

# DRAGON



# USER

The independent Dragon magazine

December 1988

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Brian Cudge blows up this month.

Apologies to Ken G. Smith, whose review of Cypsel appeared under Roland Henson's name last month, and thanks to Roland for printing this out in Ken's absence.

## Editorial

MY conscience is salved - I'm up to-date (as of six weeks ago, in far as you the readers are concerned) with price tapes and the rest. IF there is anyone out there who thinks we owe them a tape, and who hasn't received it by now, please drop us a line (late the issue). No hurry.

Here I am at that time of the month again, wondering if our Dragon will make it out in time for the start of next month. This time we have the Colour Computer Convention coming along, and want to make sure that nobody has an excuse for not knowing about it. Cross fingers, get on the phone ... And will yours truly make it to Weston? Another of life's mysteries.

We have a phenomenal amount of software under review this month, plus new information from old friends Pean and Computerus. Something for everyone this Christmas. Start saving!

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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 launched 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 1000 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/letter etc you must include a stamped addressed envelope.

# Letters

This is your chance to air your views — send your tips, compliments and complaints to Letters  
49 Alexandra Road, Haverhill, Middlesex TW5 4EP

## Ed's word

Brian Dodge has suffered a computer blowup, which has put him out of action this month. He also says that he has been using up his letters faster than Usain, so if you want to leave any thing about the Dragon, now is the time to get in ahead of the crowd.

I am also looking for volunteers to review Star Island, a Harcourt adventure on tape, War Hammer of Giffen, a two-disk adventure from Orange, and Labyrinth Designer, a utility from Orange. Drop us a line.

Ed

## Board bother

I write to you in an attempt to end my childhood frustration in the hope that you can bring your illustrious board to me and its cause.

What I am rambling about is the frustration created by User Group that supposedly has a bulletin board on Microchat. I am referring of course to The Dragon's Nest.

ALTHOUGH there isn't anything in the law of nature to suggest that software users should have the right to make backup copies, in industrial software this right is granted 99% of the time, because the chance caused by the failure of an only copy base severe that the software is generally considered non-volatile without that capability.

The same can't be said of games software. The theory that publishers will replace corrupted discs as return of the original is fine in theory and often works anyway, and is sometimes vital. It is standard practice to replace failed laserdisc CD, microdrive cartridges as demand, for instance, even though they can be backed up, because corruption or incompatibility is sufficiently common that the service is needed to maintain faith in the medium. However, most users have

Every month we will be shelling out a game or two, courtesy of our suppliers, to the readers who send the most interesting or entertaining letters. So send us your hints and your opinions, send us your hi-scores and suggestions. Send us your best Dragon stories. What if you think we are mind readers?

EXTRA  
PUFF

## Protection, no racket

I am writing in response to Paul Grider's comments about software protection in his October column. I assume that he is referring to disc software, as tapes can very easily be backed up with a double tape deck. Most Dragon discs are locked up completely using the commands available through DOS. However, there are other solutions. To my knowledge, the discs that cannot be backed up are only those published by Pulsar Software, including adventure and puzzle titles. Consequently I assume that his criticisms are aimed at those of us who have worked for Pulsar.

As a programmer, I dispute Paul's view of him "having the right to make a backup copy" of any software he buys. Any software enters under the copyright of either the author or the publisher. Protection is added to enforce the copyright. The protection only stops people making backups as a side effect of its real purpose. Like it or not, there are always people who will try to pirate software, even on the Dragon. The protection there simply is an attempt to foil such efforts. This safety cannot be wrong, as pirating soft-

ware is illegal copyright, which is illegal, so by devising methods of protection on programmes, we are only enforcing the law which software is protected in.

Paul might also realise that if someone is determined enough they will find any protection. However, not everyone who might pirate software has the knowhow, and so may give up. These just mean more copies of protected games, it is worth it. In my opinion software should be bought on cassette, rather than whether it can be copied. If I cannot get back enough for the work I do for the Dragon, then I will have to stop programming for it and direct my attention to another machine where I will be properly paid for my efforts. To set Paul's mind at rest, if he or anyone does have a disc corrupted, I promise if they return it to the publisher explaining what has happened they will get a replacement.

Of course, I must come back to CJ Platt's letter of the same issue. I loved I wrote a Codel shoot 'em up, but I have played it! It was a space invaders game completed with Professional Codel over 150,000, and pretty damn difficult it is too.

Jonathan Carterlight, Starship Software, 23 Treen Road, Chesham, Bucks, Chesham OX5 7PF

some across software companies which are simply not engaged enough to maintain a reliable replacement service.

Dedicated players can always find a way round copy protection. The question in my mind is whether protection on discs discourages enough careful backing up

involving in an interface for my Dragon in April this year, I looked forward to enjoying a friendly, informative and learning exploration into what I as a periodic been extension to the knowledge I was attempting to acquire about this friendly computer. Alas, it was not to be.

Not greeted with Seasonal Greetings in April, I thought was about that, however, unfortunately in October leaves me dumfounded.

I have been a Dragon user for two years and belong to a thriving although small group of enthusiasts. I have given my grandchildren a Dragon each, and from my contact with various users of the excellent computer transfer from a variety of. There are many users with modern who must write the same way, not only they contact them but also other computer users on all manner of media. The potential is there for a multiuser group.

But to get back to the Dragon, would it be worth the magazine running the board alongside the publication? If not, could the "Letter of Dragon's Nest" (Microchat page No. "101042") be interviewed as to his intentions? Julian Cresswell, Mdx 0625000000 is the man, and I have attempted to push him to reply with various

and so a second CD game next time you walk into Virgin's computer store how days to be replaced with another, etc., etc., so that they can't be replaced with the original you could have a live without actually get purchased. Purchasers only have to much money.

It then becomes the publishers choice whether to leave discs open and lose units of casual copying, or close them, and lose sales to people who don't trust discs were looking for something else to put in their friends.

Certainly Paul might about anything all the protection in the world can't stop games aren't selling. The best guarantee of increased sales is to write really attractive games, an objective which a number of Dragon programmers have been meeting in recent months.

messages, but it is loud. He is alive and well, because he is advertising in the For Sale section.

Sorry, jolly Dragoners, let's create some enthusiasm and miscegenating our friendly Dragon to rest let's become more positive about it further, because there is no alternative Old Dragon yet.

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## From one madhouse to another

With reference to Paul Grate's Dragon in the October 1988, I would like to make two points.

1) The HQUG is often mentioned in Dragon User but the editor's 'bitches', in page 4 this month.

2) He asks about adventure programs with a different scenario: have a Radio Shack TRS-8000 game which runs on my Dragon 32, and is called *Madness*. It is a computer game (I looked up in a fantasy system and was to escape with the help of kindness of the staff and inmates. I can't keep up the good work.

Kevin Farrell  
C/O M. J. D.  
Sunderland Airport  
Roke  
Sunderland

Oh, we try to take it every two or three months. Talking strange scenarios, imagine arriving at Sunderland airport, late after losing your flight tickets over Garside. The pilot, a singing Dutch computer programmer, walks into the airport with a shield and quarterstaff slung over his shoulder, and a jolly man in tunic and a little beard gets the ship to open up and set you some sails. Eventually, after many adventures, you arrive at York of Uppdale Castle, where Garside tries to eject you for, being late, you have not yet delivered the staff of the Pandemonium.

If I suppose that doesn't count, because we're back to Tolkien again. Anyway, that's

what happened to me on my last hole, if anyone wants to write an Adventure about it. The north of Scotland and the Shetlands is one of the most impressive aerial panoramas I have ever seen. What a nice place to live, albeit a bit remote from the Humber and the Ocean.

## Missing: a crocodile of characters

ONE Dragon DU has brought us a clever program in the April issue, for drawing electronic circuits, by G.A. Craig.

Unfortunately, as printed in this copy, anyway, the program suffers from what Beachcomber in *The Daily Express* called editorial Printer's Frolics. (To be fair, printers and typists are often blamed for errors in the original drafts.)

As printed, the following line numbers are longer than a 'magazine page' and have characters missing at the end of the line (or for second page line). To make matters worse, the text of the characters of the page line is printed together with the missing characters in brackets. When inserting the character, these brackets should of course be ignored.

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## Dragon will speak to order

Steven Orchard reports that he can supply voice synthesizers for the Dragon. The synthesizer, originally designed for the BBC Micro, has been adapted for use with the Dragon's primer port. The audio output can be used to drive either an amplifier, or headphones.

Steven confirms that the unit is easy to use from Basic or machine code, provides the user with comfort with any sound data statements. The package includes a cassette containing starter software and information about the unit.

The units are based on the SP0150-AL1 which uses the algorithm to synthesize speech, giving an unlimited vocabulary.

Units will arrive constructed to order, at a low time for component and construction when awaiting delivery. Units cost £15 each from Steven Orchard, 6 Marston Avenue, Ashford Park, Garroch, Telford, Norfolk IP25 5JW.

## One disc runs out, one arrives

Pro-Tech Systems have announced that they are now

coming near to the end of their stock of Datasoft interface cartridges for the Dragon. These are available with disc drives from now on £115 (interface and unused drive from £175) with fully packaged Datasoft drives.

On a more positive note, Pro-Tech have obtained a supply of Premier disc cartridge jobs which will be available for the first time to all builders. These can be supplied either with the original Delta DOS disc, or the latest Phil Scott DragonDOS Plus PR Rom for Premier boards. This gives full compatibility with DragonDOS files and programs, as well as the corrections and improved facilities which Phil Scott has incorporated into his DragonDOS Plus.

Pro-Tech has also made arrangements to supply units fully made up and tested by

Datasoft Ltd. Details are available from Pro-Tech Systems (please send two local line or second class stamps and your name and address in capital) at 25, Pelican Road, Premier Heath, Basingstoke RG25.

## Power down

HARRY Whitehouse has decided to discontinue his acclaimed A1 Supermicro Power Supply, which has been an important replacement power unit for the Dragon.

"We can only produce the product in batches of fifty, and that just isn't viable any more. We have only had one order in recent months," says Harry.

H.C. Andersen Computer are now the only source stocking Dragon Data type power supplies, costing £25. For information and import details contact H.C. Andersen, Englewood, DK-2170, Kastrup, Denmark.

—Steve Jones

## Orange explains DOS plus DELTA

Orange Software has obtained from Raaga Software a license to produce Raaga's games Ball Soccer and Manthegore on disc. In a letter to Dragon User earlier this year, Graham Smith of Orange Software said "We would really like to return how the author of a game that I really love a review copy of... it was in beautiful scrolling 3-D graphics, nothing short of a masterpiece." That game was Manthegore by John Foster, and Orange got their wish.

The games are available for DragonDOS and TandyDOS at £4.00 each, or both on one disc for £7.50, inclusive of postage. Please state which DOS is required. GDI was asked to see that the Ball Soccer label features a director wearing one of Roger Federer's 1980s blue, red, white, and black versions of the game are available from Raaga Software, 14 The Oval, Farn Park, Sheffield S10 6SF.

Orange also has a new music control program, Composer II, in the pipeline. The authors have been incorporating suggestions made by Dragon User reviewer Ken Smith on a previous version, and the production version is now ready for review. "We will be bringing out a 1.1M as well as the 1.0M as we think it is one of those handy little utilities that people might buy

as long as the price is not too high. Like so many other items of software for the Dragon, the price just cannot do justice to the amount of work the author has put into it," says Graham Smith of Orange. Composer II allows the user to modify songs compiled with the official's popular program Composer.

Orange has had enquiries about Phil Scott's DOSplus 4.0 and DOSplus DELTA which has led them to clarify the purpose of DOSplus.

"It would seem that people are expecting DOSplus DELTA to do slightly more than it actually does," says Graham Smith. "It's not some sort of DragonDOS/DeltaDOS software converter. We are talking about two different versions of the same operating system. DOSplus 4.0 is a direct replacement chip for the Dragon Data DOS chip (or any of the clones), and gives several enhanced features and some totally new facilities. DOSplus DELTA gives the same facilities but has been specially developed so that it will directly replace the DeltaDOS chip in a DeltaDOS cartridge. The DragonDOS and DeltaDOS cartridges use different controller chips and therefore the other operating system has to be different in each case.

"DOSplus DELTA has been

developed to allow anyone with a DeltaDOS cartridge to have access to the software developed for DragonDOS users, without the expense of buying a DragonDOS cartridge. With DOSplus DELTA installed you will not be able to read your DeltaDOS disc, but you can read DragonDOS discs (cannot do both at once, but with a simple hardware modification you can DeltaDOS cartridge it is possible to have both chips in the same cartridge with an external safety snap between them. This would mean that you would lose the use of the snap between the cartridge, which is normally reserved for the optional utility chips from DOS or TOS. All you cannot switch between the two chips while a program is running, so it is necessary to RESET the Dragon after switching, but with a bit of programming it is possible to preserve any data stored in the memory as long as it does not occupy the DOS workspace, which is in a different area for each DOS.

"I personally would prefer to switch the Dragon off when switching from one DOS to the other, so I do not recommend that last option. We do have some software under development which will read DeltaDOS programs, while running DragonDOS (or DOSplus).

This might prove useful to future DOSplus DELTA users, or even DragonDOS users who have trouble with DeltaDOS.

"DeltaDOS users see it as the answer to all their prayers, but manage to miss the important bit about not being able to read DeltaDOS discs. DOSplus DELTA gives you DragonDOS facilities from a DeltaDOS cartridge - effectively it is DOSplus 4.0 in Delta cartridge format."

Phil Scott is now working on a new DOS which, says Graham, could be called "CosplayTandy" or perhaps "Cosplay". This is designed to fit into a DragonDOS cartridge to allow it to be plugged into a Tandy CoCo. This would be useful for people who can built a Dragon and a Tandy, but only own the DragonDOS cartridge.

They would be able to use the disc drive to store their Tandy programs. Programs written on the Dragon could be loaded onto the Tandy, but would only run if they were already Tandy compatible. Basic programs would have to be converted to Tandy format, and vice versa for the Dragon.

Enquiries to Orange Software, The Garth, Star Road, Nant-y-Celyn, Aberystwyth, Gwynedd NP23 5AP.

# Expert's Arcade Arena

Written: 'The Expert' at Dragon User  
48 Alexandra Road  
Hounslow, Middlesex TW9 4HP

BEFORE you start, let me get one thing straight. I am a goldfish. Any attempt to categorise me as anything other than Dudley the Incredible Gamesplaying Goldfish will be treated with the utmost contempt. How might you ask, does a goldfish play computer games? That, to you mortals, will be one of the great unanswered questions of life, just like 'What really did happen to Buckland SAT' and 'Was the Cascade Cassette 50 really written by 50 stylized monkeys?'

Down to the serious stuff - many of you will of course have read the review of the very wonderful Mandragore by John Foster of Kauga Software in the August Dragon User (here, in another Dudley T.O.G. bowl-smashing exclusive, I can reveal the latest from Kauga-Balldozer.) This was exclusive to goldfishes at the time of writing. Unfortunately, most goldfish die before the time a computer game is possessed of, and the time the monthly rag hits the streets. - Ed.) This one is not written by J.P. Horwell, but by Stewart Orchard, and it promises to be every bit as good as Mandragore. Basically, Balldozer is Break-Out with brass knobs and curly bits.

Gamesplay is the same - bounce ball off bar and hit bricks to destroy them. But there the similarity ends. The first of the

brass knobs is that there will be over 30 screens with different brick patterns, including live hit bricks that must be cracked first, and indestructible bricks.

But most wonderful of all, power icons drop from the sky, which when collected can give anything from a next time laser to invincible bricks, to a bit speed turbo-charge.

And the curly bits, for a start, there will be the Dragon's first ever parity message on a loading screen, and also a little graphic loading screen. All this for just £4. Can it really be that good? It's due out in September, so look out for the DU review.

Speaking of reviews, those of you who avidly devour DU's reviews will have noticed a recent influx of high marks. Utopia, Lucifer's Kingdom, Mandragore, all hitting maximum. Could it be, I hear you cry, that DU's reviewers have gone soft? Certainly not, it's just that they don't make 'em like they used to, eh, Cascade? This latest rash of genuinely good games is a definite sign that at last the Dragon games industry is back on its feet. The likes of Microtest, Blity and Quickstars was obviously nearly disastrous, but we've proved we can survive without these relative giants. In my opinion, since the departure of the last 'boggles', there has

been a general improvement in the standard of software. Programmers can no longer hide behind a shield of hype and publicity (remember Fireforce?), but really have to produce the goods. And with all the companies' commission, games prices are coming down at last. All good news for programmers and games players alike. Dragon games are produced more for enjoyment and devotion to our little plastic friend than for big profits, and as a result we are better off, I say.

It's a while since we've seen any good entertainment programs in DU. Personally I don't type many in anyway, because I usually get PC error in 405, or something, and because I have five. This generally results in me wanting to do something impossible to my Dragon, especially now it's so difficult to get spare parts. But now those days are over, because I, Dudley T.O.G., can introduce you Dragon Shorts. Yes, The Expert will accept any programs that do interesting things, as long as they are no more than 8 lines long. To get you started, here is my magnum opus, my life's work at a keyboard. I'm not going to give it a title, I'm sure you will spring to mind when you run it.

```
10:G="E"  
20:For G = 1 to 5: ON--STR$(G): PLAY  
"TROLLBO" + G;S: NEXT G
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For those of you with no keyboard, fingers or brain, or if you just can't face typing in this colossal masterpiece, send me £3 and a blank cassette and I'll send you a copy and sympathy.

Last but not least, hi-scores. Let's hear what you can really do. The best might well see their names in lights (well, black ink, anyway).

One exception: no Chuckie Egg scores. If the Editor wants to print Chuckie Egg scores, that's her problem.

That's it, then. Send in any hints, tips, shorts and hi-scores. Until then, Dudley is closing this column for the month. Thank you for reading! (xxxxxxxxxx)



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**TOTAL ECLIPSE** (Pamerson) cassette cost £22.50. Real time space adventure. Has 100,000s, 70% of which are planets. Embark on a voyage of adventure through time and space in your quest to solve the mystery of the lost planets. Simple to control with joystick or keyboard options.

**MAJOR MINOR** (Software Projects) cassette cost £2.95 (REDUCTIONS). Help Minor battle through 20 castles.

### GAMES Available in cassette/tape format

**LARGOPIR RALDOON** (S. Thompson) cassette cost £24.95. Graphic adventure. This quest is a tourage from a nixie where you, the hero, are trapped. One of the best budget games tried so far!

**THE CEN. TAIN. (you)** cassette cost £2.50 (REDUCTIONS). You are Hercules, the hero of classical times, who has to complete 12 tasks.

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### EDUCATION

£1.99 each — five for £9.95 — ten for £19.95

See: **THUNDERBOLT**, **TOPER**, **LUCKY**, **SUPERSKY**, **PETTERBY'S DAPPY**

and **LEGOTT**, **MAID OUT CITY**, **DEFENCE**, **ORBIT**, **DRAGON**, **TRIP** (cass. only), **ORBIT**, **FRANER**, **AMAZING**, **SURPRISE**

also see: **SOUL**, **ORANGE**, **ORANGE**, **ORANGE**, **ORANGE**, **ORANGE**, **ORANGE**, **ORANGE**, **ORANGE**, **ORANGE**, **ORANGE**, **ORANGE**, **ORANGE**

### UTILITIES/BUSINESS SOFTWARE

**PICTURE MAKER** (Makem) cassette cost £24.95. Allows the design of PRG000 (5 graphics using only the 4 arrow keys or optional joystick).

**MUSIC MAKER** (Makem) cassette cost £24.95. "The definitive music writing program for the Dragon". Allows you to write your melodies in four part harmony.

**MUSIC MAKER & PICTURE MAKER** — double pack £29.95

**4-HITTEST** (Barnes) cassette cost £25.00. It is one of our compatible with Dragon BASIC, both BASIC and machine code friendly. A collection that gives a 4 to 14 display. "Gives your Dragon a bit of business-like kind of screen".

**SHAPER** (Shaper) cassette cost £1.99 for Dragon and Tandy. Comprehensive music utility with 100 different machine code generated sound effects.

(Send for our price list for details of our many other programs, including education software and more)

**HOW TO ORDER** — Write to us, or phone with an Access order, stating the programs you would like. Please include £10 for P&P on single orders, and 10p for better rates items. Please to Europe (includes Euro) is £24.95. If possible please give a phone number so we will be able to call you. We will be able to supply you with 24 hours, for allow up to 21 days for delivery if necessary. All orders subject to availability. (Cheques/postal orders made payable to JOHN PENN DISCOUNT SOFTWARE, ORANGE, ORANGE, ORANGE, ORANGE, ORANGE, ORANGE, ORANGE, ORANGE, ORANGE, ORANGE, ORANGE, ORANGE)

### FUTURE EVENTS

• • • We look forward to seeing you at • • •

**THE ALTERNATIVE MICRO SHOW** at the Aston Villa Sports & Leisure Centre on Saturday 13 November and **THE COLOUR COMPUTER CONVENTION** at the Royal Hotel, Lower Church Rd, Weston-Super-Mare on Sunday 4 December

## MAKE THE MOST OF YOUR DRAGON

With our great value hardware and software:

### SOFTWARE FOR DRAGON 64

For Dragoners (please state version)

**BASIC 40 Extended Basic** £14.95

First on basic system, with standard print commands, string GOSUB input, variable character strings, variable upper/lowercase, string input, etc. (see 10000 bytes free on disk).

**Extra Utilities for BASIC 40**

**HELP UTILITY** £1.00

Dragon user's manual, word files, code listing, etc. (see 10000 bytes free on disk).

**SPREAD UTILITY** £1.00

For Computer sales printing, etc. (see 10000 bytes free on disk).

**COMP UTILITY** £1.00

For Computer sales printing, etc. (see 10000 bytes free on disk).

**STRUCT UTILITY** £1.00

For Computer sales printing, etc. (see 10000 bytes free on disk).

**DIS UTILITY** £1.00

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**SLUT UTILITY** £14.95

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**DRAGON 64 BASIC 40 & KILL KILL**

### NEW! Accessories for KILL

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### DISK SOFTWARE

For Dragon 64 with

**Dragoners (please state version)**

**BASIC 40 Extended Basic** £14.95

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Prices include 10p postage (foreign delivery only £10.00). Cheques/Post Office orders payable to:

## HARRIS MICRO SOFTWARE

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10/85

# Decisions, decisions

*David Rothery decides to save money by doing a pricey task on the Dragon*

DECISIONS, decisions: modern life seems full of them. They may be extremely complex business decisions, or very simple ones, such as shall I have a pleasant night out with friends, or shall I wallpaper the ceiling?

The computer is good at making decisions, and will look at the information it is given dispassionately, whereas we humans tend to get emotionally involved. Those people who are stupid enough to have thrown away their Dragons and bought a PC will have seen adverts for programs to help in making decisions selling at £80 to £350 a throw which do little more than the following simple, short program. I have deliberately done little by way of screen formatting, and have restricted the number of factors involved in the decisions to one screenful. I don't want to deprive you of the pleasure of tailoring the information to suit your own needs! Likewise, it is simple enough to save the information in a serial file or tape or disc, whichever you have. Just save/load the variables N, M, H(4) and use loops for values of OP(4) from X=1 to N, FA(4) and FA(3) from Y=1 to M and a counterloop Z=1 to H and Y=1 to M for CP(X,Y). Feel free to do your own modifications and improvements; you will find this more interesting than just typing out the listing, although it will work satisfactorily as it is.

The easiest way to exploit its use is by using a common example such as where to go for next year's holiday. Enter HOLIDAYS when asked what you are deciding between. You are then asked how many holidays you are considering, answer any number up to 14. You then enter each hol-

iday in turn. Let us suppose they are:

1. Stop at home
2. Drive to small town in Italy
3. Fly to Majorca
4. Fly to Australia
5. & 3 in Scotland
6. Small town in Blackpool

Now you must enter the number of factors affecting you decision, and say what they are. For example:

1. Cost -8
2. Weather +9
3. Travel time -6
4. Crowds -4
5. Entertainment +3
6. Scenery +7
7. Change of customs etc +5
8. Flightrate +2
9. Food +6

The numbers on the right are input after you have entered the names of all the factors, in response to a series of prompts. They represent how important each factor is to you, on a scale of 0-10. 0 means you don't care, and a negative sign means you consider this factor a disadvantage. After each set of inputs you have the opportunity to confirm or alter the information - just pressing Enter is a shorter way of confirming that you wish to go to the next part of the program.

Now you are asked how each of your options rates for each factor input. For example, how does each holiday rate for cost, weather, etc? Obviously, for cost, staying at home rates zero, and flying to Australia

may merit a 10. Don't use negative numbers, as you have already indicated that cost is a disadvantage. Obviously, Italy and Majorca will rate highly for weather, but Blackpool and Majorca may score high on the negative factor of crowds. Enter your own opinions.

After you have confirmed everything, the computer will give a weighted total for each holiday, taking into account all your opinions. These will be displayed either on screen or printed out, in order of merit. You can thus immediately see your best, and worst, options.

The program should be easy to follow. An array F(4) is used to store the names of the 14 factors affecting choice, with the ratings for each stored in FA(M). Similarly CP(4) stores the names of the N options and the two dimensional array CP(X,M) stores the ratings of each factor for each option. Since the zero subscripted arrays CP(0,M) etc have not been used, they are used as temporary variables in the calculation and sort. In the calculation, for each option the factors are multiplied by their respective negative or positive weightings and all added together. The sort is a simple bubble sort which is fast enough for such a small number of options.

The program could have many uses, for example in weighting up several possible job offers (if you have the choice) or in deciding a course of action in running a business - or even deciding which TV program to watch. As they say the possibilities are endless. Have fun.

By the way, I don't take my Dragon up on its suggestion that I simply stay at home!

```
1 'DECISION MAKER BY DAVID ROTHERY JULY 1988
10 CLS:PRINT#4,"          DECISION MAKER"
20 PRINT:PRINT"          BY DAVID ROTHERY (C)"
30 FOR X=1 TO 2000:NEXT
100 CLS:PRINT:INPUT"WHAT ARE YOU MAKING DECISIONS BETWEEN":N$
110 IF N$="" THEN 100
120 IF R$=HOLIDAYS THEN 130
130 IF R$=HOLIDAYS THEN 130
140 IF R$=HOLIDAYS THEN 130
150 IF R$=HOLIDAYS THEN 130
160 IF R$=HOLIDAYS THEN 130
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260 FOR X = 1 TO M
270 PRINTSG "ENTER NAME OF FACTOR ";:PRINT
280 PRINT(PRINTSG$,"")
290 INPUT FAS(X)
300 NEXT X
310 CLS:PRINTFACTORS AFFECTING YOUR CHOICE:
320 FOR X = 1 TO M:PRINTX:" ";FAS(X):NEXT
330 GOSUB1000:IF AB="Y" THEN GOSUB3000:GOTO310
340 CLS:PRINTFOR EACH FACTOR GIVE A NUMBER BETWEEN -10 AND +10 TO RATE ITS IM-
PORTANCE. IF IT'S AN ADVANTAGEMAKE IT POSITIVE, A DISADVANTAGEMAKE IT NEGATIVE.
3500 MEANS IT DOESN'T MATTER.
360 FOR X=1 TO M
370 PRINTSG2*8," " "PRINTSG2*8,"FACTOR NO.":X;" "":F
AS(X):" "":INPUT FAS(X)
375 IF FAS(X)>10 OR FAS(X)<-10 THEN PRINT"OUT OF LIMITS":FOR A=1 TO 1000:NEXT:PRIN
TSG2*8," " "GOTO370
380 NEXT
390 CLS:PRINTYOUR RATINGS FOR THE FACTORS ARE:
400 FOR X = 1 TO M:PRINT X:" ";FAS(X):" ";FAS(X):NEXT
410 GOSUB1000:IF AB="Y" THEN GOSUB4000:GOTO390
420 CLS:PRINTNOW GIVE RATINGS 1-10 FOR EACH OF THE :NAS
430 FOR X=1 TO M
440 FOR Y=1 TO M
450 PRINTSG6,"":PRINT:PRINT:PRINTSG,"RATING OF ":OP(X,Y):" FOR ":FAS(Y):INPUT
OPT(X,Y)
460 IF OPT(X,Y)>10 OR OPT(X,Y)<0 THEN PRINTSG2*8,"OUT OF RANGE":FOR A = 1 TO 1000
:NEXT:PRINTSG10," " "GOTO400
470 NEXT Y
480 CLS:PRINTYOUR RATINGS FOR ":OP(X,Y):"
490 FOR Y = 1 TO M
500 PRINTY:" ";FAS(Y):" ";OP(X,Y)
510 NEXT Y
520 GOSUB1000
530 IF AB="Y" THEN GOSUB 5000:GOTO480
540 CLS:NEXT X
545 CLS:PRINTSG4*22,"CALCULATING":
550 FOR X = 1 TO M
560 OP(X,0)=0
570 FOR Y=1 TO M
580 OP(X,0)=OP(X,0)+OP(X,Y)+FAS(Y)
590 NEXT Y
600 NEXT X
610 FOR Z=1 TO M
620 FOR X=1 TO M-1
630 IF OP(X+1,0)>OP(X,0)THEN OP(Z,0)=OP(X,0):OP(X,0)=OP(X+1,0):OP(X+1,0)=OP(X,0):
OP(X,0)=OP(X,0):OP(X,0)=OP(X+1):OP(X,0)=OP(X,0)
640 PRINT " ":
650 NEXT X
660 NEXT Z
661 CLS:INPUTDO YOU WISH TO LIST RESULT ON SCREEN OR PRINTER (S/P):AB:IF AB=
"5" THEN D=0:ELSE IF AB="0" THEN D=0 ELSE 661
662 IF D=2 THEN PRINT:PRINTMAKE SURE PRINTER IS ON LINE:
663 CLS:PRINT#0,"FINAL SCORES FOR :NAS":
670 FORX=1 TO M:PRINT#0,OP(X,0):" ";OP(X,0):NEXT
680 INPUTPRINT AGAIN?AB:IF AB="Y" THEN 661 ELSE INPUT"ANYOTHER SET OF DECISIONS?
":AB:IF AB="Y" THEN 660
690 END
7000 PRINTSG400,"":INPUTDO YOU WISH TO CHANGE (Y/N)?(A)R:RETURN
7000 INPUT"WHICH OPTION TO CHANGE":X:IF X=0 OR X=1THEN 7000
7010 PRINTSG400," " "PRINTSG400,"":INPUT"NEW NAME":
OP(X)
7020 RETURN
7030 INPUT"WHICH FACTOR TO CHANGE":X:IF X=0 OR X=1THEN 7000
7040 INPUT"NEW NAME":FAS(X)
7050 RETURN
7060 INPUT"WHICH RATING TO CHANGE":X:IF X=0 OR X=1 THEN 7000
7070 INPUT"NEW VALUE":FA(X):IF FA(X)>10 OR FA(X)<-10 THEN 4020
7080 RETURN
7090 INPUT"WHICH RATING TO CHANGE":Y:IF Y=0 OR Y=1 THEN 7000
7100 INPUT"NEW VALUE":OP(X,Y):IF OP(X,Y)<0 OR OP(X,Y)>10 THEN 5020
7110 RETURN

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# DRAGONSWORD!

Paul Grade takes a monthly stab at setting the world to rights

All the time I'm writing this the Weston show is still a future event! But by the time you read this the show may be history if July well hope not. Paul, or Andrew will get his act on the back, but I see your point - it's, I think, either the Dragon and CoCo event at the year or the Pops of 1989. Either way, it's a fair bet that less than 10% of Dragon owners will have attended or done anything at all to help make it a success, so what happened to the other 90%? It has always been the same story at shows, so I don't need a spreadsheet or even a crystal ball (far more reliable) to work out the maximum number of owners attending. This apparent apathy, if that's that's what it is, applies to just about everything in the Dragon scene, whether it happens to be shows, user groups, magazines, software and hardware. Try turning a magazine, it doesn't matter whether it's a full-scale commercial one or a local group newsletter, and see how many people bother to send you anything useful for publication... if you're lucky it may be as much as 10% of your subscribers, but usually far less than that. By writing a program for newspapers how many of those people who are constantly whining that "there's no software for the Dragon" actually buy it. By designing something cheap and useful in the hardware line, but so it while you're still at school because you're designing for your pension before you've sold enough units to cover your costs.

The entire Dragon scene depends on the efforts of about thirty people who are actually prepared to do anything, and a few hundred more who are willing to attend shows, subscribe to magazines, join groups, etc., for all practical purposes the remainder might as well not exist at all, because the only time anyone hears from them is when their machine goes wrong or they decide that they want something (priced for them and when it is they usually don't want it after all). I know that everyone blames Dragon Data for losing marketing, and CSC for getting cold feet, but even in the legendary 'good old days' Dragon owners never gave their

machine the sort of praise and publicity that, for example, BBC and Spectrum owners did (remember the BBC's?, and virtually went around apologising for not having bought a VCR or an Atari 400).

My accident or design they bought what was the best home machine of its time, one that can still give a lot of the current machines a good run for their money six years later, but whereas most of the other machines I've mentioned were almost worshipped by their owners, the Dragon types generally crept quietly away to play invasion Revenge. Of course, the other machines got a lot more media hype, and in the case of the BBC a very suspect 'educational' status on the strength of an even more suspect contract, but so what, that shouldn't have stopped Dragon owners spreading the word, so what's the reason? Are Dragon owners really such shy, retiring types? Is it that they don't want to make everyone else jealous, or is it that a lot of them are just too damned lazy to do anything but mope, even when it would be in their own interest? When the Dragon finally dies, it won't be the fault of Dragon Data, or even because the Dragon has been out-classed.

Yes, I know I'm always having gone at you, and if you are one of those who attend all the shows you can, subscribe to Dragon User instead of borrowing a micro-cassette's copy, write articles for DU or your group newsletter, and occasionally send in useful bits of programs that you've written, or even try to market them, then maybe you will accept my (Paul, the computer's internal a-rse of garbage here. What were you thinking?) most profound apologies.

OK, end of lecture. Either you get the message and do something about it, or you don't. Let's change the subject anyway. Depending on the result of the Weston show there's a distinct possibility that MDUX may run a London & South East Dragon and CoCo type show sometime around March/April 1989. If there's enough interest demonstrated at Weston I think we can do so

without making a loss, even taking into account the cost of suitable premises in this part of the country. Of course, if Weston flops, then there isn't much point, is there, after all, what chance is in his right mind to going to three good money after tea? At the moment all the signs point to Weston being a success, in which case you can take it as being definite that there will be a London area show next year. The Dragon user-base is decreasing as more people switch to other machines (regardless of whether they need them or not), and at the current rate of decline I very much doubt that by 1990 it will be possible to run a Dragon show at any location and still make even, so next year may well see the last of the Dragon/CoCo specific shows, in which case let's make sure that they are good ones! If the Dragon is going to finally become commercially dead let's give it a wacker to remember!

Of course, that won't mean that the Dragon itself will be any less useful than it is now, it just means that Dragon owners will have to work a bit harder to keep things interesting. Nobody can make a living out of selling Dragon/CoCo material exclusively if the quality of the software is good enough, and enough people are buying it, they can still afford to make it for us, even if most of their profit has to come from other sources. Really it is up to you (yes, YOU) to keep things going both by writing material and by buying it, and the fewer Dragon owners there are, the more necessary it becomes for those that remain to really put something into keeping the software alive. Of course, there's always the other big problem, how are the distributors to sell the software you've written for them, and how are you to know what software is available for you to buy? Simple, it's just a matter of advertising, but if you were a distributor trying to sell Dragon programs, where would you advertise. Advertising in the mainstream computer publications costs a medium sized fortune, and it's unlikely that you'd sell enough material to cover the cost, so that leaves the Dragon specific publications... like

Dragon User and Update. Yes, I know there are others, but think that their publishers would be the first to admit that they simply don't have enough circulation figures to make an appreciable difference to sales. Dragon User needs commercial advertising to stay in business, because typesetting, printing, and distributing a commercial magazine is an expensive business, and subscription charges just don't provide enough income to cover expenses, but for a distributor to advertise in DU User he has to be reasonably sure that the ad will sell enough material to cover its cost, which again means that if you aren't buying now there won't be any programs advertised in Update (don't depend on advertising revenue to cover running costs because overheads are much lower and we can just about manage on what we gain subscriptions, but our circulation is lower than that of DU so although Update ads cost less they aren't as useful to a potential advertiser, so effectively it all comes back to you again... the more subscribers there are to Dragon User, and the more members there are in the MDUX, the better the potential market for advertisers, which means they can sell more material, and you get the benefit of having more on offer, and of course if you are writing software (you are, aren't you?), you get more cash too! It is all very simple when you stop to think about it, the more you are willing to put into Dragon ownership, the more you will get out of it, and everyone benefits. Sit around waiting for someone else to do everything and the whole thing simply dies leaving you with no support for your machine at all, so not buying, and not subscribing is really a false economy.

Sorry it's all been a bit serious this month, but to be honest the Dragon scene has been rather depressing, and if someone out there doesn't wake up to the fact that they need to do something about it, things aren't going to improve. Hopefully there will be something a little more cheerful to say by the time I type up the next lot.

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## Computer

**Abstract**

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1. *Journal of the American Medical Association*, 2000; 284: 2689-2695.

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2007年12月15日 星期一

Variable	Mean	SD
Age	31.2	4.5
Gender	1.2	0.4
Education	12.5	1.2
Income	15.8	2.1
Marital status	1.1	0.3

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**4.4.1 SOFTWARE**

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**Abstract**

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PLATE 1. *Staphylococcus aureus*, *Staphylococcus epidermidis*, and *Staphylococcus saprophyticus*.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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## Crossword

Please get your answers in to Oregon User-Counselor Department by the end of the month in the form below.

The thirteenth and last Dragon Crossword pulls on its long red battle hat, tightens up its broad black belt and strikes a final pose in its robust wallies.

"This boy he," it rumbles, "What have I got in my sack?" Out pops the eleven-foot Dragon Crossword. "The sack!" It japes, of course. No sack but a metamorphosis we assess. From next month, the Dragon Crossword becomes the Dragon Word-search (file ran-out-of software). But what else is in that sack? Looks to be the likes of Marshall of Swains, who would like *Indoor Football* or *Star Polype* and Brian Thomas of Ohio Lupton, who wants to know what happened to the little he wears in this sack?

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Will ALSC HAVE Gordon Wright of Dunblaine and Paul Hanson of Broseley for the Tenth Crossword. 'You're all pulling me round'

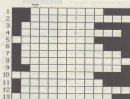
9. You must be kind to pull these off.
10. Prudette and Cinderella girls in the song (5,3,1).
11. Reaps some unusual gifts (5).
12. Can they be found on a one-horned open sleigh? (4,5)
13. Use it to steal a Christmas kiss (5)
14. Means real making decorations (5)
15. After dinner, burn it and eat it (4, 2)
16. Give 'em the money before they associate you again!
17. Jumble can last us a year until he comes again.
18. Let the choir be under the North Star (5)
19. Cockney 'twas I met at Christmas? (5,4)
20. Host for your presents? (4,5)
21. Rudolph's coming – sounds like you should kill the reindeer! (5,4)

## DRAGON QUIZ



Ray Terry and Claude Anthony

No software titles this month, instead all the answers have a festive flavor!



## Jolly good barrels

**Program:** North Sea Action  
**Supplier:** Orange Software,  
The Girth, Star Road, Heath-  
cote, Aberystwyth, Gwent  
NP23 5BP  
**Price:** £2.00 cassette or disc

This game was written by a Norwegian, Olei Hovland, who describes himself as "For the jolly good fellow", no less, and this has proved to be a very difficult game to play. Originally described to me as a Pacman-type game, the screen during the advertising sheet makes it look like that. As soon as you start playing it, however, you will realise how different it is. Played with a joystick - a switched type is best although control is still very difficult to begin with - you start at the top of the screen and move a pipeline through a maze of tunnels in order as much as possible by passing over dots, and collecting barrels which give you even more points, 2500 for each spot and 200 for a barrel.

As you move a solid line is left behind you representing the pipeline and you must take care that none of the marauding oil-monsters, which move in both directions along some of the horizontal passages, touch any part of the line. If they do the message "Olei! Wiegatsla!" appears, which makes me think this writer liked Mipsaq. To withdraw the pipeline all you need to do is press the fire button and it retracts its steps almost immediately. The oil in the upper part of the screen is very easy to reach but it becomes increasingly harder the lower down the screen you need to travel to as you have to sidestep oil for the monsters at the top as well as those at the bottom. If you're moving along one of the passages which passes right there you will notice another immediately behind it but you still have to be careful in case one comes from behind instead. Only four lives are given to you and you virtually have to surrender at least one of these to clear the very bottom of the screen. It took many hours of play before I was able to complete the first screen and I was then faced with the message

"Meldene. No continue with a harder level."

After this it took many sessions at this game before I could get any further but I have now been able to get as far as the fourth screen, and although they are all different they do not appear to get greatly harder. This game is addictive, however, and no doubt I will spend many more hours trying to get some better and by now different tactics to beat those monsters. Luckily there is no time limit so you can take away by yourself if you like as long as you like. The graphics tend to annoy the rest of the family who are queuing up to have a go. You get another life for every 10,000 points but I have only achieved this on a couple of occasions and, as yet, I haven't been able to manufacture extra lives or move onto the other screens by default means. All in all a well put together game, although the graphics are not outstanding, especially the monsters, but at that price it is well worth it. I especially liked the way you type symbols to tell you how many lives remain.

Mike Scott



## Breakthrough for the Breakouts

**Program:** Bad Digger  
**Supplier:** Kluge Software, 14 The Oval, Pitt-Park, St Albans, SG 8 5PF  
**Price:** £4 envelope. Also available on disk from Orange Software.

When I first received this game I thought that it was going to be just like all the other versions of Breakout that I have seen and prepared myself for a long session with a game I do not like. The version I received was on tape but I found it surprisingly enjoyable. I found that there was a joystick option and I do not normally like keyboard games. This game

surprised me on all counts. It is not like any other Breakout game and is very easy to operate using the keyboard.

When you play the first screen you are faced with a wall of 8 rows of fifteen bricks in each row. The bottom row contains normal bricks which disappear when you hit them but the back row only cracks when they are first hit and have to be struck again before they are destroyed. When half the bricks are hit the ball speeds up and it would therefore virtually be impossible were it not for the help you can obtain from a wall that drops down from the wall as you hit some of the bricks. These take the form of extra lives, power shots (enabling you to fire right through the wall), lasers, down arrows (lower the ball down), up arrows (open a door for

self). Suffice it to say that most people who have seen this game say this is the best screen. I have played every screen and they are all as clever as the others although some do look very difficult at first glance. Up to now I have only managed to reach the eighth screen when I have started at the beginning and cannot seem myself getting much further but would love to hear from anyone who reaches the final screen without cheating. The game is not difficult, as I have said the ball

flies backwards and forwards across the top of the screen and has to turn off the game and restart. This also occurs upon accident at the bottom (as the ball is hit by the ball with the laser in my hands). I am not happy with the selection

*"Only four lives are given, and you have to surrender at least one to clear the bottom of the screen."*

you to pass through to the next screen). I passed up the ball if it didn't pass (and my favourite which enables you to catch the ball. Some of the scenery last for a few seconds but others continue until you lose a life by missing the ball. You are allowed two different at one time but some combinations are not possible, such as catching a ball and firing a laser.

Some of the very difficult parts of the game are when you are trying to destroy the wall and at other times you do not want to collect them but cannot avoid them. Points are awarded for these extra and also for hitting the bricks. When you have removed all the bricks you move on to another Breakout screen although they are all designed differently and have the double break in different places. There are also solid walls on some screens which cannot be hit and a variety of techniques are needed for each set of bricks. Should you manage to complete these screens without losing your four lives you are then presented with a no lives left you'll let you find out for your-

routine of the ball hitting the ball as it is a very common occurrence that the ball passes through the ball many times before playing ends, but I do not think so. Finally on several screens the ball passes through solid walls, although this may be an intentional part of the program put in by the author. Incidentally this is the first all machine code program written by Stewart Orchard and I certainly look forward to many more programs from him. I have become more than slightly addicted to this game and have enjoyed playing it despite having to load from cassette and the alternative to complaints. I do not hesitate to award this program 4 Dragons and would certainly recommend it as a good buy even if you do not normally like Breakout games.

Mike Scott





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## Flex bounces back from Orange

Programs Orange FLEX 1

Supplier: Orange Software,  
The Girth, Star Road, Nantperry,  
Aberystwyth, Gwent  
NP23 5D

Price: £5.00

If it were three days to new software released for the Dragon/FLEX system and I was intrigued by this disc, Orange Software have once again produced excellent value for money in that this is a compilation of ten discs formerly from Microvision, G-Mac and Flex Pack-1 which originally retailed at three times the price.

So what do you get for your five? A great deal. The Flex Pack Utilities and believe written by Roy Coates who has already produced excellent articles in Flex (June Flex Revisited, September 1988 and Dragon Plus, November, January 1989), and his instructions come on the disc. The instructions for each utility program are embedded within the extension files. Their files are in "OTF" format and may be viewed on screen or sent to the printer if a hardcopy is required.

The first utility is a program called PROMPT, and is a usual utility which enabled the user to select different printer modes without the usual fiddling with control codes to the printer. The utility lies in the default utility command space within the Flex Operating System and when called with a simple keyboard command displays a menu of available printer modes which may be selected by entering the number displayed against the desired option. The program is written for the basic stage of printers and pressing the F key (F87) will cause the loss of the alphabet to be sent to the printer so that the effect of the various options may be seen. The options are:

- 1) Return to Default Mode
- 2) Alternative Character font
- 3) Condensed Mode
- 4) Wide Characters
- 5) Half-Wide/Double-Width Characters
- 6) Pica Characters
- 7) Double Strike Mode
- 8) Enlarged Mode
- 9) Return to Flex

The second utility is a DIARY routine which allows the user to create a text file containing entries in the usual manner. When the program is called the file will be created and any lines found to contain the current date will be displayed at the terminal. If the DIARY command is inserted into the FLEX start-up file then the diary checking becomes automatic on power-up. The comprehensive instructions detail two methods of invoking the diary routine and how new information may be input and replaced or information deleted if required.

The next utility is a HELP facility which has been designed to allow access to information stored within a file by simply typing the heading that the required detail is associated with. The facility comprises five, the first being the help program itself and the second being the text file containing the desired information. This information is stored in the HELP file as a heading followed immediately by the information itself which is supported by a number of links.

There are two methods of invoking the HELP routine, either call for the information under a heading, or display a list of all headings found. I found this little feature particularly helpful in storing the details of those small 'cheat' instructions and other commands that are either written in a book or on bits of paper which are then promptly lost.

The fourth utility on the disc comprises two small programs for screen dumps for Epson compatible printers. They perform either a single or double screen dump respectively and are only suitable for graphics modes PMODE 3 and PMODE 4. Also contained within both alternatives is an X routine. This turned out to be rather dull in that it is a replacement for the TBC utility BCUT, which will delete all files having a common specified extension unless they have been given a file protection such as PROT.

The fifth item on the disc is a 'personal utility' which is of specific use to operators who use their systems daily. The program will

search the line of the directory for any occurrences of a keyword entered by the user and will then display any lines containing the word required by the user. The program is easily adapted to form a simple data retrieval package.

The sixth utility is a handy utility at all and is called COORDS, and indeed turned out to be a 'fortune teller' which gave a whole series of system lines and sayings which one would find in the wide variety of monthly calendars I personally find little use for this routine, but perhaps it could be coupled to the DIARY used earlier. There thing a close call to add a little lighter relief when reviewing the disc.

Utility seven turned out to be a Quick Test Processor (QTP) which is a simple test processor program allowing the most common forms of test format to be achieved with a few lines. An ordinary text editor can be used without modification using the default values with 'OTF' or alternatively by inserting the relevant QTP commands into the source file. The utility reads the source file from disc and stores it in memory. Therefore there is no need to open the disc or file to be processed. The instructions contained on the disc are clear, comprehensive and effective: underlining, line spacing, width and margin settings are all available and there is even a Vertical option which allows portions of text to be printed without being affected by the test processor (ideal for tables, etc). This processor is ideal and the simple commands also contain options for new lines, and centering given text, or even given text as a page header (the latter option is only available when page numbering is enabled).

The eighth item on the disc is QMON itself which is a small machine code monitor type program which allows memory locations to be examined or altered, both ASCII and hex dumps of memory are taken for and the instructions are short, simple and to the point.

The final two facilities on the disc are TERM and PROMPT.

TERM allows the use of an RS 232C terminal connected to the DRAGON 84 through the RS232 port. The facility enables you to input a desired baud rate, and also displays a list of 14 baud rates from 50 to 9600 if the baud rate is changed. PROMPT allows the changing of the standard FLEX prompt ' + + ' to any user defined string of up to three characters. This is useful for marking special system discs that have been configured for a particular application. The routine also changes the FLEX '777' prompt to match the new user prompt.

Ten on a spin of the disc, therefore, utilities of varying quality and usefulness, and clearly designed for FLEX users who must be serious about their Dragons to have FLEX at all, and most say at 50p per item the well worth the expense and these utilities to those already available under FLEX DOS. As one would expect from Roy Coates the instructions are lucid, the programs are well written and the descriptions of the routines difficult to follow. If you are running FLEX then an investment of 50p per disc for postage and packing is one of the best you will make this year. I would reiterate: please do not forget the 50p as clearly Orange Software are charging very modestly for the disc and each 50p does make a difference to their profit margins.)

RJ McAtkinson



## Genie in a bottle

Product: Allotek, 1000s re-linking

Price: See last month's Newsletter

Supplier: Allotek, 4, Market Crescent, Epsom, Surrey, TW20 2AP.

I sent one ribbon from my Tan-

My OMP 105 frame is long overdue this year. It was returned to me about three weeks later, but did not use it until the ribbon in current was needed replacement, a month or two later. The ribbon had plenty of ink, and it was necessary to put the printer on Auto for a few moments to clear the excess. Except for one or two fainter parts, where the ink-inking appeared to be incomplete, the results were reasonably satisfactory.

HOWEVER, one day the printer hung up halfway across the page. Taking it off line and switching software again appeared to remedy matters, but so ... it happened again, and again. I suspected that the head had become glued up with surplus ink. Just as the defect was caused by the very problem. The printer pins were penetrating the ribbon. Taking the head off line and carefully removing three-inked ribbon, I inserted a brand new one, and had no further trouble. Also, a friend of mine who had the same problem managed to remove one of the pins which was to remove the head from the ribbon. A new head would have been a tidy solution. So, while I think it is a satisfactory job, my conclusion is that using a head to clean is a false economy.

R A Davis

Not recommended by reviewer

PH penetration can happen with any word label ribbon. But some permanent ink cause failure to not faster, making the problem worse.

## Supposed to shift your space

Program: Discop (utility)

Price: £3.00 (inc p&h)

Supplier: Puler Software, 36 Fossil, High-Crompton, Shaw, Cleithrum CL2 7NQ

ONE of the problems encountered in changing from a tape based system to disc storage, is that tape based programs that use the first page of graphics memory will no longer

run. This is because, with the exception of Delux, the disc controller takes data over to use as work space. Of course the controller could always be 'upgraded' when you want to use disk programs. However, this involved disturbing of the controllers would do the same work as good as all. A better idea is to effectively detach the Discop software switch (as was published in DU many months ago). Alternatively to shift the disc workspace to a position where it is unlikely to get in the way, and this is precisely what Puler Software has set out to do with Discop. With Discop installed the workspace starts somewhere above 0000. This means that not only will programs that need the first page run but the disc is still usable. In fact Puler claim that using Discop, 'nearly all graphic programs will run'. In fact I decided to put it to the test first. Imagine being able to play Jet Set Willy without having to remove the controller. I seemed to be able to write a test program to test the disc. I found the program I chose for my test (Johns-More, Jet Set Willy, Air Force and Superkid) all failed to load with Discop installed or loaded then crashed when run. However, my biggest disappointment came when Paul Wick's Block 24 semigraphics, published in DU October 88, also crashed.

In short it would seem to say that if Brian Cadge's Disc Detect program didn't help, then Discop isn't either. Two sources of irritation were that it was necessary to load the program then wait for the disc state to step before typing so. Failure to do this meant that the disc ran continuously. Secondly the system obviously interfered with the error routine. In every error was reported as an I/O Error, no matter what the cause. The first of these is easily overcome using a short basic program feature a delay via the TRAP command. Indeed so simple is it that I can't understand why it was not included on the disc. After all, DRPCUP looks a lot more professional than the method used. The second problem is a good deal more serious; all you will really know is that an error has occurred. As to what sort of error, it will be guesswork.

Where this system does

score is that when a program does run, the disc controller used. This means that un-protected programs, in those printed in DU which pose the graphics pages to achieve their display, can now be stored on disc without alteration. If you have used that type of software then Discop would be a worthwhile investment. The price means that you have not got much to lose. Discop runs only on the Dragon II or an upgraded II and is available for Dragon-Dos or Super-Dos 85.

Rev G. Smith



## Good for an old 'un

Program: Blast Out  
Supplier: Dragonfire Services,  
13 Mary Jones Close, Baines, Grant

Price: £3.00 + 50p p&h

OVER the past few months there have been a few good, new and fairly original games released for our computer. Here we have Blast Out, which adds a little new way to another close of the costly arcade favourite Blast Out. With games like Lucifer's Kingdom around, surely Blast Out clones seemed to collect their old age penalty?

Just for those of you who have never seen a version of Blast Out, then tonight somebody out there here's a brief synopsis. You play a bat, a simple animal, its structure which moves as fast as lightning along the bottom of the screen. You have no objective in life and that is to slay yourself with a bouncing ball. If you do this correctly the ball will fly back up the screen and a new one will wait to knock you around. You must not touch the ball or the coloured bricks before losing your allotted bats.

Well that's the outline of the game but what about extras for the 128K version. Graphics-wise you can hardly expect them to be at precision detail, a bit, a bit and a bit more. Well, not exactly need intricate hi-res graphics.

Blast Out looks like a good one probably could do with multi-coloured wallpaper bricks.

Dragonfire have done fairly well with these features where they have had a chance. Firstly you don't press the start button to see the ball start whizzing around, there are speed levels to choose from - with a way to pick from there must be one to suit your level. If though even you're too fast you can choose the size of the ball with a choice that ranges from the quite hefty to minute where the ball is only slightly smaller than the bat!

Mostly you change your weapons but you can alter the brick sizes that you can either slowly chip away or break out great wedges. Other extras include the option of 1 or 2 players, joystick control, stealable ball and extra lives.

Also there is even a burst of music when each thousand points have been clocked up which is quite pleasant. Movement is smooth, fast and to my knowledge bug free at all adds up to an addictive game.

Instructions are comprehensive, printed on three sides of A4. One analyst important factor of the instructions are that it tells you all the levels and bricks. Although you realise that after a game, when I've loaded up I've often forgotten, and have played so many games where no indication is given. Despite being well explained I still don't really know the instructions that don't come in the package box because they stand a chance of getting lost.

There's just one irritation in the game when the bat gets stuck behind the back of the screen for a while. It is a bit of a nuisance. You can't really play it on a 128K version of Blast Out for the Dragon because of its 128K version. As a version of Blast Out I do everything that can be expected. As for the rating I feel that it deserves given a 4 out of 5. It is a good game, well produced and excellent value.

Philip Durr



# Siege!

Richard Boryna assaults walls with a mangonel

THIS is a relatively simple, additive program that involves controlling a giant medieval catapult, the mangonel. Your job is to bombard a walled village. By altering various values it is possible to alter the flight path of the rock hurled, hopefully to land it on top of some poor, unsuspecting villager's hut.

When the program is first run, you will be asked if your Dragon can cope with the infamous PC-BIOS/ELCROM/entry virus can't the program isn't that slow? There will then be a pause so the help page is shown.

On the main playing screen you are given information about the mangonel: current release angle, arm length, number of ratchet turns and rock weight. Also shown are the previous length and height plus a picture of the mangonel (allowing for artistic license). You can alter these values by entering:

RA to alter release angle (between 15-80

degrees)

AL to alter the arm length (between 2 to 5 metres)

RT to alter the number of ratchet turns (between 2 to 5 turns)

RW — to alter the weight of the rock (between 20 to 100 kilos)

When you enter any of the above after the COMMAND... prompt, you are then asked to input a new value. Password play within the given parameters or the computer will simply beep at you. After entering a value, the display is updated (watch the mangonel arm after changing the arm length).

There are also three other commands:

F fire the rock

H help

Q quit

All inputs should be followed by ENTER, and if at any time you make a typing error, backspace works as usual and all other mistakes

actually found a version of this program while wandering around a network. Link 4802 Research Machines. I decided that I would write a similar program for the Dragon, a fairly easy task I thought, seeing how archaic the 4802 is. But it does have one advantage over the Dragon: text is hi-res (yes, that one again). This was in fact quite easy to overcome: I simply used DRAW strings to make my own "user-defined" graphics. The parts of the program concerned with this go from lines 1840-1930 and 2000-2530. There is no reason why this routine could not be modified and used by somebody else.

If you can't face typing in this fairly lengthy program (and who can blame you?) then send £2 to me at 71 Cavendish Drive, Wallingborough, Northants NN8 3UP and I'll send you a couple of copies on tape (UK only).

```

10  * #####
20  * #####
30  * ### SIEGE: ###
40  * ## R. BORYNA ##
50  * #####
60  * #####
70  *
80  * #####
90  * ### INITIALISE ###
100 * #####
110 PCLEAR#
120 B1=0:H1=120
130 GOSUB150
140 GOTO640
150 SF=0:HM=1

160 RA=45:RM=40:RT=3
170 AL=3:PL=0:PFW=0
180 PF=0
190 * #####
200 FORT=1:TOLD
210 R=RND(1-TIME)
220 NEXT
230 * #####
240 CL90
250 FORT=32 TO 160 STEP32
260 FORT=4 TO 24
270 READ#
280 IF#0 THEN NEXT#;F100T0310
290 PRINT#;Y,CHR#(191)
300 NEXT#;Y

310 PRINT#244,"Richard";CHR#(120);CHR#(120);"Boryna"
320 PRINT#246,"please";CHR#(120);"wait"
330 SCREEN0,1
340 * #####
350 DATA1,1,1,1,0,1,0,1,1,1,1,0,1,1,1,1,0,1,1
360 DATA3,0,0,0,0,1,0,1,0,0,0,0,1,0,0,0,0,1,0,0,1
370 DATA1,1,1,1,0,0,1,0,1,1,0,0,0,1,0,1,1,0,0,1
380 DATA0,0,0,1,0,1,0,1,0,0,0,0,1,0,0,1,0,0,0,0,0
390 DATA3,1,1,1,0,0,0,1,1,1,1,0,1,1,1,1,0,1,1,1,1,0,1
400 GOSUB2300
410 * #####
420 PROBE4,3:PLS
430 AS="ETHERPROGRAMS[IMULATES]ETHEACTIONOFBARRIERS":
DRAW"BM",121:"GOSUB1840
440 AS="SIEGE[RE]O[TH]E...[ETHE]MANGONEL.":DRAW"BM",201:"
GOSUB1840
450 AS="ETHERPROGRAM[ILL]LETRYOURCHANGESSEVERAL[OF]THE":
DRAW"BM",301:"GOSUB1840
460 AS="MANGONEL[IS]AFFECTED[BY]THE[ETHE]TRAJECTORY[OF]THE":
DRAW"BM",391:"GOSUB1840
470 AS="ROCK[IS]AFFECTED[BY]THE[ETHE]TRAJECTORY[OF]THE":
DRAW"BM",441:"GOSUB1840

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480 AS="AL...HANDLED,BARLENGTH":DRAW"BM20,60":GOSUB1640
490 AS="RT...NUMBEROFBATCHTETURNS":DRAW"BM20,60":
GOSUB1640
500 AS="RW...WEIGHTOFROCK":DRAW"BM30,74":GOSUB1640
510 AS="SA...RELEASEANGLE":DRAW"BM20,84":GOSUB1640
520 AS="ETHERYARIABLESCANBECALLEDUPONRANDOMTERMDRAWN":
DRAW"BM4,100":GOSUB1640
530 AS="THEWOODGANGS(YET)WETTERCOMMANDPROPT.":DRAW"
BM4,108":GOSUB1640
540 AS="ROTTERPORTIONRAREPASSESFOLLOWS...":DRAW"BM4,118":
GOSUB1640
550 AS="F...FINE...RUMPLETHE ROCK":DRAW"BM20,130":
GOSUB1640
560 AS="H...HELP":DRAW"BM20,130":GOSUB1640
570 AS="R...RUIT":DRAW"BM20,144":GOSUB1640
580 AS="PREPAREMYKEYTOMCONTRIME":DRAW"BM20,190":
GOSUB1640
590 SCREEN,0
600 IF TIMEY<= THENWOOD ELSE RETURN
610 ' #####
620 ' ## DRAW MAIN SCREEN ##
630 ' #####
640 PMODE,4,1:PCL,0:SCREEN,0
650 LINE(112,52)-(128,0),PSET,B
660 LINE(0,52)-(128,52),PSET
670 LINE(0,20)-(112,0),PSET,B
680 GOSUB1640
690 AS="...CURRENTVALUE...":DRAW"BM14,0":GOSUB1640
700 AS="RELEASEANGLE...RESETHOOD":DRAW"BM14,20":
GOSUB1640
710 AS="BATCHTETURNS...ROSETURNS":DRAW"BM14,20":GOSUB1640
720 AS="ARMLENGTH...ROSETHICES":DRAW"BM14,36":
GOSUB1640
730 AS="ROCKCOUNT...ROCKCOUNTS":DRAW"BM14,44":
GOSUB1640
740 AS="PREVIOUSLEN...####":DRAW"BM0,96":GOSUB1640
750 AS="PREVIOUSHIT...####":DRAW"BM0,176":GOSUB1640
760 AS="R":DRAW"BM10,192":GOSUB1640
770 ' #####
780 LINE(13,192)-(133,192),PSET
790 FORM=470316 STEPS
800 LINE(100,0,194)-(190,0,192),PSET
810 IF(1X-41/40)<INT(1X-41/40) THENH=STRCK-41:100=INT
(1X-LENH+41/40,01):DRAW"BM"+STRCK+"":171":GOSUB1770:
LINE(100,0,194)-(190,0,192),PSET:NEXT,RESET
820 LINE(243,192)-(243,192),PSET
830 AS="300":DRAW"BM234,191":GOSUB1770
840 GOSUB1730
850 F=0
860 GOSUB1500
870 GOSUB1640
880 ' #####
890 ' #####
900 ' #####
910 IFAS="H" THEN GOSUB2140:GOTO890
920 IFAS="AL" OR AS="RW" OR AS="RT" OR AS="SA" THEN
GOSUB1430:GOTO890
930 IFAS="S" THEN GOSUB1710:GOTO840
940 IFAS="F" THEN LINE(0,52)-(128,52),PSET,RP:GOSUB1120:
GOTO890
950 ' #####
960 LINE(0,52)-(128,52),PSET,B

```

```

770 AS="COMMANDNOTRECORDED":SOUND(,5):DRAW"END,421":
80SUB1866
880 FORI=1TO1865
890 NEXTI
1000 P=0
1010 GOSUB1760
1020 GOTO910
1030 " BRIDRAW CATAPULTS
1040 LINE(59,44)-(54,33),PSET,LINE(24,46)-(18,42),PSET,BF
1050 AS="O":XL=INT(132-(13-AL)*40,8):YL=(132-
1160-(13-AL)*40):)
1060 DRAW"BR"+STR$(XL)+", "+STR$(YL)+":":GOSUB1790
1070 LINE(81,44)-(53,28),PSET,BF
1080 RETURN
1090 " #####
1100 " BR DRAM FLIGHT PATH 44
1110 " #####
1120 B2=3.142/180:BX=STR$(BRRA):CA=1000(BRRA)-2:B2=
SIN(ORDBRRA2):T=0:T=TAN(ORDBRRA):S2=SIN(ORDBRRA)-2
1130 AP=25478/(7941*2):U=SER(25000RT/(BR+AP))
1140 B0=INT(U*2852/100):BF=LOG(R0)/4:(X=4:Y=1)
1150 IFAP<20 THEN B=4
1160 ST=LOG(Y)/42/TA:(X=X+ST
1170 T=NTA-(108K*2)/(284*2840)
1180 PSET(XXX,0,192-(Y80,B5+10))
1190 PLAY"255:0110-"
1200 " BRCHECK FOR HIT###
1210 IFPPOINT(X80,B,192-(Y80,B5+10))=0 THEN1160
1220 " BRHITS...###
1230 IFPPOINT(X80,B,192-(Y80,B5+10)) AND X80,B=
BR AND X80,B=HH+30 AND 193-(Y80,B5+10)>192 AND
193-(Y80,B5+10)<182 THEN GOSUB2100
1240 " ###...OR WALL7###
1250 IFPPOINT(X80,B,192-(Y80,B5+10)) AND X80,B=FX80,B-1
AND X80,B=FX80,B+9 THEN FORI=1TO15:PLAY"220000"(NEXTI
GOTO1310
1260 IFX(192-BF)OR (Y<=8 AND X<192/2) THEN 1300 ELSE1160
1270 PL=INT(X*ST)-4:PH=INT(U*2855/22)
1280 IFX(192/2) THEN PH=INT(Y)
1290 GOTO1310
1300 PL=RB-4:PH=INT(U*2855/22)
1310 RETURN
1320 " BRIDRAW VILLAGE###
1330 HP=50+RB(120):PX=120+RB(108)
1340 LINE(190,0,190)-(190,8)+192-HF),PSET,BF
1350 HP=PX+20+RB(45)
1360 HB=INT(1840,8)
1370 FORI=0TO1
1380 HI=INT(191+1800*40,8)
1390 DRAW"BR"+STR$(HI)+",1008":HTB
1400 NEXTI
1410 RETURN
1420 " BRCHANGE VALUES###
1430 IFAB="BR"THEN1=LINE(0,53)-(180,42),PSET,BF:AB=
"RENUMBER":DRAW"END,421":GOSUB1865
1440 IFAB="AL"THEN2=LINE(XL+4,XL+1-XL*2,YL-4),PSET,
BF:LINE(0,53)-(180,42),PSET,BF:AB="MEVLENGTHE":DRAW
"END,421":GOSUB1865
1450 IFAB="RT"THEN3=LINE(0,53)-(180,42),PSET,BF:AB=
"RENUMBER":DRAW"END,421":GOSUB1865
1460 IFAB="RM"THEN4=LINE(0,53)-(180,42),PSET,BF:AB=

```

```

"HEMMEIENHET",BRAW"END,62":GOTO1860
1870 AAB="":IF=1:GOTO1940
1880 ***CHECK VALURES***
1890 IF=1 AND (VAL(AAB)<10 OR VAL(AAB)>100) THEN SOUND,100
AAB="W":GOTO1430 ELSE IF=1 THENAL=VAL(AAB)
1900 IF=2AND(VAL(AAB)<2 OR VAL(AAB)>5) THEN SOUND,10:AAB=
"AL":GOTO1440 ELSE IF=2 THENAL=VAL(AAB)
1910 IF=3AND(VAL(AAB)<2 OR VAL(AAB)>5) THEN SOUND,10:AAB=
"RT":GOTO1450 ELSE IF=3 THENRT=VAL(AAB)
1920 IF=4AND(VAL(AAB)<20 OR VAL(AAB)>100) THEN SOUND,10:
AAB="W":GOTO1460 ELSE IF=4 THENW=VAL(AAB)
1930 RETURN
1940 * ***** OLD VALURES*****
1950 LINE(109,13)-(160,44),PRESSET,BE
1960 LINE(170,17)-(200,21),PRESSET,BE
1970 * ***** NEW VALURES*****
1980 GAB=STR$(RAB(1),LEN(RAB)):AB=RIGHT$(RAB,LEN(1)-1):BRAW
"BR195,201":GOTOB1770
1990 RT=STR$(RT):(LL=LEN(RT)):AB=RIGHT$(RT,LL-1):BRAW
"BR201,28":GOTOB1770
2000 AL=STR$(AL):(LL=LEN(AL)):AB=RIGHT$(AL,LL-1):DRAM
"BR201,36":GOTOB1770
2010 RW=STR$(RW):(LL=LEN(RW)):AB=RIGHT$(RW,LL-1):DRAM
"BR189,44":GOTOB1770
2020 PL=STR$(PL):(LL=LEN(PL)):AB=RIGHT$(PL,LL-1):DRAM
"BR70,9":GOTOB1770
2030 PH=STR$(PH):(LL=LEN(PH)):AB=RIGHT$(PH,LL-1):DRAM
"BR70,17":GOTOB1770
2040 * ***** SET ROCK*****
2050 XL=INT(132+(15-AL)*60)*100,80:YL=INT(192-(160-(105-AL)
62):Y1
2060 AB="0":BRAW"EH":STR$(XL)+", "+STR$(YL)+"1":GOTOB1770
2070 RETURN
2080 * *****
2090 * ** SUIT VILLAGE/GAME **
2100 * *****
2110 LINE(10,53)-(120,62),PRESSET,BE
2120 AB="PRESSGATOSTRYANDOTHERVILLAGEFORGETOEND":DRAM
"END,62":GOTOB1970
2130 AAB=THEYE
2140 IF AAB="A" THEN RETURN ELSE IF AAB="E" THEN 1700
2150 CLS
2160 END
2170 * *****-SEE TEXTS*****
2180 * *****
2190 FOR I=1 TO LEN(AB)
2200 A1=MID$(AB,I,1)
2210 IF A1=" " THEN NEXT
2220 IF=ASC(A1)-19
2230 BRAW"BR1,401":CHB(I,1)
2240 NEXT
2250 RETURN
2260 * *****
2270 FOR I=1 TO LEN(AB)
2280 A1=MID$(AB,I,1)
2290 IF A1="0" THEN J1=1 ELSE IF A1=" " THEN J1=2 ELSE IF=
ASC(A1)-42
2300 BRAW"BR2,401":CHB(I,1)

```

[illegible]

2290	44="PRESERVE"ETOCCONTINUE";BRAM"END,421;"00000000	
2295	IF(ANY)=0 THEN2295	2410 DATA MR3U5R3B05
2295	GOTO6440	2420 DATA MR3U5R2P10000
2295	###DEFINE CHAR###	2430 DATA MR3U3MR2U2R3B05
2295	FORI=1TO30	2440 DATA U2MR3U3R3B05
2300	READCH=I	2450 DATA BU3U3R1R2R3R3L1000L2
2310	NEXT	2460 DATA U2MR3U3R3B05
2320	READCH=I	2470 DATA BU3R3R1RMR3R3L1000L1
2330	RETURN	2480 DATA R1R1000L2R1000
2340	###SPACE###	2490 DATA U2MR3R1U1R2R3R1F2
2350	DATA BR3	2500 DATA MU5R3
2360	###FULL STOP###	2510 DATA U4MR1R3R3U1B4
2370	DATA BR1UR1R1B1	2520 DATA U4MR1R1B1COR1C5R1MU2B3
2380	###LETTER###	2530 DATA MR3U5R3B05
2390	DATA UMR1R1R1R3R1L2R12R2	2540 DATA U2MR3U3R2P101000
2400	DATA MR3U3R3R3R3R3R3R3R3R3R3	2550 DATA BU3U3R1R1P1R3R1L1R1R1



[illegible]



# Write: ADVENTURE

Pete Gerrard goes in search of a role in life

THE straightforward adventure scenario of the *Colossal Cave* variety has been with us for some little while now, and has spawned endless variations on a theme. Most, if not all, of the standard adventure games currently available owe more than a few good ruggles to that very first game by Crowther and Woods. That was originally played on a mainframe rather than a home computer, that it was Scott Adams who really deserves the credit for producing adventure games on (initially) computers with only 10K of RAM, is immaterial. *Zork* followed *Colossal Cave*, Infocom was born, and even if you don't like Scott Adams' adventures at least you have to honour him as having got the whole thing going.

Over the years a few changes have been made to the standard adventure setting, without radically departing from the main format. There is something of a quest involved, communication with the controlling computer is via a 'parser' of varying degrees of intelligence, and although graphics played no part in the original game some companies (and seemingly ALL distributors) insist that a game these days *must* indeed come supplied with graphics. We've argued that point often enough in the past not to bother with it again.

## Or Thorins

In the last couple of years, though, some major additions have been made without altering the setting to any great degree. The principal of these is the emergence of what some companies refer to as 'pets'. These are characters who follow the hero (i.e. you) around, and behave in an artificially intelligent manner. Some do add greatly to the fun and humour of the game, others seem only to bother because other games also feature them. Sometimes they are necessary for the solving of the quest and must be told to do a variety of things, others just wander around, occasionally getting in the way and coming out with a few witty comments.

The second major change was to introduce an element of role playing, of the *Dungeons and Dragons* variety. This is an interesting cynical point, because *Colossal Cave* was originally spawned from a desire to play *Dungeons and Dragons* on a computer, without the tedium of all the hand drawn work that has to be done to look after and control a standard D and D game. To replace the traditional *Dungeons* master, in other words, the man or woman who directs operations and relays to the human players information about their surroundings, strengths, opponents who are waiting to fight them, and so on.

A brief review of the so-called 'arcade adventures' can be more or less dismissed

as having nothing to do with classical adventure games. They owe a lot more to arcade than adventures, which is not to deny the fun that can be had from playing them. I just wish they'd called them something else. No, the real adventure progress has been from *Colossal Cave* to the heights of *Infocom*, the addition of 'pets' and the re-introduction of role playing as a major part of the game.

## Two main roles

This role playing aspect can take many forms, and it is these that we shall be considering for the rest of the article. Generally speaking, there are two main types of role playing game, at least so far as adventures go. There can either be one player, whose

given to the attributes very widely.

Nevertheless, strength is usually one of them. A person's strength is obviously of great importance in determining whether or not various problems can be tackled. These attributes are often rated on a scale of 1 to 6, or worked out as a percentage with the higher number indicating (in the case) the greater strength. A strong player might be able to lift a heavy object that would be beyond the power of a weaker one, or two or more players may combine forces and lift the object together. As a result these attributes may change as the game progresses. If the player goes a long time without food or water, for instance, then the strength would undoubtedly decrease. On the other hand, a hearty meal would soon send it soaring again.

Another common attribute is usually always stamina. This governs a player's ability to carry on when all accounts are dropping like flies. He would be able to persevere for greater lengths of time without food and water, he would be able to engage in combat for longer than a player of lesser stamina, he would be able to make greater journeys and suffer less fatigue, and so on. By the way, 'he' is used to save me repeatedly typing 'himself'. I have no wish to offend Helen 'thelayer' Armstrong, for example.

A third attribute that is usually seen in one form or another is dexterity. This covers many things. A dexterous player would be able to spot an axe with ease, whereas a clumsy one would trip over a matchstick and fall headfirst into a trap. Similarly a dexterous person would be better equipped to, for instance, make a fishing rod out of a snapper cue, a needle, and some thread. A clumsy person would make a mess.

Also in them, and considered as one of the most important attributes of all, is intelligence. This can be used in subtle combination with any or all of the other attributes. An intelligent person may think of making a fishing rod as described above, but lack of dexterity might prevent him from doing so. A dull person with high stamina would plod on for miles and miles, an intelligent one with low stamina might look for something to eat. This subtle interweaving of attributes is of great interest in games of this genre.

## Courage in fashion

The other two of the six seen in very few games to game, although courage is often to be found in some sort of fashion. A player of great courage would think nothing of attacking a malevolent orc with a matchstick, but a cowardly one would probably run a mile, if he had the stamina.

The final one of these six is definitely up-



attributes change according to the progress made or more usually the lack of it, and this is more in line with traditional adventure playing a single player, alone or with friends, doing battle against the problems set before him. Or, and this type seems to be increasing greatly in popularity at the moment, the player actually takes no part in the game as himself, but is instead in charge of a party of four or more individuals whose actions he has to control in order to get them to solve the mission set out before them. We shall be looking at both types.

Before looking at the differences, let's take a glance at the similarities. Chief amongst these is that each person in the game, whether alone or in a group, comes equipped with a set of attributes which to a greater or lesser extent controls that person's performance. These are usually based on the original *Dungeons and Dragons* format, where six attributes were assigned to each member of the game. However, times change, and although they may still be based on the original design the names

to the individual, and as one example we could have a magic attribute, the ability to cast magic spells, wizards and magicians working their way up the spell ladder would start off with a relatively low magic attribute (perhaps just the ability to cast a fire spell, or something) and gradually go up in power as they gained more experience. Experience itself is often an attribute but I'll stick to magic.

So, you might think, why not just start off your game with either the individual character or the entire group having maximum values for each attribute? Ah, life is never that easy. The numbers 1 to 6 are used because attribute values were sometimes determined by the throw of a die. The average number on each dieface is 3.5, 3.5 times 6 gives us 21, and so one popular rule is that to play you must start a game with a total attribute value greater than 21. Sometimes the program decides randomly, sometimes the player is allowed to choose, and in our actual example listing

it is left up to the player to name each character and then set the attribute values.

In this example just two players are used,



it could easily be a party of four or just one on his own. By going somewhere in the middle you should be able to see what I'm on about.

The data statements at the end, in lines 1000 and 1010, contain the names of our chosen attributes. The array for holding these, and the attribute values, is dimensioned in line 40 and the values read in by line 50. The characters are allocated names in lines 70 to 100, and after some information in lines 110 to 140 the actual attribute values are input by the player in lines 150 to 200 and checked in lines 210 to 250. (Provided it all is well we reach a successful conclusion in line 270, and then the data could be fed away on tape ready to start the game proper.)

Role playing games, or RPGs, are a fascinating development on the traditional adventure game. There are a number of dedicated magazines available on the topic, and it is one that we shall be returning to next month.



By the time you read this, the wretched postal dispute will (hopefully) have been completely resolved. However, at the time of writing it is still very much among us, post boxes are sealed up everywhere, and only the occasional bill is getting delivered. This is alarming, not least of the many reasons being that next door's dog has now failed to eat a postman for several weeks, and is looking alarmingly fat; it is turning its attention towards Dragon User contributors. If anyone living in the zone in or around Wigan notices a bearded chap with shoulder length hair, glasses, wearing a denim jacket and scuffed denim jeans, holding painfully and with blood dripping from an open wound while carrying a jiffy bag bearing the name Helen Armstrong, you'll know it's me.

## Golden oldies

So, in the absence of any postal contributions, I've decided to look back over all the queries that have flooded in over the years to the Adventure Trail, and reflect on a goodly dozen of the older games. If you've solved them all then you either wrote the letters or you're smart Alex who deserves to have Blady the robot come round and

beat you up.

The files that I have, both my own and those inherited from my brother Mike, go back to 1985 and beyond. The first thing I



found, though, was dated 8th Feb. 1986 and was connected with the original Colossal Cave adventure. Attached to the letter was an unbelievable map, drawn by an

unknown hand. Several misplaced spiders could have fared no worse, but presumably it was attached because it also contains the solution to the end game, which is the point where most people appear to get stuck. When you arrive at the end game, after completing a certain percentage of the game and discovering all the treasures, you are in a repository with a NE corner and a SW one. To successfully conclude the game you must move all the rods to the NE corner. The command to use is SW "BLAST!", which is not a rude word but an instruction to detonate some dynamite. If you're carrying the rod with the star, you'll be killed in the explosion. If you're at the NE corner then you'll be killed by lava, but if you're at the SW corner a horde of sheering elves will descend and carry you off in triumph. Isn't that nice?

## Five clues

Anyone remember Operation Salsua? The five drudge robot secrets. In part 1, the code is anukky for some (binary). Fairly simple one to decipher, there. In part 2 you are looking for five agents, and the following five clues are supplied free-of-charge to

anyone still searching. 3) You will find one where a seasonal cake comes from. 3) Another may be a member of a University boat team. 3) Another could be at a house near meeting. 4) One more could possibly be a United Kingdom manly. 3) Lastly, one agent might be a friend of Sir Francis Drake. So know you now.

## Hints of ice

Someone called Darren Doffery, who lived in Hampshire at the time and may well still do so, seemed to be doing remarkably well on the Ice Kingdom. The following 8 hints are all from him. 1) To get past the bear you must give him the honey by the river in the bee hive. 2) Take the stick he was holding and go south. 3) To get past the snowman on the path use POW! STICK. 4) Take the poles in the castle. 5) When you see the small giant give him the poles in return for a causet. 6) When you see the peculiar rug type GET RUG. 7) In the armory you will see some tiger heads. Type PULL HEAD and a sword will appear. 8) The boat on a pedestal in the garden lake is a red herring. The real one is in a cave. Take this and you have completed the game. Oh, words of nostalgia.

Let's go back in time to the heady days of Salamander software selling copies of games. Wings of War was a popular one, and to get your pass you need to bring your

the blue panel in order to open it. The black disc is to be found inside the security box which you find behind the red panel. The password is, of course, Franklin. Move the black disc in front of the door to the bridge to open it. Finally, to fly the ship, press the button behind the blue door to start the engines, go to the ship's helm and press the invisible button, and hey ho and away you go.

Word of fish takes us back in time, and to take us into the game you need to take a tip and have about then perhaps you lifted what you need to strike a light and provide a crown for a smoking friend. Only reason, though, will give you past, as it is find what it takes you'll need some inside information. Now you have it, what are you, some kind of hero in a sense, either way the answer is as old as the pyramids! Trapped? Don't be silly, something should ring a bell here, or even shed some light. No clues now, you need a staff in case.

The Thirteenth Task was an adventure game from the Scottish company Arc Soft-

Examine the wall in the small room. Discover for exploration use D, H, N, H, M, N, U, P.

This same chap tells us that, in the Mountains of Mist, go on of on the ramp to avoid the dragon, and to pass the wall in mint condition you must Carry Wand and



say Poet in the Mountains of Doom you should catch the mangrove with the open cage, drop the mangrove by the snake, you do not need the candle, the dictionary gives an alphabet, and open sack and drop it in once said. So now you know, folks.

When we do actually get some post delivered, Wimeroff's Return of the Ring is always a popular one. Secretly lot, Wimeroff, they give me a solution and then tell me not to publish it. All I can really say is that you have to watch the Great Level of 12 before you can complete the game. Ha, I've just seen something. The Spirit of Exclusion can be used on the squalling mutant to gain the amulet. Wonder what certain landrobes would do with one of these?

## Lost in space

dictionary, go to the command, and say "Tear". Tear the brackets next to the fireplace to find a car to escape in, and fix the officer's foot with the foot here to get a key to start the car. Look at the flowers in your binoculars to find the switch, and you fix the container by using the wrench and a scrap of aluminum.



Lost in Space was another golden-olde, and to escape from the maze you must walk around and follow the word "Spacehawk" when you find it. You find the blue disc by inserting the white disc into the food machine and eating the pie, then you move the blue disc in front of the door with



walk. This one saw us delving into the slightly murkier parts of the world, and encountering such characters as Cyclops (Three Eyes at this one), Myster (Sing or Dance and you'll soon get past them), Chameleon (Three Water), and so on. Amazing the number of adventures that allow you to display hitherto unknown powers: here, you can quite cheerfully strangle a lion! You can also kill a Gorgon if you're wearing your helmet, showing your shield, and wielding your trusty sword. What an unnecessary collection of customers.

What next? Ah, January 1988 and someone from Coventry telling us all about the Caverns of Doom. Use the key found near the skeleton to open the tool chest. Examine the surrounding wall in the eastern area if you want to go swimming. Look under the bed behind the wall if you want to move the raft over deep water. Shoot the target area, and that sorts him out. You need tools, Hammer, nails, saw, beams and rope to build the raft. Use the umbrella lamp.

## Old and new

Maridian (which, on looking at their strange letterhead, I thought for one bizarre moment said Marillion) produced Underbeings of Doom, also in 1985. How do you open the big door? Explore the pit for a useful object. What help is the apocryphal? Talk to her and explore the labyrinth. How do you escape from the top of the cage? Find something to drop into the pit, that's how. How do you leave the underground valley? Search inside the bats and then try and bridge the canyon. Easy, really, do it all the time in Migan.

Well, that's your 10th adventure covered, and my spelling checker and word counter tells me that I've just about reached my monthly limit of 1,000 words. I hope all of the above might persuade some of you to blow the dust of those older adventures that you've neglected for the past 15 years or more, and have another crack at them if you never solved them. Hopefully the postal department'll sort out and we can get back to something approaching normality next time around. Well, as normal as we ever get, anyway. Until the next time!



puter is turn, or a single player trying to beat his own personal best score. When the letter is run, the empty grid is shown and the player is given first choice of a letter. This is selected by pressing the appropriate key. It must then be placed on the grid by lining up the two arrows displayed on screen. The "horizontal arrow" is moved by pressing the horizontal arrow key and the "vertical arrow" by the vertical arrow key. Once these are moved to mark the coordinates of the position required, the letter is inserted using the "enter" key. It is then the computer's turn to select a letter. Unlike the original game, the computer also selects and positions its choice of letter in a vacant square. This may make the game that little bit more difficult as the player might find certain words "blocked" by the computer's choice of square when the grid is filled with 25 letters, the player should then total up the score.

The competition this month is one of those rare events that will not necessarily need a computer - so you can give it well-earned rest (unless it is busy playing

E	G	I	A	H
R	A	N	G	E
A	S	I	E	R
H	A	L	L	H
S	T	A	N	L

"Wordsearch"). You will need instead twenty-six squares of card each bearing a different letter of the alphabet. As an alternative, you can use Scrabble tiles instead - just take one of each letter. The object of the competition is to use 26 of the 26 letters in a 5 by 5 grid so as to score the maximum number of points, as follows outlined in the game above. One letter is taken (probably a

Q, X or Z) will be unused - the choice as to which this is will be left to you. To enter, copy out your grid and list the component words - remember, no proper nouns, foreign words other than those in regular use in English, or initials or acronyms or words should have a dictionary reference added (or a jolly good explanation. The OED will be the final arbiter - Ed.). Add up the total score and mark it clearly at the top of the page. Don't forget that any five-letter words will score six points. To prevent the maximum number of points to be scored, we will also allow words to be read from right to left, from the bottom upwards, or in a diagonal, like a wordsearch. For example, on the grid printed above we could also find the words "share" and "leg" (reading upwards), and "all" and "hen" (diagonally). Note that this grid itself would not be valid as an entry as it does not contain 26 different letters - the words were just given as an illustration of the method of scoring.

The winner is, of course, the person with the largest number of words in one grid.

## The Answer

This is Gordon Lee's own solution to the September competition - see page 26 for results

**ANSWER:** The best approximation is found by using the fraction 244562

**SOLUTION:** We are required to find the simplest fraction which will give a value for  $\pi$  which is accurate enough to measure the earth's circumference to within one inch. It is assumed that the earth is a smooth sphere with a radius of 3960 miles. In the program, lines 100 to 120 calculate the correct value of such a circumference using an iterative algorithm to an accuracy of 12 decimal places. Anything with a greater accuracy would be beyond the normal arithmetic accuracy of an eight-bit micro. This circumference is converted to inches and is stored as variable C.

We are looking for a simple fraction with a numerator (N) and a denominator (D), both of these values being as simple as possible. The square root of the square root of this value should be an accurate representation of  $\pi$ , so the fraction itself should be approximately equivalent to  $\pi$  raised to the fourth power. If X is denoted as this value, then  $N/D = X$ , or, put the other

```
100 P1=3.1415926535897
110 C=D*P1*3960
120 C=C*63360:REM Convert to inches
130 X=P1*P1*P1*P1
140 D=2
150 N=D*P1*REM Calculate Numerator
160 M=INT (M+0.5):REM Round to whole number
170 Z=800*(500/M/50):REM Approximate value for pi
180 B=Z*2*3960:REM Compute approx. circumference
190 S=B-B*3960
200 DIFF=ABS(C-B)
210 IF DIFF<1 THEN PRINT N;" / ";D:END
220 D=D+1:GOTO 150
```

way round,  $M = D * X$ , it is using this formula that line 150 calculates possible numerators. This is done by taking a sequence of denominators, commencing at 2 and finding the related numerator required to obtain an approximation of X. Now, the question requires this value to be a whole number, so the computed value is rounded to the nearest whole number (line 160). We now have a possible pair of values for both

the numerator and the denominator, so we use the line 170 to find Z, our approximation of  $\pi$ . This value is then used to calculate the number of inches in the circumference of a circle, radius 3960 miles. The difference between this and the value from line 120 is compared. Use the ABS function to get a positive result. If this is less than 1 the numerator and denominator are printed.

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888/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20/21/22/23/24/25/26/27/28/29/30/31/32/33/34/35/36/37/38/39/40/41/42/43/44/45/46/47/48/49/50/51/52/53/54/55/56/57/58/59/60/61/62/63/64/65/66/67/68/69/70/71/72/73/74/75/76/77/78/79/80/81/82/83/84/85/86/87/88/89/90/91/92/93/94/95/96/97/98/99/100/101/102/103/104/105/106/107/108/109/110/111/112/113/114/115/116/117/118/119/120/121/122/123/124/125/126/127/128/129/130/131/132/133/134/135/136/137/138/139/140/141/142/143/144/145/146/147/148/149/150/151/152/153/154/155/156/157/158/159/160/161/162/163/164/165/166/167/168/169/170/171/172/173/174/175/176/177/178/179/180/181/182/183/184/185/186/187/188/189/190/191/192/193/194/195/196/197/198/199/200/201/202/203/204/205/206/207/208/209/210/211/212/213/214/215/216/217/218/219/220/221/222/223/224/225/226/227/228/229/230/231/232/233/234/235/236/237/238/239/240/241/242/243/244/245/246/247/248/249/250/251/252/253/254/255/256/257/258/259/260/261/262/263/264/265/266/267/268/269/270/271/272/273/274/275/276/277/278/279/280/281/282/283/284/285/286/287/288/289/290/291/292/293/294/295/296/297/298/299/300/301/302/303/304/305/306/307/308/309/310/311/312/313/314/315/316/317/318/319/320/321/322/323/324/325/326/327/328/329/330/331/332/333/334/335/336/337/338/339/340/341/342/343/344/345/346/347/348/349/350/351/352/353/354/355/356/357/358/359/360/361/362/363/364/365/366/367/368/369/370/371/372/373/374/375/376/377/378/379/380/381/382/383/384/385/386/387/388/389/390/391/392/393/394/395/396/397/398/399/400/401/402/403/404/405/406/407/408/409/410/411/412/413/414/415/416/417/418/419/420/421/422/423/424/425/426/427/428/429/430/431/432/433/434/435/436/437/438/439/440/441/442/443/444/445/446/447/448/449/450/451/452/453/454/455/456/457/458/459/460/461/462/463/464/465/466/467/468/469/470/471/472/473/474/475/476/477/478/479/480/481/482/483/484/485/486/487/488/489/490/491/492/493/494/495/496/497/498/499/500/501/502/503/504/505/506/507/508/509/510/511/512/513/514/515/516/517/518/519/520/521/522/523/524/525/526/527/528/529/530/531/532/533/534/535/536/537/538/539/540/541/542/543/544/545/546/547/548/549/550/551/552/553/554/555/556/557/558/559/560/561/562/563/564/565/566/567/568/569/570/571/572/573/574/575/576/577/578/579/580/581/582/583/584/585/586/587/588/589/590/591/592/593/594/595/596/597/598/599/600/601/602/603/604/605/606/607/608/609/610/611/612/613/614/615/616/617/618/619/620/621/622/623/624/625/626/627/628/629/630/631/632/633/634/635/636/637/638/639/640/641/642/643/644/645/646/647/648/649/650/651/652/653/654/655/656/657/658/659/660/661/662/663/664/665/666/667/668/669/670/671/672/673/674/675/676/677/678/679/680/681/682/683/684/685/686/687/688/689/690/691/692/693/694/695/696/697/698/699/700/701/702/703/704/705/706/707/708/709/710/711/712/713/714/715/716/717/718/719/720/721/722/723/724/725/726/727/728/729/730/731/732/733/734/735/736/737/738/739/740/741/742/743/744/745/746/747/748/749/750/751/752/753/754/755/756/757/758/759/760/761/762/763/764/765/766/767/768/769/770/771/772/773/774/775/776/777/778/779/780/781/782/783/784/785/786/787/788/789/790/791/792/793/794/795/796/797/798/799/800/801/802/803/804/805/806/807/808/809/810/811/812/813/814/815/816/817/818/819/820/821/822/823/824/825/826/827/828/829/830/831/832/833/834/835/836/837/838/839/840/841/842/843/844/845/846/847/848/849/850/851/852/853/854/855/856/857/858/859/860/861/862/863/864/865/866/867/868/869/870/871/872/873/874/875/876/877/878/879/880/881/882/883/884/885/886/887/888/889/890/891/892/893/894/895/896/897/898/899/900/901/902/903/904/905/906/907/908/909/910/911/912/913/914/915/916/917/918/919/920/921/922/923/924/925/926/927/928/929/930/931/932/933/934/935/936/937/938/939/940/941/942/943/944/945/946/947/948/949/950/951/952/953/954/955/956/957/958/959/960/961/962/963/964/965/966/967/968/969/970/971/972/973/974/975/976/977/978/979/980/981/982/983/984/985/986/987/988/989/990/991/992/993/994/995/996/997/998/999/1000/1001/1002/1003/1004/1005/1006/1007/1008/1009/1010/1011/1012/1013/1014/1015/1016/1017/1018/1019/1020/1021/1022/1023/1024/1025/1026/1027/1028/1029/1030/1031/1032/1033/1034/1035/1036/1037/1038/1039/1040/1041/1042/1043/1044/1045/1046/1047/1048/1049/1050/1051/1052/1053/1054/1055/1056/1057/1058/1059/1060/1061/1062/1063/1064/1065/1066/1067/1068/1069/1070/1071/1072/1073/1074/1075/1076/1077/1078/1079/1080/1081/1082/1083/1084/1085/1086/1087/1088/1089/1090/1091/1092/1093/1094/1095/1096/1097/1098/1099/1100/1101/1102/1103/1104/1105/1106/1107/1108/1109/1110/1111/1112/1113/1114/1115/1116/1117/1118/1119/1120/1121/1122/1123/1124/1125/1126/1127/1128/1129/1130/1131/1132/1133/1134/1135/1136/1137/1138/1139/1140/1141/1142/1143/1144/1145/1146/1147/1148/1149/1150/1151/1152/1153/1154/1155/1156/1157/1158/1159/1160/1161/1162/1163/1164/1165/1166/1167/1168/1169/1170/1171/1172/1173/1174/1175/1176/1177/1178/1179/1180/1181/1182/1183/1184/1185/1186/1187/1188/1189/1190/1191/1192/1193/1194/1195/1196/1197/1198/1199/1200/1201/1202/1203/1204/1205/1206/1207/1208/1209/1210/1211/1212/1213/1214/1215/1216/1217/1218/1219/1220/122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