

DRAGON USER



The independent Dragon magazine

December 1986

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Out of the files for starters, but finish by crossing Santa with a Snowman to make a perfect square. Well, almost ...

Editorial

HAIR, fat and forty pages this month. The Dragon trading nation has been saving up its pennies for Christmas, with the result that our advertisers are back in force this month. I hope you lot have been saving your pennies for an extra game or two to make their effort worthwhile. So, you get first of a game in the end? So donate it to Mr. Obsess. Well, disc drives like his, he needs something he can play on tape ...

The Royal Horticultural Halls in London, Mecca of the minor micro (as I write, the first micro-users are gathering for their annual show), is host to Microfest and the 8889 Show on 22 November. Be grateful that there's a special engagement in York, or you could find me there with a tray of backissues, Dragons, Dragons, lovely Dragons, get your Dragons here.

I have half a dozen July '86 issues here in the office. £1.25 each, first come, first served. We may subsequently have news on where you can get good copies of this rarity. Sorry, I can't tell you where they came from ... nobody seems to know. The tooth fairy?

One of our good suggestions may not be back in the Dragon market next year. See if you can spot which one, and send them a Christmas card, because they've done well by the old machine. And a happy Christmas to you all if I don't see you till after the holidays ...

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How to submit articles

The quality of the material we can publish in Dragon (over each month) will, to a very great extent, depend on the quality of the discoveries that you can make with your Dragon. The Dragon computer is switched on to the market with a powerful version of Basic, but with very poor documentation.

Articles which are submitted to Dragon User for publication should not be more than 2000 words long. All submissions should be typed. Please leave wide margins and a double space between each line. Programs should, whenever possible, be computer printed on plain white paper and be accompanied by a tape of the program.

We cannot guarantee to return every submitted article or program, so please keep a copy if you want to have your program returned; you must include a stamped addressed-envelope.

Letters

This is the chance to air your views — send your tips, compliments and complaints to Letters Page, Dragon User, 12-13 Little Newport Street, London WC2N 7PP.

Computer program

I ACCIDENTALLY discovered that it is possible to tune in an ordinary VHF radio and hear the Dragon programming. If you place the radio tuned in to any space between broadcasting stations and run a program, you will hear definite signals. Loading, entering, processing data, displaying the results and waiting for an input all produce different sounds. I wonder if it would be possible to tune an auto-tuner-in socket to receive the broadcast?

Paul Scott
15 Hyde Court
31 Thomas Rd
Ayles
Essex

PS Why do advertisers' postage and packing rates vary so much? How can one company justify its cost of posting a cartridge when another charges 75p or 80p or nothing at all?

COULD BE Handy if you're making coffee in the kitchen, Paul. But are you sure you weren't just picking up one of

Tommy Vance's late nighters? R&P charges often incorporate other overheads associated with running a real order service, which is why big companies sometimes seem to make disproportionate charges for small packages. That, and the well-known two-column method

Win and load

May I raise my voice in support of Mr. O'Malley in his request for the solutions of the competitions to be published. I frequently attempt to teach a computer, but often fail to reach a conclusion. It would be interesting to know the methods which the winners use. As for what should be left out, well, I have never seen a use of chess, so I would not be sorry to see the People's Challenge.

Another way of saving space lies in the area of machine code programs. Every machine code program is accompanied by a loader program. Regular readers (and we must all be

regular readers now) must have noticed such programs or at least the ability to write them, so why not drop them? Alternatively, print the program that can be adapted to different file lengths and give notice that no more will be published.

G. Stedman
14 Hawthorn Way
Ryepton
Herts SG25 5JF

WELL, we're working on it — it's now partly down to Gordon Lee, a hard working chap who made up his mind the first to write a full issue for us each month. However, as the winners are judged on their elegance, it won't always be the winning few who get the game's scrutiny — as much can be learned from looking at the less well ranked programs as from the best ones.

Secondly, it's a fundamental of all technical publishing below professional level that articles are self contained. You wouldn't believe the number of letters we get from people looking for a "loader" program of one sort or another. Don't be tempted, Mr. Stedman.

Magic puzzle

I RECENTLY found tucking on the local micro-shop shelves a DragonDOS version of Sprite Magic. Tony Darnley's excellent run with DragonDOS version 4, investigating the problem, I found that the word list and function key addresses and the addresses of word and function display tables were different from those expected by Sprite Magic.

Using a backup copy (I prefer precision in the event of a mistake) I found the following method overcame the problem:

```
CLARE:0000:040000  
PUNCT OFF  
"SACCODE:00"  
LOAD "SACCODE:00"  
POKE $H0F00A:00A  
POKE $H0F00A:00C  
POKE $H0F00A:00E  
SAVE  
"SACCODE:$H0000:$H0F00A:00000
```

I assume that CurmawDOS and SUPERDOS users will face the same problem but will require a

different modification to the program.

David Gray
833 Ashton Road
Milton Keynes
Gwent, MK9 6BE

Free pokes

I HAVE just finished compiling two A4 sheets containing paths and cheats for Dragon games. They are designed as quick reference sheets so that you can easily find the pokes you need without searching through your collection of Dragon Users looking for the right month. There are 66 games covered, including The Dark Pit, Jet Set Willy, Music Man, Snake Throper and many pokes which have never been printed.

If any DU readers would like copies of these sheets then I'll be happy to supply them if they send me a stamped self addressed envelope, plus a 50p coin to cover the cost of photocopying.

Paul Burgh
18 Moorcroft Road
284 Road, 283-425

THANKS, Paul. When sending coins through the post, tape yourself down to the paper and wrap at least two sheets round them. Loose coins have a way of leaving envelopes on route.

Any CAD?

IT IS becoming to see that DU has been able to run four extra pages. I rely on the magazine to keep me abreast of anything interesting forward to its monthly appearance, historical forward to long term survival.

My children use the Dragon for games, while I mostly use it for preparing technical papers, lectures, etc. A very useful extension for me would be the ability to use it for draughting or Computer Aided Design. The problem here is that there no longer seem to be people willing to produce CAD programs for the Dragon — would you consider an article which reviews the CAD software available for the OSG and DMP?

M. L. Monaghan
18 Downey
Stonemason-on-Sea
West Sussex BN4 5GR

Tape head tales

COMPLIMENT: October edition is best one yet.

Suggestion too: hopefully most Dragon users with cassette based media storage suffer the dreaded 024 error syndrome, but for those who do, try adjusting the head azimuth of the tape recorder. Speak himant! Yes, it's a task too. Use the Axxix Co and Motor-Dyn comments to take to the tape through the TVMico output, and using a jeweller's screwdriver adjust the azimuth by turning the screw located behind the Play head. This is normally accessible through a tiny hole in the top case. After adjusting the head for maximum volume and sharpness of sound, the tape should load OK. If your other tapes then refuse to load, simply repeat the process using one of your previously saved program tapes.

Questions: anyone tried the Ramtron vid to get interchangeable non-volatile video on the CoGo to see if it works on the Dragon? Anyone got a non-volatile OSG cartridge for sale? Or a cheap working one? (I need it to house own OSG.)

Warning: I have a Sanyo DPO1 data recorder, out of guarantee, well used, expensive — those tapes being tape I try to load with it. When the problem started happening (only occasionally at first) I thought it was slow. Progress terminal, checked by rear in the plastic error message (011).

Paul Wood
7 Fairview Avenue
Milverton
Leicester LE19 3JQ

WROTA, hold on, just one moment... call Sanyo Members on 0923 40363 before you lose your investment, ask for the Service department, and you will find that they can either sell you a replacement part (if you are able to fit it) or quote you for a repair. Let's be fair, you would wear out too if someone was dragging a length of non-impregnated plastic across you for hours on end.

For postal enquiries, Sanyo's address is: Orlingford Way, Watford, Herts WD2 8ND.

Dragon User People's Chart

JINGLE BELLS! Jingle bells! The pantomime season must be here again, because Bean Stalker from Micro Vision has clearly been applying some stringgrass to its roots and has shot up to the top slot. Look out for falling toilet rolls ...

What about all this new stuff, then? We were going to announce grandly that if all those handwriting software writers out there wobbled their fingers just a little nearer to the bone, if the avalanche hit us in time for Christmas, we should see some new names in the Chart. Well, we can't speak, can we? Four new reviews down the plug to oblivion. When Jason sang to say he'd had a crash, we thought he must have fallen down the stairs, but it was worse than that ...

But at least it's not! We have the 10 Master! A bit of a narrow squeak, to be sure, but this game did score it. Mr. Robin Hamming of Brighton, Leicestershire sends us the big breaker: "I'd just read Par! II". Alas, it is not to be — but he should be getting some freetees soon.

Vote! Vote! Send in the form printed here, or encopy, with your five favourite proggs, and if you send us a knee-knocking teletexter made up from the letters for some of 'em of your own top three, you could win £25 worth of games software from MICRODEAL.

Results November 1986

- 1 Bean Stalker.....(Micro Vision)
- 2 Juxtaposition..... (Winterson)
- 3 Shaolin Master.....(Quickbeam)
- 4 Shocktrooper.....(Microdeal)
- 5 Jet Set Willy.....(Software Projects)

Chart Ten

Voting for Chart No. 10 closes at 1pm on Friday, 12th December 1986. Entries received after that time will not be eligible for inclusion in this month's voting. The editor's decision is final. Only one entry per individual per month will be allowed.

My top 5: Voting Month 10

Name

1 Address

2

3

4

5

My phrase is:

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Packet radio

Granovier Software have launched a major new product for radio amateurs with Dragon 32/64s or Tandy Color Computers. Known as the AR25 system, the makers say that this is the first software resolution to AR25 packet radio developed in the UK for any computer.

Packet radio uses a radio transmitter and a computer to utilise either AX25 radio stations as 'diplexers' (digital repeaters) to send signals for greater distances than could otherwise be achieved. With

satellites such as the Japanese JACS-1 (already in orbit) and PACSAT (to be launched soon) reliable world wide contact at 1200 Baud, using amateur power VHF transceivers is already a reality. The AR25 package contains complete error-checking, without retransmission where needed, and can also be used on HF where the standard is 300 Baud.

A packet radio Terminal/Network Controller costs under £200 — the AR25 system, written by Mike Reay G4BMR, makes this by following a Dragon tele-used alongside a conventional modem which, as it is not hooked into the

telephone system, does not have to be DT approved.

The software comes on ROM cartridge or disc, and supports 300 and 1200 Baud operation. Six contacts can take place at once, with text for contact selectable on the display with full scrolling even in conversation. The 'transparent' option allows the transfer of text files and programs. Up to eight repeater stations can be specified.

A complete package with ROM software and a 1200 Baud VHF modem is available for £399. The software alone costs £49, and an HF modem adaptor will be available shortly.

Tandy computers need extended Basic and 32k minimum RAM to operate.

Granovier who specialise in amateur radio software, also have packages available for RTTY, ASCII, Morse and AMTOR receive and transmit, and G57V receiving. Up to three programs can be supplied on one cartridge.

Customers should state their computer model and if they have any software when ordering. Orders to Granovier Software, 2 Beacon Close, Seaford, East Sussex BN25 2JZ. Please send an SAE for further information about any of their programs, or phone (0323) 89339.

Your own THINGi

HOW many THINGi's to a THING? She asks — the British creator of the THINGi as rich by £5000 and a step on the back after winning the Business Idea of the Year award for their brainchild, Overbase Ltd., the happy company, call the THINGi. The greatest contribution to information handling since the paperclip.

The THINGi is actually a free simple little device based on 'fingers' and a bulging clip for holding type copy exactly on a level with a VDU. The attraction is that the copy is upright, next to the screen, and won't blow away when the door opens. It

reduces, strain the makers neck, back and eye strain, and improves accuracy and typing speed. And people won't put their coffee mugs down your copy ever again.

Quick to attach and fully adjustable, the THINGi looks like a cheap solution to copy holding, as well as a convenient and versatile one. It's available in left and right hand versions, and can also be customised with the name of a club or company for promotion and fund raising.

THINGi costs £5.95 plus VAT and p&p — for further information contact Overbase Ltd. on 051 647 9991.

Business books

An early guide for small business managers who buying their first computer systems has been published by the author, Eust Mumford, Professor of Organisational Behaviour at Manchester Business School.

The 70 page book, Using Computers for Business Success, explains in straightforward, step by step terms how to analyse business needs before choosing hardware and software, how to organise the business environment and job specifications to make the best use of new technology.

The book is available from Manchester Business School, Booth St. West, Manchester M15 6PL, and costs £8. Professor Mumford is the developer of the ETHICS method (EBC-

five Technical and Human Implementation of Computer-based Systems), and has written this and five other titles on setting up systems for working environments, based on this method. In 1983 she was awarded a gold medal for her contribution to information science.

NDUG

The National Dragon Users Group is still going strong. Their newsletter, Dragon Update, appears monthly with articles, reviews and technical tips. For more information contact the Chairman, Paul Grade, c. Navarino Road, Worthing, Sussex.



SEASONS GREETINGS Disaster

The staff, publishers and contributors of Dragon User wish all our loyal readers and our commercial supporters a happy Christmas and a prosperous Dragon year in 1987.

The editors said that the Dragon caught's survival, but they resigned without the machine's own sterling qualities, which has kept an enthusiastic bunch of users active. Long may it continue!

Dragon User was intending to run several games reviews in this issue, including Microsoft's Tetrisworld, and Quicksilver's 80000 Engineers and People's Choice regular Shave Master. Unfortunately, our reviewer's disc drive went down at the wrong moment, leaving him to rewrite approximately 20 pages of typed copy. The missing reviews should be back in place next month.

Communication

Send in your questions, requests, and pleas to Communication, Dragon User, 12-13 Little Newport Street, London WC2.

Problem: Can you tell me if there is a way to read and load a disk in DragonDOS format with the Premier DotsDOS because I want to make a backup of such a disk (I) Is there a way to use the Dragon in 800 mode with the Premier DotsDOS?

Enquirer: Eric de Plessence, 33 Rue Bakkerella, 1200 Brussels, Belgium.

Problem: I want to use my Dragon 32 to communicate via a MIDI link with a Roland TR-707 drum machine. I intend to use a 8850ACW but I need to know what function each of the pins in the cartridge port do. Also, I am writing a machine code program to play Chiffels and I would be grateful for the address of routines which perform arithmetic (including EXPO) and where to put the operands.

Enquirer: Paul Echells, 28 Pinnerholts Road, Waterloofort W11 3ND.

Problem: Does anyone know how to correct the speech chip SP050AL 2 to the Dragon's printer port? I can't get it working.

Enquirer: Henk Benda, Beemsteerstraat 1, 3286AA Klazienaveen (The Netherlands).

Problem: I require a text editor for the OS9 operating system, to use with the Pascal compiler, or can anyone tell me how to prepare or will Pascal files and programs?

Enquirer: Mr A. Durand, 11 Hutton Park Road, West Yorkshire YO8 5QA.

Problem: I can't get in touch with Steve Garberstone — has anyone got a copy or whole lotting of SS-RAM by Clarco.

Also from Personal Computer News 1983?

Enquirer: Philip Callaghan, 94 Penelope Road, Moss Pt, Stuffed ST10 9BY.

Problem: Help and advice wanted on hacking programs etc., how to discover codes for changing program details.

Enquirer: A. M. Burton, 94 Riverstone Road, South Benfleet, Essex S67 1LT.

Problem: I am in desperate need of an instruction booklet for the T8T88AR. Do you know where I can purchase

one, or any of the spares of your magazine? It would willingly pay for it if necessary.

Enquirer: Mr R. A. Hall, 80 Stary Road, Heathway, Dagmaron, Essex RM10 6PL.

Problem: Wanted: Stylograph word processor. Also, does anyone have a screen dump for the EP5034 P40 printer? **Enquirer:** J. Boyle, 9 Incheburn Crescent, Babbish, Newcastle-UDS RU1, Scotland.

Enquirer: Mrs. L. Fitzgerald, 82 Langdon St., Sharnon, Sheffield S11 8SL.

Communication

Stuck for a routine? Need some obscure equipment? Feeling cut off? Fear not — someone, somewhere can help you! Write down your problem on the coupon below (make it as brief and legible as possible) together with your name and address and send it to Communication, Dragon User, 12-13 Little Newport Street, London WC2H 7PP. We'll publish it as soon as we can — meanwhile, maybe there's someone you can help this month!

Problem

.....

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.....

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Take command

The last part — for now — of Orbaum and Campbell's machine code tutor

ACTUALC, although we've called this the last part of the machine code epic, what it actually represents is the termination of the first part of the series. If you held on for a bit, you may get another part.

This month we give you a list of every command you will need to program simple machine code, complete with an explanation, in fairly complex terms, of what each command does. The explanations should be no problem if you have taken it all the other articles in this series.

Finally though, note that any assembler we must begin with an `OPRS` command.

This tells the assembler at which place in memory the assembled code is to be put. This area of memory must be cleared before use. Therefore, if your program begins with the command `ORG 20000` (which is where we place most of our code), then before assembling one should type `CLEAR 200, 9999` to clear the memory.

To assign labels storage areas the commands `FCB`, `FCC`, and `FCB` are used. For example, if one wishes to use a location to store cursor position then the command `CURSOR FCB 0` will set up a double precision, the `D` precision location at the ad-

dress assigned to the line on assembly. `FCC` allows entry of text to be converted for say, a date label for an advertisement. More details on assembler directives can be found in the manuals of most good assemblers.

Now, the table please note that this does not contain the branch instructions as they have already been covered in some detail. `ADD` adds into register specified after command memory location specified after register, `ADDA $400` adds the contents of memory location \$400 into A, `ADD $400 adda $400 into D` Works with A, B, and D. `Ar` lets H, R, Z, V, & C flags in CC.

AND Logically ANDs B bit register specified with memory location storing result in B register; ie `ANDA $400` logically ANDs A with the contents of location \$400 while `ANDB $127` logically ANDs B with the number 127 thus clearing the top bit of B. `Ar` lets H & Z, clearing V in CC flag.

ASL Arithmetic shift right: shifts all bits in specified register one bit to the right thus multiplying register by two. A zero goes into bit zero while bit seven goes into C in CC.

ASR Arithmetic shift left: shifts all bits in specified register one bit to the left thus dividing by two. Bit zero goes into C of CC while bit 7 remains the same.

CLR Sets an 8 bit register or memory location to zero. Clears H, V, & C, and sets Z in CC.

CMP Compares two values, a register and a memory address, does not affect either value, simply affects CC bits H, Z, V, and C.

DEC Subtracts one from specified 8 bit register or memory address.

EXR Logically exclusive ORs a register with a memory location storing the result in the register.

EXG Exchanges the values in any two registers of like size.

INC Adds one to the content of any eight bit register or memory address.

JMP Jumps to a given address.

JSR Jumps to subroutine.

LDR Loads a register from a memory address with a value through the last of Q.

LEA Used for addition and subtraction within X & Y for simple programming, ie `LEAX X 8` will add three to X, `LEAY -4 Y` will subtract 4 from Y and `LEAR D X` will take the value of D as a two's complement number and add or subtract from X accordingly.

NEG Negates an eight bit register or a memory address.

NOG No operation. Does absolutely nothing.

OR Logically ORs register with memory location storing the result in register.

PSH Pushes registers onto stack (pushed on D or U).

RCL Rotate a specified register left. All bits in named register go one bit left, bit zero takes carry and bit seven shifts it. Therefore to shift all of register D left one must clear the carry then `RCLB, ROLA`.

RCR As RCL only rotates right.

RTS Return from subroutine.

ST Store specified register at specified memory location.

SUB Subtract contents of memory location from register.

TFR Copy the contents of specified register into second specified register. Registers must be of like size.

TRF Tests a specified register or memory location; sets if it is zero. Sets H & Z flags in CC.

And there you have it. The end of Part One. Hopefully if you start playing around with the commands you now know them by the time Part Two gets here you should find it really easy! Happy coding.

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Name / Address _____

Incentive Software, 2 Minerva House, Calleva Park, Aldermaston,
Berkshire RG7 4QW.

Orders only accepted with this form or photocopy received by 31st
January 1987.

Postman in cross-channel cheek shock!!

Program: Disk Support Tool
1.0, 1.6

Supplier: Bernd Knocheel
Software, Arnold-Weilerstr.
5-9, 5400 Remscheid 11,
West Germany
Price: £7 + £2.50p

ANOTHER disc deterioration type program, this time from West German Bernd Knocheel Software, for the Dragon with DragonDOS. Two versions of the program are available: version 1.0 is for DragonDOS 1.0 to 1.3, and version 1.6 is for DragonDOS 4.0 (Knocheel's FDISK). It ferrets out errors, both programs are identical.

I first ran a pre-production version of this program some months ago (it was called Disk Doctor then). Since then, Knocheel has added a few new options and removed a couple of completely useless ones. So, for software which has been so long in development, what do you get?

A completely menu driven, very user-friendly (at least I hope) suite of utilities called by BOOTING.FDISK. The first option allows a disc to be formatted - nothing very special in that, except that it will also put a leading quality control check which allows a program to be loaded and the DOS then shut down; useful for programs like *ReWriter*.

The second option is a file backup program which can also be used on a Dragon 32s if you are lucky enough to have working 64k RAM chips fitted (these were on the later Dragon models). Single drive users can use this option to backup a disc with only eight sectors.

Similar to Backup is the third option, 'Filecopy'. Rather than copy the disc sector by sector, it copies it file by file. This allows you to append files to a disc from another, or backup a disc with some bad sectors.

A primer directory can be output using the next option, including information on start, length and entry addresses for machine code programs. Of course, from Basic a normal directory listing can be output by typing `POKE 81294:DIR`.

Option 5 is called 'Rewrite', and reads in each sector before writing it back out to the

disc. The manual says it is 'to auto-repair the contents of the disc' and if you believe that ...

The 'Rename' option allows files to be renamed as in Basic, but also allows the infamous 'not named' file to be renamed.

More useful for single drive owners is option 7 'Single Drive Copy'. This works the same as the DragonDOS COPY command, but with a single-disc system - copying individual files between discs.

The backup directory option simply copies track 20 (the directory) to track 16 (the backup directory). This is very simple to do from Basic, using `SPRACDWRITE`.

The majority of directory errors are caused by 'GC' (cyclic redundancy) errors on the directory track, so an option to

copy the backup directory to track 20 would have been useful. Unfortunately, the nearest you get is to exchange directories which does the job, but fails if either track cannot be read.

Finally, option 10 allows you to access Basic and DragonDOS commands (or some of them), such as `CREATE, KILL, PRINT` etc.

Overall, there are a few useful options available in this software, such as the `FORWARD` utility and the single-drive file copy. There are also a lot of utilities which can easily be done in one-line of Basic, such as the directory backup-copy and file-directory print.

I mentioned earlier that the program is very user friendly which is useful to begin with

but tedious when you have to confirm that you want to execute a particular option several times over.

Originally, this software was priced at £15, which, it seems, even Knocheel has now realised is too high. At that price it is worth considering, but there are a lot of other disk utilities around which offer comparable or better features. Knocheel states in the manual that you get a floppy disc, then return it with a postal order for £3 to get a replacement. What a cheek!

(A supplier who supplies faulty goods should replace them free of any charge including post and packing - Editor.)

Brian Cudge



Full support and no bugs, either

Program: SuperDOS disk controller ROM

Supplier: Grosvenor Software, 2 Devon Close, Seaford, E. Sussex BN45 1JZ
Price: From £18 plus p&p (see advertisement).

GROSVENOR Software come up with apt names for their software. And their new SuperDOS disk cartridge ROM chip again lives up to its name. Apart from the reliability of all bugs known to Grosvenor through their intimate knowledge of DragonDOS and errors reported in the pages of Dragon User, this DragonDOS compatible chip is FULLY SUPPORTED - that alone makes it worth its weight in gold, so it is superb value at £10. The removal of the PE error made it a particularly worthwhile investment for me (I know that DragonDOS 4.0 removed this bug, but I couldn't stand its DIR option and couldn't boot up DOS either...). Being fully supported, I threw in a few faults that had come across that had not been corrected in early SuperDOS issues, and I now have for the first time what I consider to be a totally error free DOS - and many of you must know what a bashing I give my system.

Why should you use SuperDOS? Everyone with a Dragon Data or Cumana disc controller. Cumana DOS users will lose the COPY facility, but that is a minor loss compared with what will be gained. DragonDOS 4.0 users will still be taking great steps forward as a Disc still littered with bugs. Grosvenor offer a cheap fitting service for those not wishing to dabble inside their controllers themselves.

I now have for the first time what I consider to be a totally error free DOS...

Is it really DragonDOS compatible? If you have enhanced from DragonDOS 1.0 to 4.0, you will know that the 'red address' parameter of the machine code 'SAVE' statement has been corrected to match the originally intended cassette 'CGAME' so that programs containing such a 'SAVE' command will need to

have a byte lopped off that parameter (only actually necessary if the additional byte seen affects operation when the file is released). Otherwise, all software that references the DOS using Basic commands or the 'jump table' will run without modification. Early versions of Disk *ReWriter* will need an upgrade (free) from Microdial to the version that uses only 'standard' DOS calls and *Smallton Computing's Electronic Author* (version 2.0) needs a 2 byte patch for its DIR facility to work with SuperDOS. Any other compatibility problems will be investigated as advised to Grosvenor Software.

Should you be considering investing in a disc system, include the cost of SuperDOS in the evaluation - PMP Cartridges come fitted with SuperDOS - so what is the point of having a faulty angle in a Rolls Royce of a disc system? That, unfortunately, unlike some other home micros, is what we have got with the Dragon. Give your disc system a treat - give it a super duper SuperDOS.

Ann DODD



Reviewer in four letter word horror!!

Program: Garden Bazaar
Supplier: Smithers/Computing
Price: £3.95

BLAH blah blah Music Mixer clone blah blah blah Even I'm getting fed up with these blah blah mostly clone-blah-blah-but who's interested in these days anyway? blah blah good sound, if a bit irritating blah blah good graphics blah blah devil like page blah blah but why does it have nothing to do with the game? blah blah blah some old concept blah collect objects, avoid comets, sales, etc. etc. etc. blah blah whatever that fall away blah conveyor belts blah main problem is that it's too damn difficult - that one variation on original theme, four interlinked screens must be completed

opposed to one great one to have completed a screen blah blah doesn't add much to the program blah blah great game blah blah well designed, well

executed blah blah great presentation blah who needs another Music Mixer clone though? Blah give it a good rating 'cause it's featureless blah

blah but be warned it's nothing new!

Jason Osborne

(Four into dragons)

Still getting a kick out of this one

Program: Ninja Warrior
Supplier: CompuSpace
Price: £3.95

OHAY, OKAY, you asked him, you begged him, you pleaded with him, seemed you sent him threats, so at last 'Champion of the Warped Mind' presents the re-review of Ninja Warrior.

Finally let the lay re-reviewing is a pain in the derriere. However, with a good game the reward is well worth a

look, and this is a good game. The graphics are simple in nature but well designed, and the game is simple in concept, but I have yet to see anyone complete the fifth belt. You are the Ninja Warrior, and as the game progresses you jump pits, smash-boulders with your bare feet and generally do lots of simple-type things to gain belts. The game can be played by many people at the same time, and I find it very good fun.

I understand a group of fools who presume that they're my

friends but won't be paid for helping me with this review, and we played it solidly for a couple of hours. The verdict? I was the only one who lived it. I believe their words were 'Dash this, it's rather interesting looking', but I may have misquoted them slightly.

Blah, I think, and CompuSpace are plugging it like crazy and selling it rather cheap, so I'd say it's well worth while getting your hands on one.

Jason Osborne



Take note

Program: Dragon Music
Supplier: Mandan Software, Bishmore Cottage, Naiswood Lane, Prestwood, Great Missenden, Bucks HP8 0GG.
Price: £3.95 each, £8.95 for three.

'Why?' asked our intrepid reviewer, Dragon User don't pay up just for asking difficult questions. 'Why?' is not the point. 'These are three entirely separate performances of best Japan music (3) and Best music (2) in four parts - sorry, played entirely on the Dragon. You cannot play games with them, write-speed sheets with them, associate with them, or indeed do anything except listen to them, but at £3.95 each they are cheaper than buying a whole new stereo player, and quicker than waiting for the respective pieces to come upon the radio - is the point, so cut the philosophy, pal. The public wants Scott Joplin played on a Dragon, the public gets Scott Joplin played on a Dragon. Don't blame us.

A slave of Chrome.



And now over to you, Brian

Program: Decathlon
Supplier: Mandan Software, Bishmore Cottage, Naiswood Lane, Great Missenden, Bucks HP8 0GG.
Price: £3.95

YOU JOHN we here at this splendid stadium for Daley Osborne's first year in this Computer Decathlon contest. And he's at the keyboard. And he's off. And what a splendid event this really is. Ten simple games, but so excellently programmed. Yes, every one of these games is what Cascade's disappointing by four years ago should have been.

And my word Osborne's on good form today, he takes the first event will not think of trouble getting all the pupils' blood with his big white stick and setting, I think, yes, yes, YES, it's a new Dragonsoft record for

this event, now then, the Amateurs, and oh my word, what a difficult one this really is. It's got eight letters and oh! won't it be disappointing to see Osborne go down in this event, on which he performed so manfully in his trials, re-arranging antire-establishmentarianism in only six seconds and OH MY WORD the knee has run out on him and he's talked on computer. YES, he's got the copper-landing event to go, and yes, I can see him poot the launch pad, all ready to go, and he moves it gently up but he's drifting too far and, yes, I'm sure that he's talked on the top, so three events is, his competitors have a lightning lead on him, but there's still the other seven to go tomorrow when, hopefully, we won't have so much rain for the hangman game and the

splitter mission, not to mention the other five... now, back to the studio.

Thank you, David. So, to turn up, a good program for groups of friends playing together who aren't out for anything too complex, and it's quite reasonably priced, which is a relief in these days. And now over to the main event of the day, the 'Wanted' Editors Wrestling in Mind' live from Little Newport Street, our on-the-spot commentator is Helen Armstrong, over to you Helen...



The Most Commentator

(That isn't me, Brian. That's overlaid from the coffee machine.)

LHEX

Malcolm Cowan bows to OS-9 and provides a dump command for Flex

USERS of OS-9 will know the DUMP command which prints out a file in ASCII and as printable characters. The listing printed here gives a Flex version of DUMP which was originally developed for Martin Weinert of the OS-9 User Group.

I called the program LHEX partly because it stands for List Hex, which makes more sense than DUMP1 and partly because I just liked the sound of it. You can pronounce it any way you like. I say it as if it were the LL sound in Llandudno (I assume Martin can pronounce Llandudno, seeing as he lives there.)

The program takes one parameter, such as a filename. For example,
LHEX I:PRIOCAL

will list the file I:PRIOCAL.
If LHEX I:PRIOCAL,
which will list to the printer, is useful for the P command.

As it stands, the program assumes an 80 character output, as on most printers, and on the Commodore Plus video board. If you want a different size of output line, that can be changed quite easily by altering the few lines.

LINE PCB 16
LINE PMS 16

These define the number of bytes to be output per line. Since each byte takes up four characters on the print line, plus the two spaces between the hex part of the line and the ASCII part, you will see that changing

the two values of 16 to read "10" would make the output fit quite well on a 50 character screen.

To compile the program, copy the source given into a file called LHEX.TXT, then enter the command

ASMB LHEX
which will create a file called LHEX.BIN. This will need to be copied to your system drive and renamed LHEX.COM, so that FLEX will recognize it as a file command.

The listing is annotated. Should anyone be confused by the word "BP", let me explain that this is an abbreviation for "BUMP BP". I picked it up from writing bits of operating system for ICL some years ago, and found it a useful bit of shorthand.

```
File 1: ASSEMBLY.TXT
+ Standard System DEFINITIONS
+ Malcolm Cowan 05/19/88
+
+ 800 Squares
0000 000 00000   File number 0000
1000 100 00000   Low level input a char
2000 200 00000   Low level output a char
3000 300 00000   Input a char
4000 400 00000   Output a char
5000 500 00000   Print or end if
6000 600 00000   Set file description
7000 700 00000   Set default name
8000 800 00000   Output a char in hex
9000 900 00000   Repeat char error
A000 A00 00000   Output a hex address

+ 700 Squares
PAB 000 00000
PMS0LS 000 00000

+ 6000 Squares
000 000 00000

File 2: LHEX.TXT
+ LHEX - Program to output a file in hex and ASCII
+ Malcolm Cowan 05/19/88
+ Copyright Malcolm Cowan Ltd 1988
+ This program may be used free of charge by private
+ individuals for domestic purposes, and may be included
+ in libraries of Public Domain Software for that purpose
+ Clean Software Ltd 10-0-1988
+
L00 ASSEMBLY
000 00000
000 00000
000 00000
+
00 000 0
L01 PCB 16   Output line for source printer
L100 PCB 16   Output line for source printer
L200 PCB 0
L300 PCB 0   Points to end of input buffer
+
C000 000 0   Points to 0-1 based char read'
L200 000 0
L200 000 0
L200 000 0   Byte count of input
00017 PCB 1   Set counters when not read

00007 L01 0000
000 00000
000 00000   Set file name
J00 00000   J01 error
000 00
000 01
000 0 0   Open for reading
J00 00000   Set out of TXT

00 000 10   Set error status
0000 00
L000 00   Error if not not
000 00017

00 000 0 0
100 00000
L01 010000
100 000000   Output '0' and hex byte count
100 100000   Output old value
100 000
1000 0 0
000 00
000 10000   Update byte count
000 00   Triggers for first pass

L00 00000
L00 00000   Set the end of valid input buffer
L00 00000
L000 0 0
000 00000
```


The Story of C

Brian Cudge looks at the language which came after B

THE 'C' language is fast growing in popularity into the commercial programming scene — slowly gaining ground against the likes of Cobol and Basic. Although a general purpose language, C is most at home in the Systems Programming environment with its control flow, data structures and low level access. It is not a very 'high level' language, in fact it includes very few 'built-in' commands, most are implemented as library functions, but more on this later.

The history of C starts with the new system used language 'BCPL' written by Martin Richards. In 1970, Ken Thompson developed the language B from BCPL. Both BCPL and B were 'typical' languages — that is there were no distinctions between variable types (i.e. integer, pointer etc). The only data type was a machine byte or word. B has now passed on and is not used at all in the commercial programming world. From these two languages Dennis Ritchie developed the 'C' programming language almost as we know it today.

Due to a clearly defined standard, C is a very portable language, it is not tied to any particular hardware or platform. Originally it was designed for the DEC PDP-11 running the UNIX operating system. UNIX itself has since been rewritten in C and other well known operating systems are now written in C, for example OS/2 as found on the Atari ST.

Object code

C provides basic operators and functions to handle the low-level data types found on microcomputers — i.e. characters (bytes), integers (words), and pointers (addresses). In addition, floating point is also part of the standard. Most processors include facilities for directly manipulating some or all of the above data types (the 6808 handles all but f.p.) directly by hardware so C can produce efficient, compact object code.

There are no built-in operations to handle strings, arrays or other data types and all variables must be declared at compile time — there is no heap allocation as in languages such as Pascal. There are not even any built-in commands for I/O.

The advantages of this compact language are that it is easy to define, easy to learn and easy to implement on different machines. All of the 'missing' features are provided as functions which can be called as if they were in fact built-in commands.

For the purposes of this article I used the Microsoft COB-C Compiler kindly supplied by John Peers Software. As an example of a complete (if very simple) C program,

take a look at figure one. This shows a program called 'FIND' which will search an ASCII file and display any line which contains a specified string.

The program starts with some comment lines which are always enclosed in " and " in C. Next come the compiler directives, which always begin with the # symbol. The #include directive tells the compiler to include the main file (in this case 'stdio.h') at that point in the compilation. There can be any number of #includes in a program; `stdio.h` is always included as it defines certain standard I/O characteristics of the system. If you write a useful function which is often used in a worth putting in a .h file to be included in other programs.

No constants

C does not support 'constants' as found in languages such as Pascal. The nearest you get to compile time substitution using the `Define` command. This tells the compiler to replace the first string with the second throughout the program text. So any occurrences of TRUE will be replaced with 1 and FALSE with 0. You may have guessed that C does not support boolean variables either — any non-zero value is deemed TRUE.

Variable scopes, as discussed in some detail in the Pascal article, are supported at two levels, global and local variable. Any global variables would be defined before the definition of the first function. There must always be a function called 'main' in any program as it is this function that is first called when the program is run. Indexes, not, however, have to be the first function defined in the program. Any parameters are given in the brackets after the function name, these brackets are always present so if a function is parameterless one would type `main()`. Functions may return values using the `return` value; constants, static functions do not however return values and therefore act simply as procedures.

The parameter types are defined immediately before the body of the function. The basic types are int, char, float, double etc. Pointers to (addresses of) types are denoted by including a * before the variable name. For example, to define a variable 'letter' as a character you would use the form `char letter`, and to define a variable 'string' as a pointer to a character you would use `char *string`; this is how strings are defined in C — as pointers to the first or an array of characters.

Arrays are defined using square brackets. So `char string[60]` defines a 'string' array of 60 characters (numbered 0-59). In implementation terms, string is defined as a pointer, so the form

`X=string[50]` would take the address of 'string' and added 50 to it and return to 'value' at that address — it is therefore identical to typing `X = *(string+50)` which is indeed quite legal.

Types such as FILE in the program are composite types made up of a number of elements and are defined in the file `stdio.h` — these will vary with different implementations of the language and so are given the same FILE in all implementations to maintain portability.

The variables 'argc' and 'argv' are special and contain the number of arguments passed and a list of pointers to those arguments when the command is executed. So typing the command `FIND file.txt` would cause 'argc' to have a value of 3 and `argv[0]` to point to 'FIND', `argv[1]` to point to 'file.txt' and `argv[2]` to point to 'file'.

The commands such as `printf`, `gets` and 'fscanf' are not built into C they are implemented as functions and are to be found in all standard implementations.

All parameters are passed to functions by value, not by address so it is not possible to permanently change the value of a parameter within a function (unless you pass a pointer to the value as the argument). Functions can be called recursively with a new 'set' of local variables being generated each time.

Most variables are 'static' variables — that is they are stored in normal memory known to the compiler. There are also variables called 'automatic' variables which are stored (if possible) in a hardware register for increased speed.

The C 'structure' is the main building block for data structures and may be compared to the Pascal 'Record'. A structure is defined in C as follows:

```
struct birthday
{
  char name[40];
  char date[7];
  int age;
  int [50];
};
```

This defines a structure type 'birthday' consisting of the named elements and defines 'list' as an array of 50 of these structures. A particular element is accessed in a similar way to Pascal, using `list[i].date` etc.

The COB-C Compiler using for this article is worth looking at in more detail here. To use it you will need a 64K Dragon, OS-9 Operating System, and at least two disk drives. In addition, you will need some sort of text editor to prepare the ASCII source code files — Ekygraph is ideal for this purpose.

The compiler is supplied on two disks both of which must be present in the drives



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FIGURE 1 - A Simple C program

```
/*      FIND.C - This program lists the lines of a file
        which contain the string prompted for.
*/

#include <stdio.h>
#define TRUE 1
#define FALSE 0

main(argc,argv)
int argc;
char *argv[];

{
FILE *fp;
int line;
char search[80],string[256];

if (argc != 2)
{
printf(stderr,"Usage: FIND pathname\n");
exit(1);
}
fp=fopen(argv[1],"r");
if (fp==NULL)
{
printf(stderr,"Cannot open file %s \n",argv[1]);
exit(1);
}
printf("FIND 1.0\nEnter Search Strings ");
gets(search);
if (strlen(search)==0) exit(1);

line=0;
while (fgets(string,255,fp))
{
line++;
if (findstr(1,string,search))
{
printf("%5d %s \n",line,string);
} /* end while loop */
fclose(fp);
} /* end main */
```

for a program to be compiled. Executable OS-B commands are the output from the compiler. If these are not generated — are actually used within the program and are actually included in the runtime code produced.

Split compiler

Due to memory limitations, the compiler has been split into two passes for OS-B level one and so can take quite a long time to compile even a simple program. Even with the two pass version of the compiler, there is not enough RAM left to run the 96 column screen editor using the compiler, although compiled programs can of course use this screen.

The compiler supports almost all of the standard UNIX system calls, including facilities for parallel process running. All of the features of OS-B are available through the system calls which make this compiler a very powerful systems language for any serious OS-B programmer.

The error reporting and recovery seem quite powerful and all error messages are usually self-explanatory.

A potentially very useful section of the manual deals with the linking of program modules written in other languages, particularly BASIC-68 to C code. Therefore, it will not be necessary to scrap all of your favourite routines written in BASIC-68 in order to move up to C.

Once again it has only been possible to give a very brief overview of the 'C' language, but enough I hope to encourage you to look further at this programming language.

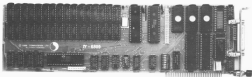
System Used: Microvare OS-B-C Compiler

Requires: 64K (Dragon), Dual Drives, OS-B Operating System and Text Editor.

Supplier: John Fenn Software, Dean Farm Cottage, Kingsley, Borden, Here. GU35 9WD (Tel: 04203-5976).

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Basic 42

Harris Micro Software's new package reviewed by Ron Coates

The Dragon's normal text display is only 32 x 16 upper case characters in a decidedly very poor and outdated by just about any other term measure on the market today, making the machine unsuitable for displaying more than the most basic information. Even the simplest word processor requires a display beyond the capabilities of the Dragon as we know it. The answer has always been to use the hi-res graphics screen and draw each character as required. This is a reasonable solution until you try to scroll the screen for listings or use standard Dragon facilities such as PRINT or so.

A basic rule of thumb says that the longer it takes to become the business micro of today, it looks at today's business machines will reveal windows, pull down menus and lots of other clever goodies, all normally beyond the Dragon.

Good news

Well, having depressed every Dragon owner south of the North pole, the good news has come from Harris Micros in the form of a package for hi-res owners running DragonDOS called BASIC42.

The BASIC42 package is probably the best step so far towards alleviating these problems without losing compatibility with existing software. BASIC42 is not simply another hi-res text utility but as described in the accompanying manual is the central core of an operation system which will help bring the Dragon up to date. The package comes on disc and simply requires the BOOT command to bring it to life with a hi-res screen displaying the usual copyright message and an OK prompt.

BASIC42 copies both the BASIC operating system AND the DOS software into RAM (where it can be deleted, sorry, altered) to suit the user's requirements. This is achieved by using the Dragon's memory map type 1, which configures the Dragon to be 64 kilobits (i.e. of wonderful RAM, not a byte of ROM in sight) because the entire system is now in RAM, the BASIC42 software is loaded into memory above the DragonDOS software and so does not deprive BASIC of a single precious byte.

Having booted the BASIC42 system and scrolled at the usual 80 column hi-res display, it looks like many other hi-res utilities, but a few minutes experimenting reveals that this is (probably the fastest hi-res screen driver written for the Dragon, and being happy as in the manual reveals all sorts of well thought out additions to the normal system. In fact there are so many features of the BASIC42 system it would have been far easier to simply reprint the manual. The character set, being in RAM, may be changed to one of several supplied on the system disc by simply issuing the command USE "FRENCH.80" or alter-

natively an entire character set may be created or edited using the supplied program DMATCH.MS.

No more fiddling

A major improvement in the use of this system is the ability to enter commands in either upper or lower case characters, which means no more fiddling about with that tortoise QWERTY combination which I am sure has broken all of us at some time or another. All keys now have an auto repeat feature which may be disabled or altered by simply going a few memory locations specified in the manual. Unlike many other hi-res drivers, it is very easy to revert back to the normal display by using the command TEXT, and back again to the hi-res display using the command hi-res. Simple, eh?

It is nice to see that this driver has been very neatly interfaced with the rest of the Dragon's operating system and pressing the RESET button stores this as the display remains quite happily in the hi-res mode with the cursor patiently flashing away.

Probably one of the most important features of BASIC42 is its support of the new highly fashionable 'windows'. There are a lot of separate windows available to the user, eight of which may be easily re-defined by the user through the FPAAS command to suit any particular application. For the uninitiated a window is a section of the screen which may be used as a completely separate screen in its own right and which may be closed and scrolled without affecting the rest of the screen. This feature is perfect for the programming of pull-down menus, etc. Windows 0 and 9 are not re-definable by the user, since window 0 is the whole screen and window 9 is a special screen that has its own memory in order that it will not destroy what was on the screen in that area before the window was closed.

Cursor positioning and character highlighting have been included in this package in the form of simple commands such as ROW, COLUMN and UNDERLINE with cursor position reporting being available through commands such as HIPPON and COLPOS which store the current row and column of the cursor. The state of the current window may also be interrogated with the HEIGHT and WIDTH commands. A rather clever command GATCH allows you to access one window while actually being in another, a useful example of this being given in the manual. This shows how a Basic program may be run in one window with any error messages appearing in the other, very useful when debugging a program.

The operating system itself is only very small in terms of memory usage, and so there is an area of some 35k available in which to load utility programs. No doubt more of these utilities will become available

from Harris Micros as time goes by, but there are two immediately available, HELP and SPOOL.

The HELP utility allows the user to change easily features of the BASIC42 system such as the auto repeat speeds, setting of control keys and the screen scroll mechanism. The enabling or disabling of the BREAK key is also achieved through the HELP utility. HELP also gives the a much improved FROM utility which redirects the line number printed by the FROM routine into the top right hand corner of the current window so that normal output from a program is not corrupted and the PAUSE command enables a program or listing to be used in 'single-step' mode, so that the effect of each line can be decided before continuing. HELP also provides expanded error messages so no more funny error messages like "I/OC error write 100" is sent to the console! While installed in memory, the HELP utility will also file the details of the commands and functions of BASIC42.

The other utility, SPOOL, the other utility, SPOOL, I had to say it twice (I hope that caught you for at least one—Ed.) I don't believe it at first! At long last someone has sat down and written a printer spooler for the best old Dragon. Although a decent commercial printer spooler buffer will have between 64k and 128k of buffer memory, the 32k used by SPOOL is 100% better than the standard system. As soon as there is less than 32k of data to be printed, the Dragon is once again available for use while the SPOOL utility looks after the printer. Any print job may be started by simply typing SPOOL OFF (now there's a new twist for you).

Software range

For the Dragon-loving business user, the extra goodies news is that the Harris range of business software (MONEYBOOK, COIN-HOOD etc.) will all work with BASIC42 providing that a patch program BCRPATCH is used, giving far better screen displays. Unfortunately, I have not seen these programs running and so cannot say just how improved they are.

In conclusion, BASIC42 transforms the Dragon into a decent system for use by small businesses on Basic users.

For the effect this package has on the Dragon it is well worth the asking price and the utilities are remarkably well priced at £100 when you consider that on average a blank disc cost between £1 and £2. I sincerely hope that this system will get the recognition it deserves.

Program: BASIC42
Supplier: Harris Micro Software
Price: £14.95. Utilities £2 each.

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MAGAZINES 4 **DRAGON MONTHLY** AND 4 **DRAGON USER** back number and 4 **RADIO DRAGON**
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PK-P1000 — £194.95!!

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of credit, COD or optional Securicon delivery.

Shuffleword

Anagrams galore for you to solve in this game by P Marlow

SHUFFLEWORD is an anagram generator that gives the player anagrams to solve. The player chooses the length of each anagram (there are two, four, six, eight and ten letter words). Then a choice is given whether music plays or not. Then a word is chosen at random from a list held in the DATA statements, and an anagram is made of the letters.

The player is given ten guesses at the original word. If the word is guessed correctly the first time, then bonus points are awarded. If the word is not guessed after ten

tries, the correct word appears on screen. A count is kept of how many times the player presses ENTER for each word. If the count goes up to ten for a word, guesses points are deducted from the player's score — a random number of points between one and ten! So you cannot calculate how many points you can afford to lose!

The title screen uses the anagram routines to draw anagrams of the title SHUFFLEWORD onto the title screen.

The DATA statements each contain twenty words, but this can be altered by chang-

ing dimensions FOUR, SIX, EIGHT, and TEN if line one twenty, and altering the FOR next loops in lines one forty, one seventy, two hundred and two thirty.

If there are any problems I can supply a copy of SHUFFLEWORD on cassette for £3.00. As I have only a Tandy CoCo, Dragon Owners will have to use the Dragon/Tandy conversion program included in the December 1984 issue of Dragon User.

If photocopies of the December 1984 article are available from Dragon User as usual, price £1.

```
10 '*****SHUFFLEWORD*****
20 '*****SHUFFLEWORD*****
30 '*****AT P. TWO.OO*****
40 '*****[1]-[9]*****
50 '*****SO LOVE MURDER*****
60 '*****BENTLEY*****
70 '*****MURKILL*****
80 '*****WEST TIGLHARD*****
90 '*****GUY*****
100 '*****
110 CLEAR 3000
120 DIM FOUR(20),SIX(20),EIGHT(20),TE
    N(20),N1(20),N2(20)
130 PLS=FLD$2*GOSUB 1000+RND*1000
140 FOR F=1 TO 20
150 READ FOUR(F)
160 NEXT F
170 FOR S=1 TO 20
180 READ SIX(S)
190 NEXT S
200 FOR E=1 TO 20
210 READ EIGHT(E)
220 NEXT E
230 FOR T=1 TO 20
240 READ TEN(T)
250 NEXT T
260 CLS
270 PRINT TAB(10);"SHUFFLEWORD"
280 PRINT TAB(10);"*****"
290 PRINT"PRINT THE COMPUTER WILL CHOOSE
    A WORD AT RANDOM. "
300 PRINT"YOU CAN CHOOSE THE
    "
310 PRINT"NUMBER OF LETTERS IN THE WORD
    "
320 PRINT"(EITHER 4,6,8 OR 10 LETTERS).
    "
330 PRINT"THE COMPUTER WILL SHUFFLE IT"
    S WORD "
340 PRINT"AND YOU MUST GUESS THE"
350 PRINT"ORIGINAL WORD. YOU HAVE TEN
    GUESSES."
360 PRINT"GO"
370 N=(INKEY$="F") THEN 320
380 SOUND 100,1
390 N=(INKEY$="I") THEN 310
400 IF N=4 OR N=6 OR N=8 OR N=10 THEN 44
    0
410 PRINT"GO", "(MUSIC ON/OFF)--TRY AGA
    IN"
420 FOR X=1 TO 1000:NEXT X
430 GOTO 300
440 PRINT"GO", "MUSIC ON (Y/N) ? "
450 G=(INKEY$="O") THEN 430
460 SOUND 100,1
470 IF G="Y" OR G="N" THEN 490 ELSE 48
    0
480 PRINT"GO", "INVALID SELECTED--TRY AG
    AIN" FOR X=1 TO 1000:NEXT X:GOTO 440
490 IF G="Y" THEN G=1 ELSE G=0
500 CLS:GOSUB 200
510 PRINT TAB(10);"SHUFFLEWORD"
520 PRINT TAB(10);"*****"
530 G=0
540 PRINT"JUMBLED WORD IS "
550 FOR X=1 TO 10
560 PRINT"GUESS NO."
570 GOSUB 570
580 NEXT X
590 IF X=1 AND G=1 THEN PRINT"WELL DONE
    YOUR SCORE IS"
600 IF X=1 AND G=0 THEN PRINT"YOU CHEATED"
610 G=ATN(1)
620 IF X=0 AND G=1 THEN PRINT"SORRY THE
    ANSWER WAS "
630 ATN(1)
640 IF X=0 AND G=0 THEN PRINT"SORRY THE
    ANSWER WAS "
650 PRINT"YOUR SC
    ORE IS"
660 ELSE IF X=0 AND G=0 THEN PRIN
    T"SORRY THE ANSWER WAS "
670 PRINT"YOUR SCORE IS"
680
```



```

000 FOR K=1 TO 100:NEXT K
010 PRINT#44#,"WEATHER DATA (Y=1) ?"
020 P=INKEY$:"IF P="" THEN GOTO 030
030 IF P="Y" THEN PRINT STR$(N*(11.22))
:SOULD (99.1)GOTO 030
040 IF P="N" THEN GOTO 050 ELSE GOTO 060
050 SOULD (99.1)CLC:GPRINT#000, "THANK-Y
OU FOR PLAYING";FOR Y=1 TO 10:SCREEN 0,
1:FOR Y=1 TO 100:NEXT SCREEN 0,0:FOR Y=1
TO 100:NEXT Y,1:CLC:SCREEN:100
060 GOTO 030
070 KEY $=INKEY$
080 C=ASC(STR$(C)+""+C)""10#
090 IF N=4 THEN A=C:FOR#(C)10#
100 IF N=8 THEN A=C:FOR#(C)10#
110 IF N=12 THEN A=C:FOR#(C)10#
120 IF N=16 THEN A=C:FOR#(C)10#
130 M=C+100
140 C=INKEY$""
150 FOR K=1 TO LEN(C)
160 L=LEN(A)
170 P=INKEY$
180 A=INKEY$(A),P,1
190 A=LEFT$(A,P-1)+RIGHT$(A,L-P)
200 NEXT K
210 IF A=C THEN GOTO 030
220 A=L
230 RETURN
240 KEY $=INKEY$
250 KEY $=CHECK
260 KEY $=1 TO 20
270 IF G=C AND A=C THEN GOTO 030
280 NEXT H
290 RETURN
300 IF N=1 THEN SC=SC+10+INKEY$(10-10#)
:RETURN
310 SC=SC+INKEY$(10#)
320 X=10#N:GOTO#N
330 PER WORDS
340 DATA BROT,DAVE,DAVE,DAVE,EXIT,FULL,P
350 DATA FORD,LEON,MARK,PAUL,PULL,MARK,PERT,S
360 DATA TONY,JOHN,FULT,JOHN,BLU
370 DATA ROBERT,ARON,ARON,AL,BLUE,COR
380 DATA CORAL,DAVE,DAVE,INFORM,MARK,P
390 DATA PETER,ROBERT,SHERRY,JOHN,MARK
400 DATA TRILL,ARON,MARK,JOHN
410 DATA SUBJECTS,ANTHONY,CASSETTE,COMP
420 DATA CONDENSE,CONTRACT,DELICIOUS,PARROTIC
430 DATA PETER,MARK,PAUL,PELLITE,MARK,REC
440 DATA SPECTOR,MARK,JOHN,MARK,MARK,MARK
450 DATA MARK,MARK,MARK,MARK
460 DATA ,ANTHONY,DELLA,MARK,MARK,THE
470 DATA COMPACTS,DELICIOUS,EXPERIENCE,INTE
480 DATA L,MARK,MARK,MARK,MARK,MARK,MARK
490 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
500 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
510 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
520 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
530 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
540 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
550 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
560 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
570 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
580 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
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610 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
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670 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
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690 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
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710 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
720 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
730 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
740 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
750 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
760 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
770 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
780 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
790 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
800 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
810 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
820 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
830 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
840 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
850 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
860 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
870 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
880 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
890 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
900 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
910 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
920 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
930 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
940 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
950 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
960 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
970 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
980 DATA ,MARK,MARK,MARK,MARK,MARK,MARK
990 DATA ,MARK,MARK,MARK,MARK,MARK,MARK

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YES, it's that time of year again, when trees are glazes, and children listen, to hear the sleigh bells in the snow. Yes, it's novelty song time, it's ceaseless adverts for Transformers (robots in disguise) time, it's compilations and Bond films time, it's getting far too drunk and pipping out on far too many bins (the means forays — Z!) or it's old people freezing to death in their unheated council houses while you buy Auntie Helen's fantastic perfume the size of a pea for fifty quid, it's a time of trying to work out just how much money you're going to get so you can make a profit by spending less than that amount on everybody else. Yes, it's Christmas time (actually, you'll probably be reading this in November when you won't even have started to worry about the number of 'Muppets' days' left).

And so, in the true Christmas spirit (that of the pleasure of receiving, before I give you all my presents, here's a list of gifts I'd like to receive from various people out there... Some of them are rather silly, but you'll notice that there's a list of Games at the beginning. These are games that I don't possess myself and so I cannot really write much about, so if anyone has one they really can't stand any longer (or just want to suck up to me), I suggest they donate it to your truly.

THE EXPERT'S CHRISTMAS LIST

A car sticker with 'I don't even want a Porsche' written on it.

A vast sum of money (bigger than any of you possess so don't bother with this one). A fine share flat in Nicaragua.

No more letters in stupid laminated pen (especially you, Andrew Holgate).

Copies of: *Auto Atlas*, *Classic Cruise*, *Cave Fighter*, *Dunsey Monkey*, *Death Mines of Sirius*, *Definite Raiders*, *Horace Goes Diving*, *Horace's Revenge*, *Minifogger*, *Mirrored Chess*, *Quadrants*, *Sea Dragon*, and *Space Raiders*.

More maps (after an I going together one of Brock's Argonauts).

More of those sort of letters that say 'I wish your column was 80 pages long'.

More of those letters that come with a big bottle of gin with them.

More of those letters that come with millions of cigarettes.

In fact, send anything you can lay hands on!

A 'PRIZE' (of the usual Arcade Arena standard) will be sent to the person who sends the most stupid present in the above address (Oh dear, and I was going to demand a percentage, Ed.)

Now, here's my presents for you. Firstly, the rather splendid 'Fantasy Fight' map drawn by M. Worthless (who suggests that I am in fact "The great blue water Adventurer of Adu") — Completely wrong, so no please there.

Secondly, the great **POKE LIST**

ASTRO-BLAST Colour 2199

BEASTALKER: Access code is REGISTER, answer NO to tape, go back to

main screen, hold down X/ENTER to go to editor. Clear/0 to go to next screen. Clear/0 to increase lives. Colour 2790. Reset 2791.

BUBBLE BUSTERS: Once tuning a game press reset then play again and bubbles fall a couple.

BUFFZARD BAIT: Poke 1099, SHES to get PHROD'S SCREEN 10. CSAR/EM "BUFFZARD", 716, 8275, 716 "" No songs required on reload "" Reset 2098.

BEAMRIDER: Crash with RESET POKE 7763, LIVES or POKE 1846, 13 for infinite lives. EXEC 7563.

CAWERS OF CHAOS: FIGHT when playing "E" for neon screen. Colour 26663. Lives 26666 (Zero for infinite).

Colour: Poke this location to 224032240324 to give Green 4 colour. Input 4 colour Green & Black/White & Black.

COSMIC CRUISER: Lives 9098. Zero to infinite.

CUTBER: Lives 10454. Reset 29481.

CUTBERT IN THE COOLER: Lives 8825 (up to 14). CHAMBERS: Lives 133336.

CAVE FIGHTER: Lives 2776 (zero equals infinite).

CRAZY PRINTER: Let space invader touch the bottom, when part reaches zero leave it and you have an infinite supply.

DUNSEY MONKEY: Lives 1580. Colour 26992.

DARK PIT: Pause game, press B/L/M/C. Use cursor and Enter to select a screen, position menu same way and restart. Lives 7032.

DUNGEON RAID: Press "D" to continue an screen you just finished on.

DANGER RANGER: Lives 10843.

DEATH MINES OF SIRUS: Codes are 0208 & TLL.

ESCAPE: Code is 7036.

EDGE STEADY GO: Lives 27182.

FEARLESS FREDDIE: Lives 26022. Reset 23883.

GALACTIC RAIDERS: Lives 19884.

HUNGRY HORACE: Stay on park ball, lives and score soon mount up. Guardian's get you when you're both in the tunnel.

HORACE GOES SWING: Colour 26364.

ICE CASTLES: Go into tunnel on screen one on first go, jump, then giving yourself 10000 points and getting onto a level somewhere between 30 and 30. Lives 1896. Colour 13071. Reset 12295.

IRVING'S REVENGE: Lives 14716.

Reset 1671.

JET SET WILLY: While game is in progress press keys MMXX together. This through screen with cursors, press space, position Willy (score 00), press space to continue.

JET BOOP COUM: Colour 7039. Reset 2026. Infinite lives POKE 8754, 77/POKE 8995, 77.

THE KING: SKIPP: CLOAKM: FOR X:12650; 12694: PRINT X: POKE X, 255; NEXT X: EXEC This gives hundreds of lives!

LUNAR HOPPER PROCOL: Lives 645726.

MUDNES: Colour 22662.

MAKING MINOR: PENGUIN to get boot.

Colour 1265. Lives 1264 (up to 29).

MOON HOPPER: Colour 12627.

MORRISON CHESSE: Crash with reset, then POKE 8401, 204. EXEC 7706. Improves colour drastically.

NINJA WARRIOR: Lives 3449.

PLANET IRVINGSON: Lives 246.

PEOD: Use SHFT/SHFT/CLOAKM to load then any of: 26666 — 26663 (Brics) — 2662. Stop trap — POKE 18047, 125. Run with EXEC.

PENCON: Infinite lives — POKE 1803, 125.

QUAZMODO: Lives 16644.

ROBIN HOOD: Lives 15712. Colour 16664.

ROBOTS' REVENGE: Lives 16916. Reset 23734.

Reset: This location should be poked to zero to warm start.

RUBY ROSSA: POKE 21117, 125 (infinite lives). Lives 23974.

SEA DRAGON: Colour 26289.

SHOOTPROOPER: Poke 17675, 125 (infinite lives).

Pause game, Press SHFT/Enter R then SHFT/0 to make yourself invulnerable to bullets.

SPACE RAIDERS: CLOAKM "" 12000: POKE 32194, 57. EXEC 32198. POKE 2384, lives (up to 45): EXEC 16384.

SCREAMING ARCADE: Colour 10999 (200 only).

TEATIME: On the sugar cane screen you can't be hit in the top left corner. Infinite lives — POKE 16996, 109.

THE LOVE'S CRICKET: Use a Quikshot 11, play computer, bowler as far down as possible, on top left, bowl, gives a full toss at top of off stump.

TURKEY ARMY: Lives 12987. Stage 12985 (1-6). Reset 12971.

ZAK'S SUN: Lives 16616.

That's all folks. Merry November.

Key

- D Blue door
- d Red door
- G Green door
- T Thunder bolt
- A Arrow
- M Money

- f Blue key
- c Red key
- g Green key
- B Blue lock ring
- R Red lock ring
- D Green destruction ring

- 4 Door
- S Sword
- M Magic
- L Lull
- A Arrow

Fantasy Flight

The Map



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Switching joysticks

A simple hardware modification by Stephen Denning

READERS with switching joysticks may be interested in the following simple circuit to enable them to use them with their Dragons. I was able to build it into a Quikslot 1 joystick with only minor PCB modifications for about £1.00. As readers will doubtless be aware, the Dragon joystick ports are read via 8 bit A to D converters which return 64 different values for voltage levels between 0 volts and 5 volts. Dragon joysticks are normally the potentiometer type wired between 0 volts and 5 volts (figure 1) which send a voltage corresponding to the joystick position from the slider of the potentiometer to the relevant joystick input (referred to as JOYSTICK 0 to 3). Most games are programmed for these joystick positions, ie. for JOYSTICK 0 (left, centre and right), which reduces the need for voltage levels to 3, which are 0 volts, 2.5 volts and 5 volts. The 2.5 volts can easily be obtained with a potential divider, and the 0 volts can be obtained by connecting the 2.5 volts to earth with the 'Left' switch, but the 0 volts is marginally more technical.

In figure 2 the potential divider is formed by R1 and R2, whose junction is connected to the JOYSTICK 0 input. The lower end of R2 is connected to the collector of TR2 which normally held lead on by R3. Thus with a centred joystick TR2 collector will be as near to 0 volts as makes no difference and the JOYSTICK 0 input will be at 2.5 volts as R1 and R2 are equal. If the 'Left' switch is closed it earths the JOYSTICK 0 input which then becomes 0 volts. If the 'Right' switch is closed it earths the base of TR2 thus switching it off. The JOYSTICK 0 input is then connected to the 5 volt supply via R4 and is thus effectively 5 volts. R1, R2, R4 and R5 are 5kOhms; R3 and R6 are 4.7kOhms. Any type of NPN general purpose transistor can be used for TR1 and TR2. In the case of the Quikslot 1, there is ample space on the PCB to locate the transistors and resistors close to it and hand wire them as required. This circuit can be used in any switching joystick that has all the switches switching to earth, and can be adapted to work with any other type. Great care should be taken with the wiring as it is possible to short circuit the 5 volt supply in the computer with expensive consequences. Otherwise, a cheque for £6.00 made out to S. Denning and sent with the joystick to me at the above address will cover the cost of parts, return postage and conversion.

This hybrid joystick is normally suitable for software that requires a proportional input, eg. Flight simulators — it does work with Speedstar; but makes it awkward to select circuit 0 and adds a certain brutality to the steering response.

(Editorial note: opening or altering a joystick within its warranty period will normally invalidate the warranty in case of breakdown.)

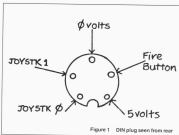


Figure 1 D1H plug seen from rear

Parts list

- R1,2,4,5 ... 5kOhm resistor
- R3,6 ... 4.7kOhm resistor
- TR1,2 ... any general purpose NPN transistor

Epoxy adhesive,
solder,
fine insulated wire



Figure 2 Standard joystick

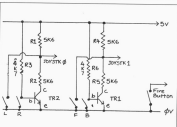


Figure 3 Final circuit of modified joystick

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Text Screen Dump

Mike Hides gets lower case into ASCII and out onto the printer

THE PROGRAM is to dump the contents of the text screen to a printer. The program works by examining the locations 1024 to 1035 and sending the appropriate ASCII code to the printer. The difficulty in writing this program was that the Dragon only stores the uppercase letters in ASCII format. The program can locate characters anywhere in memory and is executed by using the address of the first instruction (Listing 1).

The program looks at the locations 1024

to 1035 in turn and puts the contents in the A register. If the contents are between 64 and 95 they are sent to the printer unchanged. This is because they are the correct ASCII codes. The JBR 8800F is a ROM routine for sending the contents of the A register to the printer. If the value in A is below 60 the TOLDR loop adds 96 to its value which produces the correct ASCII code. The TDHJ loop works in a similar way but subtracts 64 to obtain the correct ASCII

code. The GRAPH loop is a trap for codes which the Dragon uses for block graphic characters which cannot be correctly interpreted by printers. They are converted to ASCII code 32 which produces a SPACE on a printer. The B register is used to check when a carriage has been completed and sends code 13 to produce a carriage return every 32 characters. The loop BACH decreases the contents of the B register every time a character is sent to the printer.

Listing 1	BACK	BECH		ADDA	WPL		
		CHPS	#D	JBR	8800F		
	DRCC	#45D	BNE	LDOP	BRA	BACK	
	LDX	#1024	LDA	#13	TOHE	CHPA	#120
LINE	LDR	#32	JBR	8800F	BHG	GRAPH	
LOOP	LDA	,X+	CHPK	#152B	SUBA	#4	
	CHPA	#63	BLE	LINE	JSR	4000F	
	BLE	TOLDR	ANDCC	#4AF	BRA	DACK	
	CHPA	BRA	RTS	GRAPH	LDA	#32	
	BHG	TOHE	TOLDR	CHPA	#27	JBR	8800F
	JBR	8800F	BHG	GRAPH	BRA	BACK	

Listing 2 - Basic Loader

```

10 CLEAR 200,31777
20 FOR N = 32000 TO 32066
30 READ A#
40 POKE N,VAL"MH"+A#
50 NEXT N
60 DATA 1A,2D,8E,04,00,C6,2D,46
70 DATA 80,81,3F,23,19,81,40,24
80 DATA 20,8D,80,0F,54,C1,40,24
90 DATA 6E,86,0B,8D,90,0F,8C,05
100 DATA FF,2F,82,1C,AF,39,81,1B
110 DATA 24,12,8B,60,8D,8D,0F,2D
120 DATA E3,81,80,24,07,80,40,8D
130 DATA 8D,0F,2D,08,86,2D,8D,8D
140 DATA 0F,2D,01

```

To save OSAMEN'DUMP', 32000, 32066, 32000
 To initiate the program see EXEC32000.

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LAST MONTH I promised you'd get back to clearing with letters, but here I am beginning by breaking my promise. Can you trust no-one these days? Well it's not my fault there have been few interesting and cheap adventures released this month, and I will have space to deal with several of your letters before the end of the column, Promise.

First past the starting gate is *The Thirteenth Task* (just £3 from Arc Software, 270 Meiners Road, Newton Meiners, Glasgow G7Y 5JY). This is definitely one for wimps with ambitions as you get to play the part of Hercules, and don't ask which part. Not content with the tiddled Twelve Labours of Hercules, Arc Software has decided to give you a thirteenth job to do, and that's killing Hades, the ruler of the Underworld. Could be tricky for some.

Herculean tasks

If you know about Hercules's previous problems then that'll be a help as some of them re-appear, and a knowledge of Greek mythology won't come amiss either. A neat 4-page leaflet is provided with the tape, and author Alan Cook has obviously gone to a lot of trouble to present a decent-looking product, so three cheers for that. The map provides a good introduction, along with some of the verbs the game understands, though a full list would be better as some of the others are a little out of the ordinary: SLAUGHTER, STRANGLE, LEASH, SLAY and THROTTLE, for example, and these also give you a flavour of the violent nature of the game, though that's just a reflection of the violence of Greek mythology itself. Reminds a seventeenth-century swabber when compared to the ancient Greeks. However, a help sheet and full verb list is available from Arc Software, and also from myself if you happen to be writing to me.

I promise I didn't look at the sheet when playing the game, though, and have to say that its main drawback is that it seems to be comparatively easy. At least to begin with, though the problems were getting more complex when I ran out of time and actually had to start writing about the adventure. The game's got 116 locations, and this is made possible by a lot of repetition in the descriptions used. Quite how all those Alpha paths get to ancient Greece I'm not sure! After dealing with a lion in the first location, you wander off and spy a hind...this is what's known as hindsight, I suppose, a useful thing in any adventure.

Triple it, the hind seeses you and runs away, but it can be corowed somewhere and will then earn you a few points. A few weapons are picked up, you encounter the Grasses (these hags will one both between them, like a generic Beverly Sisters), through the Minotaur's maze and out the other side to deal with old foveas (see like the Hydra, Gorgon, Muses and Cyclops).

The vocabulary supports LOAD, SAVE, HELP, SAY, EXPLAIN, EXAMINE and other useful commands, all of which can be abbreviated to the first three letters, although the character set hasn't been redefined so the screen layout is a little pedestrian. But well worth investing three quid in, despite my few criticisms.

For £2.95 you can have a copy of *Untersprung* by Grot from Mandar at Pheasant Cottage, Rainwood Lane, Pheasant, Great Missenden, Bucks HP18 9QG, and this is also worth getting with your hard-earned money for. This time the character set has been redesigned, and also the screen so that the text scrolls up through, appropriately enough, a scroll. Presentation is excellent all round, with dramatic music to accompany the instructions, and this slowly fades when you press ENTER to start the game proper.

The story? You have discovered the secret entrance to an underground village, but unfortunately the village's guardians have also discovered you, and you begin the game in an iron cage suspended by a chain above a dark pit from which rather violent spars emerge. Get out of that, as they say. Then make your way to freedom. The first task has that nice balance of difficulty so that makes you a little time's accomplishment, it balances hard that it puts you off. Just examine everything and think whether some objects might have more than one use.

If you can get out of the narrow location (you'll tinger down/below), you'll be promptly thrown into a cell, and the map around here shows some nice touches of reality as you come across stones that can only be opened from one side, then later on you might find yourself on the other side and able to open the door to pass through. Watch out for the spee-guards, although I haven't yet met the 'Soothsayers' the cassette cover promises. And I never will, if I don't devise a way of getting the box out of the well without getting myself trapped at the bottom. And how can I get the oil to give up the shiny object into his beak, especially as

I'm told I can't climb trees?

The atmosphere of an underground village is well-evolved, and the game too supports lots of useful commands. Not just GET, EXAMINE, SAVE, LOAD, SEARCH, SAY and so on, but multi-inputs if linked to the word AND, and the program also understands the word IT to refer to the previous object, e.g. 'TOLD BOB AND OPEN IT'. There's a PROI option, if your Dragon can cope with the high-speed SCORE, and all-in-all this is another for Dragon adventures to add to their Christmas shopping lists.

Entanglements

Some of you, in fact lots of you, have already been shopping for *Tanglewood*, and I've had many letters praising that game, so anyone who's not yet bought it is obviously missing out. Simon 'The Solver' Hargrave has come up with lots of clues, though he hasn't yet managed to finish it completely. To get to Peacefully Home, go to the north-eastern garden, get the spade, then dig in REDBAG, NECTAR and pull what you find in ELSUGH GOD BHT. To get rid of the ants, YSMAT WORBIT. To get gold coin, set GARBAGE to DROP OFIN EYED and watch for it, but there, promises Simon. To make videotapes first LUM MORE BUOLH TOG, and MIRAC, KADOC in HEICHTH COATFOC COORWOC.

Simon asked for help on Colossal Cave, where he was unable to get his last treasure, the bear's chain. Just NARC TEG, though you need DYER BHT to do it. Simon's happy to help with the rest of adventures: *Tanglewood*, *Wizard's Quest*, *Worms Feast*, *Twicken*, *Juxtaposition*, *Ring of Darkness*, *Rescue of the Ring*, *Colossal Cave*, *Keys of the Wizard*, *Diabolo*, *Madness* and the *Minotaur*, *Franklin's Tomb* and *Lord in Space*. Plus some others, he says. The mark's a glutton for punishment, and you can penish him by letter plus a to to Crawley Hill Farm, Uley, Dursley, Glos, GL11 5EH, by phone on 0453-880381 after 4 p.m. weekdays only, or on Postnet mailbox 433880381. Finally he says if there are any other Dragon owners playing the multi-user game, Shades, then try to contact him as 'Cubbit' as he needs your help!

Proving that Simons are far from simple comes a letter from Simon Harrison of The Vicarage, 56 Norwich Road, Watton, Thetford, Norfolk NR25 8DR. This one's just pointed off Scygy, as well as Dragan

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Crystallisation of 110 Alpine Free, Skywreath, Gauging, Coventry, West Midlands. DV3 6MR needs someone's help as he's having difficulty buying copies of Poly/Business, Latin Space, Death Moses or Duvy. If he had a Million and a Mission licence base, anyone willing to sell? He got maybe 5000s prepared for the licence base, e.g. an Williams-Bond, Merisep, Feat Cuckoo, Eric, The Golden Baton and The Emperor Must Die.

Looking for openings

Keith Marshall is in danger of losing his sanity if he stays, unless someone can tell him how to get a light in The Dark Factor, open the door in Pyramal of Doom, and open the gate in something called 1200. Is there anyone can assist on Danger Island, Mystery of the Java Star and Aquamar 471.

Needing help on Skygyp is Ian Barkot, 36 Hartford Road, Stearnage SO2 8BB, and Ian also asks about the Adventure Club Ltd, which I recommended several issues ago. In fact the club seems to have gone out of business, despite giving excellent value-for-money service for over a year, and although there is talk of it getting going again soon I wouldn't suggest anyone send off any money to them for the moment. If you're already a member you'll be aware of the long summer silence, and promises of an autumn return.

If you want to sample the Adventure Club Ltd club run by Pat Winstanley then you'll only need to fork out 50p for a sample issue of their monthly newsletter. The aim of this club is different, it isn't a helpline but is a more of a forum for adventure writers who want to share news and hints. Inevitably this means a bit of conversation in successful

utilities like The Quillend Snighas Adventure-Creator, not available to Dragon users, but there are also articles on marketing games, royalties, duplication, cost of cassette covers, and so on. Both if you're seriously interested in it or just of things.

Stephen Hodson, 4 Bawcraf, Longton, Preston, Lancs PR4 5AL wants help on Tanglewood. He has to get the string-net and wheel-used treasure and Paul Martin asks if anyone else is playing some lesser-known adventures, Honor Castle and Pirates Arcy. If so, contact Paul at ? Galaxiad, Crescent, Clifton, Renegate, Kent CT10 5LQ.

Calling Tynbridge Wells, calling Tynbridge Wells. Any Dragon owners out there? His contact Richard Tyler, 11 Madonia Park, Tynbridge Wells, West TN2 5SL. He needs help on Kings of Darkness, Wings of War and Jurisdiction, particularly as his SAVELOAD command won't work in that instance. Anyone know why he might be getting a syntax error when he tries to use it? Richard has finished Aquamar 471 and offers help on that one.

More problems of an unadventurous nature, this time on Castle Adventure for

Gary Atford, 36 Victoria Road, Fair Oak, Eastleigh, Hants SO5 7TY. His version keeps crashing with an IOM error despite using the PCRM 25.6 and NEW comments below loading. Anyone else experienced that problem and, more importantly, solved it?

Nail Bowden's having trouble with The Sorcerer of Claymore Castle, and would appreciate help at 70 Edmore Hill, Falmouth, Falck F12 0UH, while Philip Ravenscroft wonders how he'll ever defeat Velder in Skygyp. Philip lives at 40 Cedar Road, Wintehill, West Midlands W113 2EG.

Finally, if you've got access to Prestel then you might like to try calling up The Drag Mag run by Simon Jones and it present the only Prestel magazine devoted to the Dragon. He (yet another Simon) says that there's a large section devoted to adventuring, which recently featured an interview with someone called Mike Gerrard. Now that has to be worth looking at, and can be located at on page 4700410161. And if anyone has worked out why so many people called Simon are into Dragon adventuring then please let me know as I'm quite baffled.

Adventure Contact

To help puzzled adventurers further, we are instituting an Adventure Helpline — simply fill in the coupon below, stating the name(s) of the adventure, your problem and your name and address, and send it to Dragon User Adventure Help-

line, 1271 Little Newport Street, London WC2H 7PP. As soon as enough entries have arrived, we'll start printing them in the magazine.

Don't worry — you'll still have Adventure Trail to write for us well!

Adventure

Problem

.....

Name

Address

.....

Adventure contact

Adventure-Cassio Island

Problem I cannot get the puzzles.

Name Simon Kenworthy

Address Osymere Park, Newport, Isle of Wight, PO20 2H2

Adventure Telicor

Problem How do I find on the planet?

Name Laura Hodgson

Address 4 Gordon Place, Kilmarnock, Tayside, Scotland

Adventure 1) Juxtaposition 2) Telicor

Problem 1) Where is the red castle one? 2) How to stop Xenodora plant from dying?

Name David Roberts

Address Woodtop Farm, Garsington, Preston, Lancs PR4 3EH

Adventure The Crackwood Incident

Problem How do I travel by bus or train?

Name Scott Taylor

Address 14 Pembroke Gardens, Wellesbourne, Warwick CV35 9PP

Adventure 1) Juxtaposition 2) Telicor

Problem 1) Where is the receiver, sender and deeds of the brown? 2) How do you get past the firelight?

Name James Baker

Address 3 Haycock Road, Bangor-On-Des, Breckham, Clwyd, North Wales

Adventure Return of the Ring

Problem How do you get the key of the gate on the forest maze?

Name Wayne Holt

Address 10 Thimbleton Road, Bodsworth, Macclesfield, Warwickshire CV12 8BY

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0101

Second language

I WANT a Dragon 64 computer and am interested in using the second Epson facility for an alternative font in language. If this is possible, could you explain how to select the second or third Epson and say where it lies in the address space.

Alan Taylor
Chesham
Gwent

IT WOULD be possible to replace the second Basic Epson (used for Dragon 64 Basic) with a new language option which you would have to write and test yourself. The second Epson is selected by making bit 2 of EPROM2 an output and then setting it low. The original rom can be reset by setting this line high. The new rom appears in the address space \$3000 to \$3FFF. The following machine code will select the second rom and enter it at address \$0000 with interrupts disabled.

```
ORCC      + 220
LDA       $F120
ANDL     +149
STA       $F120
LDR       $F120
ORR      + 4
STR       $F122
ORR      + 4
SEA       $F122
LDA       $F122
ANDL     + 255
STA       $F122
JMP      $8000
```

How to justify

I HAVE a Dragon 32 computer and want to try some word processing. The thought of buying a piece of commercial software, but have decided to try writing a simple WP myself. The first problem I have myself is how to justify coming up to 51 characters. I would imagine that I need to use a lot of L&F's and R&F's comments, but I can't quite see how.

Would it be possible for you to write a short routine for my own right publication in a Dragon?

Samuel Robinson
50 Kensington Hill
Dorchester
Dor



THE following subroutine can be used along with your word processor's right justify lines. The line length is set up in the variable LS in line 500. The string to be justified should be in A1 when this routine is called, it will be returned justified in A5.

```
500 LS=0:P=0:1
510 DP=LS:LS=0:DP
INSTR(A1,"")=0 THEN 600
520 IF DP=0 THEN 570
530 FOR J=P TO 1 STEP -1:IF
  MID$(A1,J,1)="" THEN
  AS=LS-1:TS=AS:LS=MID$(A1,DP-
  DP-1,DP):DP=
  540 NEXT J
  550 P=J-1:IF P=1 THEN
  P=LS:PA(A1)
  560 GOTO 520
  570 RETURN
```

Input using?

IS THE same way as Dragon Basic has a PRINT USING to give formatted output, I would like to know if there's such a thing as INPUT USING which would provide an input mask for text and numeric input?

J.M. Dean
40 South Park
Seven Kings
Herts
Essex

THESE is no built-in 'input using' command on the Dragon, but it would be relatively simple to provide this in Basic. As an example, look at the routine below which will take numerical input as formatted in the string P1 and return the value in V. This could be expanded and improved to include error traps and all the useful format functions available with Print Using.

```
100 C1=0:M1=""
1010:FOR I=1 TO 10:IF I="" THEN 110
120 IF C1=CHR$(0) AND C1=
  THEN
  C1=CT1:MS=LFT$(M1,C1):
  130:PRINT C1:PRINT:GOTO 110
  140 IF MID$(C1,1,1)="" AND
  C1="" THEN SOUND 50,1:
  GOTO 110
  150 IF MID$(C1,1,1)="" AND
  C1="" OR C1="" THEN SOUND
  50,1:GOTO 110
  160 V=
  170 MS=M1+M1-C1:CT1=C1
  180:PRINT V:IF I=10
  190 V=VAL(M1):RETURN
```

Double take

I RECENTLY acquired a Dragon 64 with 80 track double sided disk drives and printer. The printer works well with the software that was supplied with it, but there's a problem with copying blank discs. A friend of mine has told me that normal discs will not work with double-sided discs. Could you tell me exactly what sort of disc I should buy, as the price varies over widely with different brands.

Ken Vasey
Fox Glen
Cockshuffel, Herts

THE 'official' discs you should buy are double sided double density 80psi discs. These don't usually come cheap and in practice all floppy discs are manufactured by exactly the same process, so you can get away with using 'normal' single sided, double density, 80psi discs so long as you use a well known brand such as Memorex or Discex.

Zilch

MY DRAGON has recently stopped working, when I start an application just goes green with a cursor. Why does it do this, is it that the adaptor is too close to the computer?

Richard O'Reilly
St Anne's
Rushmore Hill
Rochford
Sussex

THE problem is unlikely to be caused by the position of your power supply. As you get extra disks, the problem most likely lies in one of those areas, either the RAM, ROM or CPU is probably faulty.

The most common fault with Dragons of this type is with RAM-banks. I suggest you contact one of the repair specialists who advertise in this magazine for a quotation, for instance Pico Electronics at Unit A12, Enterprise Centre, Marley Industrial Park, Pinnerback, Middlesex, South Wales, or one recommended locally by a knowledgeable friend.

Stylograph

I HAVE a CP400 printer, and am trying to use Stylograph but I have two problems. Firstly, how can I change the character codes of Stylograph, such as underlining, in multi-line at my printer, and secondly, how can I stop Stylograph's ascending line feed at the end of each line. I'm tired of using XMODEM if it isn't too soon.

Colin Pitt
71 Blackwell Road
Marlow, Bucks
Victoria
Aylesbury

STYLOGRAPH can easily be modified to work with any printer codes simply by setting up a suitable 'style' file. I've explained how to do this previously, so don't get into it again here, but see the Stylograph manual for details.

On your second problem, unfortunately Stylograph does not take any notice of the 'XMODEM' setting for line feed, and there is no simple solution that I know of. If anyone has 'patched' Stylograph to stop it sending a carriage return please let us all know!

One final tip to 'speed' your text to a file and then print this out from DOS rather than from within Stylograph.

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Out on the tiles

Gordon Lee sets ten up in time for Christmas

FOLLOWING the usual practice of including a mind-bending game in the Christmas edition of *Dragon User*, here is a colourful but tricky puzzle to exercise your brain! For the original on which this computer version is based, I am indebted to Games and Puzzles for Adults by Roger Millington.

The game is played with sixteen coloured tiles — three tiles each of green, yellow, red and cyan, and four orange tiles. The object of the game is to place these tiles, one at a time, onto a coloured 4 by 4 grid. The grid can be filled in any sequence and the coloured tiles can be placed in any order, subject to the following rules:

i) A tile cannot be placed on a square of its own colour.

ii) A tile cannot be placed next to a square of its own colour, either side by side or diagonally.

iii) Only one tile may be placed on each square of the grid.

Note that only the top (exposed) colour is counted, so for example although a red tile cannot be placed next to a red square on the grid, if the square is covered by, say, a green tile, a neighbour depositable can place the red tile.

If the program is running, the computer will show the initial layout of the grid. The yellow tiles are shown (reduced in size) on the right of the screen. A tile is placed by moving the two arrows to locate the square to be played on, and then pressing the initial letter of the colour of the tile to be played. The 'arrow up' key moves the arrow up cursor and the 'arrow left' key moves the arrow left cursor.

Once a move is made the computer checks that it is a valid move, and if so places a tile. Note that the grid has a black square showing in the centre of each compartment to indicate that it is uncovered. Once a tile has been played this square disappears, so you can tell where the tiles have been placed. To place all sixteen tiles correctly, and hence cover the grid, re-

quires a bit of ingenuity, so have some fun! If you get stuck and wish to start again, press G to quit. Once you have solved the puzzle on your screen, you can also try to solve it using a randomly generated grid by pressing R at the beginning of the game. However, when using this feature it cannot be guaranteed that a winning series of moves will be possible.

Our competition this month also has a seasonal flavour. Take the ten digits zero to ten and allocate one digit to each of the

following letters:

S A F H M N O R S T and W

This should be done so that the following numbers, as indicated by their letter substitutions, have the required properties.

SANTA is a prime number

PROST is a multiple of 7

MORNI is a multiple of 11

SNOWMAN is a perfect square.

Merry Christmas

```
100 010 010 010 010
110 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010
120 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010
130 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010
140 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010
150 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010
160 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010 010
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Prize

Those of you who can unravel the mysterious words of Gordon Lee this month will be contending for one of 20 copies of the novel from *Smithway Computing*, *100 Screen Fantasies*. Play from Doctor Van Loos and his evil stockbroker, shoot bats, boots, feet. Fun!

Rules

First you solve for hours over a red hot dragon. Then you place your solution, a listing of the program you have created to find that solution (no cassettes, please), the benefit of your unpaid widow in the form of a tile breaker, and your name and address into a reded envelope marked **DECEMBER CON-**

TESTION, and tramp out across the deep, crisp and even snow to post it to us here.

The tilebreaker? Complete the tile I want to be perfectly frank... and if we like it we might send you a Frankie — even if you don't live in Hollywood.

September winners

The winners of a £100 discount voucher from John Penn Software in the September competition are: Fred Williams of Hamfield, E. Anderson of Tolbood, Tony Smith of Worcester, M. Grandy of Sheffield, G. Newman of Addlestone, S. Siddiqui of Chesham, T. Russell of Harston, Simon Aubrey of Swindon, D. Davies of Bristol, P. Kirk of Aberdeen, Frank Appleby of Aberystwyth, J. Boddy of Mill Hill, Geoff

Flood of Maidstone, Jonathan Harrop of Wantage, C. Hitchison of Middleborough, Phil Sagers of Liverpool, D. Gray of Middleborough, Robin Tolson of Bate, A. Thomas of Stapleford, and A. Henderson of Birmingham.

Favourite tilebreaker comes from Mr Thomas, who states baldly:

"Oh, little lower upon the ground
I wish you were instead one pound!
I couldn't have put a better reward."

Solution

These are two sets of numbers:
1000 1100 120000 130000 14000 1500 16000 170000 180000 190000 200000 210000 220000 230000 240000 250000 260000 270000 280000 290000 300000 310000 320000 330000 340000 350000 360000 370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000 510000 520000 530000 540000 550000 560000 570000 580000 590000 600000 610000 620000 630000 640000 650000 660000 670000 680000 690000 700000 710000 720000 730000 740000 750000 760000 770000 780000 790000 800000 810000 820000 830000 840000 850000 860000 870000 880000 890000 900000 910000 920000 930000 940000 950000 960000 970000 980000 990000 1000000

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BILLSBOX	Purchase Ledger	£16.99
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CASHBOX	Nominal Ledger	£16.99
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- REDEFINABLE characters
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- 1 fixed, non-destructive window
- CATCH command for automatic return to window
- INVERTED VIDEO (green on black/black on green)
- True UNDERLINING
- Extra PRINT commands and functions
- ROW (and COLUMN) commands for easier printing
- LIBRARY lists commands and functions
- Automatic startup of BASIC program
- TEXT command for software compatibility
- Takes NO memory from BASIC
- Patches for Dragonos 1.0
- Can load in extra UTILITIES from disk

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Extensions to BASIC 42 includes:

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- SCROLL disable
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PHASE 1 : LEAD COMMANDO'S IN W



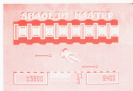
PHASE 2 : FLY PLANE OUT W

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