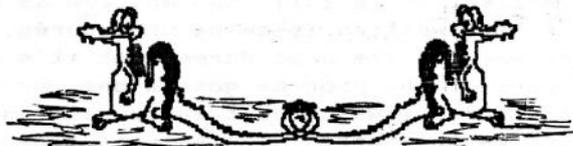


The Newsletter of the National Dragon Users Group

DRAGON



UPDATE

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The Gaffer's Bit

So, let's see how you like this issue, the first from your new Editor, one J. Barry Caruth. Unlike Tim who a lot of you have seen at various shows (propping up the bar), Barry has always been one of those mysterious figures who write letters, articles etc, and sometimes even speak on telephones, but remain unseen. I've tried several times to persuade him to visit England and attend a London show, but he's always managed to find some ridiculous excuse or other for not doing so. Personally I think he's been reading too many Sunday newspapers and is scared of being raped, robbed or corrupted by all those scheming Londoners, and he simply doesn't believe me when I tell him that it's all lies, that even though I currently live in Worthing I'm from South London, and no-one could be more peaceful, polite, mild-mannered and respectable than I am the original Pillock Of Society (somehow that doesn't look quite right) How DO you convince someone like that?!. Anyway, I've demanded that he at least sends me a photograph for the next issue, so that you'll be able to recognise him if you ever go to North Down, and so that the darts players and amateur witches amongst you will have something to stick sharp things into if your newsletter arrives late.

Actually, he doesn't seem to have made a bad job of this issue at all, not TOO many typo errors, and a reasonable choice of material, considering that it's in such short supply at the moment ... 8 out of 10 Barry, so far. The more observant of you, and those who can count above ten without removing your shoes will note that this issue is bigger than usual. This has nothing at all to do with Barry, it's just that we have a full page ad to fit in, and a few additional bits and pieces ... we'll be back to normal next month. See you at the show.

Paul G

THE ED'S BIT

Imagine the following situation, you have spent the past five days typing 11 pages of magazine and you come to the last article when all of a sudden, ZAP! - whirring sounds of disc drive and we have one corrupted disc. AAAAAARGH! Not one to be easily put off, you type it all back in and manage to get it sent off by the deadline. This is the story behind this issue. I hope you enjoy it after the work that went into it!
As for the next issue, well it so far consists of the regulars and that's about it - anything (almost!) would be appreciated greatly.
But anyway, why are you reading this - turn over and find the delights inside.... B.C.

Pascal for Beginners (4) - Gary Coxhead

Last time I left you with a program to study which should have given you a flavour of what Pascal is like. It is still not written as a Pascal program should be, so this time I have written it using Procedures, i.e. mini programs within the main program. Each of the procedures does it's own little job so now you can see that if part of the program goes wrong, or doesn't do what you expected, it should be easy to see which part is causing the error and correct it. One thing worth noting at this stage. The main part of the program which "calls" the procedures by merely naming them, is almost always at the end. This "calling" causes control to be passed to the named procedure, which carries out it's function, and then passes control back to the main part of the program again.

```

PROGRAM average (INPUT,OUTPUT);
  (using procedures this time)
  VAR sample_size, valid_count : integer;
      mean : real;
  PROCEDURE Readhowmany;

  BEGIN
    Readln(sample_size);
  END; (Readhowmany)

  PROCEDURE addemup;

  VAR input_no, count, sum : integer;

  BEGIN
    sum:=0; valid_count :=0; count:=1;
    writeln('Enter one input_no for each prompt ">" ');
    WHILE count <= sample_size DO
      BEGIN
        write(count, ' > ');
        Read(input_no);
        IF input_no IN [0..100] THEN
          BEGIN
            valid_count := valid_count + 1;
            sum := sum + input_no;
          END;
        count := count + 1;
      END; (of while loop)
    mean := sum / valid_count;
  END; (of Addemup)

  PROCEDURE writeaverage;

  BEGIN
    writeln(valid_count, ' valid input_nos, giving a mean of ', mean);
  END; (of writeaverage)

  (MAIN PROGRAM HERE)

  BEGIN
    Readhowmany;
    Addemup;
    writeaverage;
  END.

```



Can you see now how procedures work? At this stage of the game it is quite straightforward. Note that those variables which are used throughout the program are declared at the top so are "Global" variables. These are variables that exist for the life of the whole program and can be used at any time and in any procedure. Variables declared within a procedure are called "Local" variables and these only exist for the lifetime of the procedure. In this way several procedures can have variables of the same name and they won't clash. (try doing that in Basic!) At this stage it is as well to explain the line "IF input_no IN [0..100] ...". This is another nice feature of Pascal called the sub-range or set. The word IN takes our variable, input_no in this case, and tests whether it is in the range 0..100. If it is then the following statements are carried out, otherwise it skips and goes onto the next line. This can be a very useful feature for "idiot-proofing" your programs and we will see more of this later on in this series. Note the use in this case of square brackets, they are mandatory.

The essence of a good Pascal program is that it should be highly modularised (i.e. lots of procedures), each module is short (usually no more than 15 lines), uses only local variables and is independent (i.e. doesn't depend on the results of another procedure to work). These are obviously ideals and cannot always be met. If they are met the program becomes easy to read and understand, it is easily debugged and it can be transported to another program without modification.

Next time we will briefly discuss parameter passing and a bit more on variables.

SPEED RACER . . . ANON.

This game has been around for years now and I've had a copy almost as long as I've had my Dragon. Despite having had it so long, it still remains a firm favourite, whilst most games become tiresome for one reason or another this one seems time-less, it is inevitably the program I reach for after a night at the keyboard when I've decided to give my brain a rest before bed.

As the name implies, it is an arcade simulation of a Grand-Prix car race. To be able to read the score it is necessary to select the B&W display, however, with clever use of shading & artifacting, the display is excellent. There are four tracks with increasing numbers of bends becoming progressively harder. In action you sit in screen centre and get a drivers eye view of the track scrolling past you. Control is via joystick, steering from side to side and accelerator/brake on the vertical axis. The action is smooth, the car seems to sweep round the bends and reacts realistically, collisions are accurately detected. It has me leaning from side to side as if I were actually in the car! The race consists of 5 laps. On each lap you must pass a set number of cars to start the next. The other car's speed increases each lap so more skill is needed in overtaking. It is in fact better than some arcade games I've tried.

In summary then - my favourite game for the Dragon, and well worth getting, as always, it is worth looking out for it cut price. [If you want to claim responsibility for this one then let me know - I didn't get a name with it]

ARTICLES FOR UPDATE

I always thought that Paul and Tim were just moaning when they said they were short of articles but this issue was touch and go and next issue is at present pretty short! so get writing!....BC

MEMORY MANAGEMENT ON THE LARGE DRAGON

THE HEART OF THE MATTER

Last time I outlined the design of my Mk I MMU, explaining how its basic function, that of "mapping" the 64k CPU address space into the 128k or more of RAM, was achieved by using the top few CPU address lines to control a fast static RAM. Figure 1 shows the circuit of this part of the MMU - as you can see, the basic idea is complicated somewhat by the need to get data into the RAMs. [However all the components are quite cheap - the whole of this part of the circuit could be replaced by a single 40-pin IC, the 74LS612, but at 5 times the cost!]

OPERATION OF THE UNIT: There are three design states.

I States with the MMU switched out: i) **NORMAL OPERATION-** When the Dragon is first switched on or the unit is switched out, IC1 (74LS157 multiplexor) has a low voltage on pin 1, and the top four CPU address lines A12 to A15 are passed direct to the main board and hence the SAM - the outputs from the four AND gates of IC5 are all low; two supplied to the Banker board, with two reversed for expansion or write-protection (see further exciting episodes).

ii) **WRITING TO MMU-** When the voltage on pin 1 of IC2 is held low, the registers of the two RAM chips (IC3 & 4) are addressed by the lowest four CPU address lines, A0 to A3, and if write-enable is also held low then data will be written from the CPU into the RAM registers addressed. (The switching logic, see later, will only allow this to happen when the unit is not mapping addresses).

II MMU switched in: iii) When the unit is switched in, the levels on both pin 1 IC1 and pin 1 IC2 are high. The top four address lines are passed to the RAMs and their contents appear as A12' to A15' on the main circuit board en route to the SAM, whilst A16' & A17' are taken direct to the banker.

CHOICE OF COMPONENTS: The two LS157 multiplexors may be exchanged for 74HCT157's to reduce loading on the address line (the 6809 is only guaranteed to drive 4 or 5 'LS TTL loads' on each address on data line). The RAM chips specified (74S189A or B) are chosen because they are fast (35ns max address time), fairly cheap (#1.50 to #2.00 each), have separate data inputs and outputs, and do not use a lot of drive (they load the CPU data bus to the extent of .6 LSTTL load). They are available from various sources (eg Technomatic, Watford Electronics, or STC in Harlow - the latter are cheapest).

The sister chips, 74S289s, can also be used, but these are 'open-collector' devices and so need to be provided with pull-up resistors (about 300 ohm) on their outputs. However, speed is only really critical if you intend to use the high speed poke (and will most probably ONLY work if you have a 6809E CPU - if not, any static-RAM chip with an access time of less than 140ns should work. The LS189 and LS289 (the latter needing a 1k pullup resistor on each o/p), or the LS219 would all be drop in replacements. The TTL 7489 could also be used (300 ohm pullups necessary), provided a buffer is provided between it and the data bus (1 TTL load = 4 LSTTL loads = all the Dragon can provide!). Note that all of these chips except the LS219 produce inverted data on their outputs, and so need to be programmed with the complement (255-x) of the required mapped address x.

CONSTRUCTIONAL DETAILS: The unit can be constructed on a small satellite board plugging into the 6809 socket on the main board. The link to the banker board is achieved by wiring the connections from IC5 into a 16 pin DIL plug, wired as shown, which is plugged into socket U5 in place of the LS175.

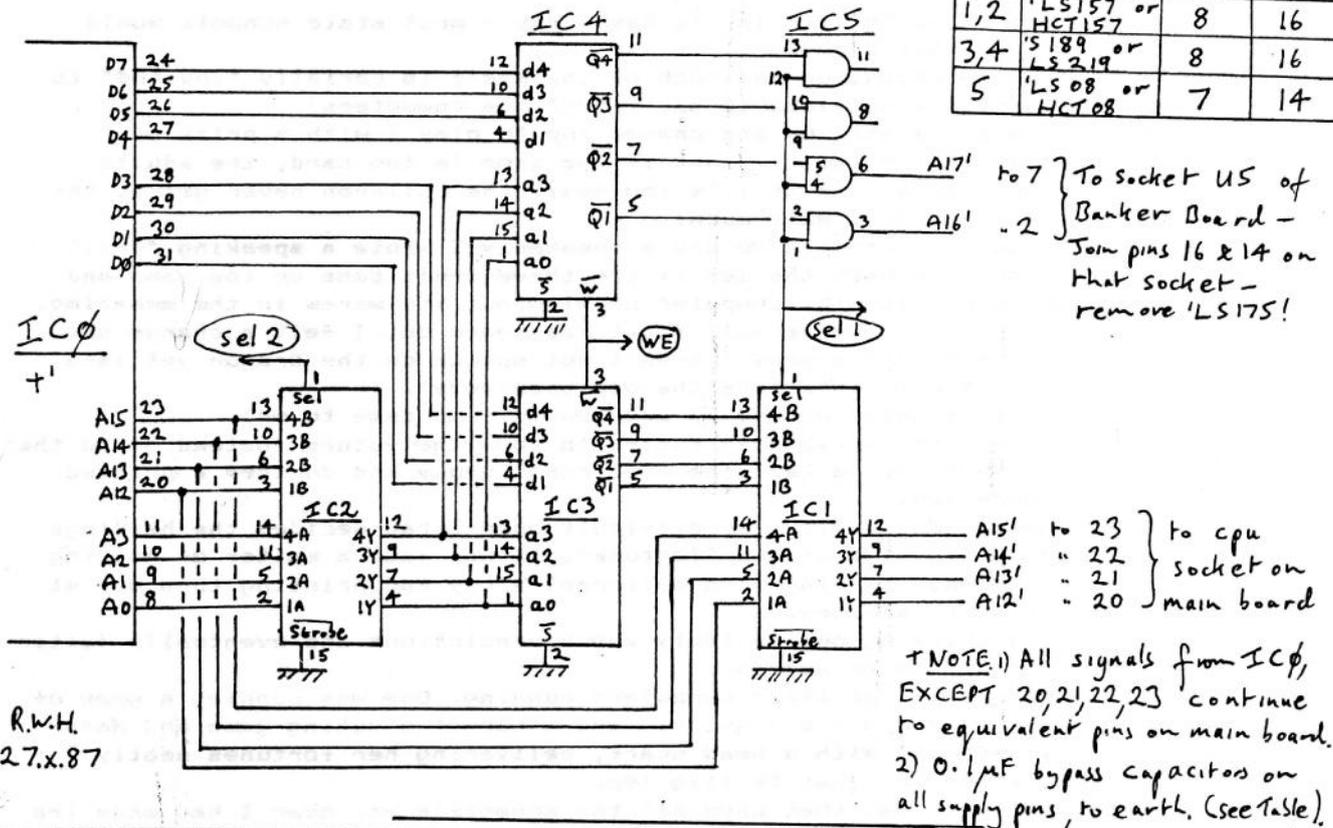
I managed to cram the 12 sockets (a 40 pin for the 6809, and three 14 pins and 8x16 pin sockets for the MMU logic) on to a piece of veroboard 10cm by 8cm. Although I used wirewrapping, I soldered up the lands of the veroboard and connected them to the appropriate earth pins of the IC sockets, to make a ground plane with low inductance connections between the chips. I also

installed bypass capacitors on the 5V supply to each socket. When I'd finished the wire wrap, and some preliminary testing, I soldered a header plug to the pins of the 40 pin socket, and then broke those connections (A12-15) which were not going straight from the CPU to its (former) socket on the main board.

That's it-Next time I'll move onto the map-switching circuitry - Bob Hall.

Circuit of Mapping RAMs and Address Multiplexors for MkI MMU

IC	Chip	Earth ²	Supply ^{5V}
0	'6809E	1	7
1,2	'LS157 or HCT157	8	16
3,4	'S189 or 'LS219 or	8	16
5	'LS08 or HCT08	7	14



R.W.H.
27.x.87

EASY MACHINE CODE (14) by RAD.

The usual method of making a 'FOR-NEXT' loop in machine code is to load the B and Y registers with numbers and then decrement them until both reach zero. If the registers are already in use, and contain address or data still needed, you must first save that information, and recall it later. You can do this by pushing it on to a STACK. The 6809 itself uses the 'S' register as a stack, and while it is permissible for you to do the same, many people prefer to leave it for the 6809, and either use the 'U' register as a stack, or save the information to specially reserved bytes. So you may either PSHS B and PSHS Y or PSHU B and PSHU Y or STB @STORE1 and STY @STORE2, having previously RMB'd one byte for the B store and two for the Y store. To get the information back again, you use the reverse order of pushing them i.e. PULS Y PULS B. (LDB @STORE1 LDY @STORE2). The loop would then be.. CLR B this sets the B register to zero, and the next number it would hold when DECB is called would be 255 (dec), which gives an effective countdown to zero of 256.. Now you need a label @LOOP1 LDY #65535 (\$FFFF). To decrement the Y register use LEA - LOAD EFFECTIVE ADDRESS, or in simple English - alter the number held. You need a LABEL here. @LOOP2 LEAY -1, Y. This decrements the Y register by one. To see if zero has been reached with the Y register use BNE (Branch not equal) BNE @LOOP2 sends it back again to decrement the Y register. When it is zero the routine moves to the next command DECB, decrementing the B register. Here again you must test for zero and BNE @LOOP1 to load the Y register once again with \$FFFF and continue looping. When done, you restore the original information to the B and Y registers. Having printed something on the screen, you can hold it there with this loop routine. You can also use it to repeat some other routine, but beware if that also uses the B and Y register, which it would have to stack and restore when leaving and re-entering the loop.

CAN IT BE FAYRE? - TONY HUGHES.

A big day in any school's life is its Fayre day - most state schools would curl up and die without them.

Ravenswood is no exception and each of the staff is corially "invited" to volunteer for a stall. Needless to sa, I "do" the computers!

One way is to put a game on and charge 10p to play - with a prize of course. The trouble with this is that if the game is too hard, the adults won't chance their arms, and if it's too easy, the children never get to the end. Either way, you don't make much!

Back when I used a Tandy TRS80 and a Speakeezy I wrote a speaking "fruit machine" prog and paid back the 10p if the three fruit came up the same and 50p if all four did, with the computer barking out its wares in the meantime.

That program had done quite well for three years but I felt a change was called for this time, and anyway I hven't got speech on the Dragon yet (and would appreciate help to interface the old Speakeezy).

So I did a bit of thinking and lo and behold - It came to me!

I would appeal to everybody's desire to know the future instead of to thei greed. I would invent Madam Zaza the electronic gypsy and do them a printed fortune for a mere 10p.

The programming wasn't all that difficult once I had decided the headings for the various categories of the "fortune". It was just a matter of holding the sentences for each heading in a different array and printing them out at random, one for each category.

I spent ages thinking out suitably vague predictions and eventually (after some de-bugging) the thing worked.

On the great day I had three computers running. One was running a game of "dogfight" for two, one had a light gun and a target shooting game and Madam Zaza, suitably bedecked with a head scarf, delivering her fortunes neatly printed on paper and for that triflig 10p.

I am delighted to say that when all the schmozzle was over I had made the vast sum of six pounds (more than last year) and that well over half of it came from dear old Dragon.

So, if anyone out there fancies to use my little ruse to enveigle cash out of punters for soe charity or other do please contact me at 0934 852725 whereupon I will gladly arrange to furnish them with a copy - and the best of luck!

CHRISTMAS CAROLS from DAVE - R.A.D.

If you are not a descendant of old Scrooge himself, you must like hearing some of the old Christmas Carols over the festive season. It certainly makes a

change from watching yet another repeat of the "Wizard of Oz" on the box! Dave Cadman has now issued his Disc/Tape of Carols. There are 32 titles, so I am sure that your favourite one is among them, and the total playing time is about 38 minutes.

As expected, I found the composing to be excellent. Dave has not had a great deal of response for his Classics and Ragtime music, and this may be due to the fact that not many people know that some of the proceeds go to the Group. So you have a chance to help keep the group healthy and get some enjoyment into the bargain.

The "Buy Tim A Drink" Fund!.

Just thought that you'd be pleased or horrified to know that the appeal for funds to buy our former editor a drink or two with which to celebrate his freedom raised a total of 16.50, and I'll be sending Tim a cheque for that amount as soon as he recovers his current hangover. Paul.

4

HENCEFORTH (2) BOB SMITH.

Stack manipulation is all-important in FORTH. Using the stack properly is the way to achieve super speed because this is the way computers work. However, DRAGON FORTH does not allow any deep probing of the stack because numbers deeper than the third position cannot be accessed directly. To remedy this here are two new words that allow accessing numbers at any depth.

ROLL n --- L1

Takes the nth number from the stack and puts it on top. Thus 4 ROLL will cause the stack :- 10 20 30 40 50 to become 10 30 40 50 20

PICK n1 --- n2 L1

Copies the nth number from the stack and puts the copy on top. thus a 4 pick will cause the stack:-

10 20 30 40 50 to become 10 20 30 40 50 20

It should be noted that to maintain speed FORTH words contain a minimum of error checking, and trying to address number positions not on the stack will not necessarily give an error message.

Next time I'll be giving you the code for the word DECOMP that breaks a word down into the sequence of simpler words that were used to build the word.

SCR # 9

```
0 ( PICK 'N ROLL )
1 ( n1 --- n2 )
2 : PICK SP@ SWAP 2 * + @ ;
3 ( n1 --- )
4 : ROLL DUP 1 = IF DROP ELSE DUP
5 1 DO SWAP R> R> ROT >R >R >R
6 LOOP 1 DO R> R> R> ROT ROT >R >R
7 SWAP LOOP ENDIF ; _IS
```

EASY MACHINE CODE EXTRA - RAD

Using the normal ROM routines for putting text onto the screen is one of the easiest ways to do this. The assembly listing is, as usual, with DASM, and starts by jumping over the Data for the text. The U register is pointed at the address where the data starts, after the screen has been cleared by a jump to the routine in ROM which clears the screen - &HBA5f, and the A register gets each byte of text in turn as it increments the U register while doing so. When the A register contains the number 4, the loop is ended. As each text byte is loaded into the A register, a jump is made to the routine which puts it onto the screen and updates the cursor position - &H800C. When the number 4 is found, a branch is made to the routine which scans the keyboard, and puts the ASCII of the key pressed into the A register. If this does not equal 32 - the ASCII for a space, then it keeps looping until the space bar is pressed, when it returns to basic in this case. The Csavem addresses here are &H6000, &H6112, &H6000, but you could put it anywhere. The keyboard scan routine is &H8006.

```
10 CLEAR 1000, &H5FFF
20 EXEC &HCFFA
30 ALL: PAG 5
40 @START EQU *
50 LBRA @BEGIN
60 @TEXT FCC " THIS IS AN EASY WAY OF GETTING TEXT ON TO THE SCREEN IN M/CODE USING THE SCROUT ROUTINE OF THE"
70 FCC " ROM. #800C . YOU SIMPLY LDU WITH THE ADDRESS OF THE TEXT DATA, AND LDA THERE WITH INC. "
80 FCC " THEN JSR TO THE ROM ADDRESS. HIT SPACE BAR TO END.",
4
90 @BEGIN JSR @BA5F
100 LDU @TEXT
110 @GETCHR LDA ,U+
120 CMPA #4
130 BEQ @WAITKEY
140 JSR @800C
150 BRA @GETCHR
160 @WAITKEY JSR @8006
170 CMPA #32
180 BNE @WAITKEY
190 RTS
200 END
```

█

Micronet Gallery Pages.....

Just had a call from Tim Hayton who asked me to tell you that our new "Gallery" page number is 811220120.
How about some of you sending Tim Hayton some material for the Gallery?
if he's getting as much as WE are he must be writing the lot himself!

Sorry, it isn't here!!!.

I don't know what's happened to the crossword this month, probably disappeared in the post like so many other things, but anyway, it hasn't arrived and I can't hold the space any longer. Hopefully it will have arrived in time for the NEXT issue!. P.G

UPDATE ON DRAGON USER - PHILIP BEED

It is now well over a year since I spoke out in Dragon User's defence, and since they went to subscription only and I feel it is time I reflected on what has happened since.

When the subs only plot was announced in July 1986, many rumours and predictions flew about generally predicting cessation of publication by Christmas. A lot of people have been proved wrong, though I think they are happy to have been. The fact that DU is now well into the second year demonstrates that not only did sufficient people have the interest and faith to subscribe to make it a viable produce in the first place but are happy enough with the goods to have continued their subs for a second year.

You will recall that by summer of 86, DU had become a very thin magazine with contents to match, a product hardly worth purchasing in fact. Since going subs only, I believe it has improved dramatically, there were a few months at the beginning when firms predicting the mags demise were unwilling to advertise, but when DU pulled through, they quickly jumped back on board. I have now become accustomed to the card front page and even find it useful to have an index I can see just leafing through the pile rather than having to open each issue when searching for that elusive article. The mag has now developed a far more grownup approach to the Dragon, moving away from the games aspect (though not abandoning it) and concentrating on more serious aspects of computing. It is trying to meet readers needs by covering topics they specifically request, where necessary asking for volunteers to write the appropriate article or review and offering the incentive of payment if the article is chosen. Recent issues have dealt with printers, screen dumps, programming languages, word processing and many other interesting topics. Advertisers help fill the pages, generally offering the usual goodie at the regular prices but then need studying with care, once in a while a new product or lower price is slipped in discreetly in the hope it won't be noticed by anyone. Most of the advertisers have joined as groups of two companies and all seem to back one another up when the two do not directly compete so spreading the cost of advertising, which I suppose is fair enough as although it does not generate as much separate advertising to produce a bigger or cheaper Dragon User it is a lot better than not advertising at all because the cost was prohibitive. In the same line of thought, many people have taken to sharing a subscription with a friend, and while Dragon User may prefer two subscriptions, I would maintain that one shared is better than none at all.

So if you are one of those who withdrew your support in July 1986 perhaps now is the time to reconsider. If you are not totally convinced then why not try a few recent back issues available from Peaksoft to convince you totally?



CROSSWORD 27 ANSWERS

ACROSS:

1A) Willow. 1G) Cornet. 2C) Dalmations. 3B) Orchestra. 4E) Metasoft. 5I) Pinta. 6A) Rally. 6F) Terrapin. 7A) Iris. 7E) Shining. 8F) Editor. 9C) Grease. 10F) Kiss. 11I) Glass. 12A) Berne. 12G) Office. 13A) Flying Saucers.

DOWN:

A1) Wandering. A10) Lob. B1) Iron. B9) Camel. C2) Drilling. C10) Very. D7) Screen. E7 & F10) Stephen King. F6) The. G1) Caste. G9) Silo. H5) ERNIE. H10) Sofa. I4) Sprite. J7) Novel. K7) Grimace. L3) Attic. L8) Pulser. M4) Lanolin. Winners this time were Gary Coxhead and Eddie Freeman.

DISC CONTROLLERS - Groupe 6809. (Belge) .

There are three controllers in existence: the DRAGONdos from Dragon Data, the DELTAdos from PREMIER-MICROSYSTEMS and the CUMANAdos (this one is compatible with Dragonodos). This last point deserves some further details. Most software written and saved on the Dragonodos system can be read by Cumanados. Nevertheless, other operating systems such as OS-9 or FLEX use other basic routines (writing or reading a sector on the disk, for instance) which are not implemented on the same address in the two ROMs. These operating systems cannot normally be loaded indifferently on the two systems. But it is perfectly possible to install the Dragonodos ROM on the Cumana board. This is a modification which allows you to switch easily between the two ROMS. The two systems Deltados and Cumana have two sockets for EPROM's in their cartridges, addresses in the top of memory from \$C000 and \$FEFF but only one is used. Therefore it seemed interesting to use the second socket for a supplementary RAM or EPROM circuit. The study has been made for the DELTAdos and CUMANAdos.

A - DELTAdos:- The decoding of the addresses is complete: A13 and CTS (top of the drawing) allow separate validation of the two 8K zones for the memories (\$C000 - \$DFFF and \$E000 - \$FEFF) whilst A0, A1, A2, A3, A4 and P2 allow the validation of the 2791 registers, the drive controller IC which are found in \$FF40, \$FF41, \$FF42, \$FF43 and \$FF47. The two validation signals are directed on a gate ET (output 11 of IC3 74LS08) in order to validate the 74LS245 - buffer (not shown on drawing).

Originally, the link on LK3 is made between B and C, validating only IC14 (the one which has the EPROM with the DELTAdos). It only needs to remove this bidge (PC track between B and C) and wire A to B in order to use the second socket with an EPROM addressed from \$E000 to \$FEFF (type 2764) - It is even possible to use a 64K RAM (6264) feeding the R/W signal to pin 27 of IC13. This use with RAM gives no problem as long as the controller is used on a Dragon 32. On a 64, it is also necessary to modify the internal decoding which generates the signal CTS.

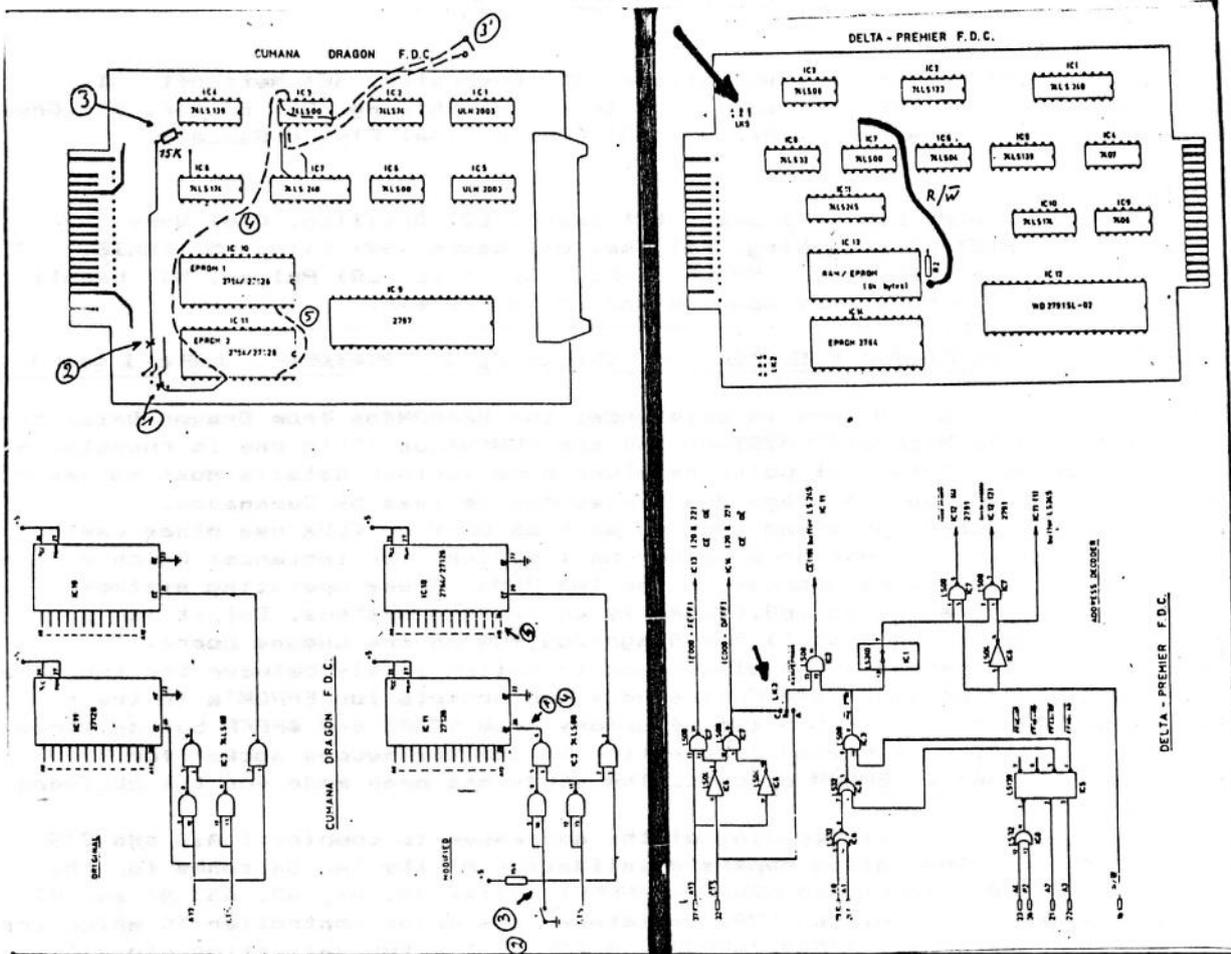
B - CUMANAdos:- The diagram (see drawing) is much simpler. No buffer is to be found and the original addressed decoder uses only IC10 (dos in a 16K 27128). So, it is not possible to use this second socket as all the addresses are already used. Fortunately, it is easy to modify the circuit in order to switch the two holders (see drawing).

- 1) - Cut the track between CTS and IC11
- 2) - Cut the track between A13 and pins 1-9-10 of IC3
- 3) - Install a 15K resistance and a switch
- 4) - Connect a wire between pin 6 of IC3 and pin 20 of IC11 (validation CE)
- 5) - Eventually, bring address A13 to memory IC10 using a wire between pin 26 of IC10 and pin 26 of IC11. IC10 can then use a 2764 (8K) or a 27128 (16K).

Using a 2764 (programmed with Dragonodos) allows the controller to work on either Dragon or Cumanados mode.

Using a RAM 6264 (8K) at IC10 could also be possible with the condition to cut the track between pins 27 and 28 and to bring the R/W signal. (see comment regarding the 64 in part A).





THE 6TH 6809 COLOUR SHOW Barry C.

Good old Helen and John Fenn of John Penn Discount Software have arranged yet another Dragon Extravaganza in the shape of the 6th 6809 Colour Show.

The event will be taking place in London on Saturday 5th December from 10am until 3.30pm. Admission is #2 for adults and #1 for under 16's.

This show promises to be a real winner! Some of the exhibitors will include : HC Andersen (Selling OS9 at #69), Computape, Compusense, Grosvenor Software, Harris Micro Software in conjunction with MacGowan Consultants, PNP, Quickbeam, Bobbie preston, Harry Whitehouse (Peaksoft), and of course John Penn themselves.

Treats also will include D.U.D.E., Dragon's Roar, D. Makin, 68 Microgroup, Ian Rees and THE robot, the OS9 users group and of course ourselves.

The actual address of the show is The Grand Hall, Connaught Rooms, Great Queen St and tickets can be purchased in advance from John Penn Discount Software at Dean Farm Cottage, Kingsley, Bordon, Hants. GU35 9NG.

I realise that some people cannot justify the cost of travelling to a show but if you live in the South of England you have no excuse and should find the time to attend!

Vouchers providing a 70 pence discount of Music Maker 2 or Picture Maker are available by simply writing to JPDS at the above address.

THE NEXT STEP FORWARD FOR THE DRAGON

I wonder how many user group members find themselves in the same situation that I find myself in. As a self employed person, I seem to generate a lot of paper, invoices, letters etc. Most of this I can handle on the Dragon, but I am beginning to find the old brute just a little bit slow, and the mountain of floppies is still growing. What I would like to do is develop a hard disk system for the machine.

As I see it, four main areas need to be tackled;

- 1/ The Hard Disk drive itself
- 2/ A Controller card for the drive
- 3/ Power supply for the system
- 4/ Software to drive it all

Looking at each item in turn. There seem to be quite a few 5 and 10Mb Shugart drives around priced at under #100, mostly full height types. The Controller card is a problem, it will need to be an ST506 to SASI type. But most seem to be IMB types. A Xebex or Western Digital might do. Power Supply is no problem, lots of ex-equip switch modes are around. Finally software, this IS a problem area. I know that Compusense have Flex software and had at least one system running. OS9 programs might have to be written or adapted.

So over to you, do any group members have any experience in this area, any info to me please, via the group Mike Ganley

THE TOUCHMASTER TOUCHPAD IN USE

I beleive many people may have purchased Touchmaster graphics pads and now have them sitting in cupboards unused as they were unable to get decent results from them, so I thought I would tell you how I use mine to produce reasonable quality drawings. My first step is to pick out a picture I wish to copy from a glossy magazine, sunday suplement, or adults only magazine? Apart from being a picture I like, my only other requirements are that the picture shoul not have too much fine detail (though of course it is possible to ignore any fine detail not required), that I do not wish to keep the picture, and that the picture is the correct size to fit the drawing area on the tablet. My next step is to remove the picture from the magazine , place it on the tablet squarely then mark the boundaries so I can reposition it if it slips. To draw the picture I use a coloured crayon instead of a pencil as I find this has the right thickness to activate the pad and it also leaves a mark on the paper to remind me where I am. I tend to draw an inch or so, maybe a bit more if I can see I am doing well, then depending on the result, I OOPS to erase it, or

ENTER to fix it, it is as well not to be too ambitious. If you have done a bit quite well then save it before you go wrong and have to start the whole section again. I should add I use oops a lot, especially on the more tricky bits, but it pays to keep oopsing till you get it right as it is not so easy to erase errors. Every five minutes or so, I save a fresh version to disc as the program is not devoid of crashing or hanging up on me, not pleasant after an hours work.

The resultant screens do not quite use the fine quality actually available from PMODE 3 & 4, the graphics being slightly more chunky due to the way the hardware works, but I find it the quickest easiest way to produce reasonable graphics & you can see the results if you order any of my screens through the excellent graphics library, in fact, for anyone over 18, Ray also has a couple of others which aren't advertised and can be put together with a simple basic program to give you a 1980's version of "WHAT THE BUTLER SAW!" but you'll have to speak kindly to Ray and convince him you are over 18!

PHILIP BEED.

Well this month's offering is the last of the first batch(?) of games over from the U.S.. This game is probably the best one that I have played on the Dragon and in the old DU it would probably score about six or seven Dragons, Well no more time wasting and on with the review. The game starts off like all the others going through the initial screens (in this case Tom Mix) onto choosing your screen colour and then presents you with an option to load in the high scores. (one thing I must mention is that all of these games were written for the Tandy and hence the keyboard configuration will be different. It's a case of pressing every key to see what it does). The screen then scrolls very smoothly to present you with the game. On the screen you see two huts which are conveniently divided into boxes, also there is little Olive Oil walking back and forth across a balcony at the top throwing down little hearts, the idea for Popeye is to collect those hearts and low and behold each one he grabs fills a little box in the hut. When all boxes are full you go onto the next screen. The first screen is divided into four tiers with steps leading down and the ability to walk off of the left side of the screen and re-appear on the right and vice versa. Now this would be too simple a game, so thrown in to spoil your fun is the ever present and annoying Bluto. As ever Bluto tries to foul up Popeye's plans with olive and this game is no exception. You however have two ways of protecting yourself (not including running away), the first, a good old can of spinach which once you have picked it up gives you the ability to walk up to Bluto and knock him for six, He quite effectively flies around bouncing off of the walls and then crashes down into the water at the bottom with a nice splash, however do not get too pleased with yourself as he climbs out after 1/2 a minute (be warned he will seek vengeance). By this time you should have collected all the hearts necessary, if not start panicking because little acrobats will appear at random, chucking bits of wood at you with dire consequences if they hit. The 2nd screen is much the same but Popeye must pick up musical notes that fall down in an attempt to put Popeye jnr (i assume he must have now married dear old Olive?!) to sleep, Bluto is still ever present. Finally the 3rd screen involves a ship with old Olive standing atop of the mast shouting HELP, these letters conveniently fall down and each one Popeye collects builds another step on the ladder to his rescue attempt. Well as I said earlier on it is truly a Dragon classic, my only feeling of upset is that this game will never probably be seen on sale in England and that the price, if they are brought from the U.S is #30.00. Well that about wraps up this game review but once piece about a game called RALLY by PULSER, this game was supposed to be previewed and for sale at the Rochdale show back in September, I rang them after the show only to be told that a 'couple of bugs had been detected and that it would be available at the beginning of November'. Rang yet again at the beginning of November to be told 'Ah slight problem with it we've come across a couple of bugs, it should be ready by the beginning of

December. If anyone else has tried to get hold of a copy and failed I would now suggest the Dragon show is probably be the best time to get hold of a copy. Hopefully i'll see you all there. RB

Helpline 87.....

If you have queries on any of the subjects mentioned here, write to the appropriate volunteer, enclosing a stamped envelope for reply. If you need help with a subject that isn't included in the list yet, or you aren't satisfied with the reply that you get, then contact Paul Grade as usual.

FORTH: John Payne, 3, Sibland Close, Thornbury, Bristol.

FLEX: Jurgen Mitchell, 62, Victoria Grove, Lupset, Wakefield, Yorks. WF2-8JD.

PROGRAMMING LANGUAGES AND STRUCTURED PROGRAMMING METHODOLOGY: Stan Davies, 153, Allestree Lane, Derby DE3-2PG.

GAMES SOFTWARE (MAINLY ARCADE BUT SOME ADVENTURES): Stephen Wood, 52, Downsway, Springfield, Chelmsford, Essex CM1-5TU.

M/C (EXCLUDING FLEX & OS9); DRAGON MUSIC; ARTIFICIAL INTELLIGENCE; "C" (UNDER OS9): Chris Jolly, 4, Pinehurst Walk, Orpington, Kent.
 TAPE TO DISC CONVERSIONS (DRAGONDOS): Graham Smith, 3, Ashton Gate Terrace, Ashton Gate, Bristol BS3-1TA.
 GENERAL HARDWARE AND UPGRADE CONVERSION PROBLEMS: Bob Hall, 22, Cumbria Close, Thornbury, Avon BS12-2YE.
 WORD PROCESSING & GENERAL BASIC PROGRAMMING: F.J.Fisher, 29, Thornham Road, Gillingham, Kent.
 BASIC PROGRAMMING: Ian Rockett, 2, Knowle Road, Burley, Leeds, Yorks. LS4-2PJ.
 RTTY / RADIO; LISTINGS FROM INPUT MAGAZINE; SPRITE MAGIC; AMATEUR RADIO; UPDATE ARTICLES / LISTINGS BY R.A.DAVIS: R.A.Davis, 39, Boxley Drive, West Bridgford, Nottingham NG2-7GG.
 OS9 SYSTEM AND UTILITIES: Jason Shouler, 70, Victoria Road, Parkstone, Poole, Dorset. BH12-3AE.
 MODEMS, BASIC ELECTRONICS, ADD-ONS, and FLEX: Tim Hayton, 36, Laurel Drive, Willaston, South Wirral L64-1TW.
 DELTA PROGRAMMING: Stuart Mills, 49, Templegate Crescent, Leeds, West Yorkshire LS15-0EZ.
 DRAGON HARDWARE PROBLEMS AND REPAIRS: Alan Butler, 16, Barnston Green, Barnston, Great Dunmow, Essex.
 MODEMS AND BULLETIN BOARDS / GENERAL COMMS. Gary Coxhead, 54, The Sorrels, Corringham, Stamford-le-Hope, Essex.
 COMPOSER PROBLEMS:- Dave Cadman, 32, Breedon Hill Road, Derby DE3-6TG.
 DRAGON/DELTA DOS PROBLEMS; OS9, BASIC 09, AND GENERAL BUSINESS SOFTWARE APPLICATIONS: M.A.A. Abba, 55, Longland Court, Rolls Road, London SE1-5BN.
 DMP 110 PRINTER PROBLEMS/SCREEN DUMPS ETC.: Dr. J. Hatton, 48, Wern, Llanfairpwll, Anglesey, N. Wales.
 GENERAL PROBLEMS AND MOST REPAIRS: Steve Tate, 22, Fairfield Drive, Wormley, Broxbourne, Herts. EN10-6DY.

Letter to Helen Armstrong.

Dear Helen, many thanks for remarks in the November issue of D.U. concerning people who send the same articles to several publications ... as you say, hopefully it will clarify the situation somewhat for our prospective writers!. I think I ought to mention though that from OUR point of view a lot of the problem is caused by USER GROUPS and amateur magazines insisting that everything they publish is copyright. We have a "reprint" agreement with most of the foreign publications, and we waive all copyright on ALL our published material, but we seem to be alone in this so far as the UK magazines are concerned, with the result that if we print anything which they have printed first, we're acting illegally, even if it was done in all innocence. That's the main reason why we object to multiple copies of articles being sent out ... it could drop us right in the nastiness!. (and presumably the same applies to D.User). By the way, I admit to showing signs of cracking, but don't forget that the "professionals" do have the odd advantage or two!... little things like getting paid occasionally, having little luxuries like staff (well, someone has to make the coffee, don't they?), and even printers to blame for late distribution!, and the biggest advantage of all, they can sometimes even go home and forget the whole damned thing at the end of the day!!!. Honestly, you professional types don't know when you're well off! any jobs going for a mildly deranged ex-editor / writer / printer / accountant / repairer / chairman, with far too much experience of running a high circulation newsletter / user group?. OK, don't tell me, you got it yourself. IT AINT FAIR. Anyway, thanks for the mention if you manage to get to the show I'll even buy you a drink in return!. Paul.

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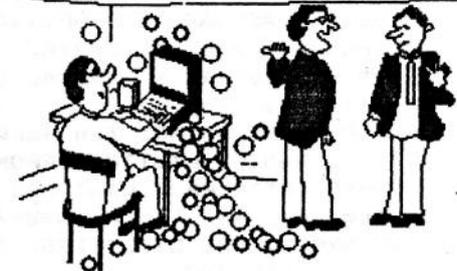
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The Late, Late Bit

Just because you've got a couple of additional pages this month it doesn't mean there's no work for you to do!.... there's more than ever, and the old problem of lack of workforce still exists. However, an easy job for you to start with ... R.A.Davis is considering writing us a series of articles on VERY basic Basic, the idea being to hopefully provide answers to the problems that most absolute beginners run into when they first discover that the keyboard has other uses than playing games!. Obviously, it will be a great help to him if he knows which aspects cause most trouble ... do your loops go on for ever and your GOSUB's fail to return, or what?, so I'd like ALL of our less expert members to write to him direct and let him know. It's for YOUR benefit, so I hope you'll make the effort to tell him the kind of problems that YOU find hard to solve!. OK?. His address is 39,Boxley Drive, West Bridgford, Notts.NG2-7GG. Next thing on the list is the London Show, of course. If the copier doesn't foul up, and the Post Office don't go on strike, you ought to get this issue well before Show date, so with any kind of luck it won't be history by the time you read this. According to the floor plan I've just received from Helen Penn, we will be on stand number 5; I don't know quite what we'll be having on the stand yet, but Tim Hayton, Stephen Wood,

Alan Butler, Gary Coxhead, and of course Tim Lomas and I, will be loitering on the stand with intent to deprive you of any money you may be careless enough to have with you, and possibly one or two other members will be taking over while we go to look for a drink or three, so there's no excuse at all for saying you couldn't find us!. Barry Caruth still refuses to risk the sin and depravity of London, but there should be plenty of others around to complain to anyway, so don't worry. Some of you have complained in the past that the shows have been dull, that there's nothing new, nothing happening, but what do you want?, a floor show?. After all, the computer scene in general is a lot smaller now than it was three years ago, and the Dragon share of it has got smaller as the machine gets older... by computer standards we're running an Antiques Show!. I WAS thinking of giving you a chance to liven things up, by offering a prize for the Group Member who turned up most appropriately dressed for the address (well, Great Queen Street would give you quite a chance to

test your nerve and imagination!), but on second thoughts most of you would be too chicken to enter, wouldn't you?, so there's not much point. Of course, if anyone DOES have the nerve..... Anyway, see you there on the 5th. OK?. Completely off subject, in answer to a question I had recently, the cartoons we print in Update are drawn by R.A.Davis using "Drawezee", and dumped to my Shinwa. They aren't "pen and ink" drawings, as some of you may have supposed, and if you're interested the screens are now available from the Dragonart Library.

Classifieds & Special Offers Ads.

DRAGON MUSIC!!! A selection of music on tape or disc, arranged by Dave Cadman and produced by him on a specially extended version of Composer. The tunes are divided into four categories, "Rags", "Classics", "Standards", and a "Miscellaneous" selections. This month's release is a "Christmas Special" selection, but "Rags", "Standards", "Classics" and "Miscellaneous" are still available. Buy now for Christmas!. Prices are TAPE 3.50, DISC 4.00, inclusive of postage. Orders to Dave Cadman at 32, Brendon Hill Road, DERBY BE3-6TG.

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Phone Graham Strong, Worthing 48575.

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Please phone Peter on: 0732-848183. (evenings only).

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Games to disc transfer...Unprotected game code of any game sent in return for a blank tape and 22p stamp, but you MUST include the inlay card to prove you have bought the original.
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FORTH OPERATING SYSTEM: Simply the best there is. Written by John Payne, and available for DragonDOS, Superdos, and BB or SB DeltaDOS. Available ONLY through the Group. 8.50 inclusive. Orders/cheques to the Group, 6, Navarino Road, Worthing, Sussex.

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Dragon Upgrade manual: 32/64 conversion method fully explained so that you can upgrade your 32 yourself without difficulty. Written by Bob Hall and available only through the Group. Price 2.00. Cheque/order to the Group, 6, Navarino Road, Worthing, Sussex.

Delta DOS utility: A w/c utility to copy all BASIC and w/c files from disc to tape in one operation. BASIC listing of loader and Hex dump 1.00 or on cassette for 2.50.
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BACKDATE UPDATES: Copies of all earlier Updates available from John Cox, 3, St.Peters Road, Portslade, Sussex. (0273-422492). (Chris Channing, is currently having copier problems!).

DBCOPY: BragonDOS to OS9 file copy utility. Includes 'Telewriter' & Basic conversion filters....8.00.
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