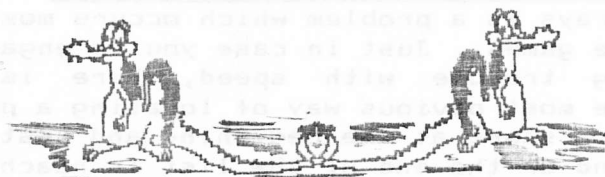


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The Newsletter of the National Dragon Users Group

DRAGON



UPDATE

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The Gaffer's Bit.....

If it can go wrong, it will ... or to be more precise, it already has!. I've just fired up the master disc for this month's Update and it looks perfect, all the files call in correctly, there aren't too many typo errors .... it's all fine, except that the file for the "Editor's Bit" isn't there at all!.

So what do I do now?. Write an "Editorial" and attribute it to Stephen? ... tempting, but not really practical. Delay the issue for a week while he writes something and sends it on? ... even more tempting, but even less practical. Panic? .... almost certainly, but that doesn't really solve the problem either, so I'm damned if I know.

I suppose it's my own fault really. I managed to persuade Stephen to come down here for a few days last week to give me a hand with the paperwork (and of course, the incoming mail nearly stopped for the first time since the Post strike!), and although there WAS some Group work done ... quite a bit actually ... distractions like Blakes 7 videos and character assassination discussions do rather tend to disrupt the usual grotty routine.

Anyway, changing the subject for a moment, this is my last chance to remind you about the Weston show, and to ask you to make an effort to be there. The Group, represented by Bob Hall and his willing band of conscripts, will be there on stands 1 and 2, which are conveniently situated next to the bar (no, not actually IN it!), and we'll have all the usual bits and pieces on offer and demonstration, and if you ask Bob VERY nicely he might even let you see the new Top Secret DTP package!.. (We now have a CoCo version of that too!). Point being that we want to have a London show next year, probably in early April, but if the retailers don't at least cover their expenses on the Weston show they aren't likely to be interested in supporting another one, so blow the dust off your cheque book, oil your bike, and BE THERE to buy your Dragon something for Christmas. OK?.

Having had a look through the disc I see we've yet another indignant letter from a user of "other" computers. Funny how touchy they all are, isn't it?, even funnier how that old comment of mine about "people with more credit cards than sense" seems to have needled to them, yet they all miss the point that what I'm against is people who have spent a couple of years pleading poverty ("can I pay my subscription by installments?", "I can't afford to buy new programs" etc) and who then gaily trot out to buy the latest Amstrad or Atari rubbish!. If they've got the money they're entitled to do as they like with it, but when they've been scrounging off ME for ages because they "can't afford" anything, then I reckon I'm entitled to get a little peevish. "Hysteria"?, no, just contempt, and anyone who doesn't like it knows what they can do!.

Oh well, I suppose that will have to do for the moment. Next month, if Stephen has recovered from the influence of Worthing, we should have an "Editor's Bit" once again, but meanwhile, have a good time at the Show ... it should be a really good one.

*Paul G.*

## Binary Chops...Tim Lomas.

Searching data arrays is a problem which occurs mostly in two applications, databases and adventure games. Just in case you're engaged in either of these activities and having trouble with speed, here is a fast and easy way of locating that data. The most obvious way of locating a particular item from a list or array is to start at the beginning and test each item in turn until either the item is found or the end of the list is reached, in which case the item doesn't exist. This is fine with a small list and is both trivial to write and understand, but when the list starts to get long the time spent searching can be quite lengthy - most irritating when playing an adventure game. Obviously the best possible solution for this type of search is when the item is the first on the list, and the worst situation is when it is either last or not on the list at all. I'll take a list of 1024 items for the example in this article, and the test of speed can easily be expressed as the number of tests which have to be made to locate the item. For a simple sequential test the best time is 1 and the worst is 1024, when the item is first and last respectively, the average position will put the item in the centre and will thus take 512 tests.

So, how to speed things up? Firstly, we have to sort the list into order, not necessary in a sequential search but essential in the Binary Chop. The method is based on splitting the list in half (hence the name). First we have to determine the central value, which assuming the first item to be number one will simply half the total number (512 in our example). We then test this item and determine whether the one we want is higher or lower, thus eliminating half of the list in one fell swoop. We then continue to do the same with the remaining half of the list until either we find the item or we run out of list which means the item isn't present. The speed of this search is not quite as good as the sequential search, but it turns out that the worst possible place to find the item is next to last or next to the centre or beginning of the list, in which case we would only have to make TEN tests for the 1024 item list that we're using. In general the number of tests will be LOG2 of the number of items where LOG2 the the number 2 must be raised to get the number, the number of tests is then this rounded up. For our 1024 item list LOG2 of 1024 is exactly 10 (which is why I chose it in the first place!). A Short routine is shown below for a binary search of the array array\$.

```

a$=test$
Top=1025
Bottom=0
  Centre=INT((Top-Bottom)/2)
1  IF a$=array$(Centre) THEN ...
  IF a$<array$(Centre) THEN Top=Centre
  IF a$>array$(Centre) THEN Bottom=Centre
  IF Top-Bottom<=1 THEN ...
  GOTO 1
in the new partition

```

```

The item we wish to find.
Top of array +1
Bottom of array
FFind initial centre of array
Item found exit routine
Item is in bottom half so reset
Top to Centre to search bottom
part
Item is in top part so reset
Bottom to search top part
  As Top and Bottom are now adjacent
there are no more items to test so
the item is not present, exit
routine and report that the search
has not been successful
  Go back and test for the item again

```

You can see of course why the list must be in order for this method, we test to see if the required item is below or above the centre, with a disordered list this would be pointless. The routine shown may be adapted for any array simply by changing the variables, the bottom of the array, it can be set to any point if only part of the array is to be searched. The most useful place for this type of search would be when a list held on disc is being searched, the drastic reduction of disc access will speed up the search tremendously. In this case, instead of testing against array\$, a read is made from the disc file at the place pointed to be Centre.

RMS(1) . . . Chris Jobson.

Like a number of other OS9 users I have got the RMS disc and manual but have never used it. Who can blame me? I have picked up the manual on several occasions and attempted to understand it but failed. It is one of the most unreadable manuals I have seen. Anyway, I was off work with an ear complaint that had made me all but deaf (only a short blessing I can assure you). The choice was between watching the Australian soaps that are on TV during the afternoon or hiding upstairs and looking busy on the computer. Needless to say the computer won hands down.

Now the manual gets easier to read after the 30th attempt by which time you have filtered it by saying "Do I really need to know that". So, dismissing all silly things like primary records, secondary records, complicated reports and the meaning of life I proceeded to create an RMS file to store the membership records of the North East Dragon User's Club (good plug, eh?). What I will outline will be my various attempts including errors to achieve this. I have not gone into detail explaining commands which the manual already accomplishes quite reasonably.

STEP 1. Create, using Stylograph, a dictionary file that will tell RMS what headings will be used to store the information. Mine, if you want to use it as a guide, is:-

```

"
                                NEDUC MEMBERSHIP LIST"
SURNAME                        20    A    "SURNAME : ";
CHRISTIAN                      20    A    "FIRST NAME : ";
INITIALS                       5    A    "INITIALS : ";
TITLE                          5    A    "TITLE (MR. MRS ETC) : ";
ADD1                           25    A*   "ADDRESS : ";
ADD2                           25    A*   "ADDRESS : ";
ADD3                           25    A*   "ADDRESS : ";
ADD4                           25    A*   "ADDRESS : ";
ADD5                           25    A*   "ADDRESS : ";
PCODE                          8    A    "POSTCODE : ";
TELNO                          10    N*   "TEL NO : ";
CODE                           5    N*   "AREA CODE : ";
DATE                           8    D    "DATE ENTERED : ";

```

The first line is the title that appears at the top of the screen so I bumped it along with spaces to centre it. The next line is the keyfield or the one which RMS needs when it goes looking for your file.

Moving from left to right, I have some meaningful titles, upto 8 letters, which RMS uses later; a number which is the spaces I require to fill with information; a code letter to tell RMS the type of information that will be inserted i.e. alphanumeric, numeric, money etc, and in inverted commas a prompt that will appear on the screen to let me know what the information should be. At the end of the line a semicolon. There need only be one space between each instruction but I think it looks better this way. There are other things that could be added but we need to keep this first try simple enough to work.

We should store this file as memlist.dec.

STEP 2. Create the RMS file with the command rmsnew memlist and answer the first prompt with the size slightly larger than the combined spaces reserved in the dictionary file, say 300. Answer the second with the number of files you want to store plus an additional 25%, in my case 25. RMS, I now presume, goes onto the disc, reserves the space and formats it something like my dictionary file said.

Steps 3 and 4 next month.



## PEEKING THE DRAGON, POKING THE READER.

Those observant ones amongst you will have noticed that I have lengthened my header again. The reason for this is that I have been informed by Paul that "two or three people have commented (casually) that I never seem to blitz a program." If people do not like my method I would appreciate being told directly by my critics. This is not an easy job to do as I am spending at least two hours a night on it and many more at the weekend. If these people would like to try their hand at reviewing then my address is on the front page.

As you will see from later on in my article I have received 22 items of software this month and they are mainly utilities or text adventures which require more work on them than other programs.

We urgently need the offer of help in doing reviews as there will be a lot of work for me getting software in, distributing it for review and then collating the finished reviews. Please help out by offering to help. Let me know what system you run and what type of software you would be able to try out and write a couple of paragraphs on - not a novel, just a straightforward report on it's good (and bad points). If needs be I will always help tidy up anything that you want me to.

I must point out that several items of software have not been released after I have pointed out problems to the Companies involved and where the program is left in it's original form I will put this in my review - see Peeking 7 BALLDOZER review.

Until I get more offers of help I will have to continue as at present with my virtual non-existent band of helpers. This month I have received a bumper collection of software. Dragonfire have sent me a copy of their WIMP system which is a basic extension program and includes graphic utilities. Orange have sent me Sprite Designer which allows you to design and use sprites within your own programs. They have also sent Easel, a graphics system requiring Basic 42; Hi-Text+, a high-res text driver; and Composer X, which allows you to modify tunes compiled using Composer. Miser's Dream is an arcade game from the same company and they have also sent me disk versions of Balldozer, Mandragore and North Sea Action. Starship have sent me a preview copy of Impossiball which is a forward scrolling game requiring you to bounce the ball over different coloured squares. Pulser have provided CAD-6809 which is a graphic drawing aid and Knight Computer Services have come up with a similar program in Dragon Graphics Studio. Pulser and Dragonfire also inform me that they will shortly be releasing database programs.

The other day I received a further parcel from Dragonfire containing Jet Set Willy Screen Designer and Airball Construction Kit for those who like designing their own screens for games that they already have. They have also got 6 adventures out which are Space Trek 1, Space Trek 2, Time Machine Search, Immortal Strain, Diamond Manor, and Sunken Ghost. Finally they have a Seikosha Screen Dumper which requires a Seikosha GP100A Printer. This latter program will have to be reviewed by somebody who owns one of these so first volunteer gets it to review.

As you will see from the above list there are now many utilities available for those of you interested in producing your own graphics and I would advise you to visit a show to see them all in action so that you can see which one fills your particular needs. I apologise for there being no reviews within my article this month but I am hoping that if I get a reasonable response to my plea for reviewers that I will be allowed more space each month for these reviews.

By the way does anyone know of a cheap source of Voltmace joysticks as my old Tandy ones are rather knackered?



### Flex... Chris Jobson.

I have recently purchased a secondhand Dragon 64 with Plus board and disc drive, complete with Flex software which I am busy playing with. In my opinion the Plus board is probably the best thing Compusense ever produced for the Dragon, however as with most things they sold I could never afford the price.

I started converting lots of OS9 utilities for 80 column and at the same time getting rid of the extra line feed. Thanks to Dave Rothery in Dragon User March '87 (clever chap). Although I use OS9 in preference to Flex I could not resist the temptation to try the same conversions with Flex. The system is easy enough since there were Flex 80 column drivers and ramdisk files supplied.

I did have a bit of trouble with the example startup file Ramdisk2 - one of the files in the list to copy was P.CMD which the Flex copy command sees as a match list, so you get PEEK, POKE and PROT thrown in for good measure. Assuming you don't want them a way around this is to remove it from the list and add a separate line COPY O.P.CMD 3 which should work.

The next problem was to convert SPE the word processor. Cataloguing the disc showed a README file which tells you how to reconfigure both SPE and BROWSE for 80 column. The commands are:

```
APPEND SPE.SYS, DRAGON80.SPE, SPE.CMD
```

```
APPEND BROWSE.SYS, DRAGON80.BRO, BROWSE.CMD
```

This I assume adds the configuration program to the BASIC file to produce the new command. All the files are on the disc. Can anyone suggest a way to convert the DynaCalc program to 80 column please?

Another trick which I pass on is how to get rid of the extra linefeed without fitting a switch to your printer. If your printer will accept control codes to alter line spacing then tell it to go to half spacing which Flex doubles up to single spacing.

The command for my Shinwa is:

```
P, HECHO 1B, 41, 6 (the printer must be on line)
```

My printer default spacing is 1/6" or 12/72". This command is:

```
escape 1B
change line spacing 41
to 6 (/72")
```

The command could be written as a line of text, saved with the title LINEFEED and it is only necessary to switch on the printer and EXEC LINEFEED to enable this option. I claim no credit for this, it was handwritten in my manual by whoever owned the Flex system before me and I have only just understood what he meant. So thank you whoever you are.

We could do with a few more articles on Flex - I am quite enjoying it.

### Desktop reviewed by Chris Rouse.

If you are ever called upon to produce a newsletter, small poster, or just want a fancy advert to put in the local newsagent's window, then Desktop is for you. Although not really "desktop publishing", with a little imaginative printing the results can be remarkable. Ray Smith has included an example on the disk that will give you a good idea of what can be achieved.

After the logo screens have disappeared, a blank PMODE4 screen appears. The first task is to go to the menu screen, and here the user is offered 16 functions which can be divided into three categories: Fonts and Graphics, Margins and Tabs, and a group of utilities.

There are nine fonts on the disk, with a further ten offered as an extra, each font can be used in one of three sizes. It should be noted that the fonts can be mixed on the screen in any way you wish. A series of small designs (cars, hearts, etc) can be used to draw borders or just to enhance the final display. Left, right, and top margins are all adjustable and "wordwrap" can be used to stop words splitting at the right hand margin. Two tab settings are also offered.

In the utilities group of commands the status of all margins etc can be checked, function keys listed, colour set as well as foreground and background colour swapped. Screens can be saved to or loaded from disc to be used in your final text. A printer dump, Epson compatible on the Dragon version, DMP105 compatible on the Tandy version, allows normal or enlarged screen dumps as well as the ability to set the left hand margin. This facility is used to print two columns of text (or graphics) side by side.

Pressing "B" at the menu screen returns you to the graphics screen ready to create a masterpiece. Key response is quite fast considering that each character is "drawn" onto the screen. Full movement around the screen using the arrow keys is possible and the arrow keys are also used to Tab, underline, and print designs. One menu function, ASCII, is used to print one of a number of user definable phrases.

In closing I must say that this is NOT just another screen drawing program, but that results will depend on your imagination and creativity. All in all a very useful and easy to use program.

The program is available in Dragon DOS & CoCo DOS formats price 8.50 to Group members and 10.00 to others, and is supplied via Ray Smith, 5, Glen Road, Parkstone, Poole, Dorset.

# FORTH Memory Manager...Chris Jolly.

This set of FORTH screens defines a heap management system with the same functionality as the 'C' heap routines `alloc ()` and `free ()`. The routines were developed under Payne FORTH V2.0, but should run under any of the Draon FORTHS that are floating around. The screens define two words for use in programs, `ALLOC` which is used to allocate memory, and `FREE` which is used to return allocated memory to the memory pool. A number of words are defined for use by these two words. `ALLOC (n --- a)` allocates `n` bytes of heap space and returns its address `a` on the top of the stack. `FREE (a ---)` takes the address of a previously allocated block and returns it to the pool, from which it can be reallocated by a later call to `ALLOC`. Some cautions about the use of `ALLOC` and `FREE`: you must not write outside the limits of an allocated block because memory management information could be overwritten. You must not access a block after you have `FREE`d it, and most importantly, you must not free an address which was not returned by `ALLOC`. The implementation is an adaptation of the 'C' memory management routines given in Kernighan & Ritchie (p173). Two important things to note about the implementation are: new heap memory is obtained when necessary by using `ALLOT` to allocate blocks of 256 bytes which are broken up and distributed as required, but no check is made to see if more memory can be allocated - this could be inserted in `MORECORE` where `ALLOT` is called. No provision is made for freeing all allocated memory in one call, but this could be accomplished by resetting `DP` to its original value and storing 0 in `ALLOCP`. The memory management scheme is quite efficient, but remember that there is an overhead of 4 bytes for every allocated block.

SCR #300	SCR #301	SCR #302	SCR #303
0 ( HEAP MANAGER )	0	0 : PICK	0 : RNU
1 ( BY CHRIS JOLLY )	1 0 VARIABLE ALLOCP	1 DUP + SP@ + 2+ @	1 63 + 64 / 64 *
2 : NUNITS	2 0 VARIABLE MBASE 0 ,	2 :	2 :
3 3 + 4 / 1+	3	3	3
4 :	4	4 : 4% DUP + DUP + ;	4
5	5	5	5
6	6	6	6
7 --)	7 --)	7 --)	7 --)
SCR #304	SCR #305	SCR #306	SCR #307
0 : @CALC	0 : FREECOND	0 : FREE	0 DUP @ 2 PICK !
1 ALLOCP @ 0= IF	1 OVER OVER > 2 PICK 2 PICK @ <	1 4 - ALLOCP @ BEGIN	1 ENDIF DUP DUPO 2+ @ 4% +
2 PICK			
2 MBASE DUP DUP ALLOCP !	2 AND 0= OVER DUP @ < 0= 3 PICK	2 FREECOND WHILE	2 = IF
3 MBASE ! 0 MBASE 2+ !	3 3 PICK > 4 PICK 4 PICK @ < OR	3 @	3 OVER 2+ @ OVER 2+ +!
4 ELSE	4 AND 0= AND	4 REPEAT OVER DUP 2+ @ 4% +	4 OVER @ OVER !
5 ALLCOP @	5 ;	5 OVER @ = IF	5 ELSE
6 ENDIF ;	6	6 DUP @ 2+ @ 2 PICK 2+ +1 DUP	6 OVER OVER !
7 --)	7 --)	7 @ @ 2 PICK ! ELSE	7 ENDIF ALLCOP ! DROP ; --)
SCR #308	SCR #309	SCR #310	SCR #311
0 : MORECORE	0 : (ALLOC)	0 2 PICK OVER 2+ !	0 : ALLOC
1 RNU DUP DUP + DUP + HERE	1 DUP 2+ @ 3 PICK < 0= IF	1 ENDIF OVER ALLOCP ! 4 +	1 NUNITS @CALC BEGIN
2 SWAP ALLOT SWAP OVER 2+ !	2 DUP 2+ @ 3 PICK = IF	2 SWAP DROP SWAP DROP R> DROP	2 DUP @ (ALLOC) SWAP DROP
3 4 + FREE ALLOCP @	3 DUP @ 2 PICK !	3 ENDIF DUP ALLOCP @ = IF	3 AGAIN
4 :	4 ELSE	4 DROP OVER MORECORE	4 :
5	5 DUP 2+ @ 3 PICK - OVER	5 ENDIF	5
6	6 2+ ! DUP 2+ @ 4% +	6 :	6
7 --)	7 --)	7 --)	7 ;S

Letter to The Editor, "Update".

Dear Sir,

Would you kindly note that not ALL subscribers to "Update" are in agreement with the hysterical outbursts against other computers like Chris Jolly and Paul Grade have indulged in. It is OUR money, and it should be OUR decision to purchase whatever we wish. I personally have a BBC Master 128, which in many ways is inferior to the Dragon, but in some ways is superior. But why should I have to apologise for that fact? Many of these so-called Traitors have given sterling support to the Dragon, over a number of years, and I appreciate what they have done. Vilifying other "marques" is NOT the best way of popularising the Dragon, which is an excellent machine, and well able to stand on its four feet!

No one, I believe, would object to carefully researched comparisons, but to suggest that people buying other computers are not quite right in the head is both patronising and insulting. Incidentally, Paul, a Plastic Dust Cover is NOT proof against the dreaded virus, but it is easily expunged when you know HOW!

I remember that my first Dragon 32 cost me 199.00. Since then I have derived a great deal of pleasure from that one, up to my present 64 with double disc drives. Yes, I am dedicated to the Dragon, But I am NOT foolish enough to suggest that the new 16-bit processors (with their multi-tasking capabilities) are inferior. That would be taxing my credibility too far. Perhaps in the next issue of "Update" we will have all the prices preceded by the pound sign, so we know whether it means pounds or dollars! You see, you got ME at it now, Paul!

... I have ... to review an Amiga, which not only has a 16-bit processor, multi-tasking and what have you, but also delivers music in glorious STEREO SOUND, fed to the HI-FI! I am thinking of trading my BBC in for one of these! NO! NOT THE DRAGON, you will notice!

Yours sincerely, Fred Hopewell.

<<well, just a couple of points. Firstly, I unfortunately cannot use pound signs in Update, because (a) the Dragon keyboard does not carry one, and (b) the program which Paul, Mike and I use will not carry embedded printer commands! The rule is, if there is no symbol in front it is in pounds, if there is a '\$' before it is in dollars.

Secondly, WHY would you want stereo sound??? Do word processors use sound? Do spreadsheets use sound? Or databases? No - now what could it be used for then?... Stephen>>

P.S. A 16 or even 32 bit CPU doesn't necessarily make a machine "good", nor do I object to people owning other makes (see page 1), and the currency in Worthing is the pound Sterling. Paul.

Ex-DOS... Chris Rouse.

Unlike DragonDOS, which added a number of new commands to BASIC, TRSDOS added only disk and file handling commands.. The extra commands in DragonDOS cause problems when transferring programs to the Tandy CoCo. The main problem is that after conversion these missing commands cannot be identified, showing up in a listing as random characters.

The answer is to add these missing commands to TRSDOS, and this is what Ex-DOS does. In all an extra 9 commands are added and although it does not completely solve the conversion problem it goes a long way towards it. It was written to run on a 64K CoCo2 with DOS 1.1. However, it is written in relocatable code and should run on DOS 1.0 and even on a 16K machine.

I am willing to give the program to any Tandy owner who cares to send me a disk and return postage (28p in the UK). Let me have details of your machine, RAM size and ODS version. The program comes with a complete set of instructions. It will be available from the NDUG PD Library after Christmas, but until then I will supply it.

Chris Rouse, 18 Gregson Close, Bridgemary, GOSPORT, Hampshire.  
Tel:- Fareham (0329) 238031



Pascal For Beginners(14) - Gary Coxhead.

This time, passing parameters to procedures. The following program, called Draw, is an example in which procedures are given increased flexibility by passing values to them. This is the whole essence of parameter passing - flexibility!

```
PROGRAM draw (input,output);
VAR
  count : integer;
PROCEDURE line (symbol:char; length:integer);
VAR
  count : integer;
BEGIN
  FOR count := 1 TO length DO
    write(symbol);
  writeln;
END; (* of line *)
PROCEDURE rectangle (symbol:char; width:integer; height:integer);
VAR
  count : integer;
BEGIN
  FOR count := 1 TO height DO
    line(symbol,width);
  END; (* of rectangle *)
BEGIN (* main program here *)
  FOR count := 1 TO 5 DO
    line('l',40);
    rectangle('*',40,15);
  END.
```

Care has to be taken to ensure that the 'actual parameters' in the procedure call match the number and type of the 'formal parameters' in the procedure declaration. In all the examples used to this point, parameters have been used only to pass input data to a procedure. If values are computed for output from a procedure then they may be passed back to the calling module by using 'VAR parameters'. The use of such VAR parameters is illustrated in the next example.

```
PROGRAM parameters (input,output); (* demonstration to show the effect of
value and variable parameters *)
VAR
  x,y : integer;
PROCEDURE call_by_value(a:integer);
BEGIN
  writeln('Entering call_by_value, a = ',a);
END; (* of call by value *)
PROCEDURE call_by_ref(VAR b:integer);
BEGIN
  writeln('Entering call_by_ref, b = ',b);
  b := 2 * b;
  writeln('Leaving call_by_ref, b = ',b);
END; (* of call by ref *)
PROCEDURE show_xy;
BEGIN
  writeln(' x = ',x,' , y = ',y);
END; (* of show xy *)
PROCEDURE swap_1(a,b:integer);
VAR
  temp:integer;
BEGIN
  writeln('Entering swap_1 procedure, a = ',a,' , b = ',b);
  temp := a;
  a := b;
  b := temp;
  writeln('Leaving swap_1 procedure, a = ',a,' , b = ',b);
END; (* of swap1 *)
PROCEDURE swap_2(VAR a,b:integer);
VAR
  temp : integer;
  writeln('Entering swap_2 procedure, a = ',a,' , b = ',b);
  temp := a;
  a := b;
  b := temp;
  writeln('Leaving swap_2 procedure, a = ',a,' , b = ',b);
END; (* of swap2 *)
BEGIN (* main program *)
  x:=13; y:=42; show_xy;
  call_by_value(x); show_xy;
  call_by_ref(y); show_xy;
  swap_1(x,y); show_xy;
  swap_2(x,y); show_xy;
END.
```

In general, call by value is used for the input of data to a procedure, and call by reference is used for the output of data from the procedure. When large data structures such as arrays are passed as input items, considerable extra space is needed on the system stack (remember that?) if call by value is used. Even in these cases it is still desirable to use call by value, since value parameters ensure that any errors in a procedure have only localised effects, and do not corrupt global data items. Care has to be taken when

passing structured data types to procedures. In declaring the formal parameter list, only simple data or user defined types are allowed. e.g. the following procedure declaration is NOT valid:-

```
PROCEDURE read_data (size : integer; VAR in_array : ARRAY[1..10] OF real);
```

Instead, a special type declaration is required, e.g. :-

```
TYPE data_array_type = ARRAY [1..10] OF real;
```

```
VAR data : data_array_type; (* always use the defined type name*)
```

```
PROCEDURE read_data(size : integer;VAR in_array:data_array_type );
```

```
BEGIN
```

```
.....
read_data(5,data);
.....
```

```
END.
```

Well, that's it for this time. The last article will deal with RECORDS.

### Curse Of Camarc...Dave Dougan.

Like most people, I have from time to time had a go at text adventures and found them hard to follow, and completely impossible to complete. This was not quite the case with Curse of Camarc, although it did take me quite a few hours (days) to complete.

The text on the screen is well written, in that it gives a good description of the locations, over a hundred in all. The response time for each location to come to the screen is generally very fast, although in one or two locations the text came to the screen a while before the cursor returned, a small detail I admit, but until the cursor returns you cannot carry on.

The hidden clues and hints are few and far between so most of the time you have to search quite hard to find the next move (but that is what text adventures are all about). There is a HELP command to gain some assistance. I found the clues were not that straightforward, but it may just be me.

The INVENTORY and SCORE commands both give good detail, the former tells you what you are carrying and how many moves you have left with items that have a limited life span and the other tells you how many moves you have used and how many lives lost, as well as overall score.

One very good detail in the adventure is that no matter how many times you are killed you do not have to restart from scratch, also the game can be stopped and saved at any point, again saving you the trouble of restarting at the very beginning.

In all I found only one bug. In the early stages of the adventure there is a bear and later in a totally different area the body of this bear suddenly appears out of nowhere.

The main drawback with this adventure is that it runs under Flex which must certainly reduce the number of copies that will be sold as not all Dragon owners have the Flex operating system. As far as value for money is concerned, if you have Flex, then I would say it is well worth investing in a copy of this entertaining adventure at 5.99.

\* Software Editor's comments - Thanks Dave for your first ever review anywhere.

To other members: Dave is a reasonably new comer to the Dragon and I co-erced him into this review and only helped him with a few hints. M.S.

### Redundant Information Dept.

CoCo users with discs should note that the Dragon picture files (when using DOS) start at Hex C00. To load these screens use an offset. For example LOADM "Picture/PIX",&H200. Before loading use PCLEAR6 as some screens seem to have one or two more bytes than are necessary for the CoCo and this will corrupt any Basic program resident in memory. Save the Dragon screen as "PICTURE",&HE00,&H25FF,&E00 and the problem will be solved. C.R.

### CATS CARTOON CAPTION COMPETITION.

Owing to the almost total apathy of our enthusiastic members we have so far only received TWO entries to this competition. (Issue 50). To give you another chance to win either a free subscription renewal or a free copy of our DTP disc, I am holding the competition open for another month, so those of you who haven't entered, try NOW!. Paul.

DOSPlus - Highly Recommended!

Having had the same problems with DOSPlus as Lee Cooke in Update #49, I wrote to the author and told him about them. A few weeks later he sent me an updated version: DOSPlus 4.6. This cures the boot problems, so that Payne Forth, TeleWriter, Flex, and even Hitchhikers' boot properly. Only my home-made BASIC boot routines had to be modified.

Lee Cooke also mentioned another problem with DOSPlus: it does not use the directory on track 16. This is true, but need not be a problem! I have been working with different versions of DragonDOS for 3 years now, and have had a lot of discs corrupted by it. I could NEVER repair the disc (even with ?IV ERRORS) with the help of track 16. Both 16 and 20 were always corrupted. So I think it is a good idea to keep track 16 for programs instead of a backup directory. (perhaps it is only luck, but since using DOSPlus I have not had one ?IV ERROR!).

I have not tested DOSPlus with all my machine code programs, but if you write your own BASIC programs with data input/output to disc, it is highly recommended! Bernd Neuner.

Tastat-Uhr system review by Lee Cooke.

The Tastat-Uhr keyboard & real-time clock system consists of a Commodore 128 external keyboard, a Battery pack consisting of 3 1.5v 'Penlite' (Nicaid) cells in a holder, a PCB containing the components and a switch on leads. Also included is driver software for the Dragon 64 (or an Upgraded 32) to run under OS-9 or DragonDOS.

Installing the system involved acquiring a length of ribbon cable suitable for connecting to the PCB and the main board of the Dragon in use. Also needed were some 'Sticky fixers' or equivalent to mount the board and the batteries to the bottom of the case under the keyboard (as well as making useful cable clamps). The lead was connected to the points specified in the installation instructions and to the connector on the PCB using a fine-tipped soldering iron. This was all done with the board removed from the case so that the holes for the switches and the keyboard connector could be made (the arrangement I chose was switches on the left hand side under the Dragon's existing keyboard and the board connector to the right. (Note that the keyboard cable is very short so some kind of extender cable is almost mandatory. I would also have preferred the keyboard to be cased, for protection of the electronics and general tidiness.)

So, onto operation of the unit itself. The manual instructions are straightforward regarding the running of the software and an elementary fault-finding guide is provided if things don't run first time. The next operation to do was setting the clock itself. Running of the additional utilities provided enabled the clock to be set and when compared against a standard clock it kept good time. However, when the machine was first switched off, the clock corrupted itself on power-up. Further investigations (and reading of the fault-finding guide) indicated that the cause was most likely that the batteries were flat. This was proven by leaving the machine running for 20-30 minutes then turning it off and on again. This time the clock settings were kept. (Note that the batteries of the Tastat-Uhr trickle charge from the Dragon's main power supply, thus keeping them from going flat if the Dragon is given occasional or regular use.)

Other features I liked about the package were that the amount of support for experimenters was better than some I have seen with source code for the software on the Disk I was supplied with. I feel that, all in all, the system is very adaptable and, as the software is supplied, totally re-configurable (within reason!) and I have also written this review on the product as a test and have no complaints! ### As the Tastat-Uhr unit was installed in one of my machines I think I'm entitled to a couple of lines of comment!. Personally I think the unit would be of great advantage to OS9 users, when the function keys and various other features could be put to good use. The actual benefit to DragonDOS owners is rather more marginal, although I know a lot of people feel that having an on-board clock is something the Dragon always needed, and the C128 keyboard, with numeric pad etc, will undoubtedly appeal to many.

It is a well produced unit, and the manual is well above average standard, although it suffers a little in translation (an English manual is supplied to UK customers, of course). Generally it is very good value for money, and if a clock and extension keyboard is what you've always wanted for your Dragon then this is certainly the one for you. It isn't possible to please all of the people all of the time, but the SCG have made a good attempt at doing so with this product. Paul Grade.



HenceForth(14) . . . Bob Smith.

The last article was devoted to the practical details of running the program CAD. This time I want to look at some of the FORTH aspects. The main advantage of using FORTH for graphics is the speed that is attained. The only comparison I have is doing printer dumps that fill an A4 page. The BASIC routine takes 2 1/2 hours, while the FORTH routine takes 12 minutes - a speeding up factor of 12.5! The point to note, when making perspective drawings, is that each point needs fairly extensive re-calculation. All this is done in real time by the CAD program. Nevertheless, the program is very fast at making the drawing.

You will have noticed that the "run a BASIC instruction" command ( b[ ... ] ) has been used twice to set up the high resolution screen. As yet there are no FORTH words for preparing the hi-res screens so BASIC has to be used. However, no self respecting FORTHER will use BASIC unless compelled to do so. Having said that, one of the things not explained in the Dragon FORTH manual is how to pass values from FORTH to BASIC and vice versa. The best way I have found so far is to use byte addresses and ! or @ values to them in FORTH and to PEEK and POKE them in BASIC. One typical application is using the random number generator in BASIC thus:-

```
bl J=rnd(7):poke30000,j 1
30000 c@
```

will put a random whole number in the range 1-7 on the stack.

SOFF is a variable that fixes the depth scale of the drawing. A high value (e.g. 1000) will turn the drawings into two-dimensional side views, and low values will stretch out the Z-axis. Changing the values of SOFF from its default value of 5 can have strange effects on the perspective drawings, as it is mainly intended to be used with CADI (isometric).

To maintain speed all drawing values are kept on the stack during drawing. If you look at words like ZXYCOP and ZXYPER you will see that the Return Stack is used to hold the re-calculated X,Y coordinates before using them to draw a line on the screen. As I said before, the return stack is very useful, but very dangerous! Know what you are about!

Next time I thought you might be interested to hear about ways of handling text in FORTH.

COMPOSER NOTES, Part 2.

In the August Issue of Update, Geir Hovland pointed out that music compiled by Composer can be EXEC'd by a machine code routine just as easily as from Basic, and that, provided there were "DATA BASIC" lines put in at suitable points, the music would stop at those points and return to the machine code routine. What perhaps wasn't clear from the listing he gave is that when the music is EXEC'd again, using the SAME Exec address, it will carry on from the point at which it finished last. This can be done indefinitely. When the music routine reaches its end, the next time it is Exec'd, it begins all over again from the start. This makes it ideal for setting words to a song, or for using during an adventure program.

To show what I mean, here is an example for printing words to a well-known tune.

```

ORG 20000
LBR4 START
VERSE1 FCC 13,13,13,13
      FCC / Land of Soap and /
      FCC /Tory,/,13
      FCC /Father of the 3/,13,0
V2 FCC / Wise monkeys/
   FCC 13,/Know best./,0
SCREEN LDA ,U+
      CMPA #0
      BEQ SING
      LBSR $800C
      BRA SCREEN
SING LBSR 24576
      RTS
TEXT FCC 13,13,13,13,13
      FCC /Title to go here./,0
      TITLE LBSR $BA77;clear screen
      LDU #TEXT
      MORE LDA ,U+
      CMPA #0
      BEQ EXIT
      LBSR $800C ;print to screen
      BRA MORE
      EXIT LBSR 24576
      RTS
      START LBSR TITLE
      LBSR $BA77
      LDU #V1
      LBSR SCREEN
      LDU #V2
      LBSR SCREEN
      RTS

```

The ",0" is an end marker. When found, the routine stops printing and returns to the music. The "13" is the code for carriage return, of course. Use it to avoid word wrap-around and for the start of each line of the song.

As for the music itself, DON'T begin with "DATA BASIC" - it doesn't work! Use the first chord or first line as an introduction, then put in the first "BASIC" so the machine code routine can print the first line or verse before starting the tune. Otherwise, the "BASIC" command can be put in anywhere appropriate, to coincide with the ",0" markers in the print routine. It is not important how many times it is used, but you will get odd results if the "Basic" and print line routines are out of step, obviously. The "/" signs before and after the text are used by Dream. DASM uses inverted commas, and needs the "@" sign before every label. It may insist that FCB is used with numbers such as "13", rather than FCC.

The festive season is lurking in the background again - why not try putting some new words to those old carols?

.....Ken Grade.

**Helpline 1988**

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.

DOS PROBLEMS: Phil Scott, 4, Badgerwood Drive, Frimley, Camberley, Surrey. GU16-5UF.

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, 46, Spalding Towers, Lincoln Green, Leeds, Worsley LS9-7PE.

SPREADSHEETS: E. Freeman, 80B, Main Road, Old Duston, Northampton. NN5-6RA.

OS9 SYSTEM AND UTILITIES: Jason Shouler, 14, Rosemary Road, Parkstone, Poole, Dorset.

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, Cottenham, 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, 31, Willenhall Road, Woolwich, London SE18.

DMP 110 PRINTER PROBLEMS/SCREEN DUMPS ETC.: Dr. J. Hatton, 48, Wern, Llanfairpwll, Anglesey, N. Wales.

EPSON COMPAT. PRINTER SETTING UP & GENERAL PRINTER PROBLEMS. Gareth J. Sims, 24, Logwell Court, Standens Barn, Northampton. NN3-3TN.

RADIO AMATEUR PROBLEMS, INFORMATION & ADVICE. Fred Hopewell, 48, Gladstone Street, Loughborough, Leicestershire. LE11-1NS.

GENERAL PROBLEMS AND MOST REPAIRS. Steve Tate, 22, Fairfield Drive, Wormley, Broxbourne, Herts. EN10-6DY.

**NEW MICRONET GALLERY PAGE NUMBER.**

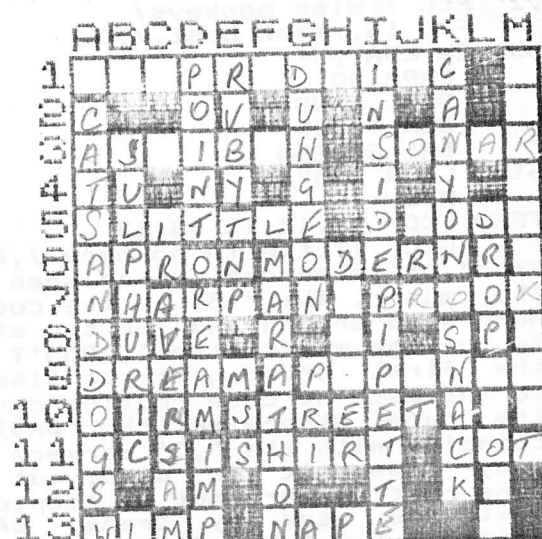
Just heard from Tim Hayton that our new GALLERY page number is 811220049. Also Tim is STILL very short of material for Gallery, so if you've any news, odds & sods, or anything you think would be of interest, PLEASE let him know. (Address in Helpline).

**CROSSWORD No. 37.**

ACROSS: 1A) Painful back complaint. 3A) Common name for acetyl salicylic acid. 3I) Underwater detection apparatus. 5B) Small. 5J) Extinct bird. 6A) Used for protection in the kitchen. 6F) Up to date. 7B) Instrument which makes heavenly music. 7I) Small stream. 9A) You do this when rapid eye movement is taking place. 9G) Piece of apparatus which delivers an accurately measured volume of liquid. 10E) A road in a town or village. 11E) Item of clothing sometimes lost at the race track. 11K) Babies bed. 13A) New program from Broomsoft. 13F) Back of the neck.

DOWN: A2) It may rain these animals in this country but in Korea they eat them. B3) Battery acid. C7) Sever a small piece of a poem. D1) Indicate a direction by extending a finger. D7) Paper measure usually containing 20 quires. D11) A mischievous child. E1) Strong sweet dark red wine. F6) Long race. G1) A damp subterranean prison cell. H6) Squirrels nest. I1) Not on the outside. I7) Piece of apparatus used for delivering accurately measured volumes of liquid. K1) A ravine or deep gorge. K8) Small hasty meal. L5) Dispose of an object in an adventure. L9) The apparition of a dead person. M1) Author of the Hobbit.

As usual first all correct entry out of the box gets a choice of programs from the current Dragonfire Services list, second gets a tape from our collection.





## THE CLASSIFIED ADS PAGE.

## GROUP SPECIALS!.

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**CIRCUIT DIAGRAMS.** Available for D32, D64, Dragon DOS controller, Cumana DOS controller, and CoCo DOS. All the same price 1.00 each.

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**DISC EDITOR.** Utility disc for V1.0. Full view and editing facilities. Written by John Cox. Price 5.00.

ALL THE ABOVE ARE OBTAINABLE FROM: PAUL GRADE, 6, NAVARINO ROAD, WORTHING, SUSSEX. CHEQUES MUST BE MADE PAYABLE TO THE N.D.U.G.

## GROUP SERVICES.

**P.D.UTILITY LIBRARY.** Contains a very good collection of utility programs and routines available at a nominal charge. New routines always wanted for Dragon, Tandy and other machines. For details send S.A.E. to:- Lee Cooke, 117, Limbrick Lane, Goring, Worthing, Sussex.

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## GROUP &amp; MEMBERS PROGRAMS etc.

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**OS9 MODEM PROGRAM.** Up & downloading of files, any Baud rate from 50/50 to 9600/9600. (NOT split rates). Up/download buffer from 4 to 32K. All 6551 options supported. Price 8.00. Phone Barry Knapp on 0932-242800 evenings only.

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## MISCELLANEOUS ADVERTS.

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**WANTED!!.** Is anyone in the BISLEY area interested in forming a local Dragon Users Group? P. Marsh, 37, Corbetts Walk, Bisley, Surrey. GU24-9DU.

**WANTED URGENTLY!!.** Dead, dying, or otherwise unwanted PRINTERS of ALL kinds wanted for spares to enable me to carry out YOUR repairs at a reasonable price!. MUST BE CHEAP!! Paul Grade, 6, Navarino Road, Worthing, Sussex.

**WANTED!!.** Defunct Dragon and Tandy computers and drives for use as spares for YOUR repair jobs!. Phone Alan Butler on 0371-4234 evenings only please.

**WANTED!!.** Will any Dragon user (preferably NOT games player!) in the HELSTON area of Cornwall please contact:- Ray Roach on 032-623-477.

**WANTED!!.** Is anyone in the SWINDON area interested in forming a local Dragon Users Group? Please contact:- S.T. Lee on 0793-617024.

**FOR SALE.** Dragon 64, perfect condition. 70.00. 40 track full height drive, cased but no PSU. 30.00 o.n.o. Phone Alan on 0371-424.

**FOR SALE.** Dragon 32, 30.00; Dragon 64 with Plus board, 110.00 including modem and printer leads; CoCo DOS controller, 35.00; Philips monitor, 40.00; Tandy Speech Cartridge (with OS9 drivers), 12.00; OS9 System (CoCo or Dragon available), 25.00; Basic09, 12.00. Phone Jason on 0202-722599.

**FOR SALE.** Dragon 32, 32.00; Dragon 64, 64.00; Pair of Dragon Data drives (1 faulty) with Dragon DOS manual, 70.00; 12" ex-Reuter Greenscreen monitor, 20.00; Six OS9 programs complete with manuals, 100.00; Sony printer/plotter (C41), 30.00; Trojan Lightpen and software, 15.00; 5.25" disc rack, 5.00; Basic Tutorial (on two tapes), 10.00; Sprite Magic and Dream tapes (cased) 10.00; Complete set INPUT magazines in binders, 50.00; Home Computer Course in binders, 30.00; All Updates from NO.2 onwards, 84/85 Dragon User magazines, several Dragon books from 5.00 each, large collection of Dragon tapes (various) 20.00 the lot, and many other items. Sensible offers invited for all or any of the above to:- George Miller on 0303-873232.

**FOR SALE.** I've been asked to dispose of a collection of Dragon books, a Trojan Lightpen, and some cartridges. Anyone wanting details please phone:- Paul Grade on Worthing 207585 any evening.

**WANTED!!.** Dragon User issues for May, June, July and October 1983, October 1985, July 1986, and January, May, June, and July 1987. If you can help please write to:- Denis Matteaux, 32, Rue du Parc, 77360 Vaires sur Marne, FRANCE.

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ADVERTISING DEADLINE IS THE FIRST OF THE MONTH.



**Show Tickets Competition Results.**

We've had several correct entries for the free Weston show tickets competition, but as I said, you can't all win, and the first two "all correct" ones out of the box were from F.Allen and Steven Green, and they should both have received their ticket by the time you read this.

The answers were :-

First general Editor of Dragon User Magazine was Graham Cunningham, and the date of the first issue was May 1983.

Have a good day at the Show. Paul.

**REDUNDANT INFORMATION DEPT. (2).**

By popular request (from at least one person), the POKES to obtain upper/lower case are:-

POKE 329,0 - lower case: POKE 329,255 - upper case.

**The Late, Late Bit .....**

No front page Editorial, no Editor's Late Bit ..... dunno what our Stephen's up to this month, but he's leaving me with a lot of space to fill up!. I ought really to have a go at getting my own back by writing one of those "Interview with Stephen Wood" type articles, or better still "Profile of an Editor", but the trouble is that he actually READS this garbage, and if I wrote anything like that I'd probably be advertising for a replacement Editor next month!. I'm at a distinct disadvantage when it comes to this "interview" game .... I can't interview my own Editor, or he'll turn into an ex-Editor, and I've promised Andrew Hill and Helen Armstrong that I won't interview them if they don't interview me .... I suppose I could try one with the newest of the Great Press barons, Bob Harris, but I'm not sure that would be safe ..... I'd probably find the next issue of Dragon User full of "DON'T READ UPDATE" ads!. Perhaps I'd better drop the idea.

If anyone's interested, I think I've invented the one type of program which just HAS to be a best seller!. It's a SPEECHDRAFTER program, and just HAS to be a "must" for all politicians everywhere!. The actual program can be very simple, as all that it has to do is read in a set of data lines and dump the result in random order to printer!. The real skill is in making up the data .... it needs to be a comprehensive list of those totally meaningless phrases and cliches so beloved by all political types, you know the kind of thing ... "at this moment in time", "a vast majority", "an insignificant minority", "the underlying trend", "environmental issues", "in real terms", "seasonally adjusted", "overwhelming support", "in the interests of National Security", "all right thinking persons", "subversive elements", "important issues", "confrontational situation", "booming economy", etc, etc.

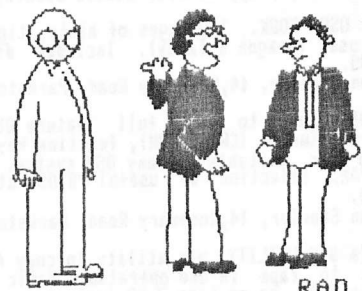
Now a program which will read in a few hundred of these, jumble them up on a totally random basis, and print the result, would be invaluable to any denizen of Westminster (or Washington, for that matter), they'd just HAVE to buy it. No one would notice that they weren't writing their own speeches in the normal way (except that they might make a little more sense than usual), and it would be THE Mega-Program of the Century!. Well, don't just sit there, start writing it ... you can send me royalties for the idea any time.

Anyway, I don't want you to be so exhausted by all this reading that you can't make it to Weston, so I'll leave it at that for now. Paul.

**IT'S JUST COINCIDENCE, HONEST!!.**

Before those of you employed by MI5 and the CIA rush out to surround this place I think I ought to reassure you that the "Hacker" cartoon in last month's issue, and the "Virus" one we're printing this month were BOTH selected long before the news items on the Surrey Uni hacker and the U.S virus were released!. Those concerned did NOT get the ideas from Update, so it's no use threatening me with a "D' Notice" ... it won't make the slightest difference. However, I WILL make one concession (in the interests of National Security, of course), I WAS planning to print a cartoon about Madame Thatcher doing peculiar things with Cyril Smith, but under the circumstances, I'm prepared to substitute something a little less amusing!.OK?. Paul.

This is our new Virus Protection Suit for Computer Operators.



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