+(96*32)+13=4111$. So the complete program to set the hi-res screen, clear it and print 8 pixels in the centre of the screen with only the middle 2 off is shown below.

```
LDA #$F8
STA $FFC3      set pmode 4 and
STA $FFC5      screen 1,1
STA $FF22
LDX #1024
LOOP CLR ,X+    clears screen
CMPX #7167
BNE LOOP
LDX #4111      pokes the
LDA #231       number 231 into
STA ,X         location 4111
WAIT JSR 48101
CMPA #3        wait until break
BNE WAIT       is pressed
RTS            return to basic
```

If any of you would like help with a machine code graphics problem write to John at:-
35, Little Gaynes Lane, Upminster, Essex.

SERIAL PRINTER WITH THE D64. (Reprint).

The RS232 port can be used as the standard printer interface, instead of the centronics (parallel) interface. Which of these is used is determined by the PRNSEL location (\$3FF). A 0 (default in this location selects the parallel interface, non 0 selects the serial interface.

POKE &H3FF,0 ... selects parallel printer

POKE &H3FF,1 ... select serial printer

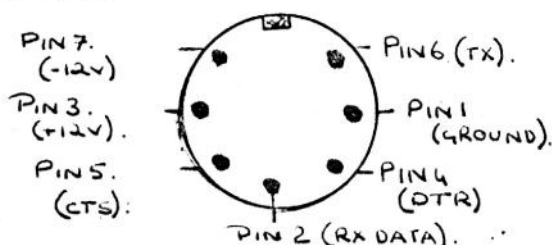
In addition to this printer select byte, there are 2 other bytes (\$3FD & \$3FE) which specify an end-of-line delay period, since some printers (especially serial) require this. The time delay is in increments of 10 milliseconds, ie.

POKE &H3FE,100

will provide a delay of 100*10 milliseconds (=1 second). The minimum delay is 0 (default) and the maximum is 655.35 seconds.

CONFIGURING THE RS232 INTERFACE

The pinout of the RS232 connector is shown below, the device which drives this interface is an R6551 Asynchronous Communication Interface Adapter (ACIA) which, like the PIA, is a programmable device. In it's default configuration, this device is programmed to produce 1 start bit, 8 data bits and 2 stop bits with no parity at 1200 baud.



Like all I/O devices in the D64, the ACIA is memory mapped and occupies the following address space:-

<u>ADDRESS</u>	<u>REGISTER</u>
FF04	Transmit data register (on write cycle)
FF04	Receive data register (on read cycle)
FF05	Status register
FF06	Command register
FF07	Control register

Because the ACIA is a sophisticated device with many options, it is not possible to cover the operation of this chip in detail here. In most instances, it is easier to configure hardware (printers, terminals etc.) to the default configuration by software as this is necessary every time the Dragon is switched on. The following Basic statement can however be used to select the baud rate of the device.

POKE &HFF07,((PEEK(&HFF07) AND &HF0) OR B)

The variable B holds a value which specifies the baud rate of the device connected to the RS232 interface. Possible values are:-

B value	Baud rate	B value	Baud rate
1	50	9	1800
2	75	10	2400
3	110	11	3600
4	135	12	4800
5	150	13	7200
6	300	14	9600
7	600	15	19200
8	1200		

This article is a reprint from "Inside the Dragon".

THE AIRBORNE DRAGON. R.A.DAVIS (G3RL0)

To get your Dragon on the air as a radio amateur is not as difficult as you might think and the benefits are very worth while. It would be a good idea to send an S.A.E. to the Radio Society of Gt. Britain, Alma House, Cranbourne Rd., Potters Bar, Herts. EN6 3JW. and ask for the leaflet 'How to become a radio amateur'. It would also be a good idea to enquire about the times and places where your local radio amateur's club meets and drop in one evening as a visitor, you'll get a good reception and plenty of advice (some good). In the old days when I first got my licence, you had to be able to write a fairly comprehensive series of essays on various aspects of construction, propagation of radio waves and operating regulations. All that has changed, the examination now consists of two papers of the multiple choice variety, where each question has five alternative answers and you just have to tick the box by the correct answer. One paper is on operating regulations and the other on technical subjects. When I explain that newly licenced amateurs visiting me have confessed that they do not know how to use a soldering iron, you can see that the old expertise is no longer required.

So, what is the next step? It's easy, you now enrol at, hopefully the evening class at your local college, for the course they probably provide for the RADIO amateurs examination (City & Guilds). This will probably be taken by an established radio amateur who himself will be able to give you advice about local clubs. If you enrol in September, your first opportunity to sit the examination will be around Christmas time, and your second around about March of the following year. The two parts are marked separately and if you pass in one but not the other, you only need to take the second part again. But with a couple of months of real application, you should pass, as memory is less important than understanding, due to the multiple choice style of examination. Armed with your City & Guilds certificate, you then apply to the G.P.O. Amateur Radio Licence dept., at Chesterfield for your call sign and licence. This will enable you to operate on frequencies of 144 Mhz. and above, with which under suitable conditions you can communicate with continental amateurs, and of course numerous amateurs in the U.K. at all times. You will be able to use your Dragon to communicate with other computers, using RTTY (Radio Teletype) and ASCII, and with other Dragon users using DATA. The first two do require interface units, but Dragon to Dragon is done just with cassette leads, sending data in packets (known as packet radio), and screens of graphics as well in both high and low res. And no large telephone bills !!!! M.J.Kerry, 22 Grosvenor Rd., Seaford, E.Sussex. BN25 2BS supplies programs for RTTY, etc., either on cassette or cartridge, and even if you are not licenced you can use this to receive RTTY if you have a reasonable communications receiver, capable of tuning in the amateur bands.

Mr. Kerry can also advise you of suppliers for the interface, which you can obtain as a kit or ready assembled, with a lead that fits the Centronics port. On 144Mhz. you can use the cassette 'ear' lead for reception. Many amateurs in the East Midlands are now Dragon Users, and we have a Sunday morning meeting on the air on 144Mhz., called 'Dragnet', when we pass data, listings, our latest efforts with graphics, music (in data form using the 'Composer' software facility), Dragnews, etc., It's a new aspect of computing, learning and helping newcomers, and a club with no fees.

If you want to work overseas as an amateur, you will now need to get your class 'A' licence. This involves taking a test in morse at twelve words a minute, in both plain language and numbers, separately. These tests are taken at coastal stations, and also at 'Mobile Rallies' when facilities are provided there by B.T.. It's not that difficult. Radio amateurs provide slow morse transmissions on the air for learners and I have several programs using M/C sound from the Dragon with which you can study at home as well. Some clubs also provide classes. this class 'A' licence allows you to use bands from 1.6 Mhz. up to 28Mhz. allocated to Radio amateurs, bringing Australia the U.S.A. and all parts of the world to your fingertips. It will soon include

some of the 50Mhz. band (the old VHF TV frequencies)

As far as transmitters/receivers (known as TX/RX) are concerned, again the old days have gone. Very few amateurs build their own gear and most use the excellent black boxes manufactured by- yes, you got it, the Japanese. Antennae ? (aerials to you). For 144Mhz. and above they are quite small in size and no more noticable than a TV aerial. On the lower, short wave frequencies they can be quite large, and planning permission will be needed. You will find that the majority of Radio Amateurs are patient, helpful and encouraging, whatever their nationality. At least that has been my experience over the past quarter of a century.

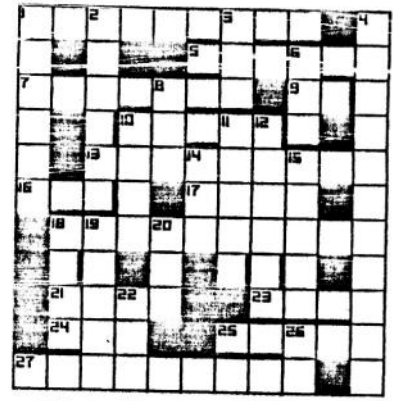
Best of luck with the tests.

X-WORD No. 4 ANSWERS

Across 3)UFO 6)EOF 9)Dragon 11)Home 14)Terrify 16)RND 17)CPU 18)Random 20)TV 21)Willy 23)Hotel 25)Rip 26)Ape 27)OK 28)Adventure
Down 1)Greater Than 2)Cartridge 3)Ugh 4)Foot 5)On Mayfair 7)Ore 8)Speed Up 12)Oil 13)Arc 15 Ring 19)AVO 22)List 24)Tea 27)OK
The prize for X-WORD4 was won by John Cox of Portslade.
This month's prize will be the Channel8 "Arrow of Death".

CROSSWORD No. 5

Across 1)Insect 5)Can be stepped on extended 7)Self starting 9)Supposing that 10)Disney deer 13)Popular Basic 16)Convent dweller 17)Real mixed up 18)Dragon grand prix 21)Set in motion 23 Upset US currency 24&11 down)Used for communicating with a computer 25)Copy closely 27)Re-arrange land taxes for car maintenance
Down 1)Popular Chinese decoration 2)Season 3)Cooling device 4)Agricultural nutrition 6)Not very bright 8)Motoring organisation 10)Mode of transport 11)See 25 across 12)Treasure found here 14)Primary colour 15)Small in reverse 18)Look for 19)One occasionally parks in UPDATE 20)Common market 22)Regard narrowly 26)After Jesus



DICKIES DEN . . . CHRIS PARKINSON

After having (hopefully) all the Manic Miner clones, the new age of Jet Set Willy clones is with us, and this is one of those.

Released by Quickbeam for 5.95, it would have been good value about a year ago, but now with the quality increase in games, it now ranks (to my mind anyway) about average and is not a patch on JSW.

The program loads in two separate parts. The first is an instructions program, after this, the main program loads, with an out of perspective loading screen which is pretty boring. Once the game has loaded (after my 3rd attempt) the options of easy, normal or expert are given. The game is basically the same as JSW with a few let-downs; the monsters aren't animated but just have one frame which moves about. Movement isn't very smooth but is acceptable. The most annoying thing is the couple of seconds stop when moving from one screen to another.

Control is with the right joystick and the sound is O.K., this can be toggled on/off with the 's' key as in MM.

Generally, the game is O.K., but I would rather pay the extra 2 pounds and get JSW if I wanted a game like this.....Chris Parkinson.

'CARDES 4'... (E. Margetts).

Here is an excellent tool for the serious student of small electric vehicle design. It will save many hours of practical experiment by simulating a steady speed at constant gradient/windspeed/etc. having first entered comprehensive details of the proposed design. The program calls for such details as dimensions of vehicle, loading per wheel, no of wheels, motor characteristics, gear ratio, battery parameters etc.

There is a default set of design parameters in the program which gives a useful demonstration run, after which any parameter may be changed ie. road speed. The operator must then adjust another parameter motor speed etc. until the discrepancy is less than +/- 50w. At this point, the 'steady state' condition is reached and the print out is correct for 'steady state' speed. Balancing the discrepancy by trial and error took the writer an average 3 tries; a minute or two at the keyboard.

The program supports a printer and even estimates battery depreciation costs per mile. this is very important, since storage batteries are likely to be the largest replacement item on such a vehicle. A good example of computer aided design.

Sell on to Sir Clive ?? After the C5 perhaps a program to determine what the public are actually willing to buy would be more welcome !!!

Altogether a very useful program, and good value for money at 6.50. Obtainable from E.Margetts, 7, Montgomery Square, Eaglesham, Glasgow.....E.C.Lark.

STRUCTURED BASIC (3)... BOB SMITH

Our second theme is the use of logical (Boolean) variables. The Dragon treats the value zero as false and all other variables as true, with one important exception. The logical operator NOT will only work properly ALL the time if we use the value -1 to represent true. I have not so far discovered a way of allocating logical values in Dragon Basic, other than by having the following line early in the program.

```
10 TRUE=-1:FALSE=0
```

Logical values can then be assigned by writing FB=TRUE etc. in the body of the program. Sorry about what I said last time, I had not tested the NOT operator thoroughly enough.

In programming we use logical variables to describe conditions or states, ie. have we reached 100 items yet? or are we in the second half of the program?. Logical variables can be tested alone or together using Boolean operators. In Basic these are AND OR NOT. To get a feel for these, try typing A=&:B=4:Print (A AND B):PRINT (A OR B). If you are not familiar with Boolean logic, you will be surprised at getting the answers 4 and 6 respectively. The reason for these answers is that Boolean operators work on the bit patterns of normal decimal numbers.

Although BASIC numbers use several bytes each of eight bits, the following illustration is valid for small numbers. We can set up our example thus:-

```
00000110 = 6      00000110 = 6
00000100 = 4      00000100 = 4
00000100 = 4(AND) 00000110 = 6(OR)
```

The reason for these results is that AND compares corresponding bits and leaves 1 only if both bits are 1 otherwise 0 is left, while OR compares and leaves 0 only if both bits are 0 otherwise 1 is left.

The operator NOT requires a little care. We need it to work on the basis that it reverses the LOGICAL value of a variable, it will do this as long as we stick to using -1=true, 0=false. If A=-1 and B=-1 then if we write A AND B we get the result -1, ie. true, however if we write A AND NOT B then we get the result 0, ie. false.

A LETTER FROM THE MOTOR TRADE

Thought I'd write to update, to protest about the way you all keep on about Compusense being the worst thing since hedgehog sandwiches. Personally, I think it's all a load of rubbish, as I've had a heck of a lot of support from Compusense since I bought a load of software from them and never really had any cause to complain at all. Now you try ringing up one of those companies that you keep plugging (like Microdeal) and asking them how to convert Speed Racer to run from disc under flex and see what sort of help you get. At least when you ring Compusense they try to be helpful... imagine the problems I've had getting Flex to run on a Dragon 64 with a Televideo and now a Cifer Tterminal. But with their help, it works and not only that, it runs properly. O.K., perhaps in some areas they aren't geniuses, perhaps they don't know what they're talking about, but they do try, and having had lots of experience with Premier, Microdeal and some other disappointing software, most of which didn't live up to it's advertising, I can attest that Flex software works and that they're prepared to support it. But you have to be prepared to pay for it, at least they're still in business, look where low prices get you, QL bug ridden software, Spectrum keyboards, Commodore serial disc ports (!!) and so on. So don't slag off the only real remaining company for serious software, give them support, perhaps then prices will come down. Imagine trying to pay a programmer 30 grand a year out of selling Dragons for 75.00 or discs for 80.00, you want them to go bust? then who will support the dragon ??? Anyway, how can you call stupid a bunch of people who have seen through the shortcomings of the standard Dragon to the core of a really powerful processor which is capable of outrunning a good few others. I can attest that the Dragon is a beautiful machine, I have a 64 running both disc controllers, although Delta has recently been displaced, a 40 track and a double sided 80 track drive (2844 sectors free per disc, thats 716k net) running Flex through a Cifer mainframe terminal with 80 col. display, detachable keyboard etc.etc. and all my software runs. Don't think that it was expensive, the terminal cost 80.00 from a bod with a Beeb who thought he could get it to run off that, and bought it for three times that. Look in the E&M, the 80DS discs cost 85 each, new!.

Anyway, if anyone wants to get in touch about life with Flex, I'm on 01-673-7877, and like our friend Jason Shouler with OS9, I'm willing to help and advise, if at all possible (and learn, if you're ahead of me) with any problems/comments on Flex. Why reinvent the square wheel? some of the stuff around is really mindblowing !!

Ted Bacciarelli

DRAGON PROGRAMS by Nick Hampshire

This is a soft backed book containing 20 Dragon programs. Each program is described with full instructions and includes a section on program structure which is essential to debugging. The actual listings seem to be photostats or something cleverer of the computer printout which should mean that there are no printing errors, and I couldn't find any. There are versions of old favorites Startrek, Moonlander and Breakout; three other arcade games, Rhino, Labyrinth, and Landmine. Rhino is played in a jungle with an on-screen map. When the rhino spots you, he charges and you must escape him. Labyrinth is a maze and text game where players must seek out and slay a dragon with 5 arrows, avoiding traps such as bats. Landmine takes place in a minefield, you must avoid the mines, a warning sound is made when you are near to them. The difficulty increases with each game.

Games for the more serious-minded include Gomoko, Hangman, Supermind, Quas puzzle and Find the word. Gomoko is like Go, you play the computer and attempt to make a line of 5 counters. Hangman and Supermind require no description, Boss puzzle is based on a number puzzle with sliding squares and Find the word involves finding a word in a grid, you get 3 attempts.

Several programs show up the Dragon's features, Piano allows you to use the keyboard as a piano with nearly 5 octaves, Sound effects is a selection of 9 sounds including siren, explosion and telephone. Kaleidoscope is a simple and fascinating program which I really liked, Egg timer is a timing program which works for 10 minutes and Bird demo shows graphics and movement of birds flying over the sea.

Mindreader is an example of artificial intelligence, you talk to the machine airing your views and the machine gives 'intelligent replies'.

Books like this help to teach programming as you have to understand the program to debug it, this is how I learned most of my programming. The programs are simple to understand and well put together with lots of REM statements to assist understanding, there is something for everyone in this collectionPauline Hampson

REDUNDANT INFORMATION DEPARTMENT

For those of you who have all the copies of this thrilling piece of literature, I apologise for any repeats, but as I haven't seen the early editions you'll have to put up with it

POKE 113,85 Prevents Reset
 POKE 329,0 For Lower Case (poke it with 255 for upper)
 POKE 178,N:LINE(X,Y)-(X1,Y1),PSET,BF For Striped Effects
 POKE 65301,0 To Disable The Keyboard (POKE 20 to it to re-enable)
 POKE 65313,PEEK(65313) OR 8 For MOTOR ON AND 247 For MOTOROFF
 POKE 136,5 Moves the print down to the lower half of the screen (upper = 4)

THE END BIT.....

This month I seem to need to make some sort of explanation about my little tantrum in the last issue. Some of you seem to be very touchy, so I'll explain. When I complained about scroungers, I wasn't talking about those of you who give us a bit of publicity by mentioning us when you contact companies, that can only do us good, likewise, those who tell companies to send us samples for review or get hold of the samples and send them on or send in reviews for publication, and let us know that the companies have sent them so at least if the companies do get in touch with us we don't have to tell them that we don't know what they're talking about!. What I am talking about is the individuals (not many of them) who tell the company that they are writing on behalf of the group, get the free bits and then use them to their hearts content, NOT telling anyone that they got them, NOT writing any reviews etc. and then the company finds that they have let one of their valuable products go to no avail and start getting all upset and sulking about it. O.K. is that better, are you all happy now ?? It's getting to a state when I can't even have a tantrum in peace without people shouting at me!. Next time I shall have to have a go at Eurohard, I can't think how THAT can upset anyone. Tim Lomas London.October 1985

The Last Word.....

As stated earlier, we WILL be at the Show on November 23rd and 24th, and I hope that we'll see many of you there. One thing I would like to ask is that you DON'T just come to look around the stands and buy things, but make sure that those running the various stands KNOW what you want, and more important what complaints you have!!. If you think a firm is selling rubbish, or is overcharging....TELL THEM SO!. You have a captive audience, so make the most of it!

Hope to see you there, even if the price of admission IS a bit of a rip-off.
 Paul.