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 18 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.

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.... G.C.
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 addeup;
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 Addeup)
PROCEDURE writeaverage;
BEGIN
    writeln(valid_count, ' valid input_nos, giving a mean of ', mean);
END; (of writeaverage)

(MAIN PROGRAM HERE)
BEGIN
    Readhowmany;
    Addeup;
    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 "idiom-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 excellant. 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 tough and go and next issue is at present pretty short! So get writing!....BC
THE HEART OF THE MATTER

Last time I outlined the design of my Mk I MMU, explaining how it's 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 multiplexer) 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, so 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 (IC5 & 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 RAM 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 74HC157's to reduce loading on the address line (the 8809 is only guaranteed to drive 4 or 5 LS TTL loads on each address on data line). The RAM chips specified (74S199A 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 lot of drive (they load the cpu data bus to the extent of a LS TTL 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 os 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 7490 could also be used (300 ohm pullups necessary), provided a buffer is provided between it and the data bus (1 TTL load = 4 LS TTL 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 preceding into the 6809 socket on the main board. The link to the banker board is achieved by wiring the connections from IC5 into a pin 1 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 8116 pin sockets for the MMU logic) on to a piece of vero board 10cm by 8cm. Although I used wire wrapping, I soldered up the lands of the vero board 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 aheader 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

<table>
<thead>
<tr>
<th>IC</th>
<th>Chip</th>
<th>Earth?</th>
<th>Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>6809E</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>1/2</td>
<td>74S137 or HCT157</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>3/4</td>
<td>74S169 or 74S194</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>5</td>
<td>74S08 or HCT08</td>
<td>7</td>
<td>14</td>
</tr>
</tbody>
</table>

**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 onto a STACK. The 6809 itself uses the 'B' 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 (LD @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 DEC B is called would be 255 (dec), which gives an effective countdown to zero of 256. Now you need a label BLOOP1 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. BLOOP2 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 @BLOOP2 sends it back again to decrement the Y register. When it is zero the routine moves to the next command DEC B, decrementing the B register. Here again you must test for zero and BNE BLOOP1 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
always get along) and die without them.

Ravenswood is no exception and each of the staff is cordially "invited" to
volunteer for a stall. Needless to say, 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 Speakezy 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 haven't got speech on the Dragon yet (and
would appreciate help to interface the old Speakezy).

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 trifling 10p.

I am delighted to say that when all the schmooze 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 envigle cash out
of punters for sue 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
Caddman 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 from his current hangover. Paul.
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 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 SP8= SWAP 2 # @ + @
3 ( n1 --- )
4 : ROLL DUP 1 = IF DROP ELSE DUP
5 1 DO SWAP R> R> ROT XR >R
6 LOOP 1 DO R> R> ROT ROT XR >R
7 SWAP LOOP ENDIF 18

EASY MACHINE CODE EXTRA - RAR

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 DASH, 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 - WHBA5F, 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 - WHB00C. 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 Cawen addresses here are WH688B, WH6112
,WH6886, but you could put it anywhere. The keyboard scan routine is WH8086.

10 CLEAR 1000,WH5FFF
20 EXEC WHCFFA
30 ALL: PAG 5
40 @START EQU #
50 LIBRA @BEGIN
60 @TEXT FCC * THIS IS AN EASY W
AY OF GETTING TEXT ON TO THE SC
REIN IN M/’CODE USING THE SCROUT
ROUTINE OF THE*
70 FCC * ROM. @BACOC . YOU SIMPLY
LDU WITH THE ADDRESS OF THE
DATA, AND LDA THERE WIT
H INC. *
80 FCC * THEN JSR TO THE ROM ADD

RESS. HIT SPACE BAR TO END. *,
4
9B @BEGIN JSR @BACOF
100 LDU @TEXT
110 @GETCHR LDA ,U+
120 CMPA #4
130 BEQ @WAITKEY
140 JSR @BACOC
150 BRA @GETCHR
160 @WAITKEY JSR @806
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 happen 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 disinterested 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 leaping 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?
ACROSS:
1A) Willlow. 1B) 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:

Winners this time were Gary Coxhead and Eddie Freeman.

DISC CONTROLLERS - Groupe 6889. (Belge).

There are three controllers in existence: the DRAGONos from Dragon Data, the
DELTAdos from PREMIER-MICROSYSTEMS and the CUMANAdos (this one is compatible
with Dragonos). This last point deserves some further details. Most software
written and saved on the Dragonos 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 independently on the two systems. But it is
perfectly possible to install the Dragonos ROM on the Cuman board.

This is a modification which allows you to switch easily between the two ROMs.
The two systems DeltaDos and Cuman 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 A9, A1, A2, A3, A4 and P2
allow the validation of the 2791 registers, the drive controller IC which are
found in $FF4F, $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
bridge (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 IC18 (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 1-9-18 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 IC18 using a wire between pin 26
of IC18 and pin 26 of IC11. IC18 can then use a 2764 (64K) or a 27128 (16K).

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

Using a RAM 6264 (64K) at IC18 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 Penn 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 689 at £49), Computape, Compusense, Grosvenor Software, Harris Micro Software in conjunction with MacBowan 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 689 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 GAT type. But most seem to be IBM 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. GSP 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 should 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 its 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 screen do not quite use the fine quality actually available from PHODE 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 screans 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)
on to choose 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 Popeyes plans with olive and this game is no exception. You now ever
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
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 £9.80. 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 "An 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 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.
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.
PYRADVENTURE!!!

An exhilarating new release for the D32/64 computers.
Enter the lost tomb of Tutankhamun’s father in this thrilling adventure game. Can YOU find the ancient Amenophis III’s gold death mask as well as the fabulous treasures AND come out alive?!

Real speech, full Hi-res graphics loader plus special “FREEZE” and “SAVE” facilities make PYRADVENTURE a real hum-dinger!

Send your cheque or P.O. for just 2.95 + 50 pence postage and packing to:—

T.Wheal, 23, Ashby Road, Thurston, Norwich NR14 6AX

More adventure and arcade games to be released soon.

---

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. NG2-7BE. 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 for a snack, 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 live 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 “Draweree”, and dumped to my Shinko. 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 Commodore 64. A selection of music on tape or disc, arranged by Dave Cadman and produced by him on a specially extended version of Commodore 64. A selection of music on tape or disc, arranged by Dave Cadman and produced by him on a specially extended version of Commodore 64. A selection of music on tape or disc, arranged by Dave Cadman and produced by him on a specially extended version of Commodore 64. A selection of music on tape or disc, arranged by Dave Cadman and produced by him on a specially extended version of Commodore 64. A selection of music on tape or disc, arranged by Dave Cadman and produced by him on a specially extended version of Commodore 64. A selection of music on tape or disc, arranged by Dave Cadman and produced by him on a specially extended version of Commodore 64. A selection of music on tape or disc, arranged by Dave Cadman and produced by him on a specially extended version of Commodore 64. A selection of music on tape or disc, arranged by Dave Cadman and produced by him on a specially extended version of Commodore 64.

FOR SALE: Two almost new Dragon 32's, absolutely perfect. $30. each, plus shipping, with manuals. Any reasonable offer considered. Phone 917-391-3710,

FOR SALE: Dragon 32 c/e manual and all leads. Perfect order. $30.00. Phone Ken on 32-2-345878.

Has anyone got the two OSF accounts packages sold by CompuServe about a year ago?

Phone Chris on 971-34-54615.

WAITER! Touchtaker Touchpad, reasonable price please.

Phone Chris Johnson on 971-34-54615.

Scrapp Dragon and CoCo's wanted for spares. MUST BE CHEAP!

Phone Alan Better on 671-42-624 (inveevel only please).

Three Casio electronic printing calculators for sale, one with built in calender. 16.00 each. Two racks with baskets (office type) 5.00 per set. One wire calculator for printer paper. 3.00.

Phone Brendan Stroh, Worthing, 48576.

Basic 8F 15.00. OSF System Programmers Manual 15.00. One Dragon Beta disc drive, black. 3.00. Spare Manuals for Stylusgraph, Basically, Basic, 906, Pyscalize, and "c." 2.00 each.

Please phone Peter on: 0722-824081 (evenings only).

New Program. Gives facts on the countries of the world. Areas, Capital, Populations, Corrections and Languages. Includes analysis facility and map showing the position of the country required. Available on disc or tape. 8.00 inclusive.

Also available is a very comprehensive home accounts program at the same price.

Write to Graham Strong, 70, Colchester Crescent, Gorleston-by-Sea, Suss.

One each RIMACALC and Microeval COMPOSER 15.50 and 7.50 respectively. Wantied for FLEX, GRAMMOGRAPH and TSC Gear and Merge. Would pay up to 20.00 for each. Contact Mike Huxley, 34, Springfield Ave, Worfield, Bristols. 0122-47-3477.

Basic Programs. 1 Program Listing...75p. up to 4 pages. Additional pages 50p. each.

2 or more Programs...50p. each.

All tapes and listings will be returned as far as possible. The following day.

G. Wiles, 10, College Street, Wesham, Clith, H. H. Watanabe, H. S. Suss.

FREE PACKAGE SPECIAL!!! Complete package for $64 owners, comprising of a Printronics 1600A, connection lead and software to access Viewdata and all scrolling type 84's. The node will operate on 12-24V logic for Prestel, and on 12-24V DC for user to user operation. The price for the complete package is ONLY 35.00 to Group Members, 40.00 to non members.

Cheque or cash (registered postal) to T. Hayton, 34, Laurel Drive, Waterlooville, South Wirral L65-19W.

Gifts to disc transfer...Unprotected game code of any game sent in return for a blank tape and 25p stamp, but you must include the inquiry card to prove you have bought the original.

Contact M. N. P. 32, Horace Road, Exeter, EX21-03L.

FORTH OPERATING SYSTEM: Simply the best there is. Written by John Parry, and available for Dragon, 800, Commodor, and 8000. 10% off if you ask for the 10% off. Available from the Group. 0.50 inclusive.

Check for cheques to the Group, 4, Navarino Road, Worthing, Suss.

Circuit Sheet: Available for K22 (most varient), 364, Dragon 302 controllers, and Casio 200 controllers. The same price 1.50 each. Cheque/orders to the Group, 4, Navarino Road, Worthing, Suss.

Dragon Upgrades: 32/44 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, 4, Navarino Road, Worthing, Suss.

Belta DOS utility: A n/c utility to copy all BASIC and n/c files from disc to tape in one operation. BASIC listing of loader and Hex dump 1.50. or on cassette for 2.50. J. C. Russell, 33, Tennyson Avenue, Clevedon, Avon BS21-7UJ. 01272-875256.

OSF MODERN Program: Up and downloading of files. Any baud rate from 50/50 to 9600/9600 (but not multiple rates). Up/downloader can be used for 2 to 256 or program will adapt to largest capacity available. All other OSF options supported. Price 4.00. Please phone Barry Hulme, 01223-242883 evenings only.

BRAHEZEE: A graphics drawing program, on tape, which we think is one of the best! Written by R. H. R. and it must be a bargain at 2.50 including postage. Orders to Paul Grade, 4, Navarino Road, Worthing, Suss.

BRAHNOUS EPHORUS: Your DOS 2744 redefines to patched 8088 specification, or to Eurocard V4.0 or V4.5, or to PETER WILLIAMS TRIMAIRATE and REMSCHER ENGLISH VERSION of 94.1. Price for any version just 1.50.

Compull, 4, Jaya Road, Underwater-Egina, Glos. GL12-7JF.

BACKDATE UPDATES: Copies of earlier updates available from John Cox, 3, St. Peter's Road, Porthcawl, Suss. (0577-42-9297). (Chris Chansley, is currently having copy problems!)

DISCO: Dragon to OSF file copy utility. Includes Telewriter & Basic conversion filters...6.00.

COFFEE: OSF comes, program. Xerox (CCS & SIMO), multiple upload modes, monitor buffer, function keys and more! Suitable for any OSF system (It needs ACA-Pad) and includes source files...6.00.

PP-PAD: Selection of useful public domain OSF utilities on one disc...5.00.

Jasen Smaller, 76, Victoria Road, Parkstone, Poole. BH13-3AE. (0202-7225991).

SPECIAL PRICE FOR 13TH.TASK from ARC Software. Special redaktion only applies until 31st January. ONLY 1.50 inclusive of postage and packing.

"A great adventure...our cheap rate!" (Update 12/84). Don't miss this never-to-be-repeated offer. Send now to ARC Software, 172, Mearns Road, Newton Nearns, Glasgow 677-36.

GRAPHICS SCREENS...The Group Graphics Library, "DRAKon" has arrived selection of screens available now, on why not make use of the service offered. Why not order your graphics as well, you can win a price. All you need do is write for details. DraKon Library, 5, Glenwood, East Parkstone, Poole, Dorset.

NEWCOP: A n/c tape utility program for the production of backup copies of n/c programs. Capable of loading either sector or headerless programs or sections of programs, and saving these in either original or alternative formats. Also allows easy tape positioning using nomal n/c-off routines. Written by Stuart Mills, and available to Group members at 2.50 plus 25p postage/packing.

Orders and cheques to the Group.

Tandy Speech/Sound card. (new). 30.00 or part exchange for half height drive (beancased).

Jason Shailer, 69, Victoria Rd, Parkstone, Poole, Dorset. (0202-7225991).

PRINTOUT SERVICE.

1 BASIC program listing (up to 5 pages). 50 pence.

2 or more programs 40 pence each (up to 5 pages). Additional pages 5 pence each. (15 pages = app 25d lines).

Screen dump 30 pence each. 2 or more dumps 25 pence each. (deep size app. 4 x 4.5). Text files, data files, DREN source code files, please require.

All tapes or SuperDisk compatible disks (ONLY) must be accompanied by suitable stamped addressed envelope to hold tape/disc and printouts.

All enquiries must include the group. 24 hour return service where possible. Contact D. Green, Abergele, Isb, Isf, Inverness-shire.
IT'S DRAGON'S ROAR!

NOT JUST ANOTHER DRAGON MAGAZINE... IT'S THE MAGAZINE!

BORED with the SAME OLD thing? The SAME OLD magazines with the SAME OLD style and the SAME OLD seemingly endless realms of Data... Yes?! Then this is the magazine for YOU!

Our first 'newsletter' was merely introducing US, now we would like to introduce YOU to a whole new experience in Dragon magazines! Don't expect to find 'hundreds' of pages of technical drivel, but expect to find the most up to-date, comprehensive magazine in existence.

Our 'systems news' service will keep you up-to-date THREE DAYS before publication, NOT THREE MONTHS! Our unprecedented 'dragon directory' will keep you in touch with the 6809 world, for as long as the 6809 world is in touch with you! But, perhaps, more importantly, our unrivalled 'software library' will keep you tapping those invaders into the 21st century!

Indeed, we believe, we offer more than just a mere publication, but a GUARANTEE of your Dragon's future! Whether your interests lie in the more 'serious' side, or not, we'll have something for everyone, and something which inevitably, keep your Dragon ROARING for as long as you support it!... And all for the ASTOUNDING price of JUST *£7.50* for an annual subscription!

But don't just take our word for it! For your *FREE* sample copy write to the following address, enclosing a stamp, or alternatively, pick up your copy at the Dragon Show on 5th December at the Connaught Rooms, London, in which, to launch this very special publication, we'll be linking up with Micronet, enabling you to 'talk' to 6809 users based on Prestel, while experiencing the vast amount of amazements which make Micronet/Prestel so popular!

DRAGON'S ROAR!

37 Collins Meadow,
Harlow,
Essex,
CM19 4EN

Make your Dragon ROAR with DRAGON'S ROAR!