



## DRAGON UPDATE



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### THE EDITORIAL WHINE.

OK you monkeys....Who shook your tree?????!.There I was, trying to pad out two articles into a twelve page Newsletter, and hoping the Membership wouldn't notice (he usually doesn't), and suddenly I get submerged beneath a pile of material that would turn Dragon User green with envy!!..Having apologised to the postman for the potential damage to his hernia, raided the Editorial Vodka and more or less recovered from the shock of actually having something to print, I decided to celebrate by writing a letter to Dragon User informing them of the existence of the Group. I've done it before, it's perfectly safe and non-addictive, and anyway, nothing ever happens. This time something did!!!!...about fifty new Members!!.

I can't take shocks like this.....Everyone keeps telling me that the Dragon is dead, obsolete, sub-standard, etc...that no one is interested in Dragons....that there's no demand, etc, etc.....Do you think the Experts might just possibly have got it slightly wrong?.Surely not!!.

Anyway, to those of you reading this literary epic for the first time....Thank you for joining, and I hope that you feel that you've put your 7.50 to good use.

To those who have sent in material, offers of help, etc...much thanks....it was well worth waiting for, and if you don't see your contribution in this issue, don't worry, it will be in the next one. Please keep it coming in, because the more we get the better the Updates will be.

We particularly need more for the old "Redundant Info" column...there isn't really enough of that to make up a column for this issue, and if anyone has any useful utility listings they'd be very welcome too, but other than that whatever you feel like writing, please keep it all coming in...we CAN'T have too much of a good thing!.

Just for once I'll keep this bit short and let you get on with the interesting stuff, but before I do there's one VERY URGENT PROBLEM that I'm hoping someone can assist with.

As you know, Anne Milstead has been doing the copying for Update recently, but she is having problems with the machine, and we urgently need someone who has access to a plain paper photocopier and can run off Update for us at cost rather than the usual commercial rate which the Group simply can't afford. If you think you can help, if only for a couple of Issues, please let me know as soon as possible. I'm trying to locate a copier that the Group can afford to buy, but at the moment I'm not having a lot of luck!.

Right!, that's the lot from me.....at least for this month. Paul G.

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For the benefit of those who are reading Update for the first time, if you have any Dragon problems, or just want to talk Dragons, please write in, or phone me any evening. If I can't help I can usually find someone who can, and it's always good to hear from you.

If you know of any firms who might be willing to let us have review products, or members discounts, please ask them to contact me.

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## Answers to the June Crossword.

ACROSS: 1, Cutbert; 9, Nag; 10, Forth; 11, UP; 13, PI; 14, RORA; 15, Opel; 17, EXT; 18, Nibble; 19, RGB; 21, Computer; 24, PG; 27, CoCo; 28, EG; 30, ET; 32, Dragon; 34, Let; 35, Del.

DOWN: 2, Unary; 3, Ta; 4, HGU; 5, Rope; 6, Trilogy; 7, Shenanigans; 8, Chronicle; 12, POKE; 16, PT; 17, EL; 26, TUC; 22, NC; 23, Port; 24, Todd; 25, Real; 29, GG; 31, TL; 33, RE.

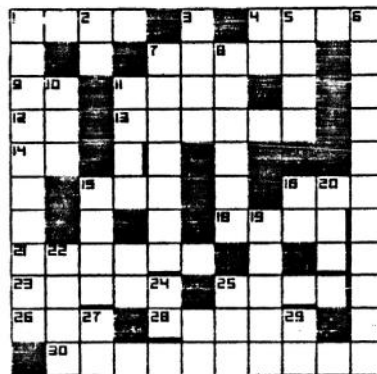
Crossword 2.

Across: 1. Small piece of potato; 4. Separate into classes; 7. Computer rodent; 9. Doctor of medicine; 11. Could be nested; 12. 22/7; 13. Mixed up Mr Blackwood; 14. United Nations; 15. Solidify like jelly; 16. Reminder; 18. Duelling sword; 21. Put your micro in reverse; 23. Dragon's new home; 25. Prepare for publication; 26. Possibly a socket on your recorder; 28. Old Spanish movie star with cape, sword, and mask; 30. Noon-buggy.

DOWN: 1. Dragon supplier; 2. - then else; 3. A small body of still water; 4. Steamship abbr.; 5. Twisted rope; 6. Software supplier; 7. A kind of lizard; 8. Bring up to date; 10. A roar of confused noise; 11. Tardy; 15. Story of heroic adventure; 16. Royal Engineers; 19. Mexican gardener; 20. Nature elver; 22. Milk white or bluish stone; 24. New Zealand; 25. Make mistakes; 29. Overflow error code.

This month the first correct entry wins a copy of BLACK SANCTUM.

June winner was Mr. J.E. Slade.

Communications.... Gary Coxhead.

An issue or two ago, Jim Bell advised Group Members of his CoCo/BBS Bulletin Board for Dragon and Tandy users. Some of you who know about communications may already have tried it, some of you may be contemplating about getting in on the communications kick and some of you may not even have a clue what I am talking about. In the next few months I hope to remedy this situation by explaining the ins and outs of communicating on your Dragon. Most of you, I hope, will find something to 'fire your imagination' and give you an insight into this most exciting aspect of computing.

Without doubt, communicating is one of the most worthwhile things you can do with your micro. How many times have you heard people say "computers are okay, but what can you DO with it?" Now you have an answer!!

Communicating is great fun and entertaining, and buying the Hardware and Software needn't cost an arm and a leg, and often costs less than a Disc Drive or Printer. But if your purse/wallet is deep enough, or you have a bit of ingenuity, the full range of facilities can be open to you, i.e., exchanging software, accessing Prestel, Private Mail, Teleshopping - the list gets longer all the time. But even if your funds are small and you aren't too good at programming or with a soldering iron (like me), a great deal of fun and enjoyment can still be had. For example, my system of Modem, Interface, Cable and software cost less than 60 pounds.

You can meet new friends on networks, get valuable knowledge and, on some systems, even play Multi-User games!! Communicating is no longer for the few enthusiasts, it is something everyone can enjoy. It is with this in mind that the following series of articles have been prepared.

The first article(s) will concentrate on the hardware needed to connect you up to the outside world - comparison of Modems, interfaces etc. The next will concentrate on the Software side, facilities needed, start and stop bits and word formats. Next I will go step by step through the process of actually calling up and getting through to your first Bulletin Board. Finally, once connected, we will explore what you can expect to find and how to get the most from the Boards you access. Then, if time and interest permit, perhaps a review of some of the systems I have accessed, and, most importantly, a list of phone numbers!!!

If at any time anyone has any problems, they can ring me on 0375 672137 most evenings, but remember I am no expert.

# ASCII CORNER.... (or Neil on 3).

Right you lot of lazy good for nothing members I'm gonna have a moan at you! Is there anyone out there who reads this masterpiece of trash every month (any month come to that)? I have had absolutely no feedback at all on the content of ASCII corner. Is it that you think the column is superb and perfect? I doubt it! Have none of you ever been stuck in an adventure for the past six months? I certainly have. So come on you lot, my address is printed on the front of the Newsletter along with the who must be obeyed (well, sometimes!).

I want to hear from anyone who has completed 'Madness & the Mino.', or, in fact, if anyone has found the first spell. In fact I want to hear if anyone has completed any adventure even if it is Microdeal's 'Mansion Adventure'. To encourage you lot I'm going to set up two things. The first is that if anyone has ANY of the Adventure International games, bar 'The Hulk', then I would gladly swap programs with them. If anyone wants to swap their original 'Castle Blackstar' then they can have 'Wet Set' (sorry Roy), 'Jet Set Willy', 'Manic Miner' or 'Speed Racer'. The second point is that when you have completed an adventure, the program is of no use to you at all. What I want to do is set up a table of adventures that people would like to swap.

However, there is one stipulation - they must be originals. If you think the idea could work, then drop me a line. This totally depends ON YOU! Now on to other things.

It is time for me to own up. I recently bought a second computer, but it has no Welsh relations at all. I went and bought an Amstrad. There were 2 reasons for this. 1 was that as I co-run a software company, I decided to branch out and write progs. for other users less fortunate than ourselves.

The second was that I desperately wanted to try a Level 9 adventure. So a week after I bought the Amstrad, I went and purchased 'Return to Eden'.

Eagerly I loaded the prog. (it took ten minutes) and started to play the game.

Well what a load of tripe it was. I haven't seen anything so uninteresting since any Dragon software review in Popular Computing Weekly! Let me explain. The text size was 20 x 25, and as the character set had been re-designed, I found it hard to read. The graphics were some of the poorest I've seen in a long time. They are drawn in m.c., but take longer than Dragon Basic. The detail was non-existent and the colours chosen were grotty. The text description is very terse and provokes no atmosphere at all. One of the first things I did was type in 'I' for Inventory. The reply I got was 'sorry you can't go that way'. The worst fault in the program is the problems set. Take the first one. You must protect yourself from the exploding spaceship. What you have to do is wear a 'Rad suit', dive down a mole tunnel and wait in a room that makes you feel sleepy. There are no clues at all to this problem. The only way I found out was by flicking through previous Tony Bridge columns in PCW. How Level 9 get consistently good reviews is amazing. Needless to say I got rid of that prog. quickly. O.K., I hear you ask, what has that got to do with Dragons? Well all I can say is that we must be the luckiest owners on Earth with programs like the 'Dan Diamond Trilogy', the Tandy adventures - 'Bedlam', 'Raaka-tu' and 'Pyramid 2000', 'Shenanigans', 'Sea Quest' and then I could go on through the Channel 8 stuff and Adventure International. For simulations we have Tim Love's 'Cricket', 'World's of Flight' and Salamander's 'Golf' to name but three. Then to follow up we have 'Manic Miner', 'Jet Set Willy', 'Screaming Ab Dabs', 'Rainbow Writer' and the disk packages for OS9 and Flex, 2 very powerful systems each with their own virtues. What more could any self-respecting computer buff want? Maybe I should have bought a disk drive instead! (Yes! you should-K.G.) By the way, all the Tandy advents. mentioned above run on a Dragon 32 (I don't know about a 64) and are well worth getting. Next month I'll get back to normal with reviews of 'Syzygy' and, hopefully, the 'Shrunken Scientist'.

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## COMPOSER. (MICRODEAL) . . P. C. Asbury-Smith.

This program was designed to enable one to write fourfold harmonies on the Dragon. It Comes with a 28 page manual fully comprehensive from the Programming point of view, but not from the musical aspect. The Mastertape presents no loading problems, and contains three separate progs.:- Composer, a sound effect generator (which I have not used and will not review) and 'Jukebox', which gives 16 demos of the products of the other 2 progs. Basically, the difficulty of producing harmonies on computers is the computer's inability to do two things at once. To overcome this, Composer sets up two data files. The first, "the Source File", contains the notes that constitute the chord and its duration. The notation used differs only in minor detail from the 'Play' command, in that the duration is entered by a number at the end of the chord. The Composer contains the formula of the sound waves of each note separately, and also the formula to add the four separate sound waves together to form a resultant sound wave, which is then stored in the second data file, which is called the 'Compiled File', and is in machine code.

At this point the tune (whatever) exists in two forms in the Dragon. Firstly, it exists in the Source File (in BASIC) as separate notes which humans can understand and readily edit, but is useless to the computer, and secondly, in the Compiled File as a series of machine code notes, which the computer can play with the greatest of ease, but which are incomprehensible to humans.

Also in the computer is the Compiler - the link between the two files. Let's CLOADM "Composer" and EXEC. If you LIST you will find the prog. is in two parts. Down to line 1400 is the operating system, including the Compiler.

Line 3000 onwards is the Source File of a demo tune. This tune is well worth study. However we enter DEL 3010- and enter our own efforts like this:-  
[3010] DATA A5F4C4F3Q [3020] DATA G4E4B14CQ [3030] DATA F4F4A4D3Q [3040] DATA C5G4G3E3Q etc.

One chord to each DATA entry, otherwise the computer will think that you are trying to write a hundredfold harmony and will tell you ERROR FC. Having entered our chords, we RUN the prog. and are presented with a Menu. Select option 2 "Compile Music". As each chord is compiled, a number, starting at 1, numbers the chords in serial order as they are compiled, a chord averages 2 sec. in compilation. Compilation completed, we use option 3 to play the music.

As the music is played, a kaleidoscope (in default of other instructions) appears on the screen with the serial number of the note being played in the bottom right hand corner. This is invaluable in editing the music. Option 4 allows you to modify the tempo and option 5 allows transposition of the whole file up or down x notes. There is a simple means of making these changes a permanent entry into your Source File, so you can begin a piece of music fast, then go slow and later return to the fast tempo. A similar method enables you to repeat sections of your tune. This saves a lot of typing and computer memory.

Having edited our tune to satisfaction, option 6 saves the Compiled Tune. You are asked to give a name, and can replay it by CLOADM "name", and EXEC just like any other Machine Code prog. It is now independent of the parent "Composer" prog., and can be handled like any other m.c. prog. Option 7 allows saving of the Source File under a file name, but this remains a data file dependent on the Composer prog. Option 8 is used to opt out of the kaleidoscope graphics and clear instructions are given in the manual on how to incorporate your own efforts. Option 9 followed by LIST as appropriate allows you to edit the Source File.

I think the above is a fair summary of "Composer" and I have transcribed 16 Hymns and have no trouble from the Computing point of view. In fairness I must add a footnote to Option 5, which transposes the tune from one key to another. I am afraid that the subject is much too involved to do justice here, but I would be only too glad to discuss the issues arising privately with anyone interested. Here goes.



In the pre-classical days - roughly before Bach and Handel - makers of musical instruments aimed at and achieved absolute pitch, so that each semitone was separated from its neighbour by exactly the same difference throughout the whole musical range. One of the effects of this was that an instrument could be only played perfectly in one key and reasonably acceptably in only a very few others, dependent on a number of factors for which I have no space. In the 18th, Bach and like-minded people persuaded the musical world to accept slight discrepancies (mathematically) irregularly in the relationships between the semitones. With these changes, pitch was no longer quite absolute, but the instrument would sound acceptable when played in any key. There is now NO mathematical formula connecting the notes of the scale. The new kind of instrument was called "Well Tempered", but the situation is not quite as simple as that. Thanks to the work of many composers - Stravinsky, Bartok, as well as quite a large number of jazz musicians - a larger number of chords are acceptable today with a very wide audience than was the case in the 1750's. Also less complex harmonies (i.e. 3-fold, instead of 4-fold) are less critical on an untempered instrument. This leaves a question of how best to use "Composer" far from resolved.

I have shown "Composer" to two friends who are much better musicians than I.

One is a good Church Organist and a Music Teacher, the other was for 15 years an army bandsman. Both produced fair results by quite different means, and both said "This is a new instrument that has a life and a vitality of its own.

It awaits a genius." Perhaps!! But it is certainly not me, but I would be pleased to discuss the application of "Composer" with anyone who is interested. My address is: 73, Guinness Court, Lever Street, London EC1.

## PIXEL PARK.....Chris Parkinson.

Screaming Ab Dabs. 6.90.

Screaming Ab Dabs by A & F Software is the first of the programs under review this month. It is another 'platform' game based on the 'Manic Miner' original. On running the program, you are confronted with a menu of options, including the number of players (1 - 4), and, perhaps the most useful of all in a game of this type, that of a random screen option, which, when chosen, sets you starting on any one of the 35 screens.

The graphics in this game are of an equal standard, if not better, to those in 'Manic Miner', although the man controlled by the user is a disappointing stick character. Sound is very basic and limited, but having said that, the game is quite good and if you haven't got a good platform game then I would recommend this one. Overall.....76%.

Cosmic Crusader...3.99.

'Cosmic Crusader' from Blaby CG. is a fast, semi-3D star wars game. At the beginning of the game, whilst being allowed to choose control between joystick and keyboard, the program plays an excellent rendition of the 'Star Wars' theme tune. Once started, the game shows a view (in PMODE 3) of outer space from the cockpit of your own starship, equipped with a high powered laser.

The gun and its sight are controlled by the user and shots can be guided onto the oncoming alien battleships. Having killed the first enemy fleet, you can then go on to re-fuel, before stepping into hyperspace and finding another alien life to attack. Considering the price (a lot worse games than this have cost me 8.00), this program seems good value. Overall.....90%.

Sorry if this issue has more 'typo' errors than usual, but we've had so many enquiries this month that I've hardly had time to get 'Update' typed up at all!!!!. I TOLD you we needed an Editor, didn't I?!!.

Paul Grade.

**BOOTING OS9.....Bob Hall.**

Those of you who have Dragon 32's upgraded to have 64K of RAM will find that you can boot up such goodies as FLEX or 'Colossal Cave Adventure' straightforwardly; however, if you want to run OS9, things are a bit more fiddly, for if you proceed normally the Bootstrap will hang in a loop trying to kick the non-existent RS232 port into life (at least I think that's what's going on!). Proceed as follows to get round this problem:

1) Insert disk & type 'Boot' as per the instructions, when the words 'OS9 BOOT' will appear on the screen (if not, you ARE in trouble - this message is written to a low - res screen at &H8000). After a few seconds the disc activity will cease, with the system hung up; (however, the disc still remains turning and selected).

2) Press reset. 3) Type 'POKE &HFF03,&H34:EXEC9736'

Success should then be yours: the BASIC just re-enters the Bootstrap routine, with the interrupts off, a couple of orders in from the normal start (at 9730)

If you need to re-boot (eg to change discs), then just press Reset, (after changing discs) - the system will NOT hang up this time.

**RS232 INTERFACE.....ALAN BUTLER.**

The object of this exercise was to produce an RS232 compatible interface for the D32 as cheaply as possible and to make it work with the DragonDOS cartridge installed at the same time; also, to make it work on Dragons modified to 64K. It was inspired by an interface in the Maplin magazine, Sept. '83. The original Maplin interface and associated software had a few problems which, I hope, have been ironed out in this article.

CIRCUIT. The circuit is designed around the Motorola MC6850P Asynchronous Communications Interface Adapter (ACIA), a programmable device which can handle a variety of baud rates and word formats. The clock is generated by one half of a 556 timer which is set up in this instance to produce a 4.8kHz clock and "squared off" by a schmitt triggered Nand gate IC1(74LS132). When the MC6850P(IC3) is programmed with a divide by 16 code, the baud rate is 300.

The second half of the 556 timer is used to generate -12V, as the D32 doesn't have a negative voltage rail available at the expansion port. RS232 specification requires that "zero" be represented by a negative voltage of between -3V and -25V. I found that under load, the 556 can deliver about -8V, which is quite adequate. TR1 and TR2 switch between +12V and -12V to convert from TTL level serial data, out of IC3, to RS232 levels. The incoming serial data is rectified and clipped by D2 and D1 respectively to convert it from RS232 levels to TTL level. It is then cleaned up with a schmitt triggered Nand gate IC1. Address decoding is provided by enabling IC3 only when signal P2 is low and Address line A4 is high. P2 low indicates that addresses in the range FF40 to FF5F are being addressed. A4 high with P2 low indicates that addresses in the range FF50 to FF5F are being addressed. A0, with the above, in turn selects any odd or even addresses within the range FF50 to FF5F (i.e. A0 low selects even, A0 high selects odd addresses). The 6850 requires only two addresses and a direction indicator (R/W) to enable full control. Thus, using any odd or even address in the range FF50 to FF5f, we can write to or read from the 6850. In an example program later I use FF50 and FF51. DCD is held low and CTS is left unconnected. However, there is no reason why they couldn't be connected and coding incorporated into the program to handle them.

EDITOR'S NOTE: Next month we will be printing the terminal software for use with this interface, and notes on using it with DragonDOS installed.

## Parts List:

Resistors - all 0.25W unless stated:- R1-100k; R2-1M; R3,7-4k7(2 off); R4,5-10k(2 off); R6-1k5; R8,10-3k9(2 off); R9-470R; R11-33k; R12-75k; R13-100R 0.5W; RV1-1m sub-min preset. Capacitors:- C1-100pf Silver Mica; C2,3-100nf minidisc(2 off); C4-0.001uf; C6-10uf. Semi-conductors:- D1-BZY88C4V7; D2-IN4148(2 off); D4-IN4001; TR1-BC548; TR2-BC327; IC1-74LS132; IC2-NE555; IC3-MC6850P.

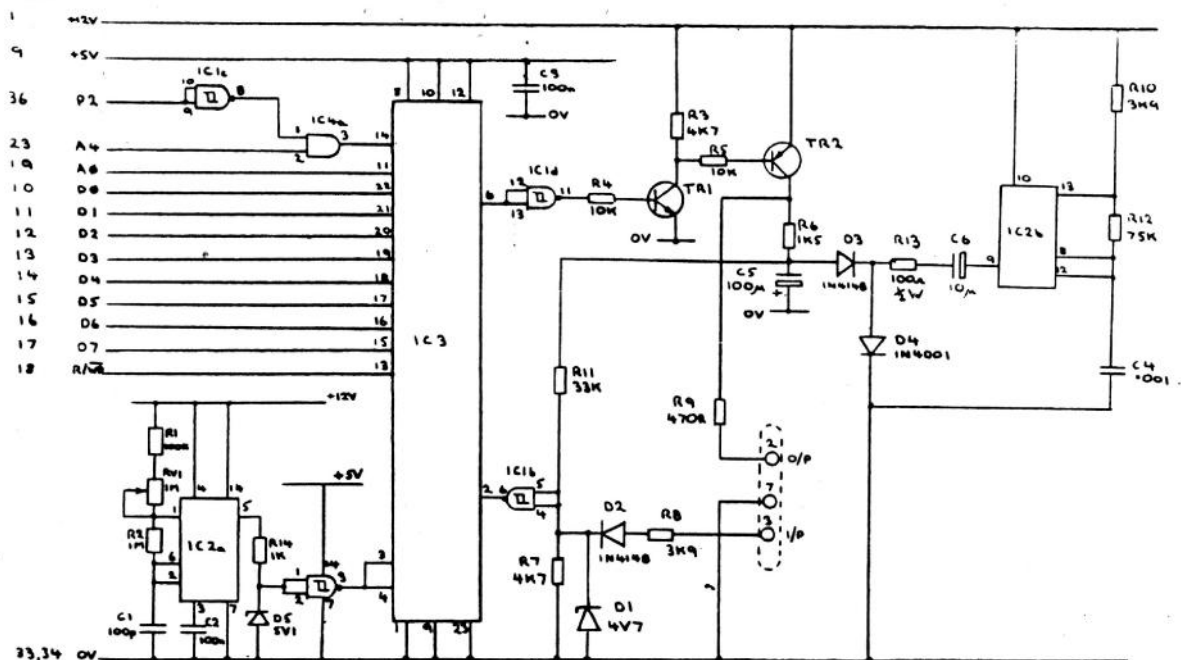
Driving the 6850:- FF50 is the control and status register. Writing to this address resets the 6850 or sets up the baud rate and word format, depending on the data written (see below). Reading from this address reads the status of the 6850. FF51 is the receive/transmit address. Writing to this address transmits a character and reading from it receives a character, subject to the control register being first set correctly, and the status register showing an error-free condition.

Status Register:- D0-Rx register full; D1-Tx register empty; D3-Carrier detect (DCD); D3-Clear to send (CTS); D4-Framing Error; D5-Rx Overrun; D6-Parity Error; D7-Interrupt Request.

Control Register:- Reset Function - D0 and D1 set to 1, with D2 through to D7 cleared to 0. Divide by 64:- D0 cleared to 0, D1 set to 1. Divide by 16:- D0 set to 1, D1 cleared to 0. Divide by 1:- D0 and D1 cleared to 0.

Word Format:- 7 bits. Even par., 2 stop bits:- all bits cleared to 0. 7 bits. Odd par., 2 stop bits:- D2 set, all others cleared. 7 bits. Even par., 1 stop bit:- D3 set, all others cleared. 7 bits. Odd par., 1 stop bit:- D2 and D3 set all others cleared. 8 bits. 2 stop bits:- D4 set, all others cleared. 8 bits. 1 stop bit:- D2 and D4 set, all others cleared. 8 bits. Even par., 1 stop bit:- D3 and D4 set, all others cleared. 8 bits. Odd par., 1 stop bit:- D2, D3, D4 set, all others cleared.

EDGE CONNECTOR  
PIN NUMBERS



This article will be continued in the next issue of 'Update'.

## 'C' Compiler review.....by Scorpio..

The 'C' programming language is one of the more popular languages used by micro-computers. It is particularly pertinent to the Dragon 64 because there is sufficient memory to run the software providing that a dual disc drive is available. Anything less than this will be inordinately difficult if not impossible to use.

'C' was originally written for the UNIX operating system designed by the Bell Telephone Laboratories. Any application written in 'C' can be transported from a UNIX system to an OS9 system. The language is supported by a book entitled 'The C Programming Language' by Kernigan and Ritchie, and because of the shortcomings of the Dragon Data manual it is an essential, if expensive, reference book which costs about 17.00.

OPERATING THE PROGRAM. The program is supplied on two discs and is supported by a sizeable manual. Programs written in 'C' have to be written through a text editor, such as Dragon Data's Editor/Assembler or Stylograph, although the Shell command BUILD does provide a primitive way of entering text. This can then be compiled using the CC1 module (with a Level One system) to produce position independent, re-entrant 6809 object code in the normal OS9 memory module format. The compiler will also produce assembly language source code if required. 'C' supports a good number of OS9 system call routines. Chunks of assembly language can be included in 'C' programs and these are assembled by the Relocating Macro Assembler supplied.

I should now comment that the program packaged by Dragon was not complete and it will not operate without the addition of two Shell commands to the disc. These are ECHO and TMODE, and they can be copied from your OS9 System Disc. The omission of these commands can waste many hours of frustrating and fruitless research to determine why the program does not operate. Quite clearly the sale of the program with such fundamental deficiencies is not acceptable, especially at its current price of 90.00. It could be hoped that Touchmaster would examine the programs shortcomings and modify the package so that future purchasers do not have the problem of ascertaining why the program will not work. Another shortcoming of the program is its inability to support the 51x24 screen, this is due to the lack of memory and therefore cannot currently be overcome.

DOCUMENTATION. Having identified the basic problems we should now consider the manual in greater detail. From page 1 you are into deep water and find yourself wading through an unstructured mess. In addition the manual is far too technical, being in the same league as the OS9 Programmer's Manual, and it seems to be aimed at the experienced user rather than the layman. The manual has chapters covering the System, Characteristics of Compiled Programs, System Calls, and the Standard Library. It also contains extensive appendices.

THE COMPILER. It is worth mentioning that there are a number of compilers available for the Dragon, most of which run under the Flex OS, and to some extent they are minority languages. Of the three widely available under OS9, the 'C' compiler is the only true compiler and is therefore undoubtedly the best for serious applications.

One area in which the compiler really excels is in its speed. It is considerably faster than Pascal as it compiles directly into object code instead of intermediate code. A recent benchmark test comparing the Spectrum 'C' compiler with the Dragon equivalent revealed that the execution times for the different machines were 6 seconds and 0.2 seconds respectively for an identical program. This demonstrates the efficiency of the compiler.

It is quite surprising that a 64k home computer can support a sophisticated commercially used language of this type, and there is no doubt that it is well implemented by the compiler. Obviously the limitation placed upon the system by the 64k seriously restricts this brilliant program as it would be far better suited to a system of twice the size. One can speculate that Dragon Data had intended the program to be used by the ill-fated Dragon Professional. The language falls awkwardly between high-level languages such as Pascal and



Basic, and Assembly language. It is difficult to learn and debug as it is so different from other languages. Its major asset is software portability as programs written in C can be run on any C compiler with the minimum of alteration.

CONCLUSION. The reader will conclude that C is a language to be utilised by the expert. Indeed, the majority of Dragon users would find it very difficult to understand because it is so different from the normal Microsoft Basic, and because of the atrocious manual. But, if you have the determination and desire to master a sophisticated compiler, there is no doubt that this utility could be very useful. For my money I would stick to Basic 09, unless a particular part of the program is too slow and therefore needs compiling.

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### Reading Matter . . . . R. A. Davis.

We would all agree that the Dragon had pretty poor support from the start from the specialist magazine, but after all, they are in the advertising game and I suppose most of us subscribe to it for the advertisements rather than the waffle.

In the magazine line, it is worth your having more than a glance at some of the less specific ones if you see them on the shelf.

Digital and Micro Electronics, published every two months, had an i/o port for the Dragon in the Aug/Sept. 84 issue, and photocopies of this article plus the pcb are available from them.

Other mags that occasionally cater for users of the Dragon are:-

Electronics (Maplin); Electronics and Computing; Radio and Electronics; Amateur Radio; Practical Wireless and Wireless World (now Electronics and Wireless World).

We all appreciate the appearance of Inside the Dragon, still obtainable from Touchmaster, but for those who are just getting into machine code, having already got to grips with Basic, Robin Jones and Eric Cowsill's Dragon Machine

Code is a gentle entry, starting by using just the 'A' register and slowly introducing more and more. You can get it from Shiva Publishing Limited, 4, Church Lane, Nantwich, Cheshire. CW5-5RQ.

Another useful book is Anatomy of the Dragon by (Group Member) Mike James, also the Dragon Companion by M. Jarvis, and A Pocket Handbook for the Dragon by Peter Gerrard and Danny Doyle.

The TRS80 Color Computer Technical Reference Manual from Tandy, is also a good buy, as we have much in common.

For the real eggheads, there are 6809 Microcomputer Programming and Interfacing with Experiments, by Andrew C. Staugaard, and of course, Programming the 6809 by Rodney Zaks and William Labiak. Both are quite expensive, though.

The June edition of Electronics and Computing kindly provided a circuit diagram of the Dragon 64, with an interesting 2-page article, and more to come in July.

So, if, like myself, you are gradually cancelling your orders for magazines which used to give us some support, but which now appear to ignore us, even when we took the trouble to write and thank them for their support, don't despair. Compusense is advertising in some of the others!■

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### OFFER FROM JOHN MARTIN!!!

In case you don't know, John is the one responsible for KET, and he's asked me to mention that he's willing to help anyone who gets stuck... He's also offering help to anyone with m/c graphic or similar writing problems. You can write to him at 35, Little Gaynes Lane, Upminster, Essex.

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### More on the Return of the Ring.

On the moon discover each location and bring out all you can from the special locations. Each mile contains three transportals, to go out, in, and to an interesting place. Visit all the transportals on the planet too, as each different colour pass becomes available. The places will give you vital instructions on the tasks you have to perform to win six units.

On the moon use Shedir or a getaway spell when in trouble. Get your companions to carry all the spare power packs and other items. If ever your companions go berserk and start to fight each other, or you turn off your power and find an enemy, tell them to attack the enemy, and turn on your power again.

As soon as the red pass is available go to the amplifier, exchanging rings for extra strength, etc. The rings will either be for sale in the store or in the Door Krell's rooms. If you leave the gold ring by the forest moon transportal you will have it ready in case the Sappers get you on the moon and sap your strength. If you have used the rings in the amplifier then they will be in the Door Krell's rooms.

The hardest quest involves visiting the Oracle for the fake book. You take this to the Nightfall Mutant's cave on level ten of the moon. You leave this and take the Book of Skulls. Night falls immediately. Use the getaway spell and try to get back to the planet before you are caught. If you fail then you must visit the Oracle again. When you succeed you take the book to the Oracle for another unit.

When all the quests are completed you take the white pass, six units and rings, to the new transportal north of the Oracle.

The final quest is simple, give each member of the party a ring and confront the Evil Sage!.

A. Atkinson.

### Sounds Better.....D. J. Bonham.

The following hint involves opening up the Dragon and working on the machine with it switched on, so care must be taken to avoid short circuiting any of the components. A friend of mine purchased a second-hand 64 but was annoyed by the continual "buzzing" and poor quality sound, and asked me if I could rectify the problem. Although there is a "trade-off" between picture stability and sound quality I achieved a reasonable compromise in the following way:-

[1]. Isolate the computer from the mains.

[2]. Remove all plugs from the computer and open the computer by removing the four screws from the underside of the case.

[3]. Replace the TV lead and mains lead into the respective sockets. Cover the main board and power supply area with a sheet of Polythene leaving access to the modulator at the top left.

[4]. Switch on the machine and type the following line:-

```
10 SOUND 86,6:FOR D=1 TO 500:NEXT GOTO 10
```

[5]. RUN the program and adjust volume to a comfortable listening level.

[6]. Using a PLASTIC screwdriver or a trimming tool adjust the inductor core (top right on the modulator unit) up and down until the best picture/sound compromise is achieved. A metal screwdriver can be used, but as this in itself will alter the inductance being adjusted it will be difficult to obtain a satisfactory result. DO NOT FORCE THE SLUG AS DAMAGE WILL RESULT. Take care not to screw the slug too far down or you may find it impossible to screw it up again!. If this happens, do not despair as it is possible to screw it back up from the underside of the modulator after it has been desoldered and the bottom case cover has been removed.

[7]. Isolate the computer again, and replace the cover.

## FLEX... Stephen Cottrell.

Paul Grade has analysed the membership of the Dragon User Group, and a very high percentage of you own a 64 with at least a single or double disc drive. Many 64 owners with or without a drive may have wondered what the BOOT command does. Entering this command switches your Dragon into its 64 mode, empties RAM of the resident BASIC language and loads from disc a new operating system.

Whilst you can write your own routines, the two most generally available systems for the Dragon are OS9 and FLEX. Both systems can be used with a single drive, but they spring into life if you use twin drives. The following is a brief look at Flex and DBasic.

How many of you suffered the initial disappointment when you first plugged your disc drive into your 64 only to find that it did not work in the 64K mode? I'm sure that many of you felt that you had wasted your money. However, you can use your Dragon in 64 mode with a disc drive and still write and run programs in Basic and 6809 code. A systems configuration using Flex with DBasic enables you to do this. There is one slight problem. Your DragonDOS formatted discs will not work directly with Flex resident in memory. However by using the cassette port to load your existing Basic and m.c. programs, you can then manipulate or run them from disc by using the additional commands Cloadf and Csavef. DBasic enables you to mix text with Hi-res graphics. Switching from DBasic to Flex is simple using the CLS99 command, which some of you may recognise from other Compusense products. You can even exit Flex using the MON command, and re-enter with EXEC &HCD03 (warm start).

However, all the above is scratching at the surface of the Dragon's capabilities under Flex. I find certain aspects of the systems file-handling a real boon. For example, a file on disc can be directly listed to screen or printer. This includes data files as well as Basic and text files. Text files can be used as source code which the built-in assembler will convert into 6809 object code. Best of all, by using the editor you can create your own bootstrap routine (called Startup). I currently use a disc which boots directly to DBasic under which I run Compusense's Graphdrawer. Graphdrawer is a worthwhile investment for two reasons. Firstly, it demonstrates well how you can use text with Hi-res (without agony), and secondly, the package includes screen dump routines which work with most popular printers. These routines can be used in your own programs by executing addresses 29699 or 29702. Furthermore, it is possible to have this systems disc in drive 0 and hold your data disc in drive 1, so that you do not have to worry about running out of disc workspace!

The amount of software available running under Flex for the Dragon is growing all the time. Already available is software for the small business (a new wordprocessor has just been announced), and as more enthusiasts within our Users Group get to grips with the built-in assembler, we should see more interesting programs. I am getting more interested in telecommunications and should like to see one or two Modem drivers made available. (Steve's phone no. is 0273 779295)

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## STOP PRESS!!!... Bob Hall.

Clearly 64K RAM's are getting cheaper - in July Wireless World, 'Happy Memories' (tel. 054 422 618) are offering Hitachi HM4864's (confusingly advertised as '4164 Not Texas') at (pounds) 1.45 each (add VAT). I also note that Motorola are offering a new 64K RAM, MCM4164BP15, which will, they claim, be cheap (made in East Kilbride - buy British!), and which, despite its numbering, is a 7-bit / 128-cycle refresh device.

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CLASSIFIED and SPECIAL OFFERS PAGE.EX GAMING MACHINE MPU's.

These are mainly 8048 and 6802 units, and most have built-in power supplies and audio boards.

Also available are various EPROMS, Video game logic boards, etc, all at ridiculously low prices. Only a few units left now, so don't take too long making up your mind.

For details telephone:-0463-220174.

Tandy CGP 115 four colour printer plotter, complete with 10.00 worth of pens, 5.00 worth of paper, centronics lead, Salamander Turtle Graphics program, and postage and packing.....75.00 inclusive.

Write to:- J.D.Bateman, Orchard House, Cleator Moor, Cumbria.CA25-5LN.

SPECIAL FROM TOUCHMASTER!!!!

Touchmaster have generously given the Group "first bite" at the following OS9 offer.

BYNACALC.....25.00

BASIC 09.....20.00

RMS.....25.00

EDITOR/ASSEMBLER.....30.00

CASH & VAT.....20.00

STOCK RECORDING.....25.00

PASCAL.....30.00

C COMPILER.....30.00

STYLOGRAPH.....35.00

This is almost a 60% markdown, so get your order in quickly...at these prices stocks wont last long.

Orders direct to Touchmaster Limited.P.O Box 45,Port Talbot. West Glamorgan. mentioning the Group.

MONITORS...We are out of stock of the 12" greenscreens at the moment, but we may be able to get a FEW more, so if you're interested write & phone me (Worthing 207585) NOW, because all orders will be on a "first come first served" basis.Price will be as before...25.00 plus postage.

LABELS...We have some more available at the old price of 3.00 per 500 or 5.75 per 1000 inclusive. They're the same labels that are used on the envelope that this Newsletter arrived in, and are tractor feed, of course.

5.25" DISCS

SS/DD 40 track.....usual price 22.00.....group price 14.50.

DS/DD 40 track.....usual price 27.00.....group price 15.50.

SS/DD 80 track.....usual price 42.00.....group price 22.40.

DS/DD 80 track.....usual price 46.50.....group price 24.00.

All prices are for boxes of 10, and include postage. VAT IS 15% EXTRA.

Orders to Paul Grade. Cheques made payable to the Group.

DRAGONDOS

Remember the article in Dragon User a couple of issues ago on DOS patches?...Peter Williams of Computil has offered to reblow your DragonDOS chip to include these for 3.50 plus postage.

Contact P.Williams, "Computil", 22,Grove Park, Burbage, Hinckley, Leicestershire.

WANTED!!!

Mr J.C.Bussell wants to purchase a CHEAP DragonDOS cartridge, and would like to get in touch with ALL DELTADOS users. Write to: J.C.Bussell, 33,Tennysen Avenue,Clevedon, Avon BS21-7UJ.

WANTED BY Paul Grade.....Have any of you out there got ANY dead or damaged Dragons that you would be willing to sell cheaply for spares?.....Having to buy new components makes cheap repairs difficult if not impossible, and there seems to be a shortage of defunct computers in my area!. ANY computer or printer wreckage welcome!!.

ALSO WANTED...Anyone got any information at all on an ancient "office type" printer known as the ITT CREED ENVOY ?.If so, please phone and let me know.

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The final word.

Well, that's another edition on its way.....I hope that by the next one we'll have found a proper Editor, because there's simply too much work involved for me to do both jobs as well as they ought to be done.

I've tried to make this a reasonably well balanced issue.....at least you're sending me plenty of material now....Thank you!. By the way, if I haven't printed your material in this issue please DON'T think that there's anything wrong with it.....It will be included in the next issue...it's just that we're restricted, for cost reasons, to 12 sides!.

Hope you like Issue 11. Good luck, and and may your Dragon never breathe smoke Paul Grade. (Worthing 207585).....July 1985.