

DRAGON USER



The independent Dragon magazine

November 1985

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Hands up the scum who wrote that ... withdrew your foul imputations, slash, or, by Jove, well ... er ... we'll PRINT it!

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Editorial

THERE have been a lot of shutdowns since DU went subscription only in July, and some of them are still shaking. Our special apologies to readers on the tail end of the mailing list, who received their September issues soon after their October ones...

But we have our extra four pages at last, and enough Dragon suppliers have come forward with support this month to put a bit of heart back into our advertising pages. We hope this is how it will go on, although there are bound to be ups and downs.

The news that Watersoft have finally given up hope of producing a follow up to Justaposition is not so heartening, showing as it does just another symptom of the decline in the prosperity of the Dragon world.

We wish Watersoft all the best in their new careers, and Microdeal further success with their new acquisition.

Roll on the Christmas 5500 Show on November 22nd. It's a good excuse to visit the snake and start the Christmas shopping early, as well. Two benefits for the price of one. Don't miss it.

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How to submit articles

The quality of the material we can publish in Dragon User each month will, to a very great extent, depend on the quality of the documents that you can make with your Dragon. The Dragon computer was designed to be 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, wherever 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.

News desk

If you have any new products for the Dragon — software or hardware — ring the News Desk on 01-437 4343

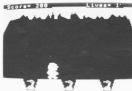


Wizards Quest

Microdeal in games takeover

At THE same time as Microdeal defy the trend towards fewer games releases by producing three new games for the Dragon comes the shock news that they have taken over Watersoft, whose advents are Jantarnation — The Barons of Cok's arguably

development as professional programmers are forced out of the Dragon market. The utility of software houses to sell enough games packages to support good full time programmers to produce new games has also killed off incentive's party-written time



Cutbert and the Golden Chalice

the most popular Dragon game of the last year.

Says Jerry Pope of Microdeal 'We were trying to get hold of them to buy their products from them all this year. Eventually we managed to get hold of them and ended up with a deal to buy out all their rights worldwide.

The projected follow-up to Jantarnation originally planned as a trilogy, a dubious habit acquired from the fantasy book trade) will now not be developed, continuing the trend against role games

and where the game's writer was compelled by necessity to get a regular job.

The three new projects from Microdeal are Wizards Quest, where the player collects treasures in a haunted mansion, Cutbert and the Golden Chalice, the latest in the Cutbert series, with twenty scenes, and Jantarnation, their piece de resistance, with 750 locations, five controllable characters and a 3D maze. Cutbert and Wizards Quest are reviewed in this issue. Dragon User.

Utility on cassette

RAM(COMM) tell us that after developing their Sauce-maker disc utility to copy non-disc Dreams, the whole system has been rationalised onto a single cassette version which covers all versions of Dragon-DREAM, and the disc version withdrawn. Dragon User will be reviewing this version soon.

Pam O'Army is now working on DRAGONCASSBEN — which she envisages as the start of a Fleet Street Editor/Pagemaker system as available on the BBC; she has no release date for this package as yet.

FLEX for the PC

FOR various 6809 basins, Compuserve have developed their 16-B009 microprocessor development-compatible computers (which do not include the Dragon, unfortunately). 16-B009 makes PC-compatible into a FLEX-based 6809 development architecture while retaining all the facilities of the PC computer, say Compuserve.

The system costs £495 as 'kit' and delivery. For information or demonstrations contact Compuserve on 01-682 5881.

Micro group

FURTHER to the subject of the 6809 microprocessor, the 68 Micro Group can be contacted via Joe Johnson at 20 Edwallen Ave., Pittsburgh, Canada. Mr Johnson is the

periodical bulletin. Regular meetings are held in central London, and there seems to be some movement in the Midlands as well.

Catalogue competition

FOR hardware designers and redesigners, the Winter 1988 catalogue from Cirtin Distribution, the electronic components people, will be available for newstand use from Cirtin after 15th October, priced £1.20. Special attention in this edition is a competition to win a £300 Hamet 20MHz oscilloscope, with other electronics prizes for the winners up.

For information or to order, contact Cirtin at Park Lane, Boreham, Herts SG9 6ND.

Hewson recruits

HEWSON computer games are looking for new freelance software writers.

'You must have the discipline to estimate time and memory requirements with reasonable accuracy and the determination and skill to work to the realistic, sometimes tight, Hewson's press release. The company will provide technical and business support to talented programmers in developing commercial games in return for a professional level of ability and commitment.

Hewson are at Hewson House, 506 Milton Trading Estate, Milton, Aylesbury, Bucks HP8 4PX.

Christmas 6809 show

MICRODEAL'S 6809 Christmas Show takes place on November 22nd at the Royal Horticultural Hall in Westminster, London. The National Dragon Users Group and the THX 68 Users Group will be there, as well as trade exhibitors.

Visitors are advised that 68Microusers, the group's

parking in the Victoria area, although not as bad as central London, can be a trying experience. For those who choose to park further out and come in on the Underground system, or by British Rail, the nearest stations are Victoria (main line) or Victoria or St. James' Park (underground), all of which are about ten minutes walk from the Horticultural Hall in 'Victory Square'.

Further information from Microdeal on 01 725 6825.

Communication

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

Problem: Has anyone out there got a copy of "Euler Calc" along with the appropriate instructions which they can pass on to me? What I really require is a powerful spreadsheet program which does not run under OS-8.

Enquirer: D. Lutz, 9 Elmway Way, Bristol BS5.

Problem: I have built Asterix Data Design's Addict, and would be interested to know if anyone out there has also built it, as I have been unable to get it to work properly under software control. If anybody has got it to work please contact me.

Enquirer: John Margrave, 34 Canoe Young Road, Wincobach, Leamington Spa, Warwickshire CV31 2DU.

Problem: I own a Dragon 32 and I am looking for a detailed memory map. I only own the short one from the additional information section of the manual. I am particularly interested in the addresses of the different functions of the Basic and in the addresses from F400 to FFFF. Could anyone write to me with this information or tell

me how to find it?

I am also looking for a Dragon user in my area, that is Belgium, area code 4xx. If you know one (or are one) please get in touch. **Enquirer:** P. Gervaisbeck, 1 rue Cune, B-4505 Senning, Belgium. **Problem:** I have been exploring the Microsoft Extended Basic and the DragonDOS ROM for some time to find out how the machine code works. I have an editor/Assembler DRAGONBASIC package. To disassemble all this code is a very time-consuming operation, so I wonder if anyone knows where I can get a copy of

the original assembly source code listing for these ROMs? **Enquirer:** Dier Hazard Nossberg, Grønhaugve, N-2640 Seljord, Norway.

Problem: I have been trying to write a routine to autoassemble keys on my Dragon 32. The listing below is my best effort, but it repeats too fast. If I put in a delay, it slows the computer down drastically. Can anyone help? Also, is there a machine code routine to get the text or graphics screen upside-down?

LDOSSTART
STR \$100

RTS
START LDX \$5100
LOOP LDH\$FFFF
STD X+
CMR\$ CntA
RME LOOP
JMP \$1000

Enquirer: Philip Cattergale, 54 Penryn Road, New Pt, Stafford ST17 9EY.

Problem: On the Microdeal word processor, how can I define the user definable codes?

Enquirer: Daniel Lawrence, 26 Lea Street, Lindley, Huddersfield, West Yorkshire HD3 3LS.

Communication

Stuck for a routine? Need some obscure equipment? Feeling out of it? 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

Name

Address

S.P. ELECTRONICS

CPIA 80 Dot Matrix Printer, inc.	
Printer Cable	£228.00
Parallel Printer Cable	£12.90
Cannon 160 CPS NLO Printer, inc.	
Printer Cable	£299.00
Green Screen Monitors	£175.00
Disk Drives from	£120.00

A large range of software available.
SAE for free list.
Large range of spares available.

**Also complete Dragon
repair service**

S.P. ELECTRONICS

48 Limby Road, Hucknall, Motts
(Nottingham NG6 5Y)



Circle

BLOCK- BUSTER QUIZ II

Following list on the reverse side lists
answers to the second quiz

Yes — question number 100 questions and
answers are contained in the book "Computer
Quiz" — £4.95

My response for the first and second
quiz

To obtain your copy, send me a cheque or
credit card for £4.95 (plus postage).
Orders and enquiries to the address below.
No cheques required. (SPE)

COMPUTERWARE

PO Box 34, Stoke-on-Trent, ST4 6UX

Don't dream of being without it!

Program: Sourcemaker
Requires: Any Dream or Aldorom assembler
Supplier: Panacom Ltd., 21 Wycombe Lane, Watrous Green, High Wycombe, Bucks.
Price: (Inclusive, UK) £70 (inclusive overseas).
Sourcemaker from Panacom Ltd. is based on such an obvious idea that I'm amazed nobody has thought of it before. Used in conjunction with Gnosensor's Dream range of assemblers it will disassemble machine code from ROM or RAM and produce output in a format suitable for loading in to Dream.

The tape contains the control program Poken and several different versions of Sourcemaker to cover all configurations of the assembler — these are Aldorom cartridge, Aldorom tape, Dream tape, Dream/Dreambox tape, Dreambox and a version for owners of DottedDOS systems.

Instructions are included for transferring the software to disc (or, say, DOS).

Operation is simply insert the Dream assembler is first loaded (or plugged in) as normal, then the POKEN Basic program loaded, followed by the Sourcemaker machine code program. This is written in relocatable machine code and so can be loaded anywhere in RAM — its default position is at 3270 in the graphics area.

Running the program produces options to change the default CUEPR setting (usually set at 1000 by the user) and the Dream test table limit. The start address of the code to be converted is then entered and Sourcemaker gets to work. Conversion is carried out at a very high speed and a visual indication of what is going on is given on screen. The pseudo-source code output is stored directly into Dream's test table

until it is full. To get to the pseudo-source code, Dream is then entered as usual (ESDC) and Old Test selected.

The source code is as near as possible to the original source code but data will be interpreted as instructions. Sourcemaker obviously cannot determine where the original PCRs etc. were. This makes no difference to the validity of the code — BREAK will assemble the code producing exactly the same machine code as was disassembled.

Unlike some systems which use pseudo labels (eg L\$FFFF for a label at \$FFFF) Sourcemaker uses the program counter and offset for all branches etc., producing source such as BNA "x 10. Comment lines are included in the code, showing for example the ASCII character referred to in a load instruction such as LDA C40 "-"

The program intelligently

tries to decide when it is better to output PCRs rather than a BND instruction to ensure that the assembled code will be exactly the same (byte for byte) as that disassembled. This overcomes the potential problem of Dream's use of Zero Register Offset.

There must be countless uses of this program from modifying files on the Dragon 64 to changing commercial tape software to run on it. It had to make one criticism it is that code is disassembled until Dream's test table is full. This means that you have to enter Dream, mark and delete the code following that which you actually wanted to disassemble. This is a pity, though, but it would have been nice to be able to specify file and address of the code to be converted.

Sourcemaker complements the Dream package superbly and no Dream owner should be without it.

Adrian Gudge



Items for collection

Program: Wizard's Quest
Supplier: Microdeal
Price: £50

I SUPPOSE I've nothing to cry about. It's just another hard luck story from a town with no cheer. Her name was Wilma, with an 'n' at the end, one for distance and one for evil.

She wasn't good looking, a rather plump girl, with spiky hair and a fascination with egg-laying mammals but, for a while, she was mine. I remember how we sat at a computer in London. Mum always said not to get mixed up with city girls. First playing *400* and she came up to me and said she knew of a different place where we could play a more stimulating game.

I followed her to a back street and up a long, dim flight of stairs. Her flat was on the third floor, she said, and she was sharing with a team leader who was on an AA course in Trafalgar Square most of the time. She

led me to the bedroom, to her favourite toy — a Dragon. (Jason spends all his time doing this sort of thing - did.) The screen said 'Wizard's Quest' and 'Press any key'.

"I'll just get the stuff," she said, and came back with a joystick. She broke me gently by letting me fill my life from screen to screen on this game which seemed so familiar, so

like the one I had been playing when we met. She coaxed me, teasing me, letting me fall down the holes I'd volunteered to avoid them. Then, just when I thought it was easy, she took me to The Room, where all the objects were listed that I had collected, with no hints on how to find them, or how to recognise them (the graphics were pretty bad).

Well, to cut a long story short, she led to me, that girl, she said she loved me but she always randomised the positions before my go. I still see her occasionally, when I can take the money when I can afford a fix of Wizard's Quest.

Jason DeBour



Watch your step

Program: Gutterball and the Golden Chalice
Supplier: Microdeal
Price: £50

THIS game would be better titled 'Mario and the Golden Chalice' as the graphics here look very much like an expanded Mario from the Ring.

The game runs in PMODE4 and is closest to *Castle Dracula* or *Dragon's Quest* games. The idea is simply to go from left to right across the screen avoiding various obstacles thrown in your way by the computer, in your quest for the golden chalice.

The game has lovely

screens of which I appear to have completed about eight for, although according to the instructions, once a pattern is worked out for a screen that screen can easily be repeated ad infinitum, the reality is that once a screen is completed it's quite likely to be clobbered up quite dramatically on every other attempt. At least, that was the case with me. However, the game is addictive, and if I didn't have to keep stopping to write reviews I could quite happily have played it all night.

I can't really rave about it because it's very simple and I

can imagine it getting boring. However, don't let that put you off, because it's a good game and well written, and Microdeal mentioned at the PCW show recently that they're not sure if they'll be supporting the Dragon this time next year, so make the most of this game from a company who have, at least, stopped putting out any rubbish games!

The graphics are very smooth (except for the figure who flickers a bit — surely something could have been done about that), and the sound is unobtrusive and really rather pleasant. A good game, even if a fairly simple one.

Jason DeBour



• • • • **SPECIAL OFFER** • • • •

Q U I C K B E A M S O F T W A R E

FIRE FORCE

- Unusually large sprites
- Hi Res colour graphics
- Four channel musical soundtrack by Chris Jolly
- Joystick operation

• Quickbeam Software's hit game Shaolin Master proved a winner with Dragon users. Now Quickbeam and Dragon User are getting together to offer Quickbeam's new game, FIRE FORCE — at a pound off the retail price. The offer is open to Dragon User subscribers only, until 21st November — so hurry.

• FIRE FORCE is Quickbeam's follow-up to the successful Shaolin Master. It has taken three programmers six months to develop the two-stage arcade game, which has up to nine moving sprites on screen at a time. The game opens with you, the leader of the commando Fire Force, faced with squads of enemy troops as you dodge your foes, trees and gateways to search for the prototype MFTC X18 SPIRIT low level attack plane which has been hi-jacked and forced down in a clearing deep in the African forests. If you can reach the plane alive, the second challenge begins: to fly the machine to safety, avoiding obstacles and the enemy's planes, collecting energy packs as you go by swooping close to the ground.

• The manoeuvrable X18 Spirit appears on screen as a large, detailed sprite, but the

enemy strike force are larger and more formidable still, though less nimble. To avoid the planes, and collect the energy packs, you must use the Spirit's low flying capability to the full, but beware of trees, buildings and other perils as you skim the ground.

Your only guide is an altimeter at the left of the screen — you will need all your concentration to survive, while knocking out the enemy and collecting your bonuses.

• The special offer is by post only to Dragon User and closes on 21st November. Applications arriving after that date will not be eligible, so fill in the form on this page (or make a copy of it) and send it, together with your cheque or postal order for £8.95 to Quickbeam Offer, Dragon User, 12/13 Little Newport Street, London WC2H 7PP, making your cheques payable to Soot Press Ltd.

£1 off!



Please send me copies of FIRE FORCE at the special offer price of £8.95 each. I enclose my total payment of payable to Soot Press Ltd.

Name

Address

Postcode

Please allow 28 days for delivery. Offer closes 21st November 1988.

Using discs

D Rothery shares his inside knowledge of discs and DOS

AS THE prices of both drives and discs come down, more people are enjoying the great increase in convenience and flexibility of using them with the Dragon, and at the same time many are cursing the manuals for lack of information. I shall try to tell you what I wish I had known when I started with discs, and also will show you how to use this knowledge by giving you a demonstration utility program which I think you will find useful.

With the demise of Premier micro-systems, Cumana seems to have cornered the market with their controller cartridge and drives — and both are very nicely produced. Cumana call their 'DragonDOS' compatible, but seem a bit about telling you exactly what this means. In fact all the DragonDOS commands work on the Cumana system, so all Basic disc programs should work. Cumana have some extra commands, namely **COOPY** which allows you to copy any files including data files to another disc using only one drive (use DragonDOS **COPI** and you can up with two files on one disc, and **COPI** is 'flopped' which will copy from tape to disc or disc to tape. As you can see these are very useful. Also the **PROTECT** On command which protects files can be abbreviated to **PROTECT** (Don't use this program since you later try to run it on a DragonDOS you will get an 'SN error').

There are penalties, however Cumana is very busy about filenames — not only will it not accept lower case or symbols such as **!;** but you cannot start the filename with a number. It is also lazy about reading things like directories. Having read the directory track since it takes this information stored in memory each time you read the directory in your program — not very useful when you have inserted a different disc! Also there is no backup directory track (but see later). More serious is the fact that several machine code programs do not work with Cumana, among them the IBM versions of Edit+, Rainbow writer and Quickbeam's Dupdisk.

The solution is to obtain the latest DragonDOS ROM version 4.0 from Compuserve. This has been produced for Eurodata's disc system and seems to have got rid of all known bugs as well as featuring an outboard system and paging the directory (not a bit of improvement since it is still too fast). The ROM is not expensive and can simply be replaced for the Cumana ROM after removing four screws in the Cumana controller. Be careful to put the ROM in the same wayround as the original. If you are in doubt I am sure Compuserve should tell you if you returned it with them. However (grrrr) you lose the extra commands.

Most beginners have problems with **READ** and **WRITE** since they forget that, unlike tape files, it is imperative to print

separators between each item when writing the file to disc.

Thus: **PWRITE(A:*)B** where **PS** is the file and **A** is the variable. Also if you write to the same file twice it adds the second lot of information to the end. So if you want to update a file rather than add to it remember to **ERL**, if first or you will wonder why you get the old lot of information when you read it back. (Microdeal forgot this with their Filemaster filing system.) Remember that if you want to save text with commas already in you can use **FLREAD** instead of **READ**. This will read all strings up to a new line mark, and one variable. Thus **PWRITEPS, AS,PWRITEPS, BS** will be read in as two separate strings by **FLREADPS,AS,BS**.

Also, don't forget that anything which can be done with the **PRINT** statement can be done also by **PWRITE**, so that **PWRITEPS,USING "*****"** is perfectly legal, and can be useful if you want to keep files all the same length, for random access.

Filename extension

All filenames have an extension, so if you do not specify one the DOS will automatically place **.BAS** after a Basic program name and **.BIN** after a machine code file. However the DOS does not need this extension to identify the type of file, so you are at liberty to use any letters you want. Thus when I was writing a program to save school pupils' name lists to disc and then to save the same name lists with the marks they obtained in a test, I saved the names as **FILENAME.NAM** and the marks as **FILENAME.MAR**. Then I have a routine which collects all the marks for the year and puts them on a spreadsheet. It looks at files ending in **.MAR** automatically, putting them in an array, and ignores those with **.NAM**. As another example, you can save any graphics screens to be used later in, say, an adventure program by first drawing the graphics required then using **SAVE<FILENAME>.HAG<2072.00072072>**. If more than one graphics page is in use then after the **00072072** accordingly. The **HPRG** will then remind you what the file does.

The disc utilities and disc detective in the August 1985 issue of Dragon User are so good that I would recommend all disc users to send for a photocopy [BT — Editor]. However, Pam D'Arcy's doctor is only really useful if you know where to find your programs on the disc. This is all right being able to read and display — even after — each track and sector, but the Dragon does not always save the files as one continuous unit. They may be scattered in several sections. My program should help in this and also does several other nice utilities. I hope also it will demonstrate techniques you can use in other programs.

First however we must understand the

directory track. This starts on track 20, sector 3. (Tracks are numbered from 0 onwards and sector is divided into 10 sectors, starting at sector 1.) Each sector holds 256 bytes of information which can be accessed by typing **CLARESD:SPREAD:30:SA:BS** where **S** is the sector number. The variable **AS** will now contain the first 128 characters in the sector and **BS** the remaining 128 characters. If you do this for sector 3 and then type **PRINT BS** you will no doubt recognise some filenames from your disc. However you will also see some peculiar symbols and if you count up there will be less than 128 characters displayed. This is because some parts of the directory are pure numbers, and the CHR\$ equivalents which are in **AS** either don't print letters or don't print at all. Indeed, if the number '13' present anywhere your display will have stopped at new line, since **CHR\$(13)** is the instruction to the screen printing routine of the computer to go to the top.

If we now type **FOR X = 1 TO 25:PRINT ASC(MID(BAS,X,1));NEXT** we will see a string of 25 numbers which represent the information stored for the first file on the disc. The first number is a 'flag'. This will usually be 0, but will be 2 if the file is protected, 128 if killed (128 in CumanaDOS), 127 if there are no more entries following. The next eight numbers are the ASCII equivalents of the filename. Potentially the filename may be less than eight characters (zeros are used as entries. These do NOT print as spaces, since the ASCII for space is 32). This must be allowed for in your programs — one method is shown in lines 8820-8830 of my program. The next three numbers give the filename extension in a similar way.

The three numbers which follow refer to where the first block of the file is stored on the disc. The first two (call them **A** & **B**) give the logical sector number. This is the total number of sectors, ignoring the state of new tracks, counting from 0 at the beginning of track 0. Thus the LBN 19 is really track 1, sector 3. And if typed the LBN we calculate **A*256 + B** (for users who understand why). The remaining number is the number of sectors the block takes. If the program is long enough the next chunk will be stored somewhere in the next three numbers, and so on. (A block length of 0 shows there are no more blocks.) The twenty-fifth number shows how many **ENTRIES** are used in the first sector, which may of course be only partially filled. This is needed to calculate the length of the program. In rare cases a file may have two directory entries if it is very long, but we are going to ignore this.

Since each directory sector has 256 bytes, this allows ten entries with an unused byte. I have used the last six bytes of the first and second sectors to give the facility to store a disc title of up to 12 letters. This is accessed at the beginning of my program

[illegible]

DRAGON & TANDY COLOUR OWNERS ...

3 NEW RELEASES



CUTHBERT & THE GOLDEN CHALICE

Lopped tails of a fabled GOLDEN CHALICE that can bring wealth and long life to whoever is fortunate being placed at the end of a deep cave. Having heard these tales, Cuthbert sets off to try and collect the chalice, but will be successful where many others have failed. The cave is filled with deep pits that will mean instant death should he fall in. Other hazards include poisonous snakes, swarms of bat-eating lures and giant deadly spiders. Will you be able to take on the challenge and guide Cuthbert to the GOLDEN CHALICE.

DRAGON 32.64 TANDY COLOUR 32K CASSETTE £5.95



TANGLEWOOD

If you go down in the woods today ...

You've never played an adventure like TANGLEWOOD! There are five dragons for you to control, each one of which behaves differently, and has different problems for you to solve. At the same time, you must avoid contact with the evil Sark, who will continuously try to thwart your plans.

There are over 700 accessible locations in nine sections, all in colour graphics: the woods, Dwarf Digs (platforms, lifts and ladders), Sark's castle (a 3-D maze on five floors) and an under-never-ending sections. The entire game loads at once.

TANGLEWOOD provides many helpful features, including the ability to return to a previous position without having saved in to tape. There is no sudden death, and although it is possible to get your self completely stuck, you have to be very careful to do so. TANGLEWOOD is also a real-time game and some things are possible at night which are not, during the day!

TANGLEWOOD ON CASSETTE FOR DRAGON 32.64 & TANDY COLOUR 32K £5.95



WIZARDS QUEST

If you've played Ark: Ages on the Spectrum then you'll love WIZARDS QUEST! As Arcade Games go this must be one of the all-time greats. ...

WIZARDS QUEST ON CASSETTE DRAGON 32.64 TANDY COLOUR 32K £5.95

Name _____

Address _____

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Please send me

- ☐ Tanglewood
- ☐ Cuthbert & the Golden Chalice
- ☐ Wizards Quest
- ☐ Post & packing 75p

microdeal

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A date for your diary!

6809

Christmas Colour Show

Saturday 22nd Nov. 1986

ROYAL HORTICULTURAL HALLS

VICTORIA LONDON

10:30am - 6:00pm

see you there!



FURTHER INFORMATION may be obtained from The Organiser on 0726 68020

All the major suppliers of 6809 software and peripherals
will be there including:

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DATAPEN MICROTECHNOLOGY

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Curtain up!

Torry and Derek Probyn provide a theatrical opening

TAKE your Dragon to the theatre with a machine code routine to split the screen horizontally, and reveal a hidden scene beneath the curtains and opened by splitting the 'front' screen down the centre, and scrolling it simultaneously left and right to reveal a previously saved screen underneath.

This could be used to hold and display an initial title screen while your program is loading, and then to 'open the curtains' to reveal your second 'hidden' title or game screen.

The routine works by moving the bytes of pages 1 to 4 left and right alternatively from the centre outwards, and replacing them with their equivalent static byte located in the screen beneath, on pages 5 to 8.

The machine code should be loaded first

of all, it is 108 bytes long, and resides near Ramtop at address 32640. The code can be loaded either by the Basic Hex Loader in listing 1, or alternatively, for anyone preferring to use their assembler, by the assembly code in listing 2.

When loading in the basic, it is necessary to reserve all eight graphics pages by use of the CLEAR command. Pages 5 to 8 contain the 'hidden' screen to be revealed last, and pages 1 to 4 contain the first screen to be viewed.

Space is reserved for the machine code by CLEAR 80,32640. This is shown in line 30 of the Hex Loader. Enter 'EXEC 32640' whenever you wish to 'open the curtains'.

Each time the machine code is executed, pages 1 to 8 are swapped to pages 1 to 4. This means that the latter are always con-

tained, so that if you require the original screen again, it must be re-drawn before any further GDBSC-32640 command. Pages 5 to 8 however, the 'hidden' screen, will not reside in memory and need not be redrawn.

Because PMODES 0 and 2 use a 16-byte screen width, and the machine code requires a 32 byte width, then your program should use only PMODES 1, 3 or 4.

A demonstration program is shown in listing 3.

In line 30, the machine code is protected and the necessary eight graphics pages are reserved. Lines 90 to 320 contain the draw data for the front screen, pages 1 to 4, and lines 360 to 500 the data for the 'hidden' screen, pages 5 to 8. Line 630 pulls the page to 'Open The Curtains'.

So on with the show!

Listing 1



```
10 'BASIC HEX-LOADER FOR SPLIT 8
GREEN H/C ROUTINE
20 CLEAR100,32640
30 CLS:PRINT"SPILT-SCREEN LOADER"
40 FORX=32640 TO32740
50 READA$
60 CHECKSUM=CHECKSUM+VAL ("5H"+A$)
70 POKEX,VAL ("5H"+A$)
80 NEXT
90 IFCHECKSUM<>7567 THENPRINT"DA
TA ERROR-RECHECK ENTRIES"
100 DATA05,0F,34,04,8E,06,00,31,
94,C1,00,27
110 DATA07,5A,46,01,A7,60,20,F5,
80,41,35,04
120 DATA34,04,31,A8,20,30,64,10,
8E,1E,00,2C
130 DATA02,20,62,8E,06,1F,31,84,
C1,00,27,09
140 DATA5A,46,1F,A7,64,20,1F,20,
F5,80,1C,35
150 DATA04,34,04,31,A8,20,30,64,
10,8E,1E,10
160 DATA0C,00,20,60,35,04,C1,00,
27,12,5A,34
170 DATA04,20,A8,34,10,30,60,1B,
00,E6,84,35,10,87,84,39,39
180 'TO SAVE CODE, ENTER C$A$H
'SPLITSCR",32640,32740,32640
```

Listing 2

```
40C1
40C2
40C3
40C4
40C5
7F60 7F60
7F60
7F60 Ca0F
7F62 3404
7F64 800400
7F67 3164
7F69 C100
7F6B 2007
7F6D 34
7F6E A601
7F6F A760
7F72 2075
7F74 8041
7F76 3504
7F78 3404
7F7A 34A820
7F7B 3004
7F7F 040C 8000
7F83 2002
7F85 2062
7F87 80061F
7F89 3164
7F8C C100
7F8E 2709
7F90 34
7F91 A61F
7F93 A764
7F95 301F
7F97 20F2
7F99 801C
7F9B 3504
7F9D 3404
```

```
*****
***** SPLIT SCREEN *
***** T & D PROGRAM *
*****
040 32640
PUT 32640
LDR 40
PUSH 0
LDR 40536
LEAF 1
LDSP 80
SEC LDR164
ROR 1,1
STA 1,2+
BRA LDSP
CDPY 0
LDR164 ROR
PUSH 0
PUSH 0
LEAF 32,7
LEAF 7
CDPY 07600
ROR RORCL
BRA LDSP
LDR 81567
LEAF 1,2
CDPY 80
ROR RDR164
ROR 1,1
STA 1,2
LEAF 1,1
BRA LDSP
RDR164 ROR
PUSH 0
PUSH 0
```

continued



Missile attack

Destroy deadly alien missiles in a game by D King

MISSILE ATTACK is a version of the arcade game *Missile Command*. You must protect thirteen cities on the planet surface from destruction by deadly alien missiles. To do this the end of the vapour trail must be caught in one of your explosions. Up to ten explosions can be on screen at one time. If you fail to destroy a missile it will reduce one of your bases or cities to rubble.

Your clips are at the bottom of the screen with your three bases left, right and center. When you are using the right joystick button a missile will be fired from one of these bases. The number of missiles in each base is displayed underneath. If all bases have been destroyed you can no longer fire. Your sight is moved with the joystick and will wrap round the left and right side of the screen. The game lasts as long as you have one city remaining on the board.

Fig. 2. *Staphylococcus aureus* (a), *Staphylococcus epidermidis* (b), *Staphylococcus saprophyticus* (c), *Staphylococcus sciuri* (d), *Staphylococcus aureus* (e), *Staphylococcus aureus* (f).

machine code, the machine code being the main game, and features three colour graphics, ten levels and a hi score table with ten entries. The Basic program sets up the random positions, direction, speed of each missile, controls the hi score table and draws the screen display.

The difficulty for each level can be changed by altering the variables in lines 200-250. H1-H3 are the number of your missiles in each base, M1 is the number of alien missiles up to a maximum of forty, and S1-S2 are the speed range for the missiles. The H1 score table can be used in any program with similar alteration. The variable S1 in line 760 sets the maximum number of enemies.

During play you gain ten points for destroying a missile and between levels the number of missiles and ground units increases and added to your score. Missiles

are worth 100 points and cities are worth 200 points. You are given an extra city even if 100 points if needed.

To enter the game start by typing `INITIAL 1`. This is the Basic program. Do not run it, but save it to tape and type in the loader listing (3). Start entering the string of hex digits in listing 2, followed by `ENTER`, then the checksum. When this is complete it can be saved after the Basic with `CSRAM "MISCODE",A:HDMA,A:HDMA,A:HDMA. If you enter this in parts, don't forget to use PCLEAR before loading. To play the game load in the Basic program and RUN; it will load the machine code.`

If you don't feel like entering the program I can supply a copy of tape with an audience version on one side. Send \$2.00 to Dennis King, 68 Fairburn Street, Ormaizy Road, Nottm NG7 5BA.

1000

```

1 REM *****SOUND ATTACK*****
2 REM *****BY DESMOND KING*****
3 REM #2354=INVERT, #20408
4 REM #2324=ZAP, #2040
5 REM #2380=HIT FLIZZ
6 REM #2308=GAME
10 FLEVEL=6048704:POKE65465,0
20 *****start point of program***
30 EXEC SH238C:G=604
40 CLG:PRINT#409,98
50 PRINT#409,"SO I'VE DESMOND KING,";G/604/470
60 PRINT#409,"ENTER START LEVEL 1=10":INPUT LE:IF LE=608 OR LE=614 THEN SOUND
1,1:EXEC#42324: SOUND 190,1,607040
70 CLG:LE=LE-1
80 GOSUB 1000:LE=LE-CLG:WHILE LE GOSUB 400,410,420,430,440,450,460,470,480,490
90 SOUND#1:SCREEN1,0
100 *****main game*****
110 EXEC SH238B:G=12551209/314500#F6A0F6C64":PLAY 48=48
120 *****
130 AD=SH230E:GOSUB430:G=1
140 *****passing the first stage
150 #4640
160 AD=SH230A:GOSUB200
170 AD=SH230C:GOSUB200
180 AD=SH2307:GOSUB200
190 GOTO230
200 IF PEEK 440 THEN P=PEEK(440+641)+644:P=PEEK(440+642)
210 RETURN
220 *****passing cities***
230 C1=PEEK 441000
240 CLG:IF C1 THEN PRINT#409,"YOU HAVE REACHED LEVEL,"LE+LE-644
250 PRINT#409,"CITIES ";C1:PRINT#409,"MIDLES "19
260 *****stage 1 complete*****
270 SH230C:PEEK#4314400
280 FOR P=60 TO 95 STEP 644:PRINT#409,"SCORE ";P:EXEC#42324
290 IF P=604000 THEN NEXT:GOTO230
300 *****give extra life if needed
310 L=4+440:P=1+SH230A TO SH230B TO SH230D STEP 640:IF PEEK(410) THEN NEXT:NEXT:GOTO 340
320 P=PEEK(410)+PEEK#41800,P=PEEK#41800+644:PRINT#409,"Score 614":PLAY "V01057
330 C=C1+644:G=1
340 *****
350 T=64:G=60440:GOSUB#42308:GOSUB#42308

```


[illegible]

2336:	9F8D84C9C63F663F8008	447D	2468:	048C128109230C462009	230
2337:	4F8D0889C164264723A	467F	2469:	34048D1C281A324814C0D	379
2338:	C3040C24849790286FF20	3994	2470:	1295868D2587804142822	29C
2339:	84C3A454277F23226135	483	2471:	86C397714888D52FC013A	457
2340:	0234045A26FD35848E04	302	2472:	8114226288C181322502	261
2341:	0034_C0C04846FF446FE5	567	2473:	8DC3C134230288C9C132	440
2342:	818C0640037F142540C6F	738	2474:	25C288C4AE2812D0C128D	3F1
2343:	26A7644C_20300015A	387	2475:	6088D25870419260066	357
2344:	26F52310549FA784A788	48F	2476:	28971966FF0084012602	330
2345:	1F3888D75A26F5392018	2DD	2477:	8D078D5A48D2587208496	446
2346:	0000000000000000000000	0	2478:	1591162484E108811208E	297
2347:	0000000000001000000000	1	2479:	2024628437848E0012615	32E
2348:	010000003408861E1F8D	18D	2480:	6888182705E8819268F	2FB
2349:	8E2396C6486F905A26F8	477	2481:	8888282730EC88E2260D	34E
2350:	86109702861F20C6046F	347	2482:	3F30001208C31A810308D	239
2351:	943045A26F698E28680C	435	2483:	19200631A81E30882EDD	209
2352:	0110A78436035A26F96F	3F7	2484:	27F5CE1F2C6DC4270423	349
2353:	170F1586094718340937	298	2485:	4420F86C0C40C13E0416F	517
2354:	16860697140E2606FF23	303	2486:	900C153904A182701398E	186
2355:	443588851E1F8B882600D	343	2487:	069712961749480E1F2C	30D
2356:	9F1A0F10CC238E8E0646	30B	2488:	33C660C827284643828E	416
2357:	06068D27A88D27A88E04	476	2489:	68C682383888EC418D36	462
2358:	5AC6068D27A88E239406	4C8	2490:	6C86438C81882304A743	388
2359:	0654A6038D27A88D3687	448	2491:	20C86C418E129788826DC	457
2360:	0696F6011948128E2812	383	2492:	04158FC49612470411625	317
2361:	5D24E0C6019600970386	395	2493:	014F9171739620A009F1A	282
2362:	109711CE2084C04F0034	347	2494:	CE1F5D61601860730338E	38A
2363:	0688C427158D2700C18D	345	2495:	484627328C9281182334	334
2364:	2709C1EF24058E283C20	317	2496:	8D374943A1940700E8E4	475
2365:	088E284A20038E285C8D	2FA	2497:	5484810827038D283135	319
2366:	26EC3F8C8B1003430611	289	2498:	14648C428104841A7C74D	44E
2367:	26D58E23A430068F2344	439	2499:	50584D7F2344E7846444	48D
2368:	8C26E223308E26D48F23	453	2500:	260A845A744483438846	38D
2369:	AA20283406DC12C00120	278	2501:	A74364C296004C010025	338
2370:	1C3406DC12C881201434	275	2502:	0144C7910636008F1639	34D

2506:	326564443D2EE6435954	=	301	2706:	A7843086205426F03510	=	368
250F:	5456240406100D66CF8E	=	306	2707:	30910811269793584804	=	374
251A:	26508D366C3504660306	=	352	270A:	201008040201CF333333	=	147
2604:	8E206A366D8427046F84	=	261	27E4:	CF0CF0CF0CF0303F003F	=	486
26:	0A03040326C2371F6632	=	230	27EE:	0303F9C3F9C3F3C33303	=	492
263D:	42398601971440466C82	=	381	27F8:	F3033F03F03033F0333	=	345
263E:	81152527390460274687	=	329	2802:	030333F3CF0CF0330333	=	376
263C:	0004005F3E840400E784	=	428	280C:	03033303F3CF0C120404	=	290
2636:	864950E744E14329096F	=	470	2816:	40404040404040404040	=	280
2640:	44350448E84620DA3504	=	32D	2820:	5555F50077FF0700F555	=	750
2644:	44200756F463939664281	=	3CF	282A:	555555555750757F7550	=	302C
2654:	04246F105E1F2C860A87	=	287	2834:	57555555081055646464	=	2F4
265E:	11606427206C20D0016	=	369	283F:	AAAAAA055595A66666A	=	528
2668:	9312276C40C16D00F6C	=	44F	2844:	AAAA0810559505F7F7F7E	=	628
2672:	6271002524910F252001	=	20F	2852:	FEFE5556384F68FFBF8F	=	61D
267C:	0E251C0110221836768D	=	261	285C:	081055555555556665944	=	348
2686:	18357664448060326504	=	22F	2866:	555555556546659940C18	=	305
2690:	031026FF014F1F883282	=	306	2870:	55555555555555555555	=	352
269A:	793124004126883390F1C	=	1F1	287A:	5555555555555555555F	=	384
26A4:	0606E22308CE227E5027	=	47E	2884:	7F555555555555555555	=	384
26AE:	611F138C06467E274866	=	343	288E:	5555555555550C185555	=	20C
26B8:	019710CC20080E1D208D	=	305	2898:	55555555555555555555	=	302
26C2:	2746CE20A06C1D006037	=	422	28A2:	55555555555077FF7F50	=	460
26CC:	ABCE230686E108E7C2748	=	46A	28AC:	55555555555555555555	=	352
26D6:	D605364843952648404	=	57C	28B6:	555555550C1655555555	=	20C
26E0:	0039D60D70053F48404	=	466	28C0:	555555550C5555555555	=	5F1
26EA:	0D393456D0048C300006	=	40A	28CA:	5555D07FFFFFFF7F5055	=	68A
26F4:	30027607880794444447	=	2C7	28D4:	5555555555555575555	=	394
26FE:	090C048D47D704D60938	=	387	28DE:	5555AC18555555555555	=	36C
2708:	66FFD607C06627054454	=	376	28E8:	FF5F07D3055555555550	=	58A
2712:	26FC43D60A3D58454353	=	389	28F2:	FF7FF705FF77FF0C15555	=	72A
271C:	D00E301F9F0F96069708	=	320	28FC:	555555557575F5F575555	=	36C
2726:	8AC0D6A83E5846D008EC	=	4FA	2906:	0C1855555555D075F575	=	43C
2730:	849408040C0308D88430	=	48A	2910:	70F5055555555555FF77	=	54E
273A:	8820040826E63D0F86FF	=	3F8	291A:	05555570FFC055555555	=	52C
2744:	040526CD35D634644466	=	325	2924:	5057575F5F575570C18	=	2F0
274E:	44564456D31A1F013506	=	27C	2926:	55555550575755555575	=	44A
2758:	0406CE27086C535C007	=	40E	2938:	0575555555557F575555	=	44C
2762:	113A39C5A602AB0C20109	=	462	2942:	5870FF50555555555557	=	43E
276C:	2207A7840A1126F2394F	=	32F	294C:	5755D05705570C185555	=	2C2
2776:	846C1F0A1126E9390602	=	33A	2956:	555555575755050555755	=	34E
2780:	871134CE239E86C28462	=	581	2960:	55555550555555555555	=	38A
278A:	070090002B13A7800611	=	303	296A:	055055555555557555D0	=	46A
2794:	28F01F131FF21CC018297	=	2EE	2974:	501057594F403948555	=	330
279E:	1C2004A6848D0A90006A	=	30C	297E:	5555555551055555555	=	252
27A0:	1F20E53404D711341048	=	32E	2988:	55555555555555555555	=	032
27B2:	C0C60530108C27E0C145	=	443	2992:	55555555555555555555	=	55E
27BC:	C605A6D0D1C27028A95	=	342	299C:	55550000000000000000	=	17E

Listing 3

```

PCLEARS
  CLS INPUT "START ADDRESS":ST
30 INPUT "END ADDRESS":EN
40 FORP=ST TO EN STEP 10
50 GOTO
60 PRINT HEX$(PI*PI)
70 LINEINPUT#8
80 IF LEN G#1 <20 OR LEN G#1 >20 THEN 170:80 GOTO170.2
90 A$1=FORP:0 TO 9
100 V#1=VAL ("EH"+HEX$(G#1,A,2))
110 POKP#P0,V#1:OK=OK+V#1
120 IF V#1=2:NEXT
130 INPUT "NEXT?":C#
140 IF VAL (C#)*C#0<OK THEN 170
150 NEXT
160 END
170 PRINT "error--re-enter"
180 GOTO170.2
190 GOTO80

```

Analyzing costs

L. Pitt's worksheet helps you update accounts and manage finances

ANALYZER will enable you to put your Dragon to work analyzing purchases, budgets and projects. It is a worksheet where, if any quantity is changed, all results are updated. This allows you to ask: "what if this amount is changed will be the cost, or lead time, or profit?"

The quickest way to appreciate *Analyst* is to refer to an example (Fig. 1), a super-market price survey.

The worksheet is divided into cells identified by a letter (column) and number (row). Item's price cell A60, "Mow's" is in cell H3. If you now change the value in B4 which is now .09, the values at F67, J67, J10 and J13 also change.

Any cell that contains a quantity can be used in a calculation with other cells. With *Analyst*, you can add, subtract, multiply, divide, raise to a power and calculate percentages. You can also sum columns and rows. Row and column headers can be displayed plus an extra line from anywhere on the worksheet. Any column and row can be used for headers. Data can be saved to tape or disk and sent to the printer.

Analyst uses the standard text screen and displays only four columns and twelve rows at a time (but total capacity is ten columns and 100 rows for a massive 1000 cells). The screen always displays the column letters at the top and row numbers on the left. The **READY** prompt under row twelve indicates that the program is ready for more action.

Cursor control

Move the cursor around the sheet with the arrowkeys. The screen will scroll if one or four destinations if the cursor tries to leave the screen. For faster moving use the shift/right arrowkey. You can now nominate the top left cell of the display window up to row 68 and column G. Use the shifted arrow as a home key. It returns you to the first cell in one keystroke. If the **READY** prompt is replaced with any of the following options then the left arrow reverts to a backspace/correction key.

As soon as you type a letter or number the **READY** prompt changes to an **INPUT** prompt. You can now continue to enter words or amounts up to six characters. When the sixth character is typed the bell sounds but you can still backspace with the left arrow and make corrections. Press **ENTER** to transfer the data into the cursor cell. **INPUT** can be aborted anytime with the **CLR** key. All entries are repeated. *Analyst* will perform up to 100 calculations, and each calculation can have seven operations involving up to eight cells. Move to the cell where the result is to appear. Now press the plus key (Shift +). The **READY** prompt will immediately change to a **FORMULA** prompt. Any cell number in a formula

must have two digits. Therefore the first cell multiplied by the second cell is entered as A60*B08. Once the **ENTER** key is pressed the formula is displayed below the **READY** prompt and again whenever the cursor is at the cell.

On the survey sample J10 shows $J10 = \text{sum}(J03)$. If only one cell is entered as A60*B08. Once the **ENTER** key is pressed the formula is displayed below the **READY** prompt and again whenever the cursor is at the cell. This can be useful where, say with a budget, a common cell amount is in each column. If the row changes (read vertically) all the cells can be changed in one stroke. To raise a number to a power use the up arrow. eg A60up arrow B03. Note that raising to 5 gives square roots and 33333 cube roots etc.

Once formula and sums (see **Item**, **Cycle**) are entered, the program starts and they should be entered last or see **Cycle**. If an illegal formula is entered, an **INPUT ERROR** message may appear. After 100 calculations are entered a **NO ROOM** message will show. Press any key with both messages to return to **READY**. If you change your mind you can return to **READY** with the **CLR** key.

For access to a dozen other commands press shift(O). The **READY** now changes to a command/prompt menu. Press the inverse pointed letter to execute the option of the abbreviated word/letter/angle. Most can be aborted with the **CLR** key while correct responses usually result in **INPUT ERROR**. Some require you to press Y to proceed, any other will abort the command. Incorrect responses to the **NOV** prompt default to zero allowing simply pressing **ENTER** to mean zero row.

Item inserts a blank line if there is room. Use it with caution as there is no row delete facility. All calculations are adjusted and obviously it will take a while. If you are using a cell in row 69 then there is **NO ROOM**.

Print is for hard copy and prompts you for the start row to be printed and prints to the line of the cursor. You have the option of printing with or without cell identifiers/signs.

Print allows you to specify printout a little limited to 30 characters. To erase the title press **ENTER** after (T) use abort with the **CLR** key. An 80 character printer must be on-line for printing.

Save is for **ICassette** saving and **Load** and **Disc** saving and **Load** whenever inverse letter you press. The tape monitor and audio are on for positioning where the **OK?** prompt appears. The filename must start with a letter and contain only letters and numbers. It is automatically limited to 8 letters and all entries are rejected.

If time lets you display a line at the foot of the screen. This enables you to display a

grand total cell hundreds of cells from current input.

Find erases the footnote. If the last cell of **Find** exceeds 7 characters due to the result of a calculation the screen will scroll and the cursor will point at the wrong cell. Choose a different label refer to the **Doc**.

Set lets you completely blank the cursor cell of all information.

Item sums cells along a row or column of the cursor cell. You must nominate the starting cell and sum at least one cell. Up to 30 row sums are allowed.

Cycle sums the column into the cursor cell. You must nominate the starting cell and sum at least two cells. The program allows up to 70.

These sums calculate much faster than the formula facility and should be used in preference. Whenever the cursor is at a cell that contains a sum you are notified underneath the **READY** prompt.

Doc nominates number of decimals for accuracy of calculations. Set to two decimal places initially (Money), and you can alter it at any time from none to four. If large numbers are involved the cells may overflow and print over the next cell. To counter this set **Doc** to none and leave the next cell blank. If that's not enough scale the numbers, meaning they are thousands or millions. Sometimes the Dragon wishes to display more decimals regardless.

Cell will display any column in the first column as row titles, leaving three working columns. The cursor must not be in the first column at the time. Pressing (i) after (R) turns it off. The cursor cannot move to the first column with **Cell**.

Note that the program works through formulae in order of entering them, does sums. If a formula uses a sum it will use the last displayed and the updated sum of the next cycle.

Cycle lets you set the number of calculation cycles within a cycle from none to nine to overcome the above lag. When a number of values need updating, a lot of time is usually saved if no cycles are set; however, you will not know which input may cause an overflow or other crash. When a formula is changed, it is first deleted and then the new formula becomes the last to be calculated.

Doc? lets you check a disc directory.

TL will display any row at the top as column titles.

TL means you do not want a footnote. (F) or shift/less recalls the summary seen after loading.

A test run

Move to A60 type 1000 and press **ENTER**. Move right to B60 and enter 89 then right again and press (+). The formula prompt should now have appeared. Enter A60*B60 and C60 should give 101 as the

result and the formula displayed under READY. Move down to C8 and enter 60 then down again and enter six dashes. If you hit BREAK accidentally, enter GOTO 90 to continue again. Move down to C93 and press / to bring up the command menu. Press C then enter 0 and the column is summed into C93 and press / to bring up the command menu. Press D then 1 and the column is summed into D93 with the appropriate message under the READY prompt. Move to C80 and press / then R then A to save the top line.

Press shift/left arrow then enter 80 to the prompt and then A. This should move the display window to A80 top-left.

Press / then F then enter 3 then press C and the result from C81 is displayed on the bottom line (line 3). Press / and enter C93 and 16.1 appears in D88. Press / then L then enter 0 and the first line replaces the normal top line. Press shift/left arrow and we're back at C80. The top line is now calc-

ulating as press / then R.

This should give you a little feel for Analyze and you can now try such command after pressing /5. Note that pressing any mistake key causes a return to the READY prompt or an INPUT ERROR message.

Troubleshooting

Save data regularly. A crash may occur for several reasons such as an overflow disc error. If the program crashes, enter GOTO 90 and remove or alter your input. Pressing CLEAR returns to the READY prompt except during saving, loading or updating. You may press RESET then enter CLOSE: GOTO 90 to regain control before actual cassette loading. Sometimes the DRAGON will seem hung but is actually consolidating string data which must not be interrupted, just wait.

The program PDSB is written itself and the first eight lines must be typed exactly as the

listing. If you GOTO 400 you can compare the memory locations with the values for 54 to 58 in line 595. They should all say 87 or you've got it wrong. Without disk delete 57, 58 and line 6 and 7. Once the program is run they change. Below line 480 onwards when the values are correct. Save the program before running it. You'll have to type to line 54 and 80 RETURN and lines 500 to line end before the display works. Add the more lines of 60 to move to any cell. Now enter to line 100 to enable calculations.

You may not want all COMMAND options such as those connected with the disk or printer. Initial case substitute 31 as the case to jump to in lines 58 and 16, as the line to GOTO 80 to in line 149. Make sure not to confuse the number 8 with the letter B.

Print supply a program on cassette if you can send a money order (not a cheque or postal order) for 88 Australian including airmailing to: L. Pils, 71 Woodville Road, Mooroolbark 3108, Victoria, Australia.

Figure 1 CONSUMER PRICE INDEX SURVEY

	A	B	C	D	E	F	G	H	I	J
0	ITEM	UNIT	QTY	COLES	WOOLLS	SEA	FRED	7/11		
1	-----	-----	-----	-----	-----	-----	-----	-----		
2	PLUM	KG	2	1.20	1.24	1.30	1.32	1.38		
3	MILK	LITRE	2	1.41	1.41	1.41	1.41	1.38		1.80
4	BREAD	750GME	1	1.20	1.25	.99	1.36	1.28		
5	SUGAR	KG	2	1.17	1.15	1.28	1.38	1.26		TOTAL
6	-----	-----	-----	-----	-----	-----	-----	-----		
7			TOTAL	5.80	5.83	4.9	5.19	5.2		25.5
8										
9									STORES 3	
10										
11									MEAN 5.1	
12									PREV'S MEAN 4.95	
13										
14	DATE	5/54							PRICE HOWE % 5.80	

Figure 2 (with grid)
HOME EXTENSION

	A	B	C	D	E	F	G	H	I	J
0	ITEM	UNIT	#EACH	QTY	COST					
1	-----	-----	-----	-----	-----					
2	FRAME									
3	-----	-----	-----	-----	-----					
4	3X4	FOOT	3.50	150	525					
5	2X4	FOOT	2.50	200	500					
6	2X6	FOOT	3.50	200	700					
7	NAILS	LB	4.75	5	23.75					
8	-----	-----	-----	-----	-----					
9				TOTAL	1748.7					
10	ROOF									
11	-----	-----	-----	-----	-----					
12	SHEET	EACH	28.00	5	140					
13	CLIPS	25	4.00	2	12					
14	NAILS	LB	5.00	1	5					
15	-----	-----	-----	-----	-----					
16				TOTAL	117					
17										
18			GRAND	TOTAL	1865.7					

Figure 2 (without grid)

HOME EXTENSION					
ITEM	UNIT	#EACH	QTY	COST	

FRAME					

3X4	FOOT	3.50	150	525	
2X4	FOOT	2.50	200	500	
2X6	FOOT	3.50	200	700	
NAILS	LB	4.75	5	23.75	

			TOTAL	1748.7	
ROOF					

SHEET	EACH	28.00	5	140	
CLIPS	25	4.00	2	12	
NAILS	LB	5.00	1	5	

			TOTAL	117	

GRAND	TOTAL			1865.7	

[illegible][illegible]


```

188 Z=9999:FORX=1TOY
189 PARETE2$,FROMZ:L:K:
190 PARETE2$,FROMZ:K:H(X)
191 Z=Z+9:NEXT:Z=9999:GOTO6
192 'dload
193 PREAD2$,FROM:L:F
194 PREAD2$,FROM:H:N
195 PREAD2$,FROM:H:Y
196 PREAD2$,FROMH:Z,FORMH:TW(X)
197 PREAD2$,FROMH:Z,H,FORMH:K(X)
198 Z=Z+9:NEXT
199 Z=9999:FORX=1TOY
200 PREAD2$,FROMZ:L:K:
201 PREAD2$,FROMZ:H,K,FORMH:N(X)
202 Z=Z+9:NEXT:Z=9999:GOTO7
203 'alline/jump
204 GOSUB17:IFT=3THEN31
205 IFZ=,AND9:GOTO10
206 IFZ<9 THENPRINT"FROM a,b,c,
a,b,1,97":GOSUB13:IFT=12THEN31EL
SET=1-9:IFT<10RT>9 THEN19
207 IFZ=, THENR=S:V=S:L=4:W=T:C=
H+1:IF=S+9-C ELSEU=S:I=1
208 GOTO39
209 'fcol
210 IFZ=H THEN19ELSEPRINT"column
19:HOME":":GOSUB13:IFT=12THEN3
1ELSEIFT<9:GRT:PA:THEN19ELSE=119
GOTO39
211 'cycclear
212 PRINT"cycleclear":G:GOSUB13:IF
T=12THEN31ELSEIFT<49GRT:57THEN19
ELSEFORH=1449,T=D+1-49:PRINT"mai
5":GOTO29
213 'dir
214 PRINT"disk dir?":GOSUB13
215 IFT<999THEN21ELSECL3:DIR
216 GOSUB13:GOTO39
217 'line
218 GOSUB17:IFT=12THEN31
219 W=9:GOTO39
220 'csum
221 IFH=97THEN14
222 GOSUB16:IFT=12THEN31
223 IF5>R-2THEN19
224 GOSUB24:H=N-1
225 L(H)=S:M(N)=P:GOTO29
226 'psum
227 IFY=9 THEN14
228 IFZ<3THEN19ELSEPRINT"from co
sum":":GOSUB13:IFT=12THEN31ELSE
T=1-9:IFT<10RT>9-C-2THEN19
229 GOSUB24:Y=T+1:H(Y)=P:L(Y)=T:
GOTO29
230 'dcm
231 PRINT"decimals":":GOSUB13
232 T=T-49:IFT<9RT:47THEN19
233 PRINTT:"wait":S=9-T:GOTO29

```

```

234 'title
235 PRINTP:PRINT"1:123456:GOSU
B29:IFT<12THENP=29:GOTO31ELSE3
1
236 'border
237 CL:8:FORX=33TO44STEP32
238 PRINTX,STRING$(39,175):
239 IFX=33ORX=449THEN395
240 PRINTX=1,STRING$(129,22):
241 NEXT:RETURN
242 'summary
243 PLAY9:GOSUB39
244 PRINT9129,"summary":
245 PRINT9147,"ARROW=CELL MOVE"
246
247 PRINT9176,"S/R ARROW=JUMP HD
VE":
248 PRINT9236,"+=FORMULA":
249 PRINT9236,"/=COMMAHS":
250 PRINT9276,"CLEAR=ABORT":
251 PRINT9324,"S/L ARROW=FIRST C
ELL":
252 PRINT9366,"?=SUMMARY":
253 PRINT9425,"press a key":
254 GOSUB13:PLAY9:RETURN
255 'intro
256 P:CL:AR:1:CL:AR:9999:GOSUB39:
FORX=329,1:3=1:Y=97:W=1:810=122:U=
G:U=9:W=9:O=9:4:8=1100000
257 PRINT9172,"analyzer":
258 PRINT9324,"COPYRIGHT 1981,PI
LZ 1785":IFORX=1TO5:PLAY"TI50=C:
CEOCB":NEXT150AND249,1
259 S=PEEK(251425)+PEEK(26)
260 S=S+29:52=S+99:53=S+99:54=S
+54:55=S+155:56=S+149:57=S-222:5
8=S-277
261 GOSUB12:51MM=51,5M=5,C=5
1,5M=51,5M=51,5M=51,5M=51,
1M=5,2M=51,5M=51,5M=51,5M=51,
57 L=42:H=1:IF=2:IC=2:R=,19=:GOT
O39

```

END

```

400 ' TEMPORARY LINES
410 S=PEEK(251425)+PEEK(26)
420 FOR=9 TO=399
430 PRINTX-S,PEEK(X)
440 NEXT

```


If you've got a technical question write to Brian Cudge.
Please do not send a SAE as Brian cannot guarantee to
answer individual inquiries.

Dragon Answers

Line jump

IN ORDER to speed up a Basic program, I wish to replace several IF...THEN lines with a machine code routine. After the machine code has made the comparisons, is there any way to direct the return to Basic to a different line number other than the one which follows the BASIC command?

Derek Probyn
4 Amberton Street
Chesham, Bucks
HP8 3JL

IF YOU use the machine code program listed below, this will allow you to call your routine as follows:

```
60000 code line
Where 'addr' is the address of the routine, and 'line' is the line number to jump to if the machine code test is successful. If it is not, then the program continues as normal.
START JSR 35242 'Saig over comma
```

```
"Insert your code here...
5555 'Check result status
LINE 5555 'Execute GOTO
JSR 35242 'skip line number
END
```

DOS help

IN THE August edition of Dragon User we published a query from Mr. McCandish about using DeltaDOS ROM routines. I have a copy of the 'DeltaDOS Advanced Programmer's Guide' which gives a lot of help and information about particular BASIC routines and a list of nine sub-routines in the Delta ROM and gone through it pulling in comments on sections of code.

If you would publish my name and address in your column I would be happy to help anyone with DeltaDOS queries.

Gary Coxhead
1st The Jewells
Carnington
Standard Le-Moyne
Essex SS17 3JG

OUR thanks to Gary for his offer of help. If you do write to him then please enclose an SAE if you want a reply!



No RAM

USING THE Altosium assembler (on tape) and attempting to assemble at an ORG of \$C000 results in an error. I assume this is because it is not RAM. Is there any way to assemble directly to those addresses to provide correct source code for EPROMs?

D. P Foster
64 Kentworth Road
Fleet, Hants

YOU ARE correct in assuming the problem is caused by there being no RAM at \$C000. If you run Altosium with RAM fitted here then it will happily assemble direct to this area.

The solution is to use the PLOT assembler directive to place the binary code elsewhere in RAM, while still generating code which is correct to run at \$C000. For example, to store it in the graphics area use:

```
ORG $C000
PUT 3B72
```

BIN files

I WOULD like to know how to load and save standard binary (.BIN) files to and from disc from machine code. Is there any chance of an article on DragonDOS appearing in Dragon User?

Kevin Peacock
7 Hill Farm Way
Southwick, Sussex
BN1 4XJ

IF YOU want to make your machine code programs compatible with all the versions

of DragonDOS then you should use the standard DOS routines (open/close/read/write file etc.) rather than jump into the ROM in the middle of the SAVE and LOAD basic commands.

All the information you need is contained in 'A Programmer's Guide to DragonDOS' available from Dragonware Software, 20 Grosvenor Road, Bedford, H. Sussex MK42 1BS, for £2.99 including post and packing.

'Gapped'

I WOULD like to know what a 'gapped file' is and how I can use it to place machine code being loaded from cassette in to different places in memory.

Paul Dugan
18 Moorcroft Road
Sheffield, S10 4SS

WHAT is normally referred to as a 'gapped file' is that produced for ASCII data on the Dragon. All files are made up of blocks of at least 255 bytes long, but unlike Basic and machine code, ASCII files have 'gaps' of about 1/5 seconds between each block to allow the computer to stop and start the tape while reading in the data.

The length of blank tape between the blocks is technically known as the 'inter-block gap'. Binary files normally have a zero length inter-block gap so it used to be how you could use gapped files to load in machine code.

To load code at a different address to that which it was saved from you simply need

to give CLDROM a (2% complement) offset, eg CLDROM "FILE", 1000 will load FILE at 1000 bytes higher than it was saved from.

Kung-fu

I RECENTLY saw a game called 'Way of the Exploding Fist' on a friend's Spectrum. Is this game available for the Dragon 32 and if so where can I get it?

Peter Cobb
245 Colston Road
Sheffield S8

'EXPLODING FIST' is produced by Melbourne House but there is no Dragon version available. A couple of kung-fu games available for the Dragon which are worth considering are 'The Master' from Blaby Games, at 15 and 'Shaolin Master Fist' from Quickbeam Software at £3. This is superior to the Spectrum version of 'Fist' in my opinion. Blaby can be contacted at Greenways House, Lutworth Road, Blaby, Leicester and Quickbeam at 67 Old Hazzard Road, Brackbourne, Herts.

Addresses

COULD YOU please tell me how it is possible to find the start/end of addresses of commercial machine code programs so that I can make backup copies of them in tape. I would be very grateful if you could help me with this problem.

Martin Ellis
67 Cooper Road
Shaftesbury Heath
Leicestershire

FOR STANDARD binary tape files the following instructions can be printed after loading the file:

```
START: 407488 LENGTH +1: 128127 ENTRY: 485486
```

Most commercial programs use one form of protection or another so it is fairly simple to find the addresses for them. You shouldn't need to copy commercial tapes, and of course passing a copy on to anyone else is illegal and you could end up losing a very happy life if you do.

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2407

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10-13 Little Newport St., London WC2N 7PP,
with all your arcade tips and hints.

AND SO once again time eddies its slow way forward (if that's one of the worst mixed metaphors I've ever seen) — **EX!** I realize the moment of when time eddies something totally unexpected. So what will happen at this moment? You ask and scratch your heads. I shall tell you. The date will be the publication date of the next issue of Dragon User, and the event is my Christmas present to you, all, an alphabetical list of millions of pokes (and that means at least twelve or thirteen!) Yes, I put **PERSONALITY GUARANTEE** that the pokes you want is not three days' month, then either it doesn't exist, or I don't think it's any good, or you will be very irritated!

But "What do you have for us this month?" you cry. Well, more manuals. I can point out a lot of good things for you this month. For starters, you may have noticed the map... Yes, Mike Gerard, this is **MMT**! Here is a justification map, and a very, very good one, by David Lillard, who also writes a sci story. David you may remember was the winner of our mystery picture competition and he won a free subscription, well, the very funny thing is that he sent a cheque for one with his competition entry, the very very funny thing is that he's been receiving two copies, and he very very very funny thing is that he's asked me, the Expert, to do something about it. Well, I'm going to have a jolly good laugh at your expense, that's what I'm going to do. He has a free free free to no no bloody he bloody free free free (ps). Right, that's do. Hopefully the subscription will be processed and they'll sort you out, David. (Stop at a line, preferably enclosing your unwanted July issue, David, and we'll see if we can arrange something. Ex.)

If anyone else has problems of an administrative nature, don't hesitate to send them to someone else. I do the pokes, not the paperwork.

I've had a very interesting letter from The Man Who Couldn't Type (I want you — pretentious pen names can screw you up. They certainly will! I get my hands on you.) who kindly provided a new competition. All you have to do is match the message to the location (they're the messages that came up after you've done 40 on each screen from the list below and you can win a wonderful prize which I haven't thought of yet, but it's sure to be utterly worthless. To help you all I've done the first twenty-one of them, so you only have to match the code message to the location for the rest of them.

Location Message

Death Valley — A real desert rat!
Outlaw Alley — Smile while you stay off
Lost Maverick Mine — Buy low, sell high
Dodge City Bank — Bandit built bank!
Dead Man's Pass — Go for it!
Rise River Crossing — Grab the goods!
Tombstone Jail — It's good to be free!
Cattle Grazing — I dub thee — Knight
Halls of Doom — You made it!
Black Dungeon — Rise your five year!
Mystery Maze — You can't escape!
Underworld Arena — Well done, Gladiator!

Forgotten Ruins — Good show, Ranger!
Chaos Caverns — Crush till destroy!
Gamma Station — Big old laser!
Hyperspace — Warp 12 or death!
Escape to Moonbase — Shuttle docked!
The Invidious Grid — Beware grid bugs!
Enterprise — Speak lives!
Starship Omega — Beam me up!
Light barriers — Use the force!

So, these the competition. I hope you don't think it's too difficult. Well, there's a little cheat to help you. Follow the instructions:

Press load the game with audio on, wait until the game has loaded **EXCEPT** for the very last block (which is only about a second long, followed where it is to be loaded and mark it with the tape counter), press reset, the machine will apparently cycle-start, type the following pokes in carefully:
POKE 12623, \$H0E; POKE 12624, \$H0E;
POKE 12625, \$H0E; POKE 12626, \$H0E;
POKE 12627, \$H0E; POKE 12628, \$H0E;
POKE 12629, \$H0E; POKE 12630, \$H0E;
POKE 12631, \$H0E; POKE 12632, \$H0E;
POKE 12633, \$H0E; POKE 12634, \$H0E;
POKE 12635, \$H0E; POKE 12636, \$H0E;
POKE 12637, \$H0E; POKE 12638, \$H0E;
POKE 12639, \$H0E; POKE 12640, \$H0E;
POKE 12641, \$H0E; POKE 12642, \$H0E;
POKE 12643, \$H0E;
POKE 12644, \$H0E.

Save the game using **SAVEEM "BAN-GIT"**, **000000**, **00755**, **\$H080E**. From now on the game should be loaded by typing **LOADEM EXED (ENTER)** and when you play your power will be setback up to 100 for every hundred points you score by final selection from this man's funny and interesting letter to his choice of "Music to Zap To" (This month's nomination is **Matthew's Broodmare**) and the **Don't by John's Fall** — (No, I've never heard of them either, Eric.)

And now for Rays of Faith. I've not got a copy of this, so if anyone wants it good me one. It's a main puzzle. However, not one to without information, here's the solution, courtesy of Edward Brown who hails from Leicester. Take a juicy Eddie baby!

"A) First you must find line 38. Where it says "BT-Q" change it to "BT-QB". (Hey, is this a solution or a hack? Oh stuff it, who gives a damn anyway.)

B) Whenever you come across a jam button, ignore it.

C) Flag down — Kick or bang door — Go right — Pick up sandal — Go up — Pick up gold — Bang on side — Go left — Go up — Fight monsters — Pick up trumpet — Ignore spade — Go up — Bang on side — Go left — Go down — Go north — (Play) Trumpet — Pick up Chair/ride — Drop the chair/ride (No. 2) — Wade across (ignore them) — Leave them — Kill monsters — Kick door — (Shove in sandals) — **THE KEY**

Seems pretty easy, sports a bit like an adventure. I'm not too keen to have Mike Gerard round accusing me of invading in the **Wes Small Hours**. Mike is a big guy, he makes Colin look like **Glow Worm**.

Now then, to the **Rise Eclipse Save-game** (Editor of oh so many months ago, there were some bugs in it according to Matthew Lodge from Cheshire.

Line 408 should read "400IF .AM THEN

BO ELSE 060"

Line 1480 should read "1400 DATA CARDO HOLD, 5, FUELTAKE, 1, 10, MD LASER, 5, HYPERDRIVE, 1, DRILLING RT, 1, ASTEROID DRILL, 1, MELLARD 9"

Also **EXPLORERS** is a spot wrongly in line 1280, and the line number (which should be 10) is missing from the last line. Matthew has also given a couple of suggestions as to who I am, is definitely not "De-beam of the Wapped Mind", not Mike Gerard, and I am not even a Dragon running some sort of the art AI program (well, that's certainly a bit of a stretch), sorry certainly that's so! I must be as I am most of the rest of the UK (and Lucan!) Terry Wagon. Well, Matt, all I can say is, "Close, but no banana." You don't even get this month's prize, which goes to Christopher Greenbank, who suggests that I might be the "off" of golf on the New Man title screen! Wrong, but very amusing. Chris's problem was his name, and all the information he sent me. In **THIS COLUMN**. And I think you'll be quite interested too...

"Dear Expert, in your informative columns you have mainly included pokes to make games easier to play" — For those lesser mortals who find them hard, Chris, I, for myself, need them all — "Why not include pokes that allow you to customise games?"

"Chuckie Egg by A+E Software was a very good game until the games started lasting four" — only hours! The kid's an amateur! — "because the screens were memorised. Below are details of how the screens are stored so that newcomers can be produced."

Addresses Contents

3C80 3C81 H and to byte of start screen 1
3C82 3C83 H and to byte of start screen 2
3C8E 3C8F H and to byte of start screen 3

"Screen data can be stored between 3C819 and 3C8F7. I have not tried but think it could also be stored after the program which is at 347E.

Each of the eight blocks of screen data is ordered in the sequence shown below:

A) A "header" of five bytes containing:
1) number of walls in screen 2) number of obstacles in screen 3) X co-ordinates of the 3 initial number of seeds in screen 4) initial number of chicks in screen.

B) The five co-ordinates of the chicks. These are in the order X, Y, and are the normal 256 by 166 with X being to be an even number and Y being a multiple of eight (so that it can walk on a wall).

C) The walls (animate which are Y, X, of the left corner and the length. The X, Y, length is entered out on a character grid the screen which numbers from 0 to 31 along the X-axis and 0 to 23 on the Y axis going across and down respectively from the top left hand corner. For the wall co-ordinates there will be three bytes multiplied by the number of walls.

D) The ladder co-ordinates which are X,

Y, of the top left corner, and length, these also use the character positions, and there are three bytes multiplied by the number of ladders.

G) The egg co-ordinates which are X, Y, using the character positions. There are always twelve eggs and therefore 24 bytes

in this section.

F) The seed co-ordinates which are X, Y using the character positions. There are two bytes times the number of seed in the screen.

The map always starts at (12, 32) and (12, 32).

So, there's Chris's Charlie Egg-designer, and that's about it for the month, except to say, keep sending the poles, keep sending the maps, keep sending the screen designers, keep sending the suggestions of who or what I am, keep-sending the flows.



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All the number of Dragon adventures released by the main software houses owes to a trickle, you readers have shown that you're not going to take it lying down and have been increasingly writing your own and sending them to me. I'm happy to look at any I receive, and even review them in the column if I think they're worth it, though some submissions have had to be returned to their authors as not really being up to scratch.

For the benefit of anyone thinking of spending something in, let me tell you what I make by that. It's not that I'm a particularly hard person to please, and I do recognise the amount of hard work and hours of slog that go into the production of any piece of software, especially an adventure — I know because I've done it in some cases! I say that it can't review the adventure because I don't think it with a side enough appeal to all the Dragon user readers who take a stroll down the Adventure Trail each month. An adventure set in your own school might be fairly to yourself and your friends, for example, but won't mean much to anyone else, particularly if solving the problems relies on a knowledge of some of your teachers' peculiar habits.

In some cases I may even send one back without spending more than about five minutes looking at it. That happens when I find very obvious bugs in the first few sections, along with lots of spelling mistakes. Send something in that's already and you'll get it back pretty sharpish! I've always got a million and three things to do, and debugging other people's adventures isn't one of them. Send something in that's promising, though, and you'll get what I hope will be constructive criticism.

First-rate

Reader Rob Mangrove sent me in a two-part adventure called *Perseus' Poe*, and apart from not being too keen on the title I thought it was simply the best adventure I'd ever seen from a reader by far. The screen layout was excellent, the storyline original, problems were intriguing and sensible, response was quick and there were lots of nice touches such as a RECP command, which allowed you to save your position to memory. I'm sure Rob would have had no doubts in sending a software house an adventure when the Dragon series was flourishing, and their still having a go at doing that, but will still keep it as one of the things I'll take it on. I'll save a full review for when the game's future is decided and I can tell you where to buy it, but if any software house is keen to get its hands on a first-rate

adventure, contact Rob Mangrove at 24 Canon Young Road, Winkfield, Leamington Spa, Warwickshire, CV30 2DU.

Another regular reader is Lionel Degrue, whose name has appeared before in these pages (see pages), and he's written an adventure partly to amuse himself and a friend of his. It's a story line based loosely around the works of Lewis Carroll, and a good knowledge of those is necessary to enable you to solve the game. The main interest here, though, is in the programming. Again the screen lay-out is very well done, and Lionel has seen to it that every line of the lengthy and atmospheric location descriptions fits exactly into the 32-character screen. They are also done in reverse video, which looks effective, and there are various machine code routines incorporated to read and analyse the input and also protect the program. Lionel isn't putting the adventure up for sale, but anyone who's keen on the programming of adventures is welcome to contact him at 5 rue Henri Martin, 95650 Amiens, France.

By far the most profile of my adventure-writing readers is Michael Edwards, alias Bloomsoft, and I've received no less than three of his titles recently. Thankfully they're always worth looking at, and also worth buying if only £4 from Bloomsoft at 30 Beconhills, Molesey Garden, Hert AL7 1PF. Michael must spend more time writing adventures than he does actually breathing, and I've already mentioned the first two parts of his *Space Trek* series, and now he's come up with *Space Ice II*. This follows the format of the others in allowing you to control four different characters, the co-operation of each will be necessary to solve the adventure as certain objects can only be done by certain characters — well, there's an engineer and a doctor among them, so start to work it out from there.

This time a dimensional gate has been opened, which is more serious than opening a five-bar gate on a field full of cows as it causes the Starship Endeavour to be sucked through into another dimension. How to get back? You're looking for the missing quarter of the Quake key, which will do the trick. The game begins rather boringly in that you have to move all four characters from the first location to another one that is six moves away, picking up a few clues and objects on the way, before blasting off in the shuttlecraft to a place called Mishra, where you come down on a landing pad that is a fraction of an inch above the ground. It's a bit boring, in fact, and it's a pity that a substantial part of the game is made up of routine, and you can't SAVE your position

unless you QUIT first, then re-LOAD the adventure and LOAD your saved game. Michael ought to get rid of these unimproved and unimproved details, and also tidy up the endings, and this isn't the best of his three latest titles.

An improvement is the Time Machine Search, in which you've just completed and are testing a Time Machine when there's a loud explosion and you wake up in a different world. The machine has broken up into its four main pieces, and you know you'll have to find them all before you can return. The bad news is that they are all automatically camouflaged so will blend in with the surroundings whenever they happen to have ended up, but the good news is that the watch which you have previously implanted in your wrist will buzz when a piece is nearby.

Poison mist

The last where you are doesn't at first seem all that different from earth: it's road, a shed, a school, a pub with a barboard and even a gloomy looking barman. But why is there a poison mist when you get through the school fence, and what is this strange old-fashioned machine containing lots of crates with unusual and useful objects? One crate even contains the Ark of the Covenant, but maybe that's just stayed in from another adventurous life. There are some seeds that can be planted to produce a tree just overlooking you to climb up it, while in the school there's an operating spinaker system, a robotic basketball player and a proof with a plug and a trapdoor — the problem is that you climb before you can get to either. In fact the school is overflowing with items: a magnet, acid, knife, plate, shovel, matches, basketball, net, umbrella, tank of water, valve, knives, too many to carry round, and a lot of mopping, and I haven't listed out what else with the barman yet.

And even better is *Desire Machine*, which has original instructions like the others, but also a brief introduction to adventure games for beginners. Once again there's been a narrow space (there would Bloomsoft be without them), and you have a dimly lit laboratory where there is a large machine. From nowhere a face appears, suspended in mid-air, and it asks for your help claiming to have been caught by a devil. Use my dream machine and rescue me, it says, before being replaced by a sinister horned figure which tells you that if you want the professor back then you must return with a salamander, a minotaur, a basilisk and a goblin.

That's the end of this column that makes me

want to play and After exploring the Victorian House where the Dream Machine is located, I pressed an operating button and found myself in a chemists, manned by a lab stockeeper. Another few locations around here and you can find some buttons for the remote control device you also find in the laboratory at the start. Pressing that I was whisked in the time at Khan, whereas I was pleased to find a salamander. Good thoughts, and typed SCZPH (and I still had Oti, transporting myself again) discover why as I was whisked to the Black Desert where the intense cold causes the salamander to vanish. However mind, I can now hear Basilisks in the distance, coming nearer! Almost there, yes, they've arrived and now at the last of our quest, if you can.

The current display on this one needs a bit more work. As the summarized you enter in for some reason printed out again after the next location description comes up. There are a few small faults, too, like the blurring (which is still blurring even though I've removed its batteries). I like the way the inventory is laid out, however, with everything separated by a comma except the last two items which always have "and" between them. Even the Maps of Adventure are interesting.

Notwendige Hinweise: Derzeit sind keine Hinweise bekannt.

This roundup of home-grown adventures means that some of your letters will have to be held over, but there's room for a few quickies. Anyone know how to get past the huge puppy in Franklin in Wonderland? If so, contact Carl Thust, 11 Hayden Rd., Rushville, Northants NN16 0HD. The exact words to board the bus in The Crookedwood Incident? Send to Jim's mailing, Alresford, Hampshire, 20, Capenhurst, Northants NN16 0JH.

FOR SALE: Anyone know of any Dragon statues in Scotland? If so, tell John Spain, 62 Vinepark Drive, Burnside, Glasgow G7 5DQ. Advertising please sent by Grace Avery, 245 Barmen Hill Rd, Tongue, 21-22.

Back to the hints and tips next month, and apologies if your letter hasn't been included yet. Maybe if our readers can get back to playing adventures instead of writing them, I can give you more of them.

Adventure Contact

To help you find adventures further, we are instituting an Adventure Helpline — simply fill in the coupon below, stating the name of the adventure, your problem and your name and address, and send it to Dragon User Adventure Helpline, 12123 Little Newport Street, London WC2H 9PP. As soon as enough entries have arrived, we will start printing them in this magazine.

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Address: 5 Montrose Drive, Galveston, Adventure, Gulfport MS 395
Phone: 601 769 1744

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Name: Oren Nuri
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therapy room?
Mauro J. Pichardo

Address: 5 Cumberland Villas,
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Adventure Teikuber
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Name: Neil Farguherson
Address: 1 Ravenswood Place,
 Dendridge, Livingston, West
 Lothian EH20 9BQ

Adventure Sea Quest
Problem Where is the key to the treasure?
 The treasure is in the beach house? If it is, on the mainland how do I get it?
Name Calvin Cudde
Address 5 Worcester Road,
 Bangor-on-Dee, Wrexham,
 Cheshire, North Wales LL13 9JF

Advantage Pyramid of Doom
Problem: Cannot enter the Pyramid — the normal keeps killing me. I have a full pentagon, lantern, shovel, key, axe, and I have found a tiny chest.
Name: Esther Duncan
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 Contact with the

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Abstract

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Winning dice

Gordon Lee bakes three million needles into a pi

George Lewis Leeper, Count de Buffon, apart from being another mathematician with a memorable name, is probably best remembered for the following theorem:

A plane surface is ruled by equally spaced parallel lines, h units apart. A needle of length h units is dropped at random onto the surface. The needle will fall and come to rest either crossing one of the lines, or it will be between them. The probability of it touching a line will be $2/\pi$ (19).

This example of an unusual and unexpected appearance of the irrationally value of π is known as Buffon's needle theorem, and was a outcome of the experiments carried out by Buffon in the field of probability theory.

The above equation can be further simplified if the distance between the parallel lines is made equal to the length of the needle itself, in which case the probability becomes $2/\pi$, or approximately 0.6366197... By 'turning the experiment on its head' as it were, this provides a method, albeit uncertain in outcome, of determining the value of π by an experimental means. Thus π should be given by twice the number of times the experiment was performed divided by the number of times the needle came to rest touching a line. This experiment has since been carried out on many occasions. In the mid 18th century Shirland Wolf performed 3,000 and 5,000 drops of the needle respectively. This latter experiment would have taken several hours to complete! Fortunately we can now duplicate the experiment and carry it out by computer in fractions of a lifetime that it took these early experimenters.

One other experiment was the Italian mathematician Lazzarini who, in 1901, claimed an accuracy of 3.1418929 for π after making 3,408 tosses of the needle. This claim must be regarded with a certain suspicion since, at best, the number of tosses stated could only provide an accuracy of three decimal places. To obtain the result stated at least three million drops would have been needed, and there such an accuracy could not be guaranteed.

```
10 PRINT "Here's a try to begin!"
20 FOR I=1 TO 1000000 STEP 10000
30 GOTO 40
40 RANDOMIZE TIMER: DO LOOP
50 A=INT(1+RND(1)*3.1415926535)
60 IF A=0 THEN GOTO 40
70 IF A=1 THEN GOTO 40
80 IF A=2 THEN GOTO 40
90 GOTO 100
100 IF INT(1+RND(1)*3.1415926535) = A THEN
110 NEXT LOOP
120 PRINT "TEST: 3.1415926535"
130 IF 1+RND(1)*3.1415926535 = A THEN
```

The following listing imitates Wolf's experiment by running a series of 1000000 comprising 5000 drops. The program takes the length of the needle and the spacing of

the lines as both being unity. A random number between zero and one determines the distance from line PQ of one end of the needle (D). Its rotation in degrees is also taken at random. The cosine of this angle (converted first to radians) gives the vertical displacement between the ends of the needle. Note that a negative value for the cosine indicates an angle of rotation at between 90 and 270 degrees. In this case the needle points towards line RS, and so its displacement distance has to be added to distance D to determine if the needle reaches line RS.



By running the program we can perform the experiment in as many minutes as Wolf probably took hours. However, with only 5,000 throws per block the best we can hope to achieve is a value for π of 3.1449892... a result which the author obtained on the thirty-seventh test!



Prize

Twenty copies of Microdeal's Christmas cracker Wizard's Quest are lined up for the most elegant and convincing simulations of the dice game. Complete the quest or calculate the odds, one way or another you'll be a Wiz!

Rules

Just to prove that your calculations were done on your Dragon and not on your fingers and toes, accompany your answer with a printout for a copy of the program you used to work it out, and any footnotes on the program which you wish to include. Remember we want for elegance and please don't send any computer. Mark your envelope **NOVEMBER COMPETITION**, and please include your name and address! Teletasker? Any short poem with at least one convincing rhyme for 'Microdeal' is a. Makes programming look simple, eh?

This method of problem solving in which random sampling is used is called 'simulation'. The second competition is to devise a program to find, by simulation, the expected probability of success at the following game which is played with six dice.

The object is to play with three dice choosing the same value, under the following rules:

- All six dice are first thrown.
- Selected dice may be rethrown up to a maximum of a further five throws.
- On each throw (after the first) the player need only throw the dice of his choice, leaving the rest on the table.

As the full six throws need not all be taken if the game is won in fewer throws.

Can you estimate how many games, out of a thousand played, you would expect to win? Clearly, the actual answer will vary, it is always best to use simulations, but estimates should include a print-out or copy of your program, with full notes. In playing the game, the player must play to his best advantage. For example, if he has a 'leading value', choosing one or two or more dice then he would obviously only throw the remainder to try to improve on the score. There is nothing to prevent him from changing this value if a better one is thrown subsequently. If two equal 'leading values' occur a free choice would be made.

August winners

Star prizes has proved pretty elusive, but we know where at least twenty copies are, and they're on their way to: P. Mansford Kirby, Mike Hulse at Sheffield, CPH Hoops at Amberley, C. Hetherington Middleborough, D. J. Gray of Middelebury, the relation, Howard Davies of Cheltenham, E. A. Newman of Addlestone, Phil Sapota of Liverpool, M.D. Gleave of Sheffield, D. Farmer of Cardiff, Douglas Maudie of Gillingham, B. Davis of Manchester, S.A. Siddiqui of Chesham, M. Vargo of Salisbury, M.J. Smith of Bristol, Michael Gasham of Bangor, Neil Sporn of Isle, Mark Chavens of Lincoln and J. Hewitt of Hove. Best tip-topper was Mr. Mowbray's.

"You're never alone in the universe"

"While your system transmission is synchronous"

But a bug in the pole is a terminal joke

And the Creaded power failure is even worse.

Solution

'Dragon' equals 28348 and 'User' equals 7929. Dragon/User will equal 28, which is 2852 when cubed - only one English word results from this equation, which is 'Dread'.

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