THE NEWSLETTER OF THE NATIONAL DRAGON USERS GROUP.

DRAGON UPDATE

ISSUE No.22. JUNE.1986.

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The Gaffer's Bit.....

One day maybe I'll understand Dragon owners.....peculiar people, aren't they?. We spend a fortune in time and phone calls setting up nice little deals, and 80% promptly go and buy inferior products at higher prices elsewhere!. Want an example?.....we offer uncased D32's at 27.00, at a time when Peaksoft are advertising the KEYBOARDS at 24.95, and hardly any of you bother!...Well, on THAT score see the ads page THIS month, 'cos we can NOW offer an even better price... 22.50 inclusive of post & packing. But how many of you will order 'em?!. We can get you new double sided uncased drives at 60% of the price Compusense charge for single siders.....but where did you buy YOURS?!. If you don't want deals just say so, and save us all a lot of work....if you want 'em, then use 'em!.
Now you may have noticed in the last issue that I passed on a suggestion about starting a "Save the Copier" fund.....So far we have had two contributions, making a total of 18.40, for which very many thanks to those concerned, but if you want better quality Updates we are going to need rather more than that to replace Old Tosh, so how about it?.....even a few pence each would be a big help. It could be money well spent...think of the reduced eyestrain!.
Well, there were several other things I was going to mention, but space doesn't permit, so they'll have to wait.....there is another reason too.... you know that mutual interest and enthusiasm Stan was rabbiting on about?...well, he forgot the one REAL essential, TIME....it's time I stopped!. More whines next month, so watch this space!. Paul G.

THE EDITORIAL BIT

Two things this month, firstly I'm going to move the date I get this ready forward a week or so, this is to ensure that you get it before the end of the month, even allowing for the post office and their little tantrums. This means that I would like to get hold of anything for publication in if possible by the beginning of the month. OK, thanks.
The second is something I point out now and then, the views expressed in articles contained in this newsletter are those of the author of that article. They do not neccesarily represent the views of the group or it's chairman or editor. T.L.

Lightpen Competition results...

Even after all the delay we STILL have a problem!!. Our anonomous (he's a coward too!) and objective adjudicator is adamant that the routine sent in by Alan Cook should be the winner, but Alan specifically said that he didn't want to win the pen 'cos he won the last one!!!.
So, I think the fairest thing I can do is to find Alan an alternative prize, and award the pen to the SECOND choice, who is Graham Strong, and send a games tape to each of the next two runners up, Graham Smith and Ian Rockett. We will be printing Alan's program this month (page 11), and of course the others will follow in later issues. You all should have received your prizes by now, so I hope you like them and will be trying again in our next competition.

BAUD WALK ..... GARY COXHEAD

This month, I will cover a little known aspect, Packet Switch Stream (PSS). What is it, and why should it interest us? Well, unless you happen to be rich (or plain daft), very few of you will have accessed any of the overseas boards, due to the high cost of international phone calls, especially at the slow data rate of 300 baud! By the time you've read the welcome page, it's probably cost you about 2 quid! So, how do we get around it? this is where PSS comes in. It is probably the most cost effecvtive way of accessing overseas systems, an explanation follows. PSS is a service provided by British Telecom which uses purpose built data networks. These are special lines dedicated to the transmission of computer data.. These are accessed by phoning a Packet Switch Exchange (PSE), which connects your computer to the dedicated lines. Because these lines are especially made for communication by computer, very fast data transfer rates can be achieved, typically anything up to 48000 baud, which gives just as much if not more reliability than the more usual slower speeds on voice grade lines. Of course the PSE is designed to communicate with our computers at the slower speeds and convert it up to the higher speeds. Unfortunately, this would mean that for the most part, the 48000 baud lines would be idle whilst we send little packets of data at 300 or 1200 baud. This is where packet switching (or Time Division Multiplexing) comes into its own. When we send data to a PSE, it is put into little packets which are individually wrapped in control information which tells the exchange where the data has come from and where it's going. In this way, a message of 1024 characters (1K) can be split into 4 packets of 256 chars and can zoom down the lines at tremendous speed. At the other end, the packets are 'unwrapped', put back together again and sent out at the appropriate speed. In this way, the data lines can be shared by several users as each packet is kept separate. This helps to keep the cost of PSS to a minimum. So how is PSS cheaper? Firstly, most PSEs are a local phone call away, with numbers for 300, 1200 and 12/75. Apart from this local call, connect times to the USA would cost about 12p a minute which works out to 7.40 per hour. Compare that to the normal phone rates of about 40.00 an hour and you can see the difference. Unfortunately PSS also costs 25.00 to join and 6.25 a quarter, but even so, anyone needing to contact foreign services on a regular basis would find it cheaper through PSS, this is why international corporations often have 24 hour access lines to PSS. International PSS uses satelite links to connect users to distant databases, most European and near Eastern countries and the US are available with new ones becoming accessable every year. All these countries can be reached with a local phone call! So, what do you need? Obviously a computer, a modem and some decent terminal software. You will of course need to join PSS to get a network user identity, but for those of you who can't afford it, here is what would happen if you could get on. First, dial up your local PSE (I have a list of numbers if anyone wants to try it) and tell it you want to use the PAD facilities (Packet Assembler/Disassembler). To do this you should type <ENTER>, <ENTER>, D1<ENTER> and the exchange should respond with 'NUI?' If not, type the sequence again, that should do the trick. Once you have entered your NUI, you should get the prompt 'ADD?' It is asking for an ADDress of the computer you wish to communicate with. This address consists of a 12 digit number which is always preceeded by 'A'. Computers in this country always begin with 234. For those of you with 1200/75 modems and a little feel for adventure, try the following:- Firstly dial 0753 6131, enter the PAD characters as above and NDIALOG0060SQ for the NUI. Next use A22300120 for the address. Hopefully, if the numbers are still valid, you should have set up a satellite link to a computer in Palo Alto, California with just a local phone call. Unfortunately, you can't do much as the computer asks you to LOGOn, you don't have a password. But it's interesting, 'innit?!

Coming soon MUGs, Packet radio and Cellular Telephones/Radio.

DRAGON DIARY .... NEIL SCRIMGEOUR

As promised last month here is an offer of help to disc drive owners from Mike Vine. As you know, transferring games to disc is nigh on impossible these days due to the special auto run routines. Mike will re-record the program with the auto run stripped off on the other side of the cassette, bear in mind though that the odd program may be unbreakable. His address is 120 Auriel Av, Dagenham, Essex.

Due to the news about Dragon User going subscription only, I would like to donate some of this month's column to this, therefore some of the cheat pokes will run into next month's Diary. To keep you going I have some better stuff (I typed last month's pokes before I saw Dragon User June!). For all of you lot who have Beanstalker, no doubt you've been trying to get into the reserved track. To get into it, do the following: Press 5 for reserved track and type in REGISTER. When asked for the tape prompt, press N which takes you back to the main menu. Next hold down ENTER, @ and X keys at the same time which will move you into the screen designer, then doodle away to your hearts content, the instructions are easy to follow. When you are playing the game normally, pressing CLEAR and N moves you to the next screen and CLEAR and X gives extra lives. That lot should keep you busy! Another good Miner surrogate game, Blaby's Caverns of Chaos also has a cheat routine. When on the title screen, typing PIGLET slowly then pressing space (who chooses these codes ?) lets you flip through the screens by pressing E.

Chuckie Egg has to be one of the all time great programs so here are some pokes for that: The 2 routines I've got enable you to strip the auto run as well but beware, some of the latest copies have a different loading system which these routines won won't be able to handle. Routine no 1: CLOADM "",512 then repace tape and CSAVEM "CHUCKY",13824,30007,16640. Reset the Dragon and load with CLOADM "",65024:POKE 16641,&H34:POKE 16668,(lives):EXEC16640. The second routine is CLOADM "",1298 then POKE 18961,3. Replace tape and CSAVEM "CHUCKY",1554,29970,1298. Reset the Dragon and load with CLOADM "",64238. You will have infinite lives but don't abort the game or reset.

Now down to the news of Dragon User going subscription only. Well they've certainly lost 2 readers, Paul and I (and I make 3 ..... TL), as we know how bad their subscription department is. I have heard many a horrific story of how someone sent off a cheque, found out it's been cashed and nothing drops through the door from then on. I don't deny the fact that the odd one can go wrong, I remember one problem the group had when we took a cheque at one of the shows without a name and address to go with it, but there are too many complaints to be acceptable. The less said about this matter the better.

However I have also been cheesed off about the content of Dragon User for the past few months. Let's face it, it's not exactly been thick and even then there are a lot of ads. There has also been a worrying trend surfacing in the magazine and that is back scratching amongst reviewers. Now don't get me wrong, I'm not accusing everyone, but there is a tendancy for, let's say one or two people to favour programs etc that certain companies produce. As the magazine won't be available over the counter from July, I'd give it 6 months before it closes. Sunshine Publications have never been keen on the Dragon since Dragon Data folded and it really is just a matter of time before they close down this avenue for Dragon owners. This group had a set to with it's brother, Popular Computing Weekly about a year ago and they said that no-one was interested in the Dragon anymore in the middle of the argument. When anything like this gets printed in Dragon Update, Paul normally sends the company in question a copy of Update so they can reply. If Dragon User read this and decide to reply in Dragon User, how about someone sending me a copy, it's the only way I'll find out about it, unless I get a writ served.

(If Dragon User want to reply, all they have to do is sent me a letter and I'll print it .... TL)

ASCI CORNER ..... PAULINE HAMPSON

I was pleased to get a copy of Colossal caves this month from Cowen Software (23 Bristol Av, Levenshule, Manchester M19 3NU). I spoke to Malcomb Cowen about it and he said that it is based on a version for an IBM though he had to cut it down a bit to fit in memory, which has lost some of the atmosphere and the helpful hints.
Never having met a mainframe, I will proceed to describe the game as I found it. You start outside a well house with lots of goodies inside including keys and a lamp. You soon find a place to use the keys and descend into the depths. Shortly some more useful items come to hand but beware, before long the route becomes complex and several unfriendly creatures turn up. A pirate, a bear and lots of angry dwarves who throw things at you. Well, just throw something back and make friends where you can. You will soon start to find treasure, but where to store it is the problem. If you find the right place, your score should increase. The game includes the inevitable mazes, secret passages, canyons, pits forks and the more interesting bedquilt and swiss cheese. The further I got, the more I enjoyed myself but ,mapping the area is a nightmare for those who like logic as the opposite of north can be west, but I learned to cope and I can now whizz around although at some points there are moves with two possible destinations when one depends on chance. There are about 130 locations and the game can be saved, this takes a long time as the whole game is saved. There are also some graphics to brighten the game up.
The game had me hooked and I'm dying to get back to it because now I know where to put the treasure. Sorry M&M, no time for you.
If anyone wants to write their own adventures, the firm have their own adventure writing system so they may be able to help.
(Just a little footnote, I used to play a Fortran version of this in the late '70s on my university mainframe, I spent around 2 1/2 years and never could find the main office, anyone happen to know ? .....TL)

OS9 PAGE ..... JASON SHOULER

The first thing I must do this month is eat a bit of hunble pie! Last time, I attached far too much importance to the device desriptors. I suggested that you couldn't use a double sided disc drive until you had generated a new device desriptor that described it. This was quite wrong! The device descriptor information, which relates to the number of tracks, sides etc is only used once, when you use the 'format' command. The information held on logical sector zero of each disc always tells the syatem what type of disc it's trying to read. Thus if a double sided formatted disc is placed in a double sided drive but the device desriptor says it is single sided, the system will still treat it as double sided. I should add that once you have a double sided driver installed, the original Dragon Data 'format' command may be used to format a double sided disc with the command [format /d1 2] for 40 track double or [format /d1 '80' 2] for 80 track. You can now use this disc without bothering to make any alteration to the drive descriptors.
This month, I was going to discuss using the serial port, but as using this port is best done when many Dragons are around, I thought I'd make a mention of Bob Morgan's Dragon weekend in Mid Wales. It was with only an hour to spare and some pleading from Bob that I decided to embark on this adventure. Being a natural cynic, I was convinced that Bob was in league with the Welsh Tourist Board to get my hard earned money, and that the event would turn out to be an upmarket Compusense sales drive. I'm happy to report that I was wrong on both counts. Bob turned out to be one of the most enthusiastic Dragon users I have ever met. (one of the fabled, long lost Dragon Data marketing team?). Ted and Stan, apart from ritual mud slinging between FLEX and OS9 factions, turned out to be quite an amiable pair, who seemed happy to answer any question relating to their company. I was further surprised to find that something like half those attending were NDUG members who had plenty of OS9 systems up and running.

Just about everyone except me seemed to have a PLUS board fitted. Talking of which, I must say that I've heard nothing but praise about this Compusense offering, although there seemed to be general agreement that an extra rectifier and on/off switch should be included to beef up the PSU. Rather ironically, this add-on would seem to have more to offer the OS9 owner than it does for FLEX for which I think it was originally intended! With so many Dragons about, the first thing to do was hook two together via the RS232. As Alan Butler demonstrated in a previous Update, with a dump terminal or modem type program, running on both machines, communication is no problem either from OS9 or Microsoft. Having accomplished this, the next step was to add and extra terminal to an OS9 system. This you can do with the 'tsmon /t1 &' on the host micro while the other machine is configured as a dumb terminal. Don't forget to include the 'login' command the 'password' file and to hit <enter> to start login. After an embarrassing hour or so, I discovered that this only works in half duplex (ie xmode /t1 type=0). From then on, plenty of fun was had at playing the 'superuser' (Bob's new slogan for computer professionals - 'Buy a Dragon 64 and you too can be a superuser!'). Sharing a Dragon with two users opens up a new side to OS9 which would otherwise never be seen by the user. Just to prove what can be done with OS9 on the Dragon, we had two people using the micro at the same time with each running a background task to boot! And before you ask, let me tell you now that using 'stylo' from a remote terminal at 300 baud is no fun at all!

OK, I'm back to the serial port. When OS9 is configured for a particular machine, the first thing that must be done is to write device desriptors for all of the ports and peripherals of the hardware, thus allowing OS9 full control of it's enviroment. At the present, reasonable drivers have been written for all of the Dragon ports except for the cassette port. Unfortunately while the serial driver is able to drive a terminal and a printer, it's still non too clever when acting as a dumb terminal, which other machines can do with comparative ease (I've heard that the BBC is good in this area) (oooh bitchy ... TL). OS9 is pretty smart when it comes to moving information from one place to another but like us humans, it finds the notion of communicating in both directions at once rather confusing. In actual fact, OS9 is equipped with sophisticated system calls which should allow it to operate in a full duplex manner very effectively. These are the GETSTAT service routines which can inform a user-written program when something has arrived at the serial port (the same service routine is used in the 'inkey' routine). The GETSTAT call can even tell the driver to receive at 1200 baud and transmit at 75 baud. This is all very well in theory but at the present the serial driver 'ACIA51' is not able to interpret a user written program well enough to be able to access a BBS. This is the reason that many people have bypassed the sytem and written to the registers of the 6551 directly. In many cases where the Dragon is used as a strictly single tasking machine, this method works quite well. In issue 18, Barry Knapp gave a listing of such a modem program which does exactly this. As Barry pointed out himself, characters can often be missed when accessing the ACIA in this manner. The problem is that from the point of view of IOMAN (OS9's input/output manager) you are operating outside the system, thus SCFMAN will quite happily send characters to the TERM (the screen) and be blissfully ignorant that anyone is even trying to read characters from the serial port. There are many reasons for keeping in with IOMAN and his three deputy managers, SCFMAN, RBFMAN and PIPEMAN. Between them they can give the serial port as high a priority as you like, can make sure a character is never missed, yet still allow all the other parts of the system to operate smoothly. So, how do you introduce your program to IOMAN? All you do is open a path (from Asm, C, Pascal or Basic09) to whichever port you wish to access and leave the rest to the system - Well! at least when someone writes a really nice ACIA driver you'll be able to. Next month Redundant information OS9 style.

CASSETTE TO DISC GAMES TRANSFERS

For all you avid readers, we have another selection of games for you to transfer from tape to disc, courtesy of Graham Smith.

CUTHBERT IN THE JUNGLE
First unplug the DOS and turn on the power. Next type in the following program (save it to a spare cassette for future use)

```
1 FOR D=&H7FFØ TO &H7FFF:READD$:IF D$<>"**" THEN POKED,VAL("&H"+D$):NEXT
DATA 8E,Ø4,ØØ,BD,B7,5B,39,**
```

Now, RUN the program. The short M/C routine this produces will load any M/C program from tape starting at location &H4ØØ if you position the tape just after the header tone.
JUNGLE has it's own loader routine in the short autorun but you don't want to use that as it will auto run the game. Instead you must now type SKIPF:EXEC &H7FFØ. Place the tape in the cassette player and press play. The usual loading page is now displayed. When the program has loaded, the OK prompt will appear. You can now CSAVEM"TEMP",3Ø72,16538,16384 onto a blank tape. The start location of 3Ø72 is chosen to clear the DOS area when reloaded. The endlocation is found by PEEK(126)*256+PEEK(127). The EXEC address was found by disassembling the short auto run routine and finding where it jumps (JMP) to. Finally, switch off, plug your DOS back in, switch on, CLOADM"TEMP" and SAVE "JUNGLE",3Ø72,16538,16384.
THE PROGRAM NEEDS NO MODIFICATION TO STOP THE DISC RUNNING ON WHEN YOU RUN"JUNGLE.BIN" FROM DISC.

TALKING ANDROID ATTACK
Unplug the DOS, switch on, insert the tape and CLOADM"",1536. Place a blank tape into the cassette and CSAVEM"ANDROID.BIN",4608,31542,29697.
Switch off, plug the DOS back in, switch on and CLOADM"",64ØØØ. Then POKE3Ø72,&H7F: POKE3Ø73,&HFF: POKE3Ø74,&H48: POKE3Ø75,&H7E: POKE3Ø76,&H74: POKE3Ø77,&HØ1.
SAVE "ANDROID.BIN",3Ø72,3ØØØ6,3Ø72. You will now be able to RUN"ANDROID.BIN" from disc. The pokes are to stop the disc from running on after loading.

D32 HARDWARE SCREEN INVERT ..JASON GRUBE

NOTE... This is for the D32 ONLY!!!
For this project one needs little in the line of tools or materials but a fair ammount of confidence and experience in the electronics field. No real knowledge of micro electronics is really required.
The following will be needed, soldering iron, fine pliers, solder, 1 x 74LSØ4 (inverting hex buffer), 1 x SPDT switch (toggle type recommended), wire.
Open up the Dragon, locate the 6847 chip, now locate the nearest 14 pin TTL chip (ie 74LSXX). Now get your 74LSØ4 and flatten out pins 1-6 and 8-13, then cut off pins 3-6 & 8-13. The next step is the most difficult, here you have a choice of what to do, you can either desolder pin 32 or cut it at it's base, the remains of the pin still in the board should then be removedand the pin still connected to the chip should be lifted. Now, solder pins 7 & 14 of the 74LSØ4 onto pins 7 & 14 of the nearest 14 pin TTL chip (this piggy backing gives the invertor power). Next one should connect the socket for pin 32 of the 6847 to pin 1 of the 74LSØ4 and pin 32 itself to the common pin of the switch. The other 2 pins of the switch should be connected one to pin 1 and the other to pin 2 of the 74LSØ4. The switch can now be mounted onto the Dragon at a place of your choice. I recommend either just above the keyboard or just behind the cartridge port.

CUMANA DOS 2.0 REVIEW . . . MAX HANTSCH

Cumana DOS 2.0 claims to be (completely!?) compatible to Dragon DOS. In this article I will try to explain how compatable it is, and what bugs Cumann 2.0 has.

Cumana DOS is longer than Dragon DOS. It occupies $C000 to $EBFF. Therefore, all the programs that copy ROM to RAM (On a D64) and install their own routines in $E000-$FEFF will NOT work. Although Cumana uses the same memory areas ($EA-$FF and $600-$BFF) the contents of most locations differ from Dragon DOS. As far as I have discovered (but I really haven't the time to find all the locations) the zero page and $605 are the same. The disc controller is also located at the right addresses ($FF40-$FF4F). So machine code routines that use ROM vectors ($C004-$C029) or directly access the controller chip DO work, but all other entries into ROM fail.

The Basic interpreter extension is the same, but it has quite a number of bugs. CHAIN for instance, crashes quite often and from time to time interrupts come and go ... One of the worst bugs however is that Cumana DOS does not always clean up the buffers for the disc drive(s) correctly. That means that if a Basic program executes a CLOSE instruction and then asks the user to change discs, the buffered data of the old disc might be written to the freshly inserted one, bye bye data!! I have already had 2 discs ruined because of this bug! To overcome this problem, add EXEC&HD6FD after EVERY CLOSE command in the program. In machine code routines, use JSR ($C010) and then JSR $D6FD. Cumana DOS WILL empty the buffers if you are in direct mode, but not until you have typed in the second direct mode command. One other major bug causes the directory entry of a file not to be written to disc, when a new extended entry is created. This means that the file is written to the disc, uses space but can not be accessed. Then you can only reSAVE the program (if it is still in memory when you find out about the error) and hope that it will be written correctly this time.

As far as I have found, the following programs work on Cumana: Salamander DRS, Edit+, Dskdream. OS9 should boot without any problems. Flex is a very nasty beast and produces quite a few problems when trying to BOOT it. Both the normal BOOT sector (Track 0, sector 3) as well as the special Flex Boot sector (Track 0, sector 1) use a routine in the Dragon DOS ROM to load sectors from the disc. Unfortunately this does not work with Cumana DOS 2.0, but I have written a machine code program which writes new BOOT sectors onto a Flex disc, so that it can be used with Cum. This has one disadvantage: Flex can't work with this Boot disc, so when the date prompt appears, you have to insert the original unmodified Flex disc!. Of course, once you have booted one of these operating systems, your Dragon will work as well as one with the original Dragon DOS.

In favour of Cumana DOS: Cumana drives are definitely cheaper than Dragon disc systems, so that really is a reason in favour of buying a Cumana drive. Regarding the bugs, they are not such a great problem as they may at first seem. You can simply replace the Cumana DOS EPROM with a Dragon DOS one. According to Paul, one of our members in Norway has done this and it works perfectly. (But not th e other way around. P.G.) To get a copy of Dragon DOS, send an empty 2764 EPROM to Peter Williams, you'll find his offer in the classifieds at the end of the newsletter.

If you have any questons about Cumana DOS or anything else related to the Dragon, I am sitting here in Austria with even less support than you. (Not even pirate copies!).

Max Hantsch, Technikerstrasse 30, A-2340 Moedling, AUSTRIA.

Another Show??????????????

Rumour and advertising have it that there is to be another 6809 Show at Victoria in November, this time run by....you've guessed it!...Microdeal. So far the Group hasn't been invited to have the usual free stand, and I assume that this is merely an oversight on the part of John Symes....after all, HE wouldn't get "bitchy" about a bit of criticism....would he??!. If any of you happen to write or speak to him in the near future, you might remind him that we haven't received our invitation yet. I'm sure it's just a lapse of memory.

I'VE GOT THIS MOLE .... J.W.COX.

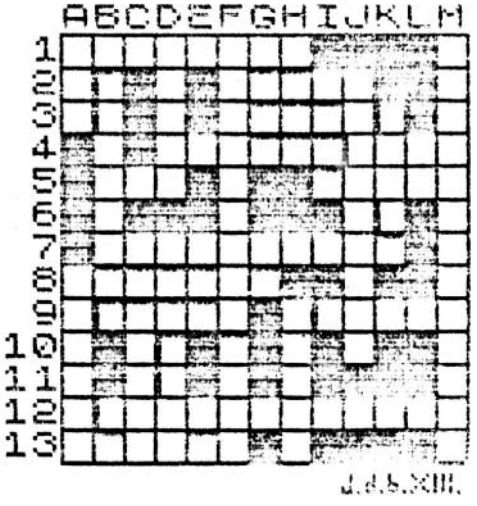
This has become a real grumble and groan newsletter. I am no exception! the nails are getting longer and tougher for the old coffin lid. What am I talking about?... For one, Dragon User is going mail order only (I feel that they will lose about 50% of their readership) I for one am not going to pay 12.00 as I have had it delivered by my local newsagent. Everything for the Dragon is now totally mail order, so it is all a matter of pay your money and take your chance on whether the product is worth it. At keast when you could go to your local shops to purchase software etc, it was easy to take it back and exchange it if neccesary, now you have to pay postage and wait.
I know some of you have had excellent service from Compusense! I have written to them 3 times for information, all I received from them are 3 price lists without any covering letter! Two of my enquiries were to do with purchasing one of their products which the price list did not cover!
As for Stan's letter (Dragon User June) concerning,,, I'm not too sure actually. I think that it was a slur on the NDUG, especially as PG gives them a (gentle) nudge now and again (emphasis on the AGAIN). Stan was right when he said that you need enthusiasm and a common interest, but that is not all (just ask Paul). You need a lot of time and dedication. A lot of members, like myself, devote a lot of time and effort helping others with problems etc., and we do it all for ... FREE!! with no reward at the end ecept appreciation from the appropriate parties. Get things in perspective Stan. If I got the wrong end of the stick then accept my apologies!
Back to the heading, I've got a mole? If any more companies make it difficult for us users, the Dragon will go even further underground than the beastie in the title!!!

X-Word 12 Answers.

ACROSS:1A synthesizer: 3C beanstalker: 4A cramp: 4I chart: 5A honorary: 6D sunshine: 7C India: 7I power: 8A notre: 8G laser: 9K bat: 10A site: 10E time: 11H spices: 13A oscilloscopes.
DOWN:A1 synchronise: C3 bandit: C9 attic: D1 tee: E4 prudential: G6 salami: H2 stay: I4 chipshop: K9 bicep: L8 dame: M1 vertebrates.
Crossword 11 winner was J.E.Slade (yet again!!).
This month's winner will get a copy of Salamander "Nightflight".

Crossword 13..Compiled by J.D.Bateman.

Across:1A:Alkd1 Famous knight NOT associated with Dragons. 2F:Use a loud voice. 3F:A small number. 4D:5B&B2 Brand new Dragon Adventure.
:4J:Shortest distance between two points. 5B:See 4D. 5I:Cut (with a knife, for example). 7B:A hut containing a wireless perhaps.
8A:David...well known naturalist. 9B:Must be dimensioned if greater than ten. 9I:African Weapon. 12B:Complete blackout of the sun. 13A:Member of a boat crew.
Down:A1:see 1A. A8:Trouser supports. B2:See 4D. C9:Helicopter propellor.
D1:See 1A. D10:Type of saxophone. F1:Study of heavenly bodies.
F10:American University or a key. H9:Kind of nut or tree. J2:Instrument used in F1. K3:Kind of dance. M1:Spineless creatures.



M/C GRAPHICS FOR BEGINNERS . .JOHN MARTIN

'Tis me, back after exams. Last time I explained how colour is made possible in PMODE 3, the colours being represented by the following binary numbers.
00=green 01=yellow 10=blue 11=red
Therefore the commands:-

```
LDA #%11010010
STA 1024
```

will produce red, yellow, green and blue pixels in that order in the top left hand cormer of the screen. In order to clear the screen to, say, the colour blue instead of the usual green, all the pixels on the screen must be set to blue. As a binary number represents 4 pixels (in PMODE3, 8 in PMODE4), the pixels can be set 4 at a time by storing the binary number 10101010 in all of the hi res screen memory locations. Hence, to clear the PMODE3 screen to blue:-

```
        LDA #$0E      >
        STA $FF22     >set up PMODE
        STA $FFC3     >3 screen
        STA $FFC5     >
        LDX #1024     start address of screen
        LDA #%10101010
LOOP1   STA ,X+       set the 4 pixels pointed to by X to blue
        CMPX #7168    reached end of screen yet?
        BNE LOOP2     if not, repeat from branch
        RTS           screen filled
```

The binary value can be changed to #%11111111 for red, #%01010101 for yellow and #$00000000 for the usual green screen
The only way to get the hang of this way of accessing colours is by practise. Try writing your own machine code routines to produce a colour of a spaceship, next time I'll include my program to produce one so that you can compare yours with mine.

Zack's Son (Computape) . . .Andrew Hill

Zack's Son, a conversion from the popular (I don't know why) arcade game Zaxxon was written by Cable Soft who no longer trade, so the ever supportive Computape took over a few of their titles, priced now at a reasonable 2.99 (I bought it at 6.99 2 y ears ago)
The graphics are good, sprites seem 3D. Despite this there is no real object to the game. You just fly around over hostile territory until your fuel runs out. The sound is disapointing, the only sound occuring when you crash. I wouldn't buy it unless you really liked it in the arcades.

THE DARK PIT (Microdeal) . C.PARKINSON

Another release from Microdeal. This one I found very good, being an arcade adventure of good quality. It struck me as being very similar, in game format and screen design as fighting fantasy by Cablesoft. There are 64 screens (64 x 3/4 of a screen to be precise) of the dark pit to negotiate in order to escape (the idea of the game). Up to 6 weapons can be collected around the labyrinth, each being selected for use with an appropriate 1-6 key. 5 weapons use energy which can be found throughout and the other, a gun uses rounds of bulletsm which are positioned strategically around the maze. Blocking doors of red, blue or yellow can be opened by a matching key which allow you to continue your travels. The graphics, although not stunning are good and move smoothly as an added bonus. The game can be operated with the Tandy Electronic Book if dewsired.

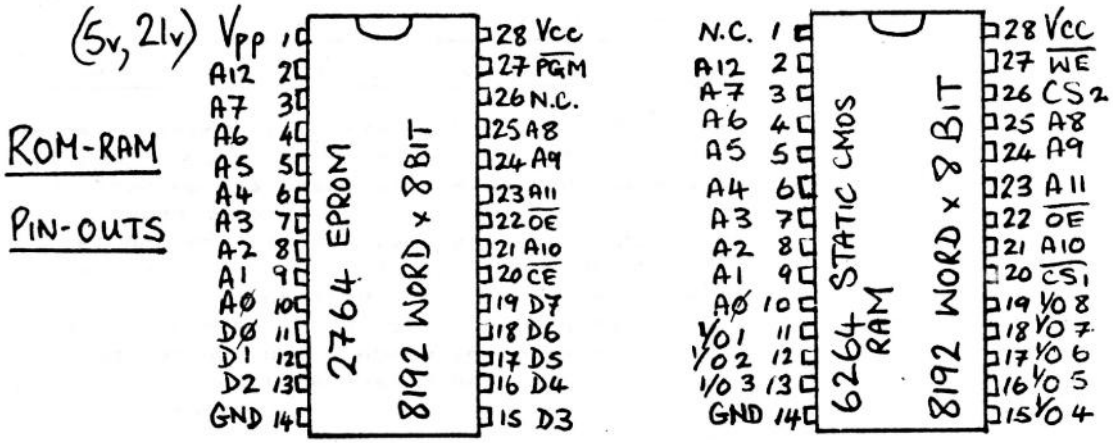
RAM IN A ROM SLOT

Basicallythat's it, now for the option I mentioned earlier and a mention about cut 1
The option is to leave out cuts 2 & 4 and leave the ROM driven as it was before, implementing cuts 1, 3, 5 & 6 is necessary along with the respective new connections to get RAM working in slot 13. So why bother to change the ROM connections? Consider reading from the ROM, set up an address between $C000 and $DFFF and the ROM will be enabled putting it's data on the data bus to be read by the processor. Now consider a program with an error which tries to write to the same address, the ROM will again be enabled and will output it's data to the data bus the processor WILL ALSO be outputting data to the data bus. This is bad design, two outputs, trying to drive each other can be fatal (to the IC, not you). Hence the reason for cuts 2 & 4 which means that the ROM can ONLY be enabled during read.
Now, a word about cut 1. As you can see, this is on a track which connects CTS with 14/12. Now, if your micro is addressing slot 13, ie. $E000 to $FEFF, then A13 will be high, therfore 14/12 will be high, BUT CTS will be polling LOW. The same situation occurs if the link is not fitted as then 14/5 will float high again causing 14/12 to be high - permanently. This is yet another case of two outputs driving each other, one high and the other low, a good recipe for eventual failure. Therefore if you are not doing the mod (and have still read this far) it will be good policy to implement cut 1 and fit a link if not already fitted. Another reason for cut 1 is that without it CTS enables slot 12, the ROM (if link is fitted) even when addressing slot 13, hence the ROM is duplicated. This means that any owner wishing to fit a ROM in slot 13 (which is why it is there) would have to send the controller to a dealer to get it working. One surmises therefore that the controller as new did not have a link fitted until it was requested that an extension ROM be fitted when cut one would also have been done.

The EPROM D0-D7 is the same as RAM I/O 1 - RAM I/O 8
Vpp is programming voltage pin
PGM is programming pulse
OE, CE & WE are output, chip & write enable
CS1 & CS2 are chip selects
NC is not connected

Specific RAM used is Hitachi HM 6264 p-15 but any 6264 should do, the -15 means 150ms access time.

ROM-RAM PIN-OUTS



REDUNDANT INFORMATION DEPARTMENT

To perform a PCLEAR0 with Dragon DOS attached (ie, zero pages of graphics:-
POKE25,14:POKE3584,0:NEW
This gives 28967 bytes free.

To find the start and end addresses of the graphics page being used:-
PRINT PEEK(186)*256+PEEK(187)=Start
PRINT PEEK(183)*256+PEEK(184)=End

To LOAD a headerless program:-
Type MOTORON then EXEC 46868. This will load a Basic or M/C program.

Thanks to the donor of that little lot, I don't know who it is, there's no name on the paper.....T.L.

Winning Competition entry (A.Cook).

```
1 IFH=0THENCLS:S=1:GOSUB7:FORI=1TO4:READR$(I):FORJ=1TO4:READR(I,J):NEXTJ,I:FORI=
1TO6:FORJ=1TO2:READO$(I,J),O(I,J):NEXTJ,I:L=3:C=3:GOTO2ELSEK=1:GOSUB4:IFO(I,1)=L
 ORO(I,1)=0THENPRINTO$(I,2):GOTO3ELSEN=1:GOTO5 ' EUROHARD ADVENTURE BY ALAN COOK
2 G=0:IFF=0THENF=1:CLS:PRINT"IN THE ";R$(L):PRINT"YOU CAN GO ";:IFL=1ORL=2THENPR
INT"S":GOTO2ELSEIFL=3THENPRINT"N E":GOTO2ELSEPRINT"N W":GOTO2ELSEPRINT"YOU SEE";
:F=0:FORI=1TO6:IFO(I,1)=L THENPRINTTAB(8)O$(I,1):NEXTELSEG=G+1:NEXT:IFG=6THENPRI
NT" NOWT
3 INPUT"WELL";C$:IFC$=""THEN3ELSEC$=C$+" ":V$=LEFT$(LEFT$(C$,INSTR(1,C$," ")-1),
3):N$=LEFT$(RIGHT$(C$,LEN(C$)-INSTR(1,C$," ")),3):IFV$="N"ORV$="S"ORV$="E"ORV$="
W"THEN5ELSEIFV$="USE"THEN6ELSEIFV$="L"THEN2ELSEIFV$="TAK"THEN7ELSEIFV$="UNL"THEN
9
4 IFK=0THENIFV$="EXA"THENH=1:GOTO1ELSEIFV$="HEL"THENR=1:GOTO6ELSEIFV$="DRO"THEN8
ELSEIFV$="INV"THENP=1:GOTO8ELSEPRINT"I DON'T KNOW THE VERB":GOTO3ELSEK=0:FORI=1T
O6:IFN$=LEFT$(O$(I,1),3)THENRETURNELSENEXT:PRINT"I DON'T KNOW THE NOUN":GOTO3
5 IFN=0THENIFM=0THENM=1:IFV$="N"THEND=1:GOTO5ELSEIFV$="S"THEND=2:GOTO5ELSEIFV$="
E"THEND=3:GOTO5ELSED=4:GOTO5 ELSEM=0:IFR(L,D)=0THENPRINT"YOU CAN'T GO THAT WAY":
GOTO3ELSEL=R(L,D):GOTO2ELSEPRINT"YOU CAN'T DO THAT!":N=0:GOTO3
6 IFR=0THENK=1:GOSUB4:IFI<>5ORO(4,1)<>5ORL<>3THENN=1:GOTO5ELSEPRINT"YOU UNNAIL T
HE MAT AND FIND","SOMETHING UNDER IT":O(2,1)=3:O(4,1)=6:O(3,2)=1:O$(3,2)="ORDINA
RY":PRINT"PRESS ANY KEY..":EXEC41194:GOTO2ELSER=0:PRINT"USE YOUR (COMPU)SENSE!":
GOTO3
7 IFS=0THENK=1:GOSUB4:IFO(I,2)=0THENN=1:GOTO5ELSEIFO(I,1)=0THENPRINT"ALREADY GOT
 IT":GOTO3ELSEIFO(I,1)<>L THENN=1:GOTO5ELSEIFC=0THENPRINT"CARRYING TOO MUCH":GOT
O3ELSEC=C-1:O(I,1)=0:GOTO2ELSEPRINT" SAVE THE DRAGON FROM"," EUROH";:T=1:GOSUB9:
S=0:RETURN
8 IFP=0THENK=1:GOSUB4:IFO(I,1)<>0THENPRINT"YOU DON'T HAVE IT":GOTO3ELSEC=C+1:O(I
,1)=L:GOTO2ELSEP=0:PRINT"YOU HAVE";:Q=0:FORI=1TO6:IFO(I,1)=0THENPRINTTAB(9)O$(I,
1):NEXT:GOTO3ELSEQ=Q+1:NEXT:IFQ=6THENPRINT" NOTHING":GOTO3ELSE3
9 IFT=0THENK=1:GOSUB4:IFI<>1ORL<>2ORO(2,1)<>0THENN=1:GOTO5ELSEPRINT"THE DRAGON I
S INSIDE...YOU SAVE IT FROM THE SPANIARDS...","well done!!":ENDELSEPRINT"ARD HQ.
",,"VERBS:N,S,E,W,LOOK,EXAMINE,USE, TAKE,DROP,UNLOCK,INVENTORY,HELP.":T=0:EXEC41
194:RETURN
10 DATA WORKSHOP,,3,,,TREASURY,,4,,,RECEPTION HALL,1,,4,,OFFICE,2,,,3,CHEST,2,IT
'S LOCKED,,KEY,5,ORDINARY,1,MAT WITH welcome ON IT,3,IT'S NAILED TO THE FLOOR,,,
5,,1,PLIERS,1,ORDINARY,1,NOTE,4,IT DETAILS PLANS TO MOVE THE    NDUG TO SPAIN!,1
```

The Late, Late Bit...

Sorry, there isn't one this month!....Tim's used all the space for INTERESTING stuff!....Oh well, I'll get my revenge next Issue!. Paul.

Classifieds & Special Offers Page.

DISC DRIVES: Shugart single sided 40 track 30.00.
Qume double sided 40 track 55.00 (used but good)
All drives uncased p&p extra
Alan Butler. 16 Barnston Green, Barnston, Great Dunmow, Essex. or phone 0371 4234 (Evenings after 6 o'clock and weekends.)

Cut Price Discs: SSDD 9.75...per 10. prices exclude labels.
DSDD 10.75...per 10 see prices below.
Orders Over 50 please enquire for price, or for other types of disc, enclosing S.A.E.
Disk Labels: Plain White Easy Peel (min 50) ... 3p each
Rainbow Pack (20 lables, 20 tabs) ...45p per pack.
Cheques/P.O. to Lionshare Software. Allow 14 days for Delivery.
Lionshare Software, 38 Glendale Avenue, Lostock Hall, Preston, PR5 5XY.

ULTRADRIVE: Complete with external power supply transformer. 7 cassettes and manual. Cost new with cassettes 110.00. Cable needs resoldering interface end...20.00 inclusive. I will supply details of cable fault etc. to interested persons.
Contact: R.J. Bellamy, 47 Court Road, Barry, S.Glam. TEL 743256

Dragon Books: a selection of books. Games for your Dragon (Virgin) 1.50, Dragon 32 Gamesmaster (Keith/Steven Brain) 2.00, The Dragon 32 book of games (James, Gee and Ewbank) 2.00, or all three for 4.50. Exploring Adventures on the Dragon (Peter Gerrard) 2.50, Dragon machine language for absolute beginners (Melbourne House) 3.00,
Contact Neil Scrimgeour (see address on front of update).

Wanted: Copy of Dragon User Sept '84. Photocopy would do, also copy of extra pages for a '64' manual.
Contact: Bob Wiseman, 36 Cotswold Avenue, Rayleigh, Essex.

DRAGON 64: as new with 3.5 year repair/replace warranty. 75.00 O.N.O. (plus postage)
Phone Howard Knight on 021-777-2477

FORTH O/S: We can now offer you a real FORTH Operating Sysyem on disc which you can BOOT into either a 32 or 64 Dragon. NOT just FORTH language, this includes a Turtle Graphics mode and an 85 column word processor as well as the usual FORTH compiler. Written by John Payne, and available ONLY through the Group at the ridiculously low price of 8.50 in either DragonDOS or DIDensity DELTA versions.
Orders to Paul Grade. Cheques payable to the Group.

UPDATES: Back issues are now available either from John Cox or Chris Channing. You can cotact John at 3,St.Peters Road, Portslade, Sussex (0273-422492), or Chris at 63,Churchfield Way, Whittlesey, Peterborough. (0733-208409).

CIRCUIT SHEETS: We can supply Photocopies of these for the 32 and 64 and for the Dragon Data DOS controller. Price 1.00 each.
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DRAGONDOS: Peter Williams of Computil will reblow your DOS chip to include the correction patches published in Dragon User for 3.50 Send your EPROM or cartridge to:- COMPUTIL, 22, Grove Park, Burbage, Hinckley, Leics. or phone 0455-611914 for more details. English V4.1 now available!.

32 to 64 UPGRADE MANUAL: Why pay 30.00+ for an upgrade when you can do the job for yourself for a third of the price?. Bob Hall has written a VERY comprehensive 'how to do it' manual, which is available for only 2.00.
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5.25" DISCS: SS/DD at 14.50 per box, DS/DD at 15.50 per box, plus 15%vat. 80 track also available...we can get cheaper-ones, BUT they ARE 100% RELIABLE, that's why we are prepared to offer them to you.
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OS9 SYSTEM PROGRAMMER'S MANUAL: We have the offer of a limited number of these manuals, usual price 19.50. at the VERY special price to Members of 6.90 each, inclusive of post and packing!!!. Order direct from the Publisher..CLEGLEN PUBLISHING LIMITED, 4,Garth Street, Cardiff CF1-2FQ, but don't forget to mention that you are a Group Member!.

SOFTWARE LIBRARY: Mike Vine is operating a games/utilities Software Library service, (400+ titles). Anyone interested should send an S.A.E to: 120,Auriel Avenue, Dagenham, Essex. RM10-8BU

DELTA DOS UTILITY: A machine code utility to copy all BASIC and m/c files from disc to tape in one operation. BASIC listing of loader and Hex dump 1.00, or m/c cassette 2.50 Contact J.C.Bussell, 33,Tennyson Avenue, Clevedon, Avon BS21-7UJ. (0272-875328).

DRAGONDOS DISC EDITOR: Disc Utility written by John Cox. Easy to use and has two operational moddes, Examine and Edit. Will read and edit ANY discs, including those from most other systems, and will allow you to reclaim a KILLED file (provided you haven't over-written it of course!). Access and change files directly from disc. Also includes DISC MENU which you can load and save onto any of your own discs, and which reads the directory and lists files 26 at a time or screen, allowing single key running.
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OS9 Operating System; Cash/VAT; Basic 09; RMS; Stylograph (inc.Mailmerge/Spellcheck); Stock Recording.
ALSO FLEX System disc and Manual...20.00.
MST Executive on disc, complete with manual...10.00.
Contact Paul Grade...Cheques made payable to the Group.

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Tandy CoCo 64k computer with editor/assembler and other software, plus joysticks, 6809 programming manual etc...50.00.
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Colour television with monitor input..229.00.
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Please add 6.00 for insurance/postage etc on Monitors, computer, or Digitizer.
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