

6809 USER

Edition 13, November 1989

Editorial

Well here we are, NEW OWNERS, a new FORMAT, new contributors and a new overdraft. It seems only yesterday that Simon asked me to take over the magazine as from NEXT year, how time flies. I am rather disappointed in the response to my pleas in the last edition for you all to write to me, some of you did bother, twenty-ish maybe the rest of you have not got around to posting your letters yet. To those who did take the trouble, thank you very much.

You ALL, yes ALL must have some ideas of the sort of things that you would like to read, problems that you would like help with, or hardware projects the you would like to see. We are not mind readers! End of lecture.

If you write in with a query that you require a direct answer to PLEASE enclose a STAMPED addressed envelope. Or if you phone and I am not in please ring back, my phone bill and excess postage for the last issue came to more than the cost of producing the magazine. Photocopying is expensive I have a large library of manuals, instructions etc., that I am happy to photocopy for you. The charge for this is 10p per page including postage. Minimum 50p to cover postage envelope etc. Please let me know your needs. If you have any surplus manuals that

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6809 USER wish all our readers a Merry Christmas and a Happy New Year



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(Saturday evenings only)

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It is important to realise that 6809 USER is an amateur magazine. It is not registered anywhere and is purely produced out of interest and affection for the Dragon.

Every effort is made within limits to ensure consistency and readability. Our aim is to keep the readers' interests high in order to get the magazine established among the Dragon users. It is therefore essential that users should be encouraged to provide ar-

ticles of general interests and above all articles about the Dragon. If you want to get your article published, please provide copies of the contents in A4 size format. A good printed copy is also preferred. Sunnydale Publications understands that not all readers have a printer or typewriter so the above rules are not strictly essential.

We will try to publish all material. Please note, that in the interest of all readers, make sure that all software submitted for publication is free of bugs.

If you need an advice or indication regarding the above contact the editorial address.

Contributions to 6809 User will ensure our support for the Dragon micro.

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Editorial - continued from 1st page

you would like to donate to the library they would be most welcome. Contributors are needed for a variety of articles. Copy can be sent as a print out, on tape, or disk for SINGLE density Delta, or Dragon DOS using almost any word processor. Or even dare I say it on a PC Compatible disk, using Wordstar, Protext, etc. So that gives you plenty of scope.

One of the main criticisms in the past has been the number of spelling mistakes. The main reason that they have slipped through is time. Contributions come in from all over Britain, are edited and then sent to Sotos for typesetting, they will NOW be sent back to me for correction this all takes time and postage, so please forgive me if the occasional errors slip through, especially in this issue, as I have less than 20 days to produce the next issue if you are to get it before the WESTON SHOW on Dec 10th.

I will be operating a bring and buy stall at the show so bring along your surplus, books, software, hardware, Radio/CB equipment and let me sell it for you. Charge are as follows, software 50p per item, all other goods 5% of sale price, minimum 50p proceeds to SUNNYDALE ANIMAL RESCUE. Donations of cash or goods are always most welcome. See you ALL at the show. The Dragon lives!

A Word of Promise

As you can see from Roger's editorial all systems go for the 6809 User! There is one more thing that I think is important to mention. Members will start wondering what is going on in the magazine's world. Simon has gone (very quick action there), but I am still a bit surprised; I have enjoyed a good partnership with Simon, he's highly motivated and I am sure he will do well.

Well, to get on with things, I wrote a letter to Roger about this and I hope he does not mind me writing about it using his editorial space. Over the past year, the 6809 User members and in general the Dragon World, have been given a number of promises - competitions, charts, machine code etc etc. Although this may still be true, what I would like to stress is that from my part at least, I will definitely support the magazine in terms of the quality print out. Whether the photocopier or the contents are the same this is not my problem, we all have to suffer.

However, the 6809 User will be printed with the same Laser printer, the same font styles, and as a whole the same familiar look. We are all human beings and we never know what may happen. Producing 6 magazines a year shouldn't be too much of a problem. If my TurboLaser breaks down, then I am afraid I will be too upset, but this is not likely to happen.

The reason I have decided to write all this, is that I remember well when I wrote a letter of strong criticism to Andrew Hill that his magazine lacked of consistency and that its contents were poor. Amateur magazines

are like that, lets face it, and 6809 User is not any better really (I hope I won't get the sack from Roger by the way ...). On the other hand all the professional magazines like Dragon User (it is missed terribly) have something in common and that is consistency and quality.

I do hope that our members will be satisfied with these changes. If there are any further suggestions then I am sure that Roger will get in touch with me and let me know.

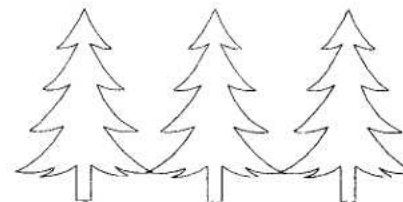
Can I just take the opportunity to raise a point on the "Gazette" issue (see letters page, also next issue - Editor). Can you Roger please clarify the position of 6809 User and the Sunnydale's Publication commitment on this issue? I expect that people will start to wonder about this.

I have also decided to provide our members the latest news from the 'real' computer world. I have lots of literature and magazines, where one can find an infinite source of information. Some of these news may not be directly concerned with the Dragon, but this is not the objective of that page. If you have any news that you think is worth having in the 6809 User, please let Roger know about it.

I do all the work on my AST Premium 286 PC running at 12MHz. It is very powerful. I am thinking in upgrading it to the latest 386 machine, but the work done on the 6809 User will remain the same. The TurboLaser I am using is also an AST beast. I can connect it to my centronics port, but I won't do that yet mainly due to time. I do know for a fact that Roger works very late at night and that he is very concerned about the magazine. I have to spend a couple of late nights with the system in order to get things printed. It is therefore important to have your support. I will not promise, but I am planning to eventually compile the magazine in the Dragon. It won't be too difficult. We all need time. I am sure that I will surprise you.

I expect that I will meet some of our members in the Weston show. It is also time to wish you all Happy Christmas and a Happy New Year! - Yes Roger! The time has already come to do the wishes! Do you remember the long magnificent summer, with the Hove show? How time passes. Even Roger mentions it in his Editorial (I don't have time to think of Christmas still now that I've been reminded SEASON'S GREETINGS to all - Editor)

Sotos Mandalos



6809 User will publish your letters regarding Dragon matters. It is our aim to provide the platform for suggestions, actions, new ideas and communication between our readers. Send your letters to 6809 User, Sunnydale Publications, PO Box 13, Ilfracombe, North Devon, EX34 8PB.

Editor's come back

How nice to hear from you after such a long absence, as a Dragon user of many years and unable to update due to costs, (not that I really want to) I find that what I have is sufficient for my needs, I do need all the support that I can get from a publication such as yours. Do you intend to continue the hardware series? As I would be interested in a mouse add on to improve Klick/Knight Graphics Studio, also a Beeb Emulation. I rather like the idea of a tape/disk based magazine as most of us also have our own printers as well, but I think that it would have to be on a re-useable basis to keep costs down, (apart from postage). This should give you scope to make late inclusions up to the post date.

Frank Fisher, Kent

Ed - Martin Cleghorn has agreed to continue his hardware series with the mouse add on, coming next, but is now stumped for ideas for future projectsany ideas?.... write to Martin Cleghorn c/o 6809 User.

Praises and suggestions

First many thanks for the September 89 edition of 6809 User. Although I have only recently been receiving this publication I look forward to it dropping through the letterbox and wish you and your team every success for the future certainly the style and content are excellent. As regards format I prefer a printed magazine as it can be read anywhere particularly as I'm not always around to use the Dragon 32. However the idea of a tape based mag opens up a whole new field. Except for disc (I have no drive) I would be happy with any format if it kept me in touch with Dragon matters. One point (not a criticism- but to be helpful, it would be nice when reviews of programs are printed to show the supplier's address and cost of the

program. I'm always looking to increase my stock of Dragon software and the information would be useful. Again congrats on your publication.

R G Warren Middex.

Ed - All noted and suggestions will be acted upon.

Adventure help

Just a note to say thanks for the info on "Time Machine" it was the Jam Lever that had eluded me. I wondered what use a rock was! Anyway, I completed the rest of the adventure in 20 minutes. Apart from that one command I found it a very easy game. Now about these other five...Thanks again.

Tim Lees, Brighton

Robert Cleminson replies: "It's nice to hear occasionally that someone reads my column, glad to be of help. (We all read it how else do we complete any adventures - Ed.)"

Don't make the Dragon a PC

It hopes that I am not throwing good money after bad I enclose cheque for £8 as renewal subscription to 6809 User. In May/June this year I sent a total of approx £10 to New Era for the Marshall Cavendish "Update" series, and more misguidedly, for the "Invaders Summer Diaries". I have received so far only one issue of each. Thank you for edition 12 of 6809 User. I was surprised to read the article on software protection and would have thought that this was the last thing we want to see in making efforts to save the Dragong, but I was very pleased to see the subject of Radio and the computer being covered. Is there any chance that you could find any information about using the extra 32k of the Dragon 64 or even the extra 64k provided by the Compensense "Plus" board? Most commercial companies seem bent on making the Dragon look like some-

thing it isn't. If I wanted a PC I'd have aquired one somehow.

Dave Riley, Somerset.

Ed - Thank you for your faith in renewing your subscription, with regards to any monies outstanding from New Era, Simon has advised me that although New Era has ceased trading, ALL outstanding monies will be re-funded. Your comment on software protection surprises me as I am sure that you must realise that if programs are easy to copy then authors will sell very few, consequently it will NOT be commercially viable for them to write any further prgrams. At the present time there are more, and better quality programs being produced than at any other time in the Dragons history. Flex and OS9 are operating systems that allow you to make full use of the Dragons expanded memory.

Multitasking 6809

I believe that there is a misunderstanding about the multitasking facilities of the 6809E microprocessor. In David Rothery's regular column of the 6809 User it was mentioned that this as a feature of the microprocessor, but this is not true at all. LLIST or any print command of the Operating Systems available for the Dragon will use the buffering capabilities of a printer and thus it will appear to the user that while one can print, you can still use the keyboard. It is an essential part of the Operating Systems to allocate buffers and manage the I/O resources using the system memory while the microprocessor is involved in other tasks. The Motorola 6809 is definitely NOT a multitasking microprocessor.

Sotos Mandalos, Berks.

Ed - I believe that David is the best person to make a comment upon this interesting subject.

COMMS

Ken Smith tells us the late news from the remote world

I am afraid that for all those using Prism modems I have some bad news. It would seem that as far as BBSs are concerned these machines are rapidly becoming obsolete. The cause of this is a new breed of Modem from the USA known as H.S.T. machines which can operate at up to 9600 bits per second. I am sure you can all see the advantage to Sysops of being able to transmit and receive at four times the speed of V22bis especially if they are connected to a USENET system, however, the problem remains that these modems do not cater for split rates. Any of you operating on V21 or V22 should be OK, but those of us who only have V23 can no longer gain access to Boards like Folkstone BBS or Mailbox 80.

CoCo users have long been faced with a dilemma. Whether to use the single RS232 port for a modem or printer. Many have solved the problem by buying or building Adbus units into which additional cartridge interfaces may be plugged. A new modem called the Astracom 1000 series solves

your problem. Being one of the new generation of "smart" modems it has a built in centronics parallel printer port and a 6K buffer. The modem and printer interface can be used independently or together. Communication between computer and modem is handled at 9600 or 1200 bits per second, any changes of baud rate are performed by the modem. This makes it possible to use V23 from an OS9 comms program. Now comes the snag, prices start at around two hundred pound, for the AC1000D which is V21, V23 only. Further information can be obtained from Tony Frishman Services, 12 Bouverie Place, London W2 1RB.

I must admit to some relief when I read John Gilbertson's letter, I was beginning to think that Prestel, or Dialcom as we are now supposed to call them, had singled me out. I now find that I am one of many ex-users who find that the bills just keep on coming. After the latest demand arrived from (don't laugh) the credit control department I became so enraged that I phoned them. I spoke to a very polite gentleman who, much to my surprise acknowledged that they were experiencing problems in this area, but very soon everything would be OK in the meantime he personally would close my account and erase the, so called arrears. I now wait to see if it is really true, watch this space.

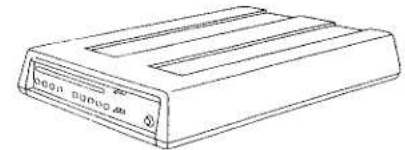
A lot has been, written recently about porn on bulletin boards. Perhaps it is something to do with using an obscure machine like a Dragon, but I must admit that the only coupling I have seen mentioned involved two computers and an RS232 interface. I was once invited to play a game called "The Leather Goddesses of

Phobos", but that is as far as it goes. Obviously I don't claim to have tried all the RBSs in the land, but if it was really widespread as we are led to believe (Save our Children from this Digital Degradation) then you would think I might have have come across something. I suppose it all depends on your definition of porn. What I found most suprising is that the papers and magazines that mentioned these boards, which apparently featured sexually explicit messages, failed to root out two sysops mentioned by the Beeb about two years ago. These went a ten year old for the night then dial up the board to see Who is willing to lend you their kid. Now if, these, so called, investigative journalists want to expose (skuse the punn) some pervers, then these are the people to go for. Sexy graphics, saucy jokes and sexual innuendos are some what tame by comparison.

It looks like the anti-hacking bill has fallen at the first hurdle. It failed to be allocated any parliamentary debating time and so is lost.

I wonder how long it will take for someone to devise a program to fool the exchange into thinking that you are using a different line.

The bad news is that Douglas Hurd has promised to "do something about this mischief", so hackers are not off the hook yet. Anyone seriously into hacking is hardly likely to stop just because it is illegal, especially if they thought that there was little or no chance of getting caught. I presume that the people who want this bill will also be installing auto trace software so that they can find the offending hacker. The obvious solution would seem to be to use someone elses phone line, alternatively come up with a program that confuses the the auto trace. This last bit is all pie in the sky at present, with most of the country still using mechanical exchanges. However, when system X is in full swing I am assured that such things will be possible. I wonder how long it will take for someone to devise a program to fool the exchange into thinking that you are using a different line.



LIBRARY UPDATE - COMPUTER NEWS

Sotos Mandalos will provide a source of information from the Computing World

Hong Kong - British Computer Society

Hong Kong people seeking an escape route when the colony is handed back to China in 1997 are discovering that they could get out by joining the British Computer Society (BCS).

Hong Kong Chinese realise that a professional qualification could get them into the UK under the right-of-abode package being put together by the Government.

Carlye Tsui of BCS in Hong Kong, mentioned that members of the Society who are of the Chinese race should be treated as a par with other professionals. BCS is working hard to keep high qualified computing personnel in Hong Kong rather than encouraging them to use the Society as an escape route.

NatWest - Electronic data interchange

National Westminster Bank has launched a paperless trade payment for its corporate customers. Corporations will be using electronic data interchange to send documents directly to trading partners who will be able to send payments via the bank. It is understood that no Dragon micro will be involved (naturally!)

IBM - Profits poor

IBM announced a 30% fall in profits for the last quarter. An article in the Financial Times (23 October) probes the strategy of IBM and calls into question its promise of profitable growth in the long term.

Digital - Profits poor

Also DEC a large manufacturer of mini computers and a major competitor of IBM has reported a decrease of 35% in the first quarter net profits.

Amstrad downer

Amstrad has announced its annual profits are down for the first time in nearly ten years as a public company. The before tax profits were £76.6m compared with last year's figure of 160m. Alan Sugar has blamed the memory chips rising price and higher investments in overseas marketing. Clearly dissatisfied with his company's rating by city investors, he said that he would consider reprivatising the company.

Amstrad - seeks partners

About Amstrad again, Alan Sugar is looking for partners to take on some of the design and manufacturing aspects of the business allowing Amstrad to get back to what they are good at - Marketing and

Distribution. GEC (yes! GEC, do you remember those Dragon people!) and STC are likely partners.

Amstrad has also withdrawn from producing audio equipment according to Computergram 1289, resulting in the loss of 150 jobs at the Shoeburyness, UK, plant.

Compaq warns of dark days ahead

Compaq blamed problems of meeting demand for new products and slackness in the US market for flat October sales, and warned of slower than expected growth in the fourth quarter.

Although sales are still projected to grow by 15 - 20 % over the same quarter in 1988, the company is thought unlikely to be able to sustain profit margins

Financial Times Survey

A survey covering many aspects of Office Technology, including PCs, (*but not home micros I should stress that - Sot*) was published by the Financial Times on October the 23rd. However, the survey covers areas in no great depth.

Earthquake - no major problems

Thankfully the recent earthquake to hit Santa Cruz region in California, while badly affecting 3 or 4 small areas did not affect the vast majority of computer companies based in the region to any great degree.

A few companies lost one or two days of production, or had equipment damaged by water from sprinkler systems, but on the whole - and thanks largely due to the strict controls over the design of buildings - surprisingly little harm was done. It is worth noting that the XENIX, a multi-tasking and multi-sharing Operating System for Personal Computers, is wholly sold by the Santa Cruz Organisation, SCO.

THE REAL COMPUTING WORLD?

Well I hope that you have found this information useful. I will give you all the latest news from the real computer world (*Dragons live in the real Computer World, others are just a figment of our imagination, but is still nice to know what's going on - Editor*).

As you can see not very many firms, including leading computer manufacturer IBM, are happy with sales at the moment.

If you have any information that you think we can publish please let Roger know about it.

Sotos Mandalos

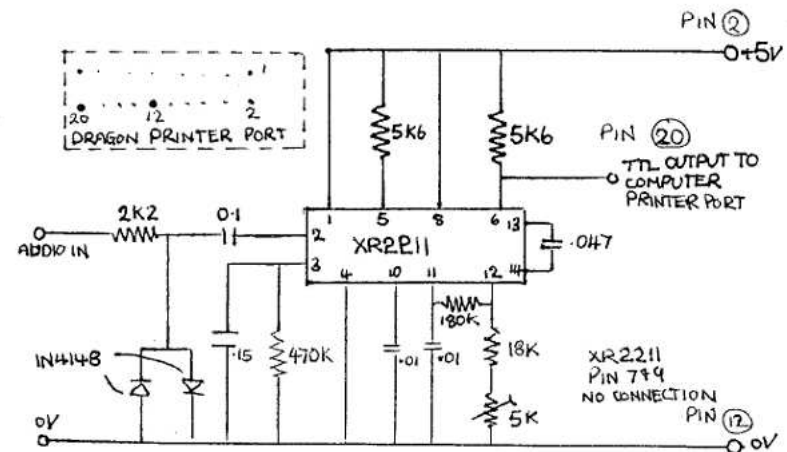
COMPUTING IN AMATEUR RADIO

R Quaintance G7FAI on the wireless

No article on computing and radio would be complete without a mention of Mike Kerry G4BMK the well known author of Alldream and many other fine programs. Most of the programs that you could possibly want to use with your radio have at some time been written by Mike Kerry, who has by the way just reduced the prices of all of his programs, so if there is something that you are missing then please contact him for details. Mike has generously given us permission to reprint parts of his literature, and this month in preparation for your foray into the wonderful world of communications we reproduce the diagram of an external demodulator that will produce suitable TTL signals for your computer from all communication receivers.

I am currently building one myself so will be able to report first hand on the effectiveness of it. This unit is an excellent project for the first time builder all of the parts can be obtained from Maplins and should cost around £8.00. Next month I will look at individual programs and give you an idea of what you are likely to hear and try to give you some frequencies to search out. For those of you who cannot tell the difference between CW, RTTY, FAX, SSTV, AMTOR, SITOR, etc PRACTICAL WIRELESS sell a prerecorded tape "Radio Information Tape No 1" which is currently on offer to its readers, (in the November edition) for the piffling sum of £5.00. This is an excellent tape with which to familiarise yourself with the various modes, and set up your programs. A really useful Tape.

CW and RTTY receive interface



This is a high performance demodulator for morse code and is also suitable for reception of RTTY signals especially .425 and 850 Hz shift commercial signals.

TERMINAL EMULATION

Martin Cleghorn - Explores the facilities of Terminals and expands the Dragon's capabilities

Anyone who owns a computer quickly falls into the habit of comparing his machine against others. We try our best not to covet the neighbours ox but when it has Mega Bytes, hi-res and multi-colour output and loads of nice clicky keys, one tends to turn a little Green. Why then do we stick with the ol'Dragon ?

We all have our own reasons and I'm sure they change as each year passes. My love for the Dragon stems from its flexibility and ease of adapting it for many purposes.

The biggest complaint that users make of the Dragon is its poor screen display; 32 x 16 alphanumerics is just about useless for serious use. The software solution of drawing characters on the hi-res screen improves things slightly, but slows down the machine and uses up valuable memory. The only real solution is a hardware modification. Motorola did suggest at one time that a new 68 VDG chip would simply replace the old 6847 but alas when it did arrive it was a major job to fit it to the Dragon hence the introduction by Compuserge of The Dragonplus Expansion. At over £100, this cost was prohibitive to most of us.

The answer lies on a bit of lateral thinking 'if my computer does not have as good a display as my neighbours, convince him to sell it to me cheap and then use it to display the Dragons output'.

I'll leave the neighbour convincing bit up to you, what I hope to show in this article is a practical method of hooking up two machines to run as one. The choice of second computer is up to you and of course what your neighbour is selling, the criteria for this second computer is :-

1. Its cheap
2. It has a good screen display i.e 80 x 24 text
3. It has a serial (RS232) port

I found myself a new BBC Electron for £25 but had to build a serial port for it. There are loads of rusting Computers around which will fit the bill: BBC B, BBC A, Electron with Plus Cartridge, etc, etc. Also, included are Terminals i.e, DEC, Tandy, etc. Try your local computer shop. I'm sure they will have something gathering dust in the storeroom or may have accepted a trade in for a new megabuster. The QL would be a good bet as you could also use its microdrive for file storage.

Linking the two up is a simple matter as long as you have a serial port on your Dragon. All you need do is link Receive Data (Rx) to Transmit Data (Tx) and visa versa, RTS to CTS and visa versa and ground to ground.

DRAGON	TERMINAL
Rx	Tx
Tx	Rx
CTS	RTS
RTS	CTS
Grd	Grd

If you encounter any problems then try shorting the Dragon RTS to its CTS.

If you don't intend using the keyboard of the second Computer to run the Dragon then you don't need the Dragon Rx linking to the Terminals Tx.

Running the system requires two sets of software, one interrupts the Dragon keyboard and display routines diverting it to the serial port, the second is a 'Terminal' program running on the Terminal computer. The second is easy and can be best demonstrated in Basic:

```
10 A$=INKEY$:IF A$="" THEN 100
20 P$=CHR$( PEEK ( serial port ) ): IF P$="" THEN 100
30 PRINT P$: 100 POKE ( serial port ), ASC(A$): GOTO 10
```

This is a very basic Basic program and would need to be written in machine Code as the Dragon runs much faster than most other computers. Whichever computer you choose there will no doubt be a choice of terminal/comms programs already written for it.

The following assembly listing is what I use on the Dragon and works fine on my Electron and ST VT52 Terminal Emulator (the main terminal standard). It should work for almost all systems but may need some of the ASCII changing routines changing to suit your terminal. Its located at &H600 which is page 1 of the graphics screen. Its handy here as you can not clear it with a PCLEAR and of course you won't need the graphic screens. There is also another reason, if you put the code any higher, for some reason any error code will disable the routine and you have to EXEC it again from the Dragon keyboard.

The code is written for my serial port which sits at &HFF30/1 so you will need to alter it for your own port. A simple EXEC &H600 will enable the whole program so you can CSAVEM it and then BOOT it from tape or disk. If you use a disk system then put the program in your BOOT routine and you will never need to touch your Dragon keyboard again!

Address/ Code	Mnemonic	What it does
0600 C6 03	LDB £#03	Set serial port up, D64 users
0602 F7 FF30	STB >£FF30	Should refer to inside the Dragon
0605 C6 16	LDB £#16	or similar book
0607 F7 F30	STB >£FF30	
060A 8E 061F	LDX £#061F	Install Rx routine address in
060D BF 016B	STX >£016B	ram hook
0610 8E 063F	LDX £#063F	Install Tx routine address in
0613 BF 016B	STX >£016B	ram hook.
0616 C6 7E	LDB £#7E	
0618 F7 016A	STB >£016A	And activate hooks.
061B F7 0167	STB >£0167	
061E 39 RTS		

RX Routine		
061F 0F 70	CLR <£70	Clear end of file flag.
0621 0D 6F	TST <£6F	Is console in use?
0623 27 01	BEQ #0626	Yes then continue routine.
0625 39	RTS	No then finish
0626 34 14	PSHS B,X	Save 'B' & 'X' to stack
0628 BD 8009	JSR >£8009	Blink cursor.
062B F6 FF30	LDB >£FF30	Test serial port for incoming data
062E 54	LSR#	if none then blink cursor till
062F 24 F7	BCC #0628	there is.
0631 B6 FF31	LDA >£FF31	Get data from serial port in 'A'.
0634 C6 60	LDB £#60	Print a space at current cursor
0636 E7 9F0888	STB (£#0888)	position
063A 35 14	PULS B,X	Load from stack 'B' & 'X'
063C 32 62	LEAS 2,S	Reset stack.
063E 39	RTS	Return and deal with new data 'A' as if it was got from the Dragon keyboard.
TX Routine		
063F 81 0D	CMPA £#0D	'A' contains the chr to be displayed
0641 27 17	BEQ #065A	Is 'A' a carriage return (enter)?
0643 81 60	CMPA £#60	If so change it by jumping to #65A
0645 27 3E	BEQ #0685	Is 'A' a right arrow?
0647 81 5F	CMPA £#5F	If so change it by jumping to #685
0649 27 3F	BEQ #068A	Is 'A' a backspace?
064B 81 7C	CMPA £#7C	If so change it by jumping to #68A
064D 27 40	BEQ #068F	Is 'A' a square bracket (shift->)
064F 81 5E	CMPA £#5E	If so change it by jumping to #68F
0651 27 41	BEQ #0694	Is 'A' a shift up arrow?
0653 8D 0E	BSR #0663	if so change it by jumping to #694
0655 81 7F	CMPA £#7F	Goto send routine.
0657 25 40	BEQ #0699	Was 'A' a shift backspace?
0659 39	RTS	If so jump to #666
065A 86 0A	LDA £#0A	End of routine.
065C 8D 05	BSR #0663	Change the 'enter' to 'line feed'
065E 86 0D	LDA £#0D	Goto send routine.
0660 8D 01	BSR #0663	Now send a 'carriage return'
0662 39	RTS	Goto send routine.
		End of routine.

```

Send Routine
0663 B7 067B STA >#067B Put 'A' in temporary store at #67B
0666 86 02 LDA 3#02 Test serial port is ready for
0668 B5 FF30 BITA >#FF30 sending data.
066E 27 FB BEQ #0668 If not loop untill ready.
066D 8D 0E BSR #067D Goto a slowing down counting
066F 8D 0C BSR #067D routine 3 times because the Dragon
0671 8D 0A BSR #067D is to fast for my Electron.
0673 A6 8D0004 LDA #067B,PCR Get 'A' back from store.
0677 B7 FF31 STA >#FF31 Send it to serial port.
067A 39 RTS End of routine.

067B 00 00 RMB £2 Temporary store.

067D 86 00 LDA £#00 Count up to 255.
067F 4C 00 INCA
0680 81 FF CMPA £#FF
0682 26 FB BNE #067F
0684 39 RTS Count finished.
0685 86 5E LDA £#5E Change right arrow to beeb right
0687 8D DA BSR #0663 arrow and send.
0689 39 RTS
068A 86 0A LDA £#0A Change down arrow to beeb line
068C 8D D5 BSR #0663 feed and send.
068E 39 RTS
068F 86 09 LDA £#09 Change right arrow to beeb Tab
0691 8D D0 BSR #0663 and send.
0693 39 RTS
0694 86 08 LDA £#08 Change left arrow to beeb
0696 8D CE BSR #0663 backspace and send.
0698 39 RTS
0699 86 03 LDA £#03 Change shift backspace to beeb
069B 20 C6 BRA #0663 escape chr and send.
069D 39 RTS

```

If you don't have an assembler then simply poke the 'Code' hex numbers in consecutive addresses starting at &H600.

I apologise for the way the code jumps around, hardly good structure, but it is a working listing which I have altered and added to over the years.

Once you have your system running then you can start integrating the two machines further. Don't forget that two machines mean two lots of RAM and extra printer ports etc. I have developed a suite of programs which transfers data quickly from the Dragon to the Electrons memory so that I can save BBC programs on the Dragons disk system. Another useful by-product was that I can use the Dragons joystick to drive a BBC program or dump a text file to

the Dragon for printing while I get on with more typing. There is scope for plenty of interesting computing once you have two machines running side by side.

If you take the plunge and up-grade to an ST then you will still find the Dragon useful as a 2nd computer to the ST. As the Dragons serial port is linked to the main service routine, LISTing a program or file on the ST to its serial port will load it directly into the Dragons memory as if you had typed it in.

Flex and OS9 users should have no problem adapting their system to terminal use, I have the Flex patch if anyone wants it and I'm sure the OS9 group will provide you with a patch should you need it.

Program: LOGIC TRAINER
Supplier: Sunnysoft, Ilfracombe, North Devon, EX34 8PB.
Reviewer: Ken Smith
Price: £4.99

It gets me every time. I read a hardware article and come across one of those logic diagrams. All of sudden dead stop, try as I may I can never make head nor tail of them. All that has changed since I received my copy of Logic Trainer from Sunnysoft, all of a sudden all is revealed.

The instructions show illustrations of all the logic gates, along with how they respond to different conditions. Following this various logic diagrams are displayed along with the start values for the first row, it is then up to you to work out the values for the rest of the chain. Because there is only a choice of 0 or 1 then guess might get you somewhere but I can't see many people guessing all eleven correct. At the end of each test a score is displayed and at the end of your chosen number of tests your accuracy is displayed as a percentage.

The program is in two parts, a Basic main program and a machine code Hi-Res Screen driver, and is cassette based. This being the case it suffers from the lack of an autorun. I mean, even if you go and make a tea while it loads the main program, when you come back and type run you have to wait again while the screen driver loads. It is possible that I am being unreasonable, being a disc man myself, but I could not wait and quickly shifted the Basic to disc, however, the screen driver did not want to load with

the DOS in place. This led to a discovery, with very minor modification the main program will run with Basic 42, thus dispensing with the need for a screen driver. A more serious problem was that on my 64. I kept getting a BS Error in line 1100. It is possible that this does not happen on the 32 as the R.O.M. is slightly different. It is caused by the fact that the DIM statements are tagged on to the end of the line that loads and runs the screen loader. It would seem that after the EXEC the machine ignores the rest of the line and immediately jumps to the next line. The cure is simple just create a new line line 1105 and move all the DIM Statements to that line.

Reviewing a program like logic Trainer is always difficult because it is necessary to visualise the market at which the program is aimed. The most likely application would be for schools and colleges. However, I don't see many of them running Dragon 32s. Apart from people like myself, who just want to understand these things, the program's appeal is somewhat limited. Even then, once you can figure it out what comes next. There is no play against the clock facility which might extend the interest a bit and the way the total score and accuracy is displayed is, to say the least not very entertaining. I know that Logic Trainer is not supposed to be a game but why should it be so serious. It might brighten it up a bit if a score of 95% or more was displayed as "Hmm 95% not bad. Are you sure there is no Vulcan blood in your family?".

I know I am nit picking. The program does what it is supposed to do and the price makes it almost a give away. If you have always wanted to understand logic diagrams then buy it. Being in BASIC, you could always make it more interesting.

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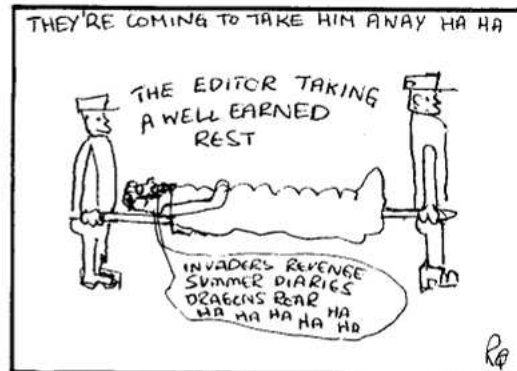
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D Martin for Delta DOS + Toolkit and Scribe

If anyone of you has used an IBM PC (or compatible) with a software package called LOTUS 1-2-3, you will know how easy it is to use due to the user friendly highlight bar type menus. The full code to produce such a menu would take far more than one SCRIBE and TOOLKIT. Listed below is a short routine that will give you an idea about how to do it. I've programmed it in BASIC so all of you can understand it, whatever your programming level and also included a brief explanation.

Lines 20-30 Set up the screen and data arrays. Lines 40-100 Handle the display of the highlight bars. Lines 110-160 Handle the users selected menu choice. Line 170 Passes control to the appropriate subroutine

The remainder of the program is pretty self-explanatory. The main variables used are:

CH - holds the menu choice number, MC\$(n) - holds the names of the menu selections, CD\$(n) - holds the descriptions of the menu selections.

If you press "@" whilst in the menu, you will toggle the background colour between buff and green. Of course, its a piece of cake to provide further lower level menu options, simply by adding extra data statements needed etc. One method I tend to use is to get the main menu to append the selected option into memory from disk. To use this idea you must make sure that your line numbering is carefully structured so as the incoming program does not overwrite the menu. Actually, the only parts of the program that need TOOLKIT are the key input lines, which allow for auto-repeat keys. To run the program without TOOLKIT just amend the relevant sections to use INKEY\$ or PEEK(135) etc.

```

10 REM Highlight bar menu using SCRIBE and TOOLKIT by D.Martin
20 CLS:LINE (0,0) - (256,192),PSET,B:LINE (4,154) - (252,188),PSET,BF
30 RESTORE:FOR I=1 TO 6:READ MC$(I),CD$(I):NEXT I
40 CH=1:PRINT CHR$(2)
50 PRINT@842,"":FOR I= 1 TO 7
60 IF CH=I THEN PRINT CHR$(2):MC$(I):CHR$(2)::GOTO 80
70 PRINT MC$(I);
80 NEXT I
90 PRINT@926,CHR$(2),CD$(CH),STRING$(39-LEN(CD$(CH)),"");CHR$(2)
100 K=KEY
110 IF K=64 THEN PRINT CHR$(3)
120 IF K=8 THEN CH=CH-1: IF CH=0 THEN CH=6
130 IF K=9 THEN CH=CH+1: IF CH=7 THEN CH=1
140 IF K=13 THEN PRINT CHR$(2):GOTO 160
150 GOTO 50
160 ON CH GOSUB 180,190,200,210,220,250
170 GOTO 40
180 REM***INSERT FIRST ROUTINE HERE***
190 REM***INSERT SECOND ROUTINE HERE***
200 REM***INSERT THIRD ROUTINE HERE***
210 REM***INSERT FOURTH ROUTINE HERE***
220 REM***INSERT FIFTH ROUTINE HERE***
230 PLAY"t10:EDCP1EDCP1EDCP1EDCP1"
240 RETURN
250 REM***EXIT TO BASIC ROUTINE***
260 PRINT@926,"Are you sure...(Y/N)?:
270 IF K<"Y" THEN RETURN
280 CLS:PRINT"MICROSOFT BASIC- DeltaDOS resident"
290 END
300 DATA "CH=1","Description of first choice"
310 DATA "CH=2","Description of second choice"
320 DATA "CH=3","Description of third choice"
330 DATA "CH=4","Description of fourth choice"
340 DATA "CH=5","Description of fifth choice"
350 DATA "@quit","Exit from menu to basic"
    
```

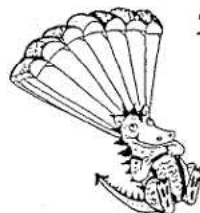
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Prestel 011155295, or Micromola BBS 01-316 7402. And no this does not mean I'm quitting the Dragon scene, (I should hope not all deserters will be shot - Ed.) I still will be using a Dragon system for developing new ideas.



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