

Chairman Paul Grade,  
6 Navarino Road,  
Worthing,  
Sussex.

Editor Jeremy Hoyland,  
120 Old Heath Road,  
Hythe, Colchester,  
Essex.

First off in this edition a big thankyou to all those who helped out at the show. Snip Software were invaluable as were Ikon (who have now launched an updated operating system for the Ultra Drive, answering all the criticisms that were made in our review), Mega Marketing -who are to launch a natty looking modem, and not least my sister who put me up for the night. Thanks are also due to Dave Tomlinson of Cotswold Computers for supplying us with the demonstration modem package.

Next special offers to club members. We are able to offer Cable Softwares range (except Eager Edna) at 20% off through the club -so if you send your orders in to us we'll pass them on, as far as I know Cables other offers also hold -see their ad in Dragon User. Also under offer are Snips range and Impsofts -see their ads in this issue.

Welcome to all those people who joined up at the show, just for you I am holding open the competition to find a name for this rag for another month, suggestions on the back of a fiver to me. Due to the show and assignment deadlines this issues a little chaotic, as you'll see from the different print styles, in fact as the newsletter gets bigger the chances of me typing it all in get smaller. So if contributors can send their articles in on tape -either as Telewriter or Editext files I'd be grateful, though I'll obviously accept written material. That's enough me from for now, on with the show.

Thanks for the Memory- or, is your '32' really a '63'.Part 2.

Last time the Secretary's word processor made an interesting composite of Part 1 of this article and the review of the UltraDrive! - (however, at least the program listing was correct, except for line 90, where 'A77' should be 'A7'). Lets recap the story so far...

1) Recap. Last time I discussed how many Dragon32's have 'hidden' RAM. This is because their nominally 32K memory is made up of a bank (of 8) 'half-good' 64K RAM chips; the additional slightly imperfect 32K is 'hiding behind' the Basic ROM etc. To find out if your machine is one of the lucky ones, first look at bit 2 of the PIA register at &HFF22 after you first switch on, like this:-  
PRINT(PEEK(&HFF22) AND 4)

If the answer is 4, then alas you've got two banks of 16K chips, and no hidden memory (but see my comments at the end of this part!) - if the answer is 0, you should then use the test program I gave last time to try writing numbers into the 'hidden' memory and reading them back; however, you should only use addresses of hidden memory between &HC000 and &HFEFF, and then only if there's nothing plugged in the expansion port; (trying other addresses will tell you nothing useful, and causes a rather unhealthy conflict on the data lines - see below). To remove this restriction we need a hardware mod., added externally by most, and internally by the brave, which is the subject of this weeks exciting episode...

## 2. Getting it all together.

Now we come to making the modification necessary to allow any part of the upper 32K (except &HFF00 on - reserved for I/O registers) to be used. The problem is that the internal 'decoder' which selects the BASIC ROM (and any ROM in the expansion port) is designed to work properly only in map mode 0; in map mode 1, it handles reads from memory (both ROM & RAM) correctly, but in writes to memory (RAM only!), it leaves the ROM at the same address selected, causing two sets of data to appear on the data lines at the same time. Fortunately this conflict is easily cured, by turning off the decoder (using the 'Ext Mem' line on the expansion port), whenever there is a write-to-memory (OTHER than to an I/O register)- this works properly in both modes, because

the decoder doesn't itself have to activate any circuitry in writes-to-memory. A circuit which will do all this via the expansion port is given below (fig 1). It consists of two logic chips, a 74LS30 (8-input NAND) and a 74LS00 (4 2-input NANDs, of which we use 2). You'll need to get a suitable 'plug' for the expansion port- you could scrap a cartridge, but a cheaper way is to get hold of a 44-way plug that fits in a Spectrum expansion port, and cut it down. I suggest you testbuild the circuit without connecting up the output gate to pin 40 initially.

It's also possible to make the modification internally, using one extra 'logic gate' (there is a suitable unused one on the board already). Figs 2 & 3 show the circuitry before and after. Here is a detailed description of what I did on the two boards I've modified, BUT CHECK that it fits your board, and NOTE that the responsibility is ALL YOURS.

On my boards IC26 is a PIA (MC6821); IC31 is the 74LS02 shown in Figs 2 & 3 (and pins 1, 2 & 3 were unused- the spare gate); IC33 is the decoder (74LS138). Taking the usual precautions against 'static', join pin 12 of IC31 to pin 3 of IC31, and join pin 2 of IC31 to pin 21 of IC26 (this is a convenient R/W line). Now reassemble and check all still works. Then join pin 1 of IC31 to pin 5 of IC33; finally, cut the connection between pin 5 of IC33 and pin 8 of IC33 (underside of board). Tis done... -

Hopefully, in a third part I'll tell you some useful things to do with the added memory - in the meantime, if you're stuck, or your machine is one that's failed the tests, and you're still interested in upgrading it, drop me a line via the Secretary (or ring 0272-294113). (I'm currently running FLEX on a 16+16K machine I upgraded myself).

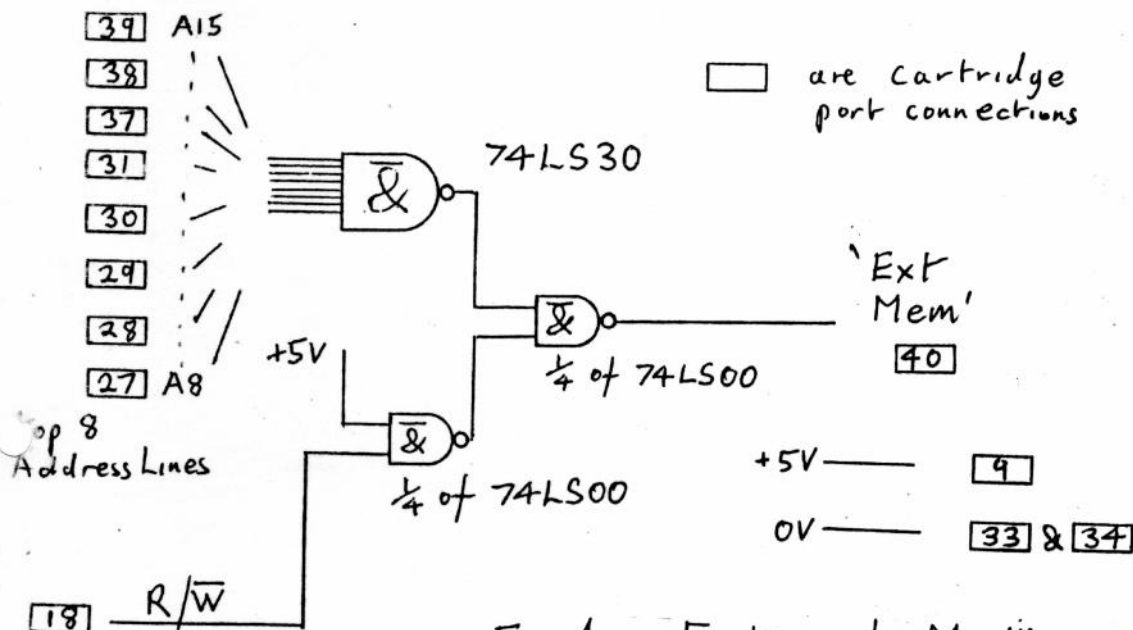
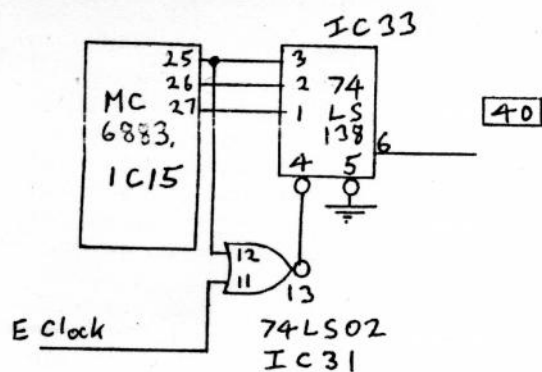


Fig 1 External Mod'n

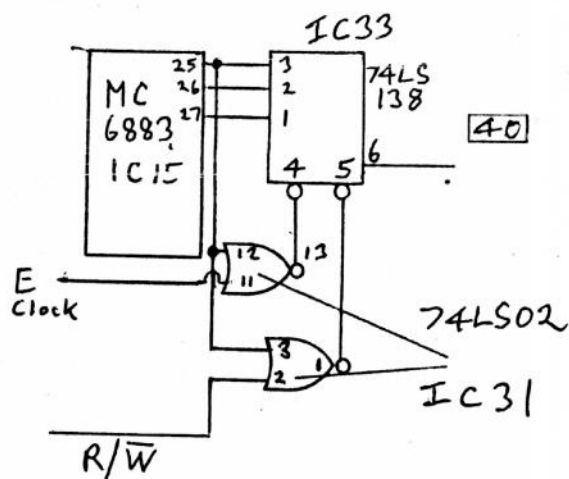
SWAP OR SELL-Dragon software. Many new titles from Microdeal, etc including TIME BANDIT, WORLDS OF FLIGHT, DEMON ED, CASHMAN, MR. DIG, TOUCHSTONE, DUNGEON RAID, ETC

I am willing to swap or sell all software. For further details and list of over 100 games, write to:-

STEPHEN WHALL,  
38 HIGH ST,  
SCOTTER,  
GAINSBORO,  
LINCS.



2 Before



to 21  
on IC26 (6821)

3 After

Fig 2x3 Alternative, Internal Mod<sup>n</sup>

#### RAINBOW WRITER by Microdeal

The one thing that the Dragon lacks more than anything else is text on Graphics. This problem has shown itself in arcade games, but more importantly in business software. How many times have you wanted to show figures with graphics forecasts &c. Microdeals Rainbow Writer sets out to solve this problem and, to some extent, it does so.

The actual program is surprisingly short, less than half a minute, but it is in M/C. There are two separate programs, one is 50/64 characters per line, and the other is 32/42. With these progs come character generators with which you can redesign the whole character set!

The programs work in any PMODE but the lower the resolution the less C.P.L. All the graphics commands work as normal so you can change the colour of the text &c. The keyboard is also quite quick considering, and the instructions boast 120 words/minute. Rainbow writer also has some extra commands which are very versatile, they include; subscript, superscript, automatic underlining, artificial colours in PMODE4 and scroll protect. The last item is very useful because you can allocate a certain amount of lines, top or bottom or both, that cannot be overwritten. All print@ commands work as normal as well as tab. Also the program has been copyright cleared so you can market your own programs with it. Mind you there are one or two minor rules you have to comply with, but they are no real problem.

With all this available you're thinking there must be a catch. Well there is, the price is £20 for cassette and £22 for disc, also it sometimes doesn't work with the disc plugged in, don't ask me why not. Lastly it takes a big chunk memory -6K in some cases.

These problems aren't as bad as they sound since there are always ways around them. The instructions say it will work with a 64k Dragon as well, but I can't confirm this. For what it does and for what it can do, I would recommend it despite the price.

Neil Scrimgeour.

THE 6809 COLOUR SHOW  
NOVEMBER 17TH/18TH 1984

The absence of stands from Eurohard and Touchmaster hardly mattered. There was plenty to see and lots of news. The Tandy and Microdeal stands were biggest and brightest but there were more interesting things elsewhere. I spoke with John Symes from Microdeal about the future for the Dragon. He said that the response from the people attending the show was tremendous. ICE CASTLES, a new title, sold out within two hours of the doors opening! There are at least 15 titles in the pipeline, mostly games. It seems that as long as the software is available from the U.S. then Microdeal will continue to convert them. Disc users will be less pleased with the news that there will be no new disc software.

Moving around the hall to talk to Salamander Software I discovered that they were having a clearance sale, with many titles at less than half price. There will be no new titles from Salamander, however, the long awaited sequel to the Dan Diamond trilogy, Franklin in Wonderland, as well as The White Cliffs of Dover are available by mail order for a fiver each. Be warned! You will receive the tape and very little else.

It was good to talk to Channel 8 Software. They have three new titles (Midwinter, After the Fire and Infinite) plus a massive price cut. Totally committed to the Dragon Adventure market, Channel 8 also helped me with Circus and Time Machine, both of which have had me scratching my head.

One of the most interesting exhibits was that of Race Electronics. To quote Graham Franklyn, "Race were making the Dragon before Dragon Data!". Like most of the better companies present, Race have now announced a tie-up with Eurohard. Amongst the new products are a sideways ROM and a Floppy tape drive.

Compusense were well up to their usual standard and remain totally committed to our computer and "wish to preserve the market and confidence". Further good news is that Compusense will support our group, we only have to ask!

I spent a long time talking to Mike Kerry of Grosvenor Software. The good news for those of you without a word processor is that you can now buy a utility which enables DREAM to be used as a letter writer. More excitingly, Mike Kerry has developed a cross assembler. Mike says that he is using his Dragon to write for the Commodore 64! Once again the 6809 shows it's superiority.

Impsoft, who are wrangling with Touchmaster over their excellent fruit machine simulation, Fruity, launched a new game called Folly Farm's Chicken Run. I bought a copy and will review the game in a later issue of the news letter.

Ikon are a one product company and found that they had nearly sold out of their specialised cassette drive. That is over 40 systems sold in less than four hours.

Microcare is a company to watch, especially if you want to use your micro for more serious uses. They have announced a price drop of their integrated Elite software suite. Very impressive with features comparable to systems costing nearly ten times as

much. They have promised to send disc copies of this package for review. Microcare also offer a RAM upgrade which gives you 32 twice the memory. You computer buffs fed up with the Dragons limited display will be cheered by the news that Microcare are developing an 80 column card.

Shards were amazed by the response from the show. They had "sold more educational software at the show than over the past six months!". The impact of the show has made them reconsider the Dragon.



The idea of a light pen is very appealing but until now there have been no good products available. Trojan have produced a deluxe version of their best seller which works in pmodes 3 and 4. The fine detail is incredible. So attractive is this product that Mr. H.J. Jones of Trojan told me that they had sold out by 1.30. Trojan have supported the Dragon from the beginning and had no hesitation in deciding to be at the Dragon show rather than at the ZX Microfair.

Cumana were out in strength showing their range of disc drives. They had a slight technical difficulty which Dragon User Group member John Cox sorted out for them. The good news from Cumana is a new disc interface running OS9, something which will extend the future of the Dragon as a serious machine.

Dragon User magazine was represented and sold out of most of their stock. Their office produces many computer magazines but the Dragon User receives most letters, most 'phone calls and most interest! Circulation of the magazine is now over 35000 and rising. However, Sunshine Publications only print what they think we want. Letters please to the Editor.

Our stand was manned through out the day by various members of our group, many of whom met for the first time. Hundreds of membership forms were taken and I hope that most of those people will be reading this once they have paid their subscription!

Space limitations means that I can not cover all of the exhibitors here but one thing is clear; every one of the software and hardware companies are stunned by the continuing interest in the Dragon. The common complaint is that dealers just do not want to know yet the show proved the strength of the Dragon market. Let us hope that our group can help write that message in large letters so that support for our machine will grow.

Please do not hesitate to telephone me if you want to talk about the show or any other Dragon matters on (0273) 779295.

STEPHEN COTTERELL

## TAPE DOCTOR.....COMPUTIL.

One of the more serious omissions in the Dragon Error Code list is "SP ERROR"....otherwise known as "Silly Prat Error".

Now, I appreciate that this could NEVER apply to you.....YOU'VE never over written the beginning of a program on tape, or clipped the last half a dozen bytes off of the program you spent two hours typing in.....Have you?

Well, we can't all be as perfect as you, I've done that sort of things more times than I care to remember, and the language I've used has been anything but Basic!!.

However, thanks to Pete Williams of Computil there is now an alternative to learning a whole new range of adjectives, a very neat little program called "The Tape Doctor", which is the kind of program that makes you wish it had been built into the Dragon to begin with.

What you get for your money is a multi purpose utility program, which among other things will catalog a tape, giving type of program, length, and memory location. It will also provide a "MERGE" facility almost identical with that used by Dragon DoS....something tape users have needed for far too long!...and more to the point, it makes it a simple matter to salvage almost any tape file, of any kind, that has been "clipped" at either end.

Obviously, data that has been wiped or over recorded is lost....even Mr Williams doesn't claim to work miracles, but any part of a file that remains on the tape can be recovered, resaved, and in the case of Basic routines, Listed to screen or to printer.

The Doctor reads files into a buffer area, one block at a time, and as an additional bonus can be halted at the end of any block, and a copy, in Hex, can be dumped to the printer simply by hitting the "D" key.....couldn't be simpler!.

Now I'm not suggesting any particular uses you may have for a program that will give you an instant Hex Dump of ANY program that it reads in.....be it mic or Basic..... I'm sure you can think of as many as I can!, but quite apart from that, any program that saves the time and temper that this one does is a program which ought to be considered essential equipment for anyone running a Dragon, wether they're experts or absolute beginners. There is one fault with this program, and that is that it is rather "touchy" to load, it took me three attempts with the copy I have to find the right settings for the recorder, but once they ARE found, it's no trouble at all, and in any event, that's a fault I've found on MUCH more expensive (and less useful!) tapes from "Big Name" software houses.

The Manual that comes with "Doctor" is well thought out, and covers just about every query that's likely to arise.....easy to understand even by a 1k brain beginner!! and there's a "Freebie" as well.....a quite handy "Shopping List" type program, that could no doubt be easily adapted to other uses if required.

My verdict:-A really practical program, at a really reasonable price, (No, it's not obtainable through BUPA!).

If you're interested, it's obtainable by mail order only from "Computil, 22,Grove Park, Burbage,Hinckley,Leicestershire LE10-2BJ". Price 4.99.

### FRANKLIN IN WONDERLAND by Pauline Hampson

At last here is the sequel to the Franklin Trilogy, long awaited by many. This adventure is written in Basic with the same screen format as Franklin, the screen seperated into three parts: location, inventory and screen input. The game is based on "Alice in Wonderland" with the style of humour that Franklin fans will recognise.

The initial location is a river bank, and eventually you find your way down a rabbit hole. My daughter reads 'Alice' a great deal and she helped me a lot. A copy of the book would be a help, however the game often differs so beware.

All adventures have seperate sets of locations and you must fulfill certain conditins to travel from one place to another. In Franklin this involves being the right size. I found this a novel idea adding to the charm of the game.

The object of the game is not made clear at first, but I much prefer this style to the conventional treasure collectingtype. Locations included: The Mad Hatters Tea Party; The White Rabbits house; The Mock Turtles Seashore; The Cheshire Cats wood and the Queens Croquet Lawn.

Although the game is written in Basic, unlike the two later Franklin games, this does not mean that there are annoying pauses while you wait for the machine to respond, this speaks volumes for the programmers skill.

I enjoyed the game very much indeed, it certainly rates nine out of ten at least. I must admit that I have not yet finished the game -being the wrong size to continue at one point.

I recommend the game to all adventurers, it is real treat to get stuck into another Salamander offering, so give yourself a treat -buy it for christmas.

Franklin in Wonderland has not yet been officially released, but a no frills version is obtainable from Salamander at £5; Perhaps our support will encourage them to write other Dragon games; especially when they are capable of such a high standard. Salamander are at 17 Norfolk Road, Brighton, East Sussex, BN1 4AA.

COMBAT AIR PATROL - Flight simulator for the Dragon 32/64. Fly the Skies and descend to your homeland. Three seperate stages; Combat Air Patrol, Air to Air refuelling, three stage landing. Graphics in PNODE4 with digital instruments, computer display and rear view mirror. 2 joysticks required. Price £3.50 all inclusive, cheques & POs to Neil Scrimgeour, 125 Occupation Road, Corby Northants. Neil is also flogging a Brother HR5 printer, complete with mains transformer and accessories for £120, price new £180.

## INTRODUCTION

Many Dragon owners will have been aware that a mild controversy surrounds the processor at the heart of their machine. There are a great number of exponents of the 6809 chip who consider it to be the acme of 8-bit processors. Naturally the Z80 and 6502 diehards will refute this. Upon one fact there can be no controversy however. The 6809 is the only popular chip which can support fully position independent re-entrant code. It is this capability which gives the 6809 its true power. What is PIC? PIC means that any number of different executable programs may exist within ram (subject to the amount of ram available). The Dragon in its standard form, competes with Z80 and 6502 based home micros on their terms, i.e. it's exclusive powers remain latent to all but machine code users.

OS-9 unleashes this power giving the Dragon owner the chance to get to grips with an operating system, the features of which would normally only be found on main-frame and some of the more expensive business computers. Briefly, those features can be described as:

1. The ability to freely create and use PIC.
2. The directory system.
3. Unified input/output.
4. Multitasking capability.

## THE ADVANTAGES of PIC

The OS-9 operating system does not consist of one single block of ram, as would normally be expected of a conventional micro-system. Instead, it is made up of many different mini-programs (in OS-9, these are called 'modules'). All the essential modules are held in ram continuously, i.e. they act as pseudo rom. By essential, I mean the modules that control standard input (the keyboard) and output (the screen) and the kernal (the operating systems heart). You would look pretty silly if you couldn't use the keyboard after you'd booted up! In OS-9 this would be referred to as the 'bootstrap file' (in OS-9 just about everything is referred to as a file - more about that when we discuss unified input/output).

It should be remembered that OS-9 is a dedicated DISK operating system. It actually treats the disc as an extension of the host micro's ram, e.g. If the operator asks for a module (program) which is not already in ram (pseudo rom) then OS-9 simply loads it from disk. During normal use, OS-9 will frequently load and execute modules which reside on disk. Very often these modules are used for seemingly very simple tasks such as listing a DIRectory, COPYing files, RENAMing files etc. On the other hand OS-9 might call up a module which provided a very specialized task such as a word processor, spread sheet etc. If a module has been automatically loaded from disk, it will always be erased after its task is completed, thus keeping the work space as large as possible (I like to think of a module as a piece of 'rom', which is automatically loaded when the 'present rom' finds itself deficient in some way). The one drawback with this idea is the time it takes to load from disk, and for operations which are likely to be repeated many times, this situation is not ideal. However because of PIC it is possible to customize your own pseudo rom by loading the modules you intend to use very often, either before you start work (using LOAD) or permanently by adding to the Bootstrap file (using OS9GEN). This avoids unnecessary disk activity. The maximum pseudo rom area is equal to the capacity of one disk drive. (on DragonDOS that's 175k, on some drives it could be a lot more)

Basic09s very existence is dependent upon the 6809s ability to handle PIC. Once again a basic09 program is not a single block of ram as would be expected on say the standard Dragon (or any other home micro), but would consist of many short programs all residing in the workspace at the same time. These short programs are called procedures. Each procedure is named and for all intents and purposes acts like a completely independent program. When saving or loading, all the procedures relevant to a complete program are saved (or loaded) together under a communal name. The simplistic brilliance of this scheme of things becomes apparent when you consider holding two different programs in memory at the same time. Assuming that several procedures are common to both programs, you could have the situation where two 2k programs only take up 3k when in the work space together (1k of procedures are shared between each program).

The Basic09 LIST command only lists the contents of a single procedure. To examine the whole contents of the workspace, the DIR command is used (not to be confused with the disk DIR command). DIR will display the size of each procedure held in memory, as well as the size of the data area, viz. the amount of array and string space required to run the named procedure.

The memory saving advantages which apply to the program area also to a certain extent apply to the data area. The main calling procedure will usually have the biggest data area, as it will pass on the addresses of arrays etc. when it calls other procedures. A called procedure on the other hand very often has a small data area, since the data which is passed to it already exists.

The great advantage of Basic09 is that after control is returned to the calling procedure, the data area of the called procedure is freed. If that's left any one feeling a bit giddy, what I'm trying to say is that temporary arrays and the like, once they've done their job, can promptly be dispensed with. Add to this the fact that (PACKed) procedures can be run from disk (and KILLED from the workspace), under program control, you can see that very complex programs can be run with a limited workspace.

#### THE ULTIMATE STRUCTURED LANGUAGE

From the forementioned it's clear we already have the framework of a highly structured language. Line numbering is optional with Basic09. The language contains a large number of conditional type statements which allow in many cases, for line numbering to be dispensed with completely.

It is inevitable that when discussing structured languages, that a comparison with BBC basic is made. In some respects the BBC micro can emulate some of Basic09s features, but in other areas it can never hope to compete. I think it is fair to say that BBC basic represents about as structured a language that can be produced by a processor which can only handle PDC (position dependent code). Basic09 on the other hand, is really in a different class.

This concludes the first of several features on OS-9. In the next newsletter, I hope to discuss the advantages of the OS-9 directory system. If you're thinking of taking the plunge, I hope this article has given you an insight into what to expect. There are some amazing bargains to be had at Comet and some Boots stores. You'll need a Dragon with 64k and a DragonDOS disk drive (go for a twin drive if you can find one).

If you're already using OS-9, and you've come up against some problems. Write to me c/o Paul and I'll try to help you out as best I can. Mind you, I'm no expert! If you want to add your voice (or just plain disagree with me!) then please write in.

Jason Shouler



Well, we're still here and going better than ever.....and I suppose I ought to be surprised!!!!

Strange, isn't it, how everyone is only too willing to tell you that the Dragon is dead...that there's no demand for it....that it's an obsolete machine, etc, yet we were rushed off our feet at the 6809 Show, and have you ever tried to locate a secondhand 64? or a Dragon Disc system?....and why are all these obsolete 32's selling secondhand for almost the cost of a new machine???

Maybe all the "Experts" aren't quite as expert as they imagine....like the one at the Worthing branch of Messrs B...s who assured me that the Dragon was a very inferior machine, and that they weren't being made any more, and insisted on trying to sell me the latest in tarted up Spectrums, in the mistaken belief that it was a computer!!.

I've got a message for all the "experts": The Dragon is alive and well, and Eurohard tell us that it will be produced in its present form, under the same name, for a long time yet, and that a recased version using the same boards will be released soon, as will a new range of peripherals.

The Dragon is Dead, Long Live the Dragon!!.

There are signs that the software scene is finally waking up to the fact that the Dragon is a general purpose computer rather than a games machine, and some quite reasonable software is beginning to appear.....some firms have even realised that everything doesn't have to be written in PMODE4, and that there's a good market for business and utility software as well. We can only hope that the idea catches on.

For those of you who think I'm just trying to convince you not to trade in your old Dragon for the latest MSX Synthesizer or QL Bugbox.....I'm backing my belief with cash, I've just given my bank manager heart failure by buying myself a 64 to keep my old 32 company, and I wouldn't have done that if I weren't sure that Dragons have got a long life ahead of them yet.

Well, that's enough from me for this month, I WAS going to do a write up on the Shinwa CP80, but you'll have to wait until Issue 5 for that literary epic. Have a good Christmas, and don't spill too many drinks down the keyboard, the results are more than a little peculiar!.

Paul Grade.

#### A POCKET HANDBOOK FOR THE DRAGON by Peter Gerrard and Danny Doyle

This offering from Duckworth is intended as a handy reference manual for use with the Dragon, the sort of book that you keep by the machine so that you can look up all those BASIC functions you never bothered to learn. The book is a fairly slim volume, allowed for in the relatively cheap (£2.95) price. It starts off with a set of ASCII tables and codes and then dives into a description of Dragon BASIC; this is rather more detailed than the reference card that Dragon Data handed out with the machine, especially in its treatment of error codes.

The next main section covers the machine's graphics and this combined with the 'Hints and Tips' chapter is fairly useful. Aside from this there is a section on M6809 machine code and assembler as well as fairly detailed memory map, a whole lot of odds and sods on the RS232C standards, Centronics standards and the Dragon port, Disc commands, the edge connector and so on. Most of the book's contents are useful, if not astounding, and at less than three quid it's well worth considering as a stocking filler.

Jeremy Hoyland

## Dragnet

DRAGNET is a Sunday Morning gathering of Radio Amateur Licenced Operators who are also enthusiastic DRAGON Users.

We meet 'On the Air' each Sunday at 11 a.m. on a frequency of 144.525 Mhz. using Frequency Modulated emission, with participants and listeners, at suitable locations, within a range of fifty miles of Nottingham City.

The gathering, or NET, to use a Radio Amateur term, lasts for about an hour, during which we exchange news and hints, and send DATA direct from Dragon to Dragon.

Any Radio Amateur with a Dragon or Tandy Colour is welcome to join in and contribute. There are no subscriptions to pay, and only one rule - NO COPYRIGHT MATERIAL IS TO BE TRANSMITTED.

The sending and receiving of Data from Dragon to Dragon is simplicity itself. No interface is required. To transmit the Data the listing is loaded, or typed in as a programme, and the 'Mike' cassette lead is plugged into the 'mike' socket of the transmitter, preferably with an 100 kilohm resister in series, for isolation precautions. With all listeners ready, the transmitter is switched on and the Dragon told to Csave"" or Csave"", A or CsaveM, and the Data is transmitted.

To receive the Data, the 'EARPHONE' cassette lead is connected either to the external loudspeaker, or phone socket on the receiver, and the Dragon is primed with 'AUDIO ON:CLOAD' or CloadM. The receiver volume control should be well up, far louder than for normal listening, but the audio heard can be controlled with the T.V. Monitor volume control. We have found that direct DRAGON to DRAGON is far more reliable than attempting to tape record these transmissions. Only one reciever has been found to be difficult. This is the 'FDK' 2Metre, which has a 1 Mfd capacitor across the speaker, near the Audio transformer, C117, which cuts off the high frequencies, and has to be removed. Dragnet has been on the air since 1st Jan.84. If you are a Radio Amateur, and can't join us because of distance, I recommend that you start your own. If you are not a Radio Amateur and would like to be, write to the R.S.G.B. Alma House, Cranbourne Road, Potters Bar, Herts, EN6 3JW for their Book, 'How to become a Radio Amateur'. If you want to listen to RTTY or Morse, try M.J.Kerry, 22 Grosvenor Road, Seaford, E Sussex BN25 2BS.

## SETTING A DRAGON

I work in a small Special School in the county of Avon. Until recently the only computer in our school was my own Tandy. Four years ago when I first got the Tandy and started to take it to school, my then headmaster said it was a toy and a waste of educational time.

Since then I have changed to the present establishment and both myself and my machine have been made very welcome.

Our school has found it very hard to get money for a computer of its own because the parents are widely spread and many of them are poorly-off. However, we have been lucky enough to get the help of some local charitable organisations.

Then I had the good luck to find a secondhand Dragon and also a new Seikosha Printer at wholesale price. The printer will help many of those children whose motor control is very poor and for whom writing is a desperate struggle.

Our problem now is that we are still short of cash and have a very good computer but a distinct dearth of software for same.

We would be extremely grateful for any help, advice and programs that anyone feels generous enough to offer.

My sincere thanks to Paul for the kind help he has already given and my best wishes to him and to all the members of the User Group.

Tony Hughes

Homestead

Sage Lane

LANGFORD

AVON BS16 7DZ

Telephone Churchill 651725

I am writing to let you know of a special offer of 'leaderless' computer quality tapes for members of the D.U.G. These tapes are C5, - 24 mins; each side, with plain paper labels and cassette case. I find them to be most useful. You would be surprised at the number of programmes that one side will hold, and they are excellent for saving programme modules for use in several programmes, if you are into programming as such.

The offer is made by:-

TAURUS ELECTRICAL SERVICES,  
26/28, NOTTINGHAM ROAD,  
LOUGHBOROUGH,  
LEICS. LE11 1EU.

and is for five tapes, post free, for £1.25.

ASCII CORNER  
by Neil Scrimgeour

I have had a couple of queries regarding adventures this month, so here goes. Erik Aadland of Norway (we've got a wide membership!) wants to know how to get a piece of rock in Franklins Tomb. Well actually Erik, the type of rock you need is performed by Franklin and the All Stars so, if you haven't spent your coin, listen to some music! The second problem comes from Jason Shouler; he needs to find the urn to get oil for his lamp. Now I've got nowhere in this adventure and gave up long ago, so if anyone can help him please write in. If you are just trying to turn the lamp on Jason the command is 'lamp on' and to switch it off 'lamp off', but you will have to find the urn sometime.

Because it is near christmas I think I'll mention a few games worth putting on your christmas list. Apart from the Salamander games mentioned in issue 2, Microdeals Pool is an excellent simulation of the real thing, and it's the only version available for the Dragon. Tim Loves Cricket from Peaksoft is one of the best simulations available for any machine, never mind the Dragon. Channel 8s Time Machine, which I have just completed is very enjoyable - as are the rest of the range, and now they only cost £6.95. For something unusual try Pettigrews Diary, or its sequel Operation Safras, mind you they aren't everyone's cup of tea! As far as flight simulators are concerned, the best one still seems to be Space Shuttle, though worlds of Flight looked good at the show (what about Combat Air Patrol -ed) both of those are by Microdeal. Also at the show Microdeal were displaying a program called Speed Racer which was a Grand Prix simulation, now this looked great but at this moment in time, late November, it is not available - that is one I'm after. I've also heard rumours that Salamander had sequels to the Franklins Trilogy and Wings of War (see elsewhere in this issue -ed). When these will be released is anyone's guess but they could turn out to be classics. Finally don't forget Wintersofts Ring of Darkness and Return of the Ring, well worth getting hold of.

This month's program in detail is 'Johnny Reb' by Lothlorian, a strategy game. The cassette comes with a small but lengthy set of instructions. The programme is in machine code which I found rather surprising as the programme could have been written in Basic, although it might not have been so good. On loading you must first set up the conditions under which you will fight. You can play the computer or let the Dragon act as umpire. Next you choose sides and then the time limit and amount of troops. After all this is done you then enter battle! The map is shown in PMODE3,1 SCREEN1,0. Down the centre is a river and on each side is a marshland and forest which you cannot cross. Your troops are shown as one block per unit of cavalry, artillery and infantry; each of the three having a different design, the opposing armies are in blue and red. All commands either attacking or moving are entered via the keyboard. Although this is understandable, if two people are playing it can make things difficult. The object of the game is to capture your opponents flag; this I achieved first time I played the computer but it did take me some time to do so. Because of this I lost all interest in the game! To be totally honest I am not really interested in wargaming and so I'm not the right person to review it, but if you want something totally different, or you are a wargamer it might be worth getting. The price is £7.95 and Lothlorians last known address is 56a park Lane, Poynton, Cheshire, SK12 1AE.

Telewriter

About two years ago, I walked into a computer shop and was persuaded to buy a Dragon. I knew nothing about computers (and still don't know very much more) but I thought that the asking price was reasonable for something I might lose interest in or go on to use for my business if I could begin to master it.

One of the most boring and time consuming jobs I had to do was to prepare quotations for clients so I decided that if I could write a program which would do that, it would save me much time. More by luck than judgement, I wrote a program which suited that need and after quite a bit of amendment by a friend who knows far more than I do, I amended my program to include far more things and become even more important than I had at first thought.



This led me on to look at other business programs and also the realisation of the need for disc drives. Rightly or wrongly, I took the advice of an extremely helpful man at the suppliers to whom I explained my circumstances, and eventually opted for the Cumana Disc Drive and, having already invested in a printer, I think this is where my problems began.

I had already started to do a series of articles for Brides and Wedding magazine and had invested in a word processing program and whilst it is reasonable to run it on a cassette when you don't know any better, of course, when you have discs, you then realise the inadequacies of the cassette, and unfortunately Microdeal have no intention of modifying their software for disc, despite the claims of their advance publicity.

Telewriter is a machine code program, and quite good as far as it goes, but how much better it would be on disc. I am only a two finger typist and I find that when creating the text it doesn't always keep up with me.

Alignment. Unfortunately I have found that Telewriter will only align on one side of the page and, as such, I gather that this is inferior to some other fairly inexpensive word-processor programs.

Move. In theory this should be an extremely important element in Telewriter, but in practice I found it to be cumbersome and nowhere near as good as it could be. Similarly block copy is also difficult to use.

Speed Mode. This doesn't seem to do much, I didn't find much difference from ordinary mode.

Create. This program is menu driven and has some features which are really interesting to use. The first one is Create which, as its name suggests, allows you to enter text, if you're not a trained typist, like myself, it does allow you to enter text at a fairly fast rate, and not bother initially with spelling or punctuation, which can be corrected at a later stage.

Edit. Takes you through the text allowing you to make alterations as you go.

Verify. As I have already mentioned, if only this program were on disc. As it is I can use it on disc but have to save out to cassette, this option is used to make sure that the text you have carefully typed in has been faithfully saved to cassette.

Append. Lets you add a text saved on tape to one in the buffer memory.

Word count. One of the boring things about writing articles is having to count the words, this does it for you.

Formatting. Under this heading the hard copy is prepared. The spaces between the lines are determined and the width of the margins. Pages can be numbered and type faces changed allowing you to produce high quality copy.

Instruction Book. There is a 33 page manual that comes with Telewriter, most of which is quite easy to understand, but seems fairly daunting when you first get it. It is worth working through the book and I'm sure I haven't discovered all there is to discover about Telewriter. There are also some examples on the cassette to show how some of the functions work, and the program is written for different types of printer.

All in all I find Telewriter quite a good program but I feel that there are amendments that could be made to improve it.

Ann Milstead.