

# DRAGON USER



*The independent Dragon magazine*

September 1988

## Contents

### Letters

2

Best book for machine code ... Pam's panning under pressure ... useful routine ... crossword answers.

### News desk

4

November show at Wotton-super-Mare ... Prilog 2 ... Maglin projects ... New keyboard? ... New Era in software ... ribbon releases

### Dragonsoft

6

Champions — a history ... Walter A and Electronic Author — a comparison.

### Dragonsword

8

Paul Gadenwith words of advice and warning to would-be slayers.

### Access and search

10

David Hill devises a search routine for altering data files.

### Classified ads.

15

### GoSub

16

Paul Burge with a graphics routine that writes itself.

### Vive les differences

16

Graham Smith on the difference between the Dragons 32 and 64.

### Winners and losers

18

Gordon Lee looks at his solution to the February competition.

### Monitor mod

20

Kee G. Smith solves his monitor problems with a modest hardware adaptation.

### Duplidisk

21

An upgrade of the popular disc-copying program to run from disc.

### Crossword

22

Crossworded with tapes to win

### Write: ADVENTURE

23

Pete Gerrard takes a swipe at writing-adventures.

### Adventure Trail

24

Pete Gerrard gets back to Return of the Ring.

### Competition

26

Gordon Lee tries to approximate pi. The square wheel?

### Dragon Answers

28

More notes ... bubble sort is slow ... triangle inversion ... ascii terminal.

## Editorial

THE leading news this month is that another Dragon show will be held this autumn, in Wotton-super-Mare. The Callour Computer Convention will be organised by Dragonette Services held on a Sunday so that users who normally work on a Saturday will have a chance to attend. See Newsdesk for further details. However, Dragon User has now heard from two inside sources that the running of an all-Dragon show is being organised by New Era Publications was founded on hope rather than agreement and will not come to pass.

After the interest shown in the Dragon's past in recent letters pages, I would like to hear from anyone who has historical material about the Dragon, or a good collection of old DUs or just a good memory.

Meanwhile, thanks to the Arcade Arena volunteers. The column has dropped out this month for reasons of space, but should be back in the next issue.

Telephone number  
(01) 575 6338

Editor  
HELEN ARMSTRONG

Production Editor  
HELEN ARMSTRONG/ARTSET

Administration/Advertising  
BOB HARRIS

Publisher  
DRAGON PUBLICATIONS

Subscriptions  
UK £4 for 12 issues  
Overseas (surface) £26 for 12 issues  
ISSN 0266-177

Address: Dragon Publications, 48 Alexandra Road, Hounslow, Middlesex TW9 4HP, United Kingdom.

Published by Dragon Publications 1988

© Dragon Publications 1988

Typeset by Artset Limited, London NW1

Printed by Headley Brothers Ltd, Ashford, Kent

Registered at the Post Office as a newspaper. Dragon and its logo are trademarks of Eumhardt Ltd.

### 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 disclosures 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 5000 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. Future your program returned you must include a stamped addressed envelope.

# Letters

This is your chance to air your views — send your tips, compliments and complaints to Letters  
Page, Dragon User, 45-Alexandra Road, Hounslow, Middle T8S 6XP

## Pamcalls

THANK you for advising me of the amazing news that Dragon User is to continue under new management. My own news is similar but different.

Needing to make a contribution to the family budget, Pamcorne Ltd, for was formed well before the Dragon came on this scene. Although I have been involved with the Dragon (my first and still best-loved home computer) since 1982, primarily because I own the imagination for creating computer games the Dragon has remained a private computer interest, though also the one that has given me the greatest enjoyment. Earnings over the last three years have been sustained by contracts to convert games to a French title for a software house.

Alas, that market seems to be closing down, so I must seek new pastures. Although Pamcorne Ltd has been my last employer (and I am talking of 100 replies, not multiple hundreds), it is obvious that the Dragon will not be a viable financial proposition for me. A software publisher, having seen Pamcorne Ltd at the London show, gave me a 16-bit machine to develop software on. To date, I have been allowing myself to be drawn back to my much loved and familiar Dragon rather than concentrating on the new beast. However, your letter suggesting that the way was now open to continue Pamcorne forces me to face reality and say sorry, but I must put my future energies fully into 16-bit technology. I am sad that I couldn't complete the machine code series more thoroughly, and that I haven't developed for the Dragon all the software that I would like to, and that I haven't been in an Oasis Shop.

As for the future of the Dragon, it remains a very good computer; there are now software developers replacing the dropouts; Dragon User will continue and flourish; it seems rather that if they put their hands in their pockets every now and then, Dragon life is sustainable... and I don't know that I will be able to totally divorce myself from it...

Meanwhile, I will sign off by

Every month we will be shelling out a game or two, courtesy of our suppliers, to the reader's 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?



## Easy is best

"AND some have greatness thrust upon them."

I was surprised to find my name in print in Gordon Lee's column in July. I am neither right, left, shape or age for Page 3, and as a convinced republican would rather see my name in the Court Circular, so that only leaves Dragon Users remaining target.

However, I am not writing to green my expanded ego, but to confirm Gordon's wise advice about a useful textbook. By a strange coincidence I purchased *Easy Programming* book he recommends at about the same time as his column, and can certainly confirm that it is a most helpful and well-written book. I now agree with his emphasis on knowing thoroughly the action of each command. I

was tempted to skip the first 'baby' chapters, but, having decided to work through them, found that even the simplest exercise had been carefully thought out to teach a lesson and that much of my previous difficulties were because I had only partly understood certain functions.

However, Gordon Lee's line of endorsement from me, and my main reason for writing is to let readers know that the book is available from R & AJ Preston, Kings Hall Court, St. Brides Major, Mid. Glam CF32 6SL. I think the second book is, too, but do not wish to list it at present to confirm. However, they will be glad to be glad to anyone interested have a copy of their attractive title catalogue of games and books.

Jim Finlay, Romford

I haven't got all the details at time of writing, but Preston's are glad to receive enquiries. There should be an advertisement in this issue with details of their new games. The very same advertisement missed last month's issue because of a postal dispute in some North London sorting offices, so

they deserve an extra plug.

I'm short of ready-to-publish letters this month owing to the above-mentioned moves, holidays and other chaos. I have a large packet still to sort, so hopefully we will be back to normal next month.

AND thank you for everything, Pam. I hope business continues to flourish.

But, said I to an engineer of my acquaintance, recalling what Paul Grade said in last month's User, is it true that people will buy a new computer just because the colour is better and the memory is bigger, whether they need it or not? I am not quite as naive as I sound, but, not being of this school of thought myself, I wanted a second opinion. On yes, said he. There are good reasons as well, of course, but the more you find out, the

more you find that people don't buy quality, they buy appearances.

Have we have an expert and dedicated writers enter being dragged kicking out of the Dragon arena by financial pressures as a direct result of all these people who bought 16-bit computers because they couldn't work out what to do with their 8-bit ones. Being assigned a position to observe a large body of unusually devoted 16-bit users fairly closely, I can report that, despite the best intentions, many of them still don't know which way up to hold the thing. Heaven knows how the off-the-page-57 crowd copes.

## Maths on the run

AN answer (perhaps only partial) to Phil Daniels's query (input on the run? July 1988) reference on putting in mathematical functions in a running program may lie in the key part to a program for drawing graphs which I submitted to DU some years ago but alas! it was rejected. The relevant part of the larger program is appended.

The function is entered as a string (F\$) which is analysed for trig functions, operators etc., which are then tokenised and joined (padded by the tokens for DEF FND(X) into a 'reserved' program line (R\$), the whole line, or its remainder after padding in the function, being made inoperable by inclusion of the token for REM. The position of the reserved line is variable (Y). A subroutine (G\$) to remove the whole reserved line to a REM statement is included, otherwise every time a new function is entered, the program would have to be reloaded. Note that the 'reserved' line must be at least 16 characters longer than any function which is to be entered to allow for DEF etc.

PG Hoffman  
6 Kings Close  
Lymington  
East Lothian  
Scotland EH32 0DR

PG The '59' mentioned in line 430 is the line in the main program when the entered function is used.

[illegible]

1		B	E	B	E	L	E	B	U	S	T	E	R	
2		M	A	N	I	C	M	I	N	I	N	E	R	
3	B	E	R	S	E	R	K							
4		C	H	I	C	K	E	N	R	U	N			
5	H	U	N	C	H	E	R	A	C	K				
6		T	E	L	E	W	R	I	T	E	R			
7	T	O	T	H	E	C	L	I	P	S	E			
8		D	I	N	G	E	C	O	N	R	A	I	D	
9	D	R	O	G	O	N	H	W	K					
10		B	O	U	L	D	E	R	C	R	E	S	H	
11		T	A	N	G	L	E	W	O	O	D			
12		N	I	G	H	T	F	L	I	G	H	T		
13			L	N	O									

## News desk

If you have any new products for the Dragon — software or hardware — please write to: The Newsdesk at 49 Alexandra Road, Hounslow, Middle TW3 4HP

# 6809 Show goes to Weston-S-M

Dragonfire Services are to organise a show for the Dragon and Tandy Colour computers at Weston-super-Mare, Avon, on December 4th 1988.

John Penn of John Penn/Discount Software is quoted as saying that it is unlikely that the Penns could organise a London venue this autumn, owing to the very high cost of London venues. Weston-super-Mare, near Bristol, has excellent road and rail access to most of the UK and is fairly local to the organisers.

All the major Dragon and Tandy suppliers will be there with software, hardware and supplies. There will be special show reductions, and new software will be released at the show. There will be bargains/any Dragonfire. Companies John Penn Discount Software, Orange Software, Fisher Software, R & A Preston, NEMO and Dragon Magazine have already put down their names to attend.

## New Era moves into software

NEW Era Publications, publishers of 6809 User (formerly Dragon's Word) are launching a new software label, New Era Software, in order to endorse their commitment to all areas of Dragon publishing.

The Colour Computer Convention will be held at the Avon Hotel, Lower Church St., Weston-super-Mare from 10am to 3pm on Sunday 4th December, entrance £1.50 (CA/Publisher 10s 75p; under 16s free).

Dragonfire also write: "Please print our address in the supplier column in reviews, so we had orders as a result of the Computer-Test and Script review, but none from the Pyrotechnics and Gatekeeping reviews." In future, all reviews will contain the supplier's address, but for the above games and information about the show, contact Dragonfire Services, 10 Perry Jones Close, Bains, Great NP23 5RA.

Anyone who finds that Computer-Test does not function fully with their version of Printer Control should contact Dragonfire.

New Era is presently looking for software writers, offering a royalty rate of over 50%. Contact New Era at 37 Collins Meadow, Harlow, Essex CM9 4EF.

## Ink and Ink again

From John Smallwood

A fine called Reinkink will re-ink used printers and typewriter ribbons. The first re-inking costs £1, and the company will enclose an estimate with the re-inked ribbon for how much it will cost to re-ink the ribbon in the future.

There is a helpful alternative to seeking out ribbons at 80-

pence ribbons (see Letters, July 1988). Write to Aladdin (Dept. 66), 4 Market Crescent, Symonds, Borehampton TD14 5AR. Tel. 08967 50995.

Dragon User would welcome a consumer report from anyone who has used this service.

## Extension keyboards from German source?

From David Rothery

A source has been sighted in Germany which apparently supplies a replacement keyboard and interface, featuring 44 keys including 10 function keys, and a integral real-time clock on the circuit board.

The add-on board must be soldered inside the Dragon. The clock carries the date and time permanently and can be accessed under DragonDOS by inclusive in-accounting programs, etc.

The clock's most useful function is with OS-9, where it timestamps each file it saves and will automatically date letters written using 5150 and Mailmerge.

A new GLOCK unit is sup-

plied for the 5150 file, so that when a GLOCK system call is made, the new clock is used. The keyboard drivers are supplied, along with some DragonDOS software.

The package costs £50 plus £2.50 p&p the real-time clock by itself costs £30 plus £2.50 p&p.

Dragon User has contacted the address supplied, Siegfried Scheuvelmacher, c/o Alexander Giesche, Grafstrasse 2 D-8523, Badendorf 1, Federal Republic of Germany, for confirmation and literature, but has had no reply at time of going to press. There is said to be a limited number of keyboards and that "bidding can be arranged" before further details are given.

## Maplin Electronics still in the Dragon business

THREE hardware construction projects for the Dragon are available from Maplin Electronics: the Dragon 32 Extension (jobs only, £3.80), the Dragon 32 PC/XT/AT/286 Interfacer (jobs only, £3.85, kit £12.95) and the Dragon 32 to Port (jobs only, £4.95, kit £12.95). Constructional details can be found in Maplin Project Book, 10 (the Extension) and Maplin Project Book

8 (the other two). The project books are 85p each.

These details are taken from the current Maplin catalogue, page 295. Maplin can be contacted at PO Box 3, Rayleigh, Essex SSW4 5R, Tel. Southend-on-Sea (0705) 907971 (mail order) and has shop (non-mail order) in Manchester, Birmingham, Bristol, Westcliff-on-Sea, Southampton and London.

## Prolog for OS-9

The new product from Clearasil's firm, Metasoft, is a Prolog compiler for OS-9. The compiler converts Prolog 2 source code into 6809 assembler source, which can be assembled into an executable program using the standard OS-9 assembler.

The package is supplied on a disc containing the compiler, runtime module, documentation and examples.

The compiler has all the standard Prolog features such as

non-deterministic execution, pattern matching, backtracking, program control using cut and fail, recursion and metaprogramming. The runtime module includes a large subset of the standard Prolog 2 predefined rules, including integer arithmetic, string handling, list processing and file IO.

The packages are available now and costs £12.50 from Metasoft, 4 Pinewood Walk, Drington, Kent ME9 8DD.





## The short and the long of it

**Program:** VisiText-Plus, Electronic Author  
**System:** Orange Software, The Giant,  
Star Road, Kent's Covey, Abernethy,  
Grant WY 80T  
**Price:** \$1599, \$1999

*Electronic Author has been around for some time now and as far as word-processors are concerned it has had things pretty much its own way. When I found out that Orange Software were bringing out a new wordprocessor called VisiText-Plus, I was quite keen to do a comparison. I was even more keen when I found out that Orange were about to put out Electronic Author V2.3. What follows is, I hope, a well-balanced comparison.*

### VisiText-Plus

Ron Starnop's original idea was to write a program that would allow him to write letters on his Dragon. However, like many a good idea it grew and grew. The end result is a WYSIWYG (nearly) word processor that uses 484 columns on screen and can handle 308 lines, about three pages of text, at a time.

VisiText is certainly one of the easiest systems to learn that I have ever seen. All that is necessary is to load the disc and type/BOOT and away you go. The program is predominantly menu-driven and, rather surprisingly, is a mixture of Basic and machine code. In the past Basic word-processors have been criticised for being painfully slow. This is where the machine code routines come in. Where speed is necessary, machine code is used; elsewhere, Basic rules. This makes the system easy to modify or debug where necessary, in order to conserve space. Ron has produced a modular program which keeps its routines on disc and only loads them when they are required, leaving useful space for text even on the 6302. The 64-column screen is a real gem. Those of us who use monochrome monitors or televisions will appreciate the flicker-free, black on white display. By using an unusual font for this screen Ron has produced probably the most readable 64-column screen text to be seen on the Dragon. The characters do not merge, and apart from a slight confusion with capitals B and W, it was no problem to read.

For the uninitiated I should explain that WYSIWYG is an acronym meaning 'What You See is What You Get'. This is what makes VisiText easy to use. It is possible to load the system, write a letter and print it correctly, without learning a single control code. If it is right on the screen, it will be right on paper. Where the system fails is where almost all other systems go wrong, namely on non-standard characters like bold or enlarged. These only appear as

standard characters, sandwiched between teletype/teletographic characters which indicate control codes. Now, I will never be able to look at a vertical spiggle and know that it means bold type, or that sideways "n" means that bold has been cancelled. Still, as I said before, this failing is shared by many other so-called WYSIWYG systems. However, a more serious problem is that no matter what typeface you use, you are still stuck with 64 characters per line, nothing more, nothing less.

Regularly used lines and phrases can be stored as quick texts, which can be called up using only two keys. These can be up to 64 characters long and may contain control codes, such as new line or enlarged print. They can be held as temporary files or stored on disc. In this way it is possible to create and store an address book, which can be called up whenever it is needed. Pressing the BREAK key forces a return to the main menu, while the CLEAR key acts as a control key which when followed by any other key will enter either a printer control code or a 'quick text'. Although auto-repeat, on all keys, is used the speed can be adjusted or the feature switched off using the non-figure option. Unfortunately, holding down the SHIFT key forces a repeat of the character types, until the SHIFT is released. For this reason it is best to use the shift lock (SHIFT + C) to enable even a short word in capitals. The program comes ready set up for an Epson FX100, or compatible, printer. However, it can be reconfigured to suit whatever machine you used. Any program claiming to be WYSIWYG would have to feature word wrap and VisiText is no exception: words are never split over two lines, and unnecessary trailing spaces are ignored.

### Bug call

Text can be stored on, or loaded from, disc and printed in whole or in part. My review copy had a bug in the SAVE/LOAD routines which resulted in an error message and failure of the routine if the directory was accessed before saving a program. A quick call to Orange Software soon effected a cure. Similar problems occurred when using the save routine for the 'quick texts'. Although I managed to cure the problems, the curious thing is that I could not see anything wrong with the original routine. Perhaps it just did not agree with my SuperDOS.

A block text routine is included for either a block of text or a screen window. However, the procedure necessary to activate this is somewhat cumbersome, and if the original is deleted the existing text is moved up to fill the gap. The result is a hole in the text that has to be removed

manually. The find and change string procedure is slightly easier to use, but subject to the same limitations. The replacement string must be the same length or shorter than the string to be replaced. If it is shorter, then pages are left. Both these routines are of questionable usefulness, and I must admit that I feel that their inclusion is little more than window dressing. No word count or page numbering is available, and it would have been nice to have the paper wound out of the printer once the run was finished.

Documentation was quite good and well presented in its bright orange folders. However, it did tend to be a bit lazier in places, especially the parts dealing with the Move Text routine and also the saving of 'quick texts'.

The ease of use offsets these shortcomings to a fair degree, and with a price tag of only £1599 it seems good value. The bugs are a different matter: Graham Smith assures me that all new copies will be bug-free, and in the meantime anyone who experiences problems of a similar nature should contact Orange Software.

### Electronic Author

Being an all-machine-code program Electronic Author occupied only 6K with another 6K allocated to the high resolution screen. There is still space for over 17K of text, even when running on a Dragon 32: it is supplied with a program called Comg, which is used to set up the program to whatever printer you care to use. This will set up all the commonly used codes, the no-so-common ones being entered for in a different way.

My first impression of this system was somewhat mixed. Being both impatient and lazy, I expected to just RUN 'AUTHOR.BIN', but it did not work like that. Even a Basic loader program occupied the program. I ended having to stick to the instructions and LOAD, then EXEC the program. In fact, this is the only drawback I could find between my original Smithson Computing copy and the V2.0 version supplied by Orange Software. The V2.0 version loads and runs via the BOOT command. This main display is on the high resolution screen and prints black on green, either 31 or 64 columns wide, with a command window at the bottom of the screen. This screen display is beginning to look pretty dated now, with many people, like myself, using monochrome monitors or black and white televisions, and it would have been better to use a black on white screen which gives a multi-column display. To achieve the 64-column screen, Wayne Smithson just removed the space between the letters. This means that you have to teach your eyes to read a new type of 'join-

# Dragonsoft

New software for review should be sent to Dragon Glen,  
45 Alexandra Road, Hounslow, Middle TW3 4HP

ed up writing. Because it has so many capabilities, it is necessary to read the manual supplied pretty thoroughly before starting to use the system.

Not being WYSIWYG, the screen with only 40 lines on the printed width. For instance, if it is put into condensed mode the printer will print 130 columns wide and the system will handle it. What is more, if, say, several enlarged text is included, the program will adjust the line accordingly. Printer codes are shown as initials prefixed by the control character. Unless otherwise defined, this is normally a hash sign, so code (that has come out as a # sign on your printer. Ken G.)

sets double width. Such a format makes it easier to trace faults when it doesn't print correctly. A fill and justify command is available which gives you even more of a literal model which allows tabulations to be achieved.

Text can be copied or deleted. Both routines either create space for the new text or close up the space if text is deleted.

A separate MOVE routine is included because if text is copied to a new location and then the original deleted, then the original has effectively been moved. A separate routine looks the journalised just be a waste of space. Both page numbering and word count are supported by the program. SAVE and LOAD routines are included, in general, work very well. There is even a facility to tag another file from the end of the text currently in memory, which can then be edited or moved around to form an integral part of the original article. One slight disappointment is that the DIR command does not work with SuperDOS, though a two byte patch will cure this. Also, there is no capability to FLS, a text file without leaving the program.

## Conclusion

Well, the key question is, which program should you buy? The answer (as so often)

depends on what you want to do with it. Miftest lacks the versatility and overall ability of Electronic Author. Electronic Author, on the other hand, lacks the ease of use and the outstanding screen display of Miftest. In writing this review, I used each system and discovered that their test files are compatible, so will probably use both. The best advice I can give is that if you want a wordprocessor mainly for writing letters and shorter texts, then Miftest is for you. If you intend to go into competition with Leo Today, or write your thesis, then Electronic Author is a better bet.

Both programs are obtainable in DragonDOS format from Omega Software for £1995 (Electronic Author) and £1599 (Miftest Plus).

Ran G. Smith

Electronic Author



Miftest Plus



plus



for value for money

## Old favourite tours the world in triumph

Program: Champions

Supplier: Computape, 27 North End, Southminster, Essex CM2 7HG; Harry Whitehouse, 45 Queen St., Basingstoke, Newbury, North RG24 2HQ.

Price: £795

VERY few Dragon games can claim the success attributed to similar games on other computers; indeed, few Dragon games can claim to be the inspiration behind converting the idea to other computers. Yet both of these prestigious qualities form the basis of one innumerable Dragon game, Harry Whitehouse's Champions.

Champions, launched in 1983, rapidly captured the imagination of many Dragon users, the result being that it secured a place in the Dragon hall of fame as one of the most popular all-time Dragon games. And yet, while its popularity has never been in question, an review has never found its way into the pages of Dragon Glen.

To those not yet familiar, the game involves playing one of the intriguing positions of a fourth division football manager whose aim is simply to become the next Brian Clough, taking the pre-selected team to the dizzy heights of the first division, and subsequently into the realms of European football.

There are indeed many realistic features incorporated within the game, many of which were updated in 1985 in a successful attempt to fight off the mounting competition which Addictive's famous Football Manager imposed. Such features include a transfer market, a reserved Bank

Manager (perhaps reminding us that football has as many battles off the pitch as on it), a competitive and enthralling P.A. Cup, with limited graphics, enabling you to 'view the game in progress', while still prominently boasting the often fatal 'weekly loss' feature which simulates the weekly events. Indeed, it is hard to envisage an aspect of football which the game doesn't portray.

*If you ever find one of your Brand X-owning friends playing The Boss, or Soccer Boss, point out that it is a conversion of a Dragon game!*

Harry Whitehouse, perhaps best still remembered in his former guise as Peaksoft, is quick to emphasise the game's success, not only in the Dragon market but more universally in other formats as well. "The point about Champions is that it is still one of the most successful games, although few people recognise it," says Harry. "Champs did so well on the Dragon that we thought 'This can't be bad', so we re-wrote it for the ZX81 then the BBC Micro, Tandy CoCo, Oric and Spectrum. Off it came again. During this time, we'd been thinking of new features, so we did a pretty thorough re-write before we brought it out for the Commodore 64, ensuring it

flexible. That tipped off the other top twain, so we incorporated all the improvements into the Spectrum and BBC Micro versions, together with a new version for the Oric Atmos, Commodore 16, MSX and Amstrad GPC."

"We still sell quite a few copies by mail order through the football magazines, but the most interesting current point is that we've licensed The Boss as a budget product to Alternative Software, who have released it as Soccer Boss for several computers. In its new clothes, it has been in the national Top Twenty for a number of months (best position so far, number two, but we're keeping our fingers crossed)."

"The point about all this is that if you ever find one of your Commodore 64-owning friends playing The Boss or Soccer Boss, point out to him that he is actually playing a conversion of a Dragon game. And if he happens to have another Top Twenty game called Innovations? Or let it into his collection ... well, guess how that began life?"

Self-evidently, Champions has become somewhat of a cult among Dragon users, and indeed in the computer industry in general. If the game has yet to find its way into your collection, whether you are interested in football or not, then you can be sure you will not find many more addictive and entertaining games than Harry Whitehouse's Champions.

Simon Jones



# DRAGONSWORD!

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

*JUST* for a change I think I ought to try writing about a subject I know really well. Not that I don't know all about everything, of course, only our Beloved Editor could know more (and that will cost you, a drink, maybe). But have to admit to knowing a little less about some things than others. (Don't grieve, and so modest too.) Anyway, the topic for today is going to be the running of user groups and/or magazines, and there's a very good reason for this choice. ... I'm getting tired of seeing groups and magazines start up, full of enthusiasm and good ideas, only to disappear without trace a few months (or sometimes weeks) later.

There's a lot of different reasons why the enthusiasm turns into disillusion, but what it usually comes down to is that people tend to get carried away with the grand concept, and don't give enough thought to the realities.

The Dragon could do with a lot more "enthusiast" support. That's about the only kind it can get now, because the user base is simply too small for anyone to operate on a commercial basis, and anyone thinking they can make a profit out of the Dragon scene now probably believes in fairies, Santa Claus and election promises too.

## No profit

There's a lot of people for anyone wanting to help keep the Dragon alive, software writers, small inexpensive hardware projects, etc., and of course running magazines and groups. None of these is going to make any profit, but there's no reason for them to make a loss, either, though they all need a lot of work. If you aren't prepared to work, do everyone a favour and don't even try!

Running a group is probably the most difficult of the lot (and I'm not just saying that because I run one). The first thing you need to decide is how big you want it to be, whether it should be "local" or "national". Unfortunately this is where the mistakes usually begin! There's a temptation to think TOO big and get ideas about setting up a national group or mag when resources aren't good enough. To run a group of around a thousand users you need more than just enthusiasm. For start, you need to work out where the members are going to come from, how you're going to let them know you exist, and moreover the point, what you're going to offer that will make joining your group the one offer they can't refuse.

Think you can do it by advertising? Dragon User and Update would probably be happy to give you a mention, and you could even buy advertising space, but you'll be lucky if it got you more than half a dozen replies, and 90 per cent of those would never be heard of again after the initial enquiry. Believe it or not there's NOT a crowd of Dragon-worshippers out there holding their breath and waiting for the chance to

join your group, just some very cautious and cynical ones who have lost money before by subscribing to groups and mags which have stopped dead the day after they sent their cheque. The only way you can hope to get anywhere is to start small and hope that you can build up a good enough reputation for people to want to subscribe.

## Start small

There's a couple of other reasons for starting small. ... time and money! Running the *MOUSE* takes me around sixty hours a week, minimum, which means goodbye to evenings out and weekends off for a start, and then you need to be able to cover a £500-per-year phone bill, the class of photocopier that you don't usually find under £2,500 even second hand, and a paper and postage bill that has to be seen to be believed. If you have abilities to spare, then please start a national group, and I promise to be one of your first members, but if you don't then please don't try to take on more than you can handle, it simply doesn't work. Exactly the same points apply to magazines. There isn't quite as much work involved, but other costs are all very similar, and there's still the same problems involved.

Start small, and try to build up a reputation which will force you to expand. It isn't easy. You will find that all the people who told you what a good idea it was and that they would be willing to help with the work will disappear like magic as soon as you try to pin them down to actually doing something at the time it needs doing, that the promised material, articles, etc. will never materialise, and that while everyone is all too willing to tell you what you should be doing, none of them ever want to assist in doing it. For what it is worth, the problem does improve with time, but of course you have to survive long enough to appreciate that!

## Masochist

So why should you even attempt to start a group or a magazine? Well, possibly to gratify your repressed masochistic impulses, or perhaps because of your kind, generous and altruistic nature, or even because you want to keep interest in the Dragon alive, and possibly learn more about the old beast in the process.

Better as I'm concerned, running *MOUSE* has taught me a lot I didn't know about the Dragon, got me some very useful contacts, a few very good friends, and even the odd enemy or two. It has written off any form of social life, and even with the help of some very good editors has given me far more work than I every imagined it could! As an occupation it can be interesting, depressing, infuriating, and a right pain in the anatomy. It has been educational too,

you'll be surprised at the adjectives I've invented!

Don't get the wrong idea, I'm most certainly not trying to put you off. What I AM trying to do is make sure you know what you're taking on, so that you're a better than even chance of survival.

The point is that when you start something like a group or a magazine you're asking people to accept you on trust. You're asking them to pay you money, send you material, for something YOU have promised to run. YOU can't pay the money and then decide that it's all too much bother, too much work, and ditch the thing. That doesn't leave a bunch of rate payers looking for you with their favourite piece of lead piping, or the local police waiting for you to assist them with the odd enquiry, those minor points, and of interest only to yourself and your local casualty department. The real damage is done to the entire Dragon scene, people decide that enough is enough and they aren't going to risk the same thing happening again, so the genuine groups and magazines suffer, real order software distributors (the only kind left) suffer, because YOU will have made people even more reluctant to risk their money. Get the picture?

## Fun

Running a group or a magazine can be a lot of fun, and can help a lot of people, but please think the thing through properly before you start. We need more groups, especially local ones, the type which cover a town or county, because these are the ones which can do most for the Dragon scene ... a really good network of local groups would be much better than one national one, even *MOUSE* and local Dragon magazines can carry much more of direct interest to their immediate readers than national ones, which has to take a more general view of things and of course means out on a lot of local news, and of course, if you make a really good job of things, eventually you'll get subscribers from outside the immediate area, and then you're ready to go national and leave the local scene for someone else to cover.

Yes, I KNOW I don't do it that way, but that was four years ago, and the scene was much bigger then, and I had the advantage of being used to running a business, and could run a Group on the same lines. Times have changed now, the scene is smaller, and people are more reluctant to chance their money.

Anyway, let me know when you've got your group started and I'll give it a write-up, and that goes for your magazine as well, but please remember that I don't like writing advertisements.

**Paul**

# MacGowan Consultants

## NOTICE TO CUSTOMERS

Due to re-organisation and holidays there will be no service at the usual address and phone No. from 15th Aug. to 1st Oct. 1988.

Enquiries and orders during this period can be addressed to **HAROLD MICRO SOFTWARE**. Any orders so addressed will not be processed until 1st October 1988. With effect from 1st October 1988 the new address will be:

3, Beechwood Crescent  
Broughton  
Nr Wigan  
South Ribbleside  
WN2B 8BB  
Tel:0693 34882

## DESKTOP PUBLISHING

for the DRAGON has arrived at last!

Not quite like the big boys. IBM etc, much better!

Retains the print mode/graphics mix facility which makes **PRINTER CONTROL** unique. Gives 1, 2 or 3 column printout.

At the moment only available for those printers which have the ESC 3mm code (n/216 or n/144 linefeed set) and which can disable auto LP by DIP switch or software.

- 
- DESKTOP** The ULTIMATE Dragon utility! Cass £38.00 Disc £25.00
- PRINTER CONTROL** Word processing and graphics combined. Nothing like it for any other machine! Cass £28.00 Disc £25.00 \*
- SPECIAL CONTROL** --- **PRINTER CONTROL** with a difference!  
Ideal for forms, graphs etc and also for giving your printer a style to which it would like to become accustomed!  
Cass £22.00 Disc £28.00 \*
- STARLITE** **SCREEN BASIC!!** Creates full screen pictures in modes 3 and 4. Full keyboard controls plus light pen facility. Printer dumps up to size 8. Mode 3 dumps as per our **COLORPRINT**. Screens saved may be used with all our other software. Cass £7.00 Disc £9.00 \*
- DUMPER** Relocatable machine code **PHODE4** screen dump for your own BASIC programs. £5.50 \*
- COLORPRINT** **DUMPER** for **PHODE3** four color screens. Prints like a photograph. £6.50 \*
- BACKDOOR?** All you could ask from a monitor (and more!!) plus printer output. "Idiot proofed" and User Friendly. Can be used as a teaching aid if you want to learn assembly programming.  
Cass £12.00 Disc £15.00 \*
- DISMANTO** Due to demand - the **EXTENSION** from **PRINTER CONTROL** as a stand alone disc management program. Has lots more functions and does not interfere with your BASIC programs. Disc £8.00
- LISTEN** Use the facilities of your printer to enhance your BASIC listings. Relocatable machine code offers all sorts of options not usually obtainable. Cass £18.00 Disc £12.00 \*
- MONSTER MIX** Addictive machine code game with hi-score printout. Bored me but you might like it! Cass £5.00 Disc £6.00 \*

\*Price may vary according to printer type.

# MacGowan Consultants

REAL VALUE FOR MONEY SOFTWARE

# Access and Search

*D. Hill gets into his programs and out with the numbers*

HAVING recently spent many hours writing along Basic programs involving random access to disc files, I decided to change the name of one of the data files on the disc. I now had the time-consuming task of searching through the entire program for all references to the old file name in order to change it to the new one.

The thought of all that searching prompted me to write a program to do it for me. My first thought was a short basic program but this created the problem of loading the basic program into memory which, although not a great problem was, nevertheless, a nuisance as well as taking up valuable memory.

What I wanted was a machine code program which would search a Basic program in memory for any string of characters entered and report the numbers of all lines containing that string. This program is the result.

The program is written in relocatable code, but is best loaded in 32K00 after having reserved space for it. Typing

PCLEAR:CLAMP000000

will leave the maximum amount of free memory to load the Basic program to be

searched. A hex dump with checksum is included which can be loaded with Pam Olney's hexloader (Dragon User, June 1985).

The program first checks that there is, in fact, a Basic program in memory, sets Flag B (output to printer?) to 0 then asks for the string to be searched for.

## Tokens

As I am sure most readers are aware, all Basic command words are stored as tokens, therefore, the next stage is to expand the line from its stored token order to search it. If the string is found, you are asked whether the results are to go to a printer. If the answer is yes then Flag B is set to 1. The number of the line containing the string is then displayed, the sub routine 'Token' checks Flag B and copies the results to the printer, if it's set.

The maximum length of the string is set at 255 and an error trap is included to ensure that this is not exceeded. The sub routine 'SOFULL' ensures that the results do not scroll off the screen until a key is pressed.

I'm sure that the more 'expert' programmers among you could improve upon my efforts but, nevertheless, I thought it could

be of interest to others, if only as an example of what can be achieved by someone with no knowledge of computing other than that learned from the invaluable articles published in Dragon User and a copy of Inside the Dragon.

When first written, every time the program ended and returned to the basic command mode an SN Error was flagged. Apparently the computer was looking at the area of decompiled text and deciding that it was invalid word. The "clear input buffer routine" is my solution to that problem. I'm not exactly sure how it works, but it does.

## Help!

There are several articles in Dragon User and Inside the Dragon explaining how a Basic program is stored in memory but I couldn't find anything to explain exactly what happens when you type in something indirect mode and press enter. Maybe one of you knowledgeable people could enlighten me by writing an article on which locations are used etc.

Finally my sincere thanks to the many people who submit informative articles and to Dragon User for publishing them.

```
21000 B3, B4, 77, 6F, B2, 02, A6, B3, 9F, 00,
21010 19, 10, B3, 00, 00, 26, 07, 30, B0, 01,
21020 F1, B2, 6B, 39, B0, B4, 77, 30, B0, 01,
21030 74, B3, 61, B0, 0C, B0, 3E, B0, B4, 77,
21040 17, 00, A2, 6B, B2, 02, B4, 26, 00, 6F,
21050 B0, 02, B0, 30, B0, 01, EA, B0, 47, 17,
21060 01, 1B, B6, 0B, B0, B0, 0C, 6F, B0, 02,
21070 6E, 30, B0, 02, 24, B0, 25, B0, A0, EA,
21080 01, 29, 27, C4, 0E, 02, D0, 9F, A6, 7F,
21090 03, D0, 7F, 02, D6, 7F, 02, D6, 9F, B0,
21100 B4, 77, 30, B2, 01, E2, B2, 14, B0, A0,
21110 EA, 01, 53, 27, B4, B1, 50, 26, EC, 6E,
21120 B0, 02, 3A, 30, 04, 6F, B0, 02, 24, 3F,
21130 A6, B0, 26, 01, 3F, B0, B0, 0C, 17, 00,
21140 B3, 20, F3, BF, 30, B0, 02, 0B, 24, 10,
21150 B0, A0, EA, 30, 10, B1, 00, 27, 1A, B0,
21160 B0, 0C, B1, 0B, 26, 07, 30, 1F, B4, 2B,
21170 B4, 20, E7, A7, B0, 0C, C1, 14, 2B, B0,
21180 B0, B0, 17, FF, BF, E7, B0, 01, F7, 3F,
21190 B6, 0B, B0, B0, 0C, 30, B0, 01, 21, B0,
21200 BF, B0, A0, EA, 3F, 6F, B0, 01, E2, 9E,
21210 19, 10, A6, B4, 10, B0, 00, 00, 27, 7C,
21220 B4, 20, EE, 02, 34, A0, B0, BF, 0B, 35,
21230 A0, B0, 02, D0, 31, B0, 01, B1, E0, B0,
21240 01, C2, A6, B0, 4B, 26, 02, 20, B4, A1,
21250 A4, 27, 02, 30, EB, B4, 27, 04, 31, 21,
21260 30, EC, 6B, B0, 01, A9, 26, 15, B6, 0D,
21270 B0, 40, 20, B0, 00, AA, 17, FF, 6B, B0,
21280 40, B6, 0B, B0, B0, 0C, 17, 00, 6F, DC,
```

```
CHKSUM= 1317
CHKSUM= 407
CHKSUM= 1230
CHKSUM= 1300
CHKSUM= 731
CHKSUM= 930
CHKSUM= 758
CHKSUM= 1120
CHKSUM= 1270
CHKSUM= 1172
CHKSUM= 1236
CHKSUM= 1086
CHKSUM= 600
CHKSUM= 742
CHKSUM= 867
CHKSUM= 1048
CHKSUM= 534
CHKSUM= 1350
CHKSUM= 1199
CHKSUM= 840
CHKSUM= 1462
CHKSUM= 666
CHKSUM= 833
CHKSUM= 3160
CHKSUM= 909
CHKSUM= 607
CHKSUM= 994
CHKSUM= 1122
CHKSUM= 962
```

31290	88, 30, 83, 03, 9F, 25, 02, 8D, 4F, 1F,	CHKSUM= 737
31300	30, 34, 06, 88, 95, 7A, 6B, 8B, 01, 7F,	CHKSUM= 944
31310	27, 0B, 0A, 4F, 0A, 6F, 35, 06, 8D, 95,	CHKSUM= 691
31320	7A, 6F, 4F, 20, 03, 35, 06, 8A, 2C, 8D,	CHKSUM= 708
31330	90, 0C, 17, 00, 21, 6C, 8D, 01, 60, 35,	CHKSUM= 595
31340	10, 16, 4F, 7B, 3F, 31, 8B, 01, 42, E8,	CHKSUM= 760
31350	8B, 01, 53, C1, 00, 26, 01, 3F, 5A, A6,	CHKSUM= 770
31360	A6, 8B, 80, 0C, 8B, 02, 20, F1, 63, 8D,	CHKSUM= 1155
31370	01, 41, 3F, 03, 8D, 80, 0F, 3F, 34, 1A,	CHKSUM= 577
31380	36, 8C, 79, 6A, 8D, 01, 32, 17, FE, FC,	CHKSUM= 1136
31390	6C, 8B, 01, 2B, 8D, A6, EA, 8D, 8A, 77,	CHKSUM= 1370
31400	35, 16, 3F, 4B, 4B, 54, 4B, 53, 20, 53,	CHKSUM= 629
31410	4B, 41, 52, 4B, 4B, 20, 5B, 54, 52, 49,	CHKSUM= 709
31420	4E, 47, 20, 41, 4B, 44, 20, 50, 50, 52,	CHKSUM= 418
31430	4B, 53, 53, 30, 30, 30, 43, 4E, 54, 45,	CHKSUM= 631
31440	52, 20, 20, 20, 20, 00, 54, 49, 45, 20,	CHKSUM= 467
31450	4E, 4F, 4C, 4C, 4F, 57, 49, 4E, 47, 30,	CHKSUM= 721
31460	4C, 4F, 4E, 4B, 5B, 20, 4B, 4F, 4E, 54,	CHKSUM= 719
31470	41, 4F, 4E, 20, 54, 4B, 4B, 20, 53, 54,	CHKSUM= 672
31480	52, 4F, 4E, 47, 2E, 2E, 2E, 00, 53, 54,	CHKSUM= 609
31490	52, 4F, 4E, 47, 20, 54, 4F, 4F, 20, 4C,	CHKSUM= 686
31500	4F, 4E, 47, 20, 50, 52, 45, 53, 53, 20,	CHKSUM= 689
31510	41, 4E, 5B, 20, 4D, 45, 5B, 00, 4E, 4F,	CHKSUM= 684
31520	20, 42, 41, 5B, 4F, 4B, 20, 50, 52, 4F,	CHKSUM= 689
31530	47, 52, 41, 4D, 4D, 45, 20, 4F, 4E, 20,	CHKSUM= 616
31540	4D, 45, 4D, 4F, 52, 5B, 00, 54, 4B, 45,	CHKSUM= 698
31550	52, 4B, 20, 41, 52, 45, 20, 4E, 4F, 20,	CHKSUM= 620
31560	4F, 43, 43, 5B, 52, 52, 45, 4E, 43, 45,	CHKSUM= 745
31570	5B, 20, 4F, 44, 20, 54, 4B, 45, 20, 53,	CHKSUM= 436
31580	54, 52, 4F, 4E, 47, 2E, 2E, 2E, 2E, 2E,	CHKSUM= 618
31590	00, 20, 20, 52, 45, 5B, 55, 4C, 54, 5B,	CHKSUM= 636
31600	20, 54, 4F, 20, 5B, 43, 52, 45, 45, 4E,	CHKSUM= 675
31610	20, 20, 4F, 52, 20, 50, 52, 4F, 4E, 54,	CHKSUM= 654
31620	45, 52, 20, 20, 20, 50, 52, 45, 53, 53,	CHKSUM= 644
31630	20, 70, 20, 4F, 52, 20, 70, 20, 00, 41,	CHKSUM= 581
31640	4E, 4F, 54, 4B, 45, 52, 20, 5B, 45, 41,	CHKSUM= 713
31650	52, 43, 4B, 3F, 3F, 20, 20, 50, 52, 4B,	CHKSUM= 642
31660	52, 5B, 20, 79, 20, 4F, 52, 20, 6E, 00,	CHKSUM= 654

```

1300          RESEARCH A BASIC PROGRAMME FOR #
1301          MANY STRING INPUT.DEFAULT LOAD #
1302          # ADDRESS=31000.TYPE PCLEAR# #
1303          # CLEAR50,31000 BEFORE LOADING# #
1304          # BY DENNIS HILL (1987) #
1305          *****
7910 7910      ORG 31000
7910          PUT 5000
7910 8000      DUTCH EQU 4B00C
7910 800F      DUTCHF EQU 4B00F
7910 A06A      WAIT EQU 4A0EA
7910 BA77      CLS EQU 4BA77
7910 C55A      DUTNUM EQU 4F57A
7910          *****
7910 BFA677     JSR CLS :CLS IN ROM
7910 6F8D52AD   CLR FLAG,PCR
7910 8C7F0019   LDD (R19):CHECK FOR
7923 10B30000   CMPD C0 :PROG.IN
7927 2607      BNE START :REPORT
7929 306D31F1   LEAK NONE,PCR
792B 894B      BSR OUTSTR
792F 29        RTS

```

```

7930 *****
7930 * PRINT PROMPT MESSAGE *
7930 * AND INPUT SEARCH STRING *
7930 *****
7930 B0BA77 START JSR CLS
7933 30BD0174 LEAX PROMPT,PCF
7937 0061 BSR OUTSTR
7939 006C BSR INSTR
793B 003E BSR PRTER ;PRINTER??
793D *****
793D * DECRUNCH,SEARCH,PRINT LINE NO*
793D *****
793D B0BA77 JSR CLS
7940 1706A3 LBSR GETLN
7943 43BD029D TST NU,PCF ;FOUND??
7947 36D0 BNE RETURN
7949 6FBD027F CLR FLAGB,PCF
794B 30BD01EA LEAX H0TFND,PCF
7951 0047 BSR OUTSTR
7953 17011B LBSR PRTSTR
7955 *****
7955 * ANOTHER SEARCH?? *
7955 *****
7955 06D0 RETURN LDA B00B
795B B000C JSR OUTCH
795D 6FBD026D CLR FLAGB,PCF
795F 30BD0234 LEAX H0RNES,PCF
7963 003B BSR OUTSTR
7965 B0A0EA JSR WAIT
7968 01D7 CMFA I'Y
796A 27C4 BEE START
796C *****
796C *CLEAR INPUT BUFFER ELSE ERROR *
796C * ON RETURN TO BASIC *
796C *****
796C 0E02BD LDH B02DD
796F 9FA6 STX B06
7971 7F02BD CLR B2BD
7974 7F02BE CLR B2BE
7977 7F02BF CLR B2BF
797A 39 RTS
797B *****
797B * OUTPUT TO PRINTER??
797B *****
797B B0BA77 PRTER JSR CLS
797E 30BD01E5 LEAX B0RNES,PCF ;RESULTS
7982 0D16 BSR OUTSTR ;TO
7984 B0A0EA JSR WAIT ;PRINTER??
7987 01D3 CMFA I'S
7989 170A BEE H0PRT ; NO.
798B 01D0 CMFA I'P
798D 36DC BNE PRTER ;INVALID
798F 4C0D0239 BNC FLAGB,PCF
7993 2004 BRA YESPRT
7995 6FBD023D H0PRT CLR FLAGB,PCF
7999 39 YESPRT RTS
799A *****
799A * PRINT A TEXT STRING *
799A *****
799A A6D0 OUTSTR LDA ,X*
799C 36D1 BNE OUT1
799E 39 RTS

```



```

7940 BD800C      OUT1  JSR      OUTCH
7942 1700E9      LBR      DEVICE  IPRINTER777
7943 20F3        BRA      OUTSTR
7947             *****
7947             * INPUT STRINGS TO SEARCH FOR AND *
7947             * STORE LENGTH IN LENSTR *
7947             *****
7947 5F          INSTR  CLAB
7948 308D020A     LEAX     STRING,PCR
794C 3410        GETCH   PSNG  X
794E B1A0EA      JSR      WAIT  IKEY PRESSED??
7951 3510        PULS   X  IYES
7953 810D        CMPA    #00B  IENTER??
7955 271A        BEQ     FIN    IYES
7957 B0000C      JSR      OUTCH  INO PRINT IT
795A 810D        CMPA    #00B  IBACKSPACE??
795C 2407        BNE     STORE  INO
795E 501F        LEAX     -1,X  IYES,GO BACK
7960 5A          DECB     IONE IF NOT
7961 28E4        BPL     INSTR  INEG VALUE
7963 20E7        BRA      GETCH  ITRY AGAIN
7965             *****STORE SEARCH STRINGS*****
7965 A78D        STORE   STA    ,X*
7967 5C          INCB
7968 C114        CMPB    I20  IMAX LENGTH
796A 23E0        BLS     GETCH  IOK
796C 8D08        BSR      TOOBIG  ITOO LONG
796E 17FF5F      LBR      START
7971 E78D01FA    FIN     STR  LENSTR,PCR
7973 39          RTS
7974             *****
7974             * STRINGS TOO LONG *
7974             *****
7974 840B          TOOBIG  LDA    I#00B
7976 B0000C      JSR      OUTCH
7978 308D0121     LEAX     ERROR,PCR
797F 50B7        BSR      OUTSTR
7981 B1A0EA      B1GL   JSR      WAIT
7984 39          RTS
7985             *****
7985             * DECRUNCH LINE, SEARCH IT AND *
7985             * PRINT LINE NUMBER IF FOUND *
7985             *****
7985 4F8D0181     GETLN   CLR     NU,PCR  ILINE# FND.
7989 9819        LDX     #19  ISTARTOF PROG.
798B 10A884      NXTLN   LBY     ,X  IEXT LINE ADD
798E 108C0000     CMPE    #0    IEND OF PROG?
7992 277C        BEQ     END     IYES
7994 3420        PSNG    Y  ISAVE NXT ADD
7996 E002        LBU     2,X  ISET LINE NO.
7998 3440        PSNG    U  ISAVE IT
799A B0BFF0B     JSR      #0F0B  IDECRUNCH
799D 3540        PULS    U  IRECOVER
799F             *****POINT TO DECRUNCHED TEXT*****
799F 8E02BD      LDX     #02BD
7A02 318D01B0     RESET  LEAX   STRING,PCR
7A06 E88D01C1     LBR      LENSTR,PCR
7A0A A480        NXTCHR  LDA     ,X*
7A0C 4B          TSTA     IEND OF LINE?
7A0E 2602        BNE     SEARCH  INO
7A0F 205A        BRA      NXTLN2  IYES

```

```

7A11 *****
7A11 # SEARCH LINE FOR STRING #
7A11 *****
7A11 A1A4 SEARCH CMPA #T ;CHARACTER
7A12 2702 BEO MATCH ;MATCHED??
7A13 20EB BRA RESET ; NO
7A17 5A MATCH DECB ;YES
7A18 2704 BEO PRTHES ;ALL MATCH
7A1A 3121 LEAY L,Y END
7A1C 20EC BRA NKTCHR ;TRY AGAIN
7A1E *****
7A1E 4 PRINT LINE NUMBER IF MATCHED #
7A1E *****
7A1E 6D8B01A8 PRTHES TST NU,PCB ;1ST ONE GO
7A22 2615 BNE CHKSZ ;ENDMESSAGE
7A24 860B LDA ;EOD
7A26 8B60 BSR DEVICE
7A28 308B00A4 LEAX ENDRES,PCB
7A2C 17FFA8 LBR OUTSTR
7A2F 8B40 BSR PRSTR
7A31 *****
7A31 860B LDA ;EOD
7A33 8B80C JBR OUTCH
7A36 17004F LBR DEVICE
7A3F *****
7A3F D589 CHKSZ LDB #88 ;SCREEN
7A3B 108300AF CHPD ;EOPF ;FULL??
7A3F 2502 BLO PRTLN ;NO
7A41 8D4F BSR SCFULL ;YES
7A43 1F30 PRTLN TFR U,B
7A45 3406 PSMB B
7A47 8D957A JBR OUTNUM
7A4A 6D8B017E TST FLAGB,PCB ;OUT TO
7A4E 270B BEO HOCOPY ;PRINTER??
7A50 0A8F BEC #AF ;YES,SET
7A52 0A8F BEC #AF ;TO -2
7A54 2504 PULB B
7A56 8D957A JBR OUTNUM
7A59 0F6F CLR #AF ;SET TO 0
7A5B 2502 BRA COMMA
7A5D 2504 HOCOPY PULB B
7A5F 862C COMMA LDA #", ;PRINT A ,
7A61 8D800C JBR OUTCH
7A64 170021 LBR DEVICE
7A67 8C8B013F INC INC NU,PCB
7A6B 2510 NXTLN2 PULB X ;ADD OF NXT LINE
7A6D 16FF7B LBR NXTLN
7A70 39 END RTS ;END OF BASIC PROG.
7A71 *****
7A71 # PRINT SEARCH STRING #
7A71 *****
7A71 318D0141 PRSTR LEAY STRING,PCB
7A73 66D0152 LBR LENSTR,PCB
7A75 C100 PRINT1 CHPD ;O ;PRINT THE
7A78 2601 BNE DEC ;SEARCH
7A7D 39 RTS ;STRING
7A7E 5A BEC DECB
7A7F A6A8 LDA ,Y+
7A81 8D800C JBR OUTCH
7A84 2D02 BSR DEVICE ;PRINTER??
7A86 20F1 BRA PRINT1

```

```

7A88 *****
7A89 *OUTPUT TO PRINTER IF FLAG SET**
7A8A *****
7A8B 608D0140 DEVICE TST FLAGB,PCB
7A8C 2F03 BLS DEVBND
7A8E B0800F JSR OUTCHP
7A91 39 DEVBND RTS
7A92 *****
7A93 * SCREEN FULL,SO PRINT MESSAGE *
7A94 * AND WAIT FOR KEY PRESS *
7A95 *****
7A96 SCFULL PSHS X,D
7A97 308C7F LEAQ SCREEN,PCB
7A99 8A8D0131 BEC FLAGB,PCB /PRINTER
7A9B 17F8FC LBSR OUTSTR /OFF AND
7A9E 608D012A INC FLAGB,PCB /ON
7AA2 B0A0EA JSR WAIT
7AA5 B0B477 JSR CLS
7AA8 3516 PULS X,D
7AAA 3F RTS
7AAB *****
7AAB 454E544552 PROMPT PCB /ENTER SEARCH STRING/
7ABE 3D414E4420 PCB / AND PRESS ENTER/
7AB1 2020202000 PCB / /,0
7AB6 5448452046 ENDRES PCB /THE FOLLOWING LINE/
7AB9 20434F4E54 PCB / CONTAIN THE STRING/
7AC0 2E2E2E00 PCB /.../,0
7B00 325452484E ERROR PCB /STRING TOO LONG /
7B10 5053455353 SCREEN PCB /PRESS ANY KEY/,0
7B1F 4E4F204241 HOMES PCB /NO BASIC PROGRAMME/
7B30 20494E2040 PCB / IN MEMORY/,0
7B3F 5448455245 NOTFND PCB /THERE ARE NO OCCUR/
7B4B 52454E4345 PCB /RENCES OF THE STRIN/
7B60 472E2E2E2E PCB /0...../,0
7B67 2020524553 DEVRES PCB / RESULTS TO SCREEN/
7B74 20204F5220 PCB / OR PRINTER PRES/
7B80 532073204F PCB /S & OR p /,0
7B87 414E4F5448 HOMES PCB /ANOTHER SEARCH??/
7B97 2020505245 PCB / PRESS Y OR n/,0
7B9A STRING RMB 20
7B9C HU RMB 1
7B9D LENGTH RMB 1
7B9E FLAGB RMB 1
7B9F
7BC0

```

## CLASSIFIED ADS

**DRAGON 32**, data recorder, disc drive, Star CP150 printer, light pen, joysticks, games, tapes, utilities, discs, Scanwriter word processor, databases, spreadsheets, books, magazines, £400 GND. (8522) 758258 evenings.

**DRAGONS 84108** reviewed with 50-disc offers, controllers, monitors, games -£5-00

Plus software. All offers considered. Newson (8854) 218228 (Cambridge) after 5.30 pm.

**DRAGON 32** plus many extras, £88. Tel. 0368 278124.

**DRAGON 32** joystick, MO port, 32 tapes, magazines, £100 (inc. phone Curman 388547).

### HERE'S MY CLASSIFIED AD

(please write your copy in capitals on the lines below)


Name .....

Address .....

Tel. ....

Classification: 15p per word.

Please cut out and send this form to: Classified Department, Dragon User, 48 Alexandra Road, Royston, Herts SG8 4HT

# Winners and Losers

Every month  
Gordon Lee will  
look at some prize programming

WHEN the American research physicist Frank Gray first developed the code series which now bears his name, he could have had no idea of the problems which it would cause our competitors nearly half a century later!

Regular entrant to the competition D J Gray (note that name!) thought he had cracked it by contacting his Uncle Frank, only to be told that "it wasn't him and he had only been to America once and could I please not tell Aunt Betty". Sorry, D J, I hope that hasn't bothered too many family skeletons.

However, undaunted, D J, along with a fair few others, managed to crack the code to produce a Gray-to-binary converter. And what a selection of entries there were, including a number of multi-page treatises using techniques reminiscent of Escher-CI gates, flipflops (which I always thought were a type of lockwork), Boolean functions, and Parham maps. I admit to seeing a little daunting there for pure simplicity let's turn (to Fred Taylor of Middleborough, whose "base-twos" programme given here (Listing one), although not error trapped (Fred did include a longer error-trapped program) it is wonderfully straightforward and does it by using the same algorithm as that outlined on the Answer page of the June issue.

Listing two is an even shorter program using this same algorithm, and has the added advantage that it can be taught to convert Gray codes of infinite length! I'll leave the interested readers to work out the logic behind this listing.

I'm indebted to Fred editors of Stone in Staffordshire for some additional notes on evaluating a Gray code directly into its decimal equivalent. Each Gray code "bit" which is set to 1 is evaluated using the for-

mula  $2(N-1)$  where  $N$  is the bit position (counting from the right-hand side). Each of the values of the bits set to 1 are then alternately added and subtracted. For example, taking the Gray code 10110011001 we would get:

N	10	9	8	7	6	5	4	3	2	1
Gray	1	0	1	1	0	0	1	1	0	1
Gray Code	1	0	1	1	0	0	1	1	0	1
Decimal	1020	0	256	+128	0	0	64	+32	0	16

Decimal equivalent = 880

While on the subject of counting from the right-hand side, I am taken to task by Randy Langshore of Chesterford, over the answer to the September '87 competition. This was the calculation of a 34532-digit number or at least the digits at positions twenty-thousand and one to twenty-thousand and ten. "Why", he asks, "are the digits counted from the left to the right?" and not, as Randy had done, from the right (decimal point) and I suppose that the logical answer would be that, had the answer been, say, 471397821, and I had asked for the fourth digit, the answer would

have been 3. Consequently, the fact that the number has many thousands of digits will not affect the end from which you count. QED.

I can afford to be flippant without fear of a punch on the nose from Randy, as he hails from Chesterford USA and not Chesterford UK! Finally, on the subject of the tie-breakers (and I'm still trying to work out Robin Tekman's), my personal favourite comes from D J Gray.

"There is no doubt that I am the most eligible person to send to a paradise island. I have my own eight records and solar powered record player. I have no need of the complete works of Shakespeare and am prepared to finance the family boat. My Dragon would of course be the luxury item, so all I can ask for is a regular delivery of Dragon User (please!) etc."

As a slightly harassed compiler of competition problems, I too would put forward a strong claim for eligibility. Like D J Gray, I too would happily forgo the works of Shakespeare. I will do much prefer looking up the man himself, if only to throw stones at him! (And on that enigmatic note ...).

## Listing 1

```
10 INPUT Gray: CODE=1:RA=0
20 FOR I=1 TO LEN(Gray)
30 CODE=CODE XOR (CODE XOR RA)
40 IF (CODE<0) THEN CODE=-CODE
50 RA=CODE:PRINT RA;
60 PRINT:GOTO CODE*100
```

## Listing 2

```
10 DIM A(255)
20 FOR I=0 TO 255: A(I)=I: NEXT I
30 CODE=0:FOR I=0 TO 255: CODE=CODE XOR (CODE XOR A(I)): NEXT I
```

# Vive les differences

Graham Smith compares the Dragons 64 and 32

WITH so many Dragon 64s becoming available on the second hand market at reasonable prices (in the region of £30 to £75), I am sure that many people will be considering if it is worth buying one. Before I describe the main differences between these Dragons, I will just cover a few of the possible reasons for buying a 64.

If this will be your first Dragon (where have you been?), and you only intend to play commercially available games (and be honest here, nobody will try to justify a computer by saying they want to do their home accounts on it), so said is not much to outcry for a good machine, but almost all the games you will buy will either run on a 32 which can often be picked up for half the price and you will never use the extra facilities available on the 64. Having said that, if you can afford the extra few fide to buy the 64, you may thank yourself later when your interests widen out.

If you have a 32 and fancy a 64, remember you won't get much for the 32 if you try to sell it, especially if you are one of those people who paid the full £179 when they were new. I would advise you to keep it for backup or spares, as many of the bits, such as the keyboard or power supply, can be swapped over, and they would cost more to replace than you would get for the old 32.

The built-in RS232 port on the 64 can be enough to justify buying for anyone interested in electronic mail systems (such as bulletin boards) as adding an RS232 port to a 32 usually means the cartridge port. If you are interested in an example, the Magna Electronics RS232C kit assembly kit for a Dragon 32 costs just about £14, has no case, and fits in the cartridge port.

Anyone wanting to use one of the alternative operating systems (FLBS, DS-8 or

BS8C2) must have a Dragon 64 (or a suitably upgraded 32), and a disc drive.

Now to describe the main differences between the two machines. Externally, the 64 is grey rather than cream, the label says Dragon 64 and on the side by the joystick ports is another socket marked SMD, which is the RS232 port. Internally, the circuit board is similar to the 32 with a few extra chips squeezed in. These are the extra ram chips and a rom holding the reassembled Basic interpreter. (I will come back to this rom later).

There are a few minor differences between the Basic on the 32 and the 64. Two new commands CLCARD and CLDRAM are similar to the CLCUD and CLDRAM but are directed at the SMD port for transferring files from another computer. This port can also be used with a serial printer if you POKÉ \$HPP1 and then PRINT2 or

Continued on page 18

## GOSUB

**Paul Harkin continues to answer the simple way.**

HAVING completed or being about to write a programming masterpiece, it's always a great improvement to include well-presented and colourful tables, menus or title screens. However, working out CHR numbers, PRINT g positions and centering is often quite a task, especially where graphics are concerned, so here's a program to cut out this hard work.

Yes, this is actually a program which writes Basic! After all, why spend hours producing something which the computer can do in less than fifteen seconds?

The program is written in real-time code and is very simple to use. Simply load a Basic program and give Dotsb Writer a name, and it will write along onto the end of your program, which can be called using `DOTSBL`.

When the program runs, it seems like numbers from top to bottom, cooling off as they go. The final line of the graph is always a `PRINT` statement and followed by a `GOTO`. The lines are numbered in tens starting from the next multiple of 100. The routines end with a `RETURN`. Nesting—escapes the eye of the computer so that when the routines are called, it makes an exact record of what was on the screen.

Most of the lines will be `PRINT` statements, which contain direct text, or for multiple characters, the computer will choose to use the `STRINGS` command. The program will also code graphics using the `DRAW` command, and characters which cannot be printed will be `POKEd` to the screen. For position, the computer will use the `PRINT#` command where necessary and to ensure that the screen doesn't scroll, the last space is always `POKEd` if used.

The length of the lines are also kept under control, with the computer starting a new line for every second line and ending within two-line statements (fixed len).

### Entering the program

First type **listing one**, the basic hex loader and run it. You must now enter all the data for the machine code held in **listing two**. When you first start, enter **0000** for the start address, then enter each line of data digits, followed by the checksum. Any lines can be entered without needs to be entered again if you need to break off before typing the whole listing, press **BREAK** and save us (see).

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 353–360

You can then continue at any time by re-loading the loader and machine code using `GLCADML`. Don't forget to note the location from which you have to copy the

When you have typed the whole listing (location = 0000) press **BREAK**. If you have a Dragon 64, you must do the following match:

[illegible]

<sup>a</sup> The numbers in parentheses are the number of subjects.

© 2004 Blackwell Publishing Ltd *Journal of Internal Medicine* 255: 101–108

The program is now ready to use, but it's unlikely that you can do much with it unless you have a screen editor to create the screens in the first place. For those who do not, I provide one here, but if you do have one, and can liberate it to being-on-residents with Glaston Miller and a program, you will need to know the following. The entry address for Glaston Miller is 1030. The screen to be coded is assumed to be positioned from 1024 to 1030 and locations 28 and 29 must point to the end of BASIC; locations 27 and 26 must equal locations 25 and 26, plus 2. If there's no BASIC,

The International Commission on Occupational Health (ICOH) is a non-governmental organization (NGO) that was established in 1963. It is a global organization that brings together experts from different countries to work on occupational health and safety issues. The ICOH is currently based in Geneva, Switzerland.

1997-1998

These points suggest reading material that does not reinforce the commercial than scientific.

To enter the screen editor use the key-  
board to enter the short paths, listing first  
then as direct commands type:

POLICE 26,74 POLICE 206,74 POLICE 2000,74  
POLICE 2000,74

Next, type in `listingsfile` very carefully. DO NOT RUN IT YET. When typed, you can save Goasp-Writer; the patch and Basic screen, edit the function:

© 2004 Blackwell Publishing Ltd *Journal of Internal Medicine* 255: 111–118

Now that everything is installed you can take advantage of the features of GnuPlot. Using the program is simple.

© 1994 by the copyright owner. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without permission in writing from the copyright owner.

(2) Load (Read) Writer using  
 (a)  $\text{read\_from\_mem}$

Don't worry that there are two Basic programs in the computer. The short patch takes care of this.

growth compared to facilities. This says the facilities are an influence.

**ENTER** — Swap between text/graphic mode  
**Arrows** — Move cursor and draw

1. *Journal of Management Studies*, 1997, 34, 1, 1-14.

© 1999 by The McGraw-Hill Companies, Inc. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without prior written permission from The McGraw-Hill Companies, Inc.

[illegible]

SHIFT = 0 — Storage to be removed

cases (even for numbers):

[illegible]

www.elsevier.com/locate/jmb

Downloaded from <http://ajphaphapublications.org/>

Managers, 100 Massachusetts Avenue, 02116-5053.

Lifting 1

```

10  *ECHO*ECHO - Enter each line of
20  *digits and then input the checksum
30  *COLS=99COLS=INPUT*START FROM*1
40  *FOR COLS=1 TO 99 LINE INPUT *LINE*
50  *FOR C=1 TO 4 IF E2C=VAL(INPUT*DO C=C+1,
60  *C) : C=99 : FOR E=1, 2, 3 : NEXT
70  *PRINT " " : INPUT C1 : FOR C2=1 TO 99
80  *C2=99 : IF C1=0 : PRINT "ERROR - ENTER 0-99" :
90  *GOTO 10

```

Listado 2

153a: 980900174F 98090C 88F C23F 980C 980 = 1494  
 154a: 9840C 18F73 73 885C 980C 2220C 98C = 754  
 155a: 178F 980C 288F 980C 88F 980C 980 = 1258

1572: 6F1E1F0E0E4E0F0E0E4E0E0E	1496
1594: E2E4E0E2E0E2E0E2E0E2E0E2	1799
1595: 0A0A0F0E0E0E0E0E0E0E0E0E0E	18
1600: 0E0E0E4E0E0F0E0E0E0E0E0E0E	2463
1620: 0E0E0E0E0E0E0E0E0E0E0E0E0E	3338
1622: 0E0E0E0E4E0E0E0E0E0E0E0E	3633
1644: 0F0E0E0E1E0E0F0E0E0E0E0E0E	3367
1656: 0E0F0E0E0E0E0E0E0E0E0E0E0E	3589
1668: 0E0F1E2E0E0E0E0E0E0E0E0E0E	16027
1680: 0E0E0E0E0E0E0E0F0E0E0E0E0E	1142
1682: 0E0E0E0E1E0E0E0E0E0E0E0E	1447
1764: 0E0E0E0E0E0E0E0E0E0E0E0E0E	1474
1716: 270E2E0E0E0E0E0E0E0E0E0E0E	1834
1728: 0E0E0E0E0E0E0E0E0E0E0E0E0E	1617
1748: 7E0E0E0E0E0E0E0E0E0E0E0E0E	1395
1752: 2E0E0E0E0E0E0E0E0E0E0E0E0E	543
1764: 4E0E0E0E0E0E0E0E0E0E0E0E0E	123



[illegible]

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 395–402

**LIST:** The other well-known difference between 32 and 64 bits is the bug with the USB call, which on the 32 required all calls to be two digit eg USB01 or USB02. This has been fixed on the 64 which means some basic games require modification before they are compatible.

The major difference between the 32 and 64 is the availability of the full 64-bit register. When you switch on your 64, you will find it identical to a 32 (other than the aforementioned minor changes). If you type PRINT MID\$, you will get the same value as you would with a 32 (64BTS, 0).

low type BIOS, the 64 includes a short boot strap routine which switches it into BIOS mode and copies the master boot BIOS into the reserved space in the BIOS ROM. Basic now takes control and you can use the **DEL** key to delete all the graphics pages. You will now have **CGROM** to play with. This stage is often referred to as the **40k** system, although the Basic in press now resides in memory above the **40k** mark and can be computed, (or altered) by suitable **PROFICIENT** device.

These alternative approaches proposed include:

as DS-8 and FLUX use the 64K rare feature of the Dragon 64 to replace the resident operating system. Many other utilities have been produced to utilize the extra memory available. BASICA2 by Harris Micro Software modifies the existing Basic in several ways and adds many additional features.

One advantage of the 88 that is not often mentioned, is the fact that many cartridge based programs can be saved to tape or disc and then reloaded (with the aid of a suitable r/c utility), into the original location without the need to insert a cartridge, thus saving wear on the cartridge port.

**R & AJ Preston**  
New software releases for the  
autumn!

For catalogue and information  
send S.A.E. to:  
**R & A/ Preston, Kings Hall Court,  
St. Brides Major,  
Mid. Glamorgan CF32 0SE**

More to follow!

## Communications

Write down your problem on the coupon below (make it as short and legible as possible) together with your name and address and send it to: NO-Communication, c/o Alexander Road, Houshore Island, Fort Lee, N.J. 07024.

# Display Switcher

*Ken Smith devises a cheap hardware screen inverter.*

REGULAR readers will know that for some time, dragons have been complaining about the poor display they get when they connect their treasured machines to a monochrome monitor. When I purchased a monitor, I found this disappointment was wholly justified. You buy a monitor to improve the display, but what you get is considerably worse than with a black and white television. I have mentioned before in these pages that some software (BASIC? for instance) which simulates a white screen gives an acceptable display. However, most programs which require a good display, such as word processors, use a black on green display which is hideous and barely readable. It seems that the pager signal exaggerates the poor picture quality. One reader did suggest that the Dragon's monitor output was for colour only and this, combined with my own experience, set me thinking.

Not being an electronics expert, I was looking for a software switch to change my green screens to white and was meeting with very little success. During this search it was suggested that I might be better off trying to do the job with hardware. What follows is the result of my investigations.

## Two cures

There are two ways of curing this problem, both of which involve disposing of the colour.

The first cure is to remove the chip marked L818088 which is the unit that controls the colour circuits. On some machines, this is a plug in chip and so can be easily removed or replaced. However, on others it is soldered in and unless you are capable with a soldering iron, it is best not attempted. My machine falls into the latter category and the whole idea seemed rather what drastic, so I abandoned it.

The second option is to switch off the colour crystal. This can be done relatively easily and can be made switchable. This second option seemed far more promising and after months of thinking about it (my soldering is lousy! this was the course I embarked on). The materials required are listed below. Total cost is about £1.50p and the job takes about fifteen minutes. The materials required are one miniature single pole toggle switch, one 0.1 micro farad capacitor of any voltage over 10V and half a metre of 0.8 mm insulated stranded copper wire.

## Switch

The first task is to find a suitable site for your switch and drill a 3mm hole to mount it. I chose a position just under the left side

of the keyboard, making it possible to switch from colour to monochrome without straying far from the keys.

Next, solder one of the capacitor tails to one of the switch terminals. Locate the crystal; this is a small metal can, and is usually marked 4.433MHz or something similar. Strip and tin one end of the wire.

*The second option is to switch off the colour crystal. This can be made switchable. After months of thinking about it (my soldering is lousy) this was the course I embarked on.*

then solder this to one of the crystal tails. Run the wire up to the switch and cut it as short as is practical.

Strip and tin the end of this wire, then solder it to the vacant terminal on the switch.

Strip and tin one end of the remaining wire and solder it to the other tail of the colour crystal.

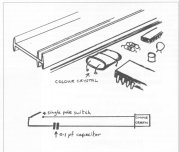
Run this wire to the free tail of the capacitor. Again cut the wire as short as practical. Strip and tin the end, then solder it to the free tail of the capacitor.

Some points to remember and don't use an electrolytic capacitor. These have to be connected to the correct polarity or they go pop. don't use co-axial cable, which acts like a capacitor on its own so that the switch will be useless. On some machines the area around the crystal is so crowded, it might be easier to remove the mainboard from the machine and attach the wires to the underside at the point where the crystal is soldered into the board. Finally, don't forget to unplug everything but the soldering iron before you start. All that now remains is to plug in and switch on.

## Even TV

This result should be a much sharper picture, both on text and Hi-Res screens and being switchable it will not affect the programs that require colour. In fact the display on FMICOM is so much improved it would even be worthwhile for those using colour televisions.

My thanks go to Ted Baccarelli who provided the information and to Les Gutteridge who was kind enough to respond to my letter on the subject. The funny thing is that Ted told me it was common knowledge, so why were so many of us still in the dark? Perhaps someone else has some secrets they could share.







## New from Prestons

5 games on one cassette — Mublingly, Cecil Plays 21, Roulette, Craps, Telepathy only £2.99

Autorun II £2.99

Hotel on Mayfair — a Monopoly-style game £2.99

Starman Jones — the follow-up to Caverns of Chaos £1.99

Dodo £1.99

Disc: Kung Fu the Master £2.99 Temple of Doom, Sword and the Sorcerer 2 on 1 £2.99

Ruby Robba, Perilous Pit, Desperado Dan 3 on 1 £2.99

5¼ inch lockable Disc Box holds

50 discs — including 20 5¼ inch discs Dr/S Dr/D only £18.50

Printer lead £5.50 Cassette lead £2.99 Dust cover £2

Speed King joystick £12.95 Trojan light pen £12.95

At last! A "Seal'n'type" cover for your keyboard. Keeps the dust, coffee etc. from damaging your keyboard, and you can type through it. Only £5.95

Send for our free catalogue.

All items include VAT. Postage 50p per item. Overseas post £1 per game or lead, all other items £2 each. Visa & Access.

See us at the Personal Computer Show

16 — 18th September in Earl's Court London

R & A J Preston, Kings Hall Court,

St. Brides Major, Mid Glam CF32 0SE

Phone 0858 880965

Dragon computer repairs are possible at Mills Associates,  
Wenaston Road, Industrial Estate, Monmouth, Gwent.

## Crossword

Please get your answers in to Dragon User Crossword Department by Dragon User, the end of the month on the front cover.

The tenth Dragon Crossword wonders what sort of hour in the morning this is, as the milman rolls up, yawning and dumps a bottle of swelling milk on the doormat. There is a message taped to the bottle. It is from Gordon Wright of Dunstable. "This is the only test advertisement I have ever tailored" says he. "Do you have Shilo Muter in your Bottomless Box? Or Claude Egg?" "I can't hear anything, Gordon... it must be Brian Thomas of Chesterfield wants Poststarvation Atrial. What about games, Brian. We'll see what we can do."

The phrase is TEXT ADVERTISING.

There will be a couple of free tapes from the Editor's Magic Bottomless Box for the first correct entries out of the hat each month. You can try telling us which tapes you'd like — you never know, we may have them.

And you don't have to cut up your Dragon User — entrance on a photostat or plain piece of paper will do, as long as we can read them.

1 Baby talk — where he dips his saddle? (7, 2)

2 Massive potshoe which would be called silver? (8, 4)

3 and 4 Formula One comes to Tangier? (7, 4)

4 see 3.

5 and 6 Toy model folds in a spin, for big race destruction (10, 5)

6 Don't despise, balloons are also one of these (7)

7 Keep calm! You cannot clip this oddly enough! (4, 5)

8 see 5.

9 For this game, put your money on the hare! (10)

10 If cool and like own the company, there's a tiny work about (5, 4)

11 Preface might about future offensive crab. (5, 7)

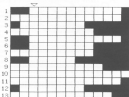
12 Sounds like eternal repose could lead to highest peak. (7)

13 Upto mischief again — so hangs in air in trouble! (11)



by Terry and Derek Probyn

All this month's answers are names of Dragon software. When the crossword is complete, the column marked with an arrow will spell out a phrase.



# Write: ADVENTURE

*Pete Gamard cracks down on adventure utilities.*

Following on from last month's article, I read a review (in another magazine and for another computer, but the point remains the same) of an adventure writing utility. The point being made in the review was that while the idea of this utility was possible to make a superb achievement of a standard to match any commercial adventure currently on the market. Well, this being a family magazine I am prevented from using the word that I would like, but perhaps the point comes fairly close. A great myth seems to have been built up about such utilities, and although reasonable games can be written with them, as many people have proved, what usually happens is that a flood of mediocre games is released instead. Indeed, I've not count of the number of parodies of *The Hobbit* or *Catacomb Cave* that I've seen, and never wish to see another one.

The only real point in favour of any utility that I've seen on any computer is that you don't have to produce your own routines like *SAVE* and *LOAD*. They're built in for you. GAT ALL and DPOF ALL are usually called for, as are *RAMSAVE* and *RAMLOAD*. Graphics too are handled more often than not, although you've still got to draw the things in the first place, and if you're an artist like me then you get to receive extra to do them for you. The final great advantage is that the parser is already constructed, and if it's a sensible utility then it will be able to handle that which we covered in the very first article on writing adventures for your Dragon: sentences like *OPEN THE RED CABINET AND LOOK INSIDE IT*, although it is could cope with *OPEN RED* and *LOOK* it is would probably do just as well.

## Cut it out

A little further here, while playing adventures rather than writing them. A friend of mine was playing a particular game, and wanted to cut a coupon out of a newspaper using some scissors. However, the adventure in question could only handle a *VERB* ... *ROUT* format, so *CUT COUPON CUT WITH SCISSORS* was clearly out of the question. In cases like this, said friend followed an interesting procedure. Write the sentence out that you want to type in, even though you know it won't be accepted by the adventure. Then try every possible two word combination until you find one that works. In this instance, I don't think anyone would have come up with the right input unless they had followed just such a procedure. Well, would you have thought of *CUT* (*CUT* if I hadn't pointed you in the right direction)? It's a good rule to follow when playing adventures that are restricted to *VERB* ... *ROUT*. But I digress, as usual, so back to adventure writing utilities and their claims to fame.

One of the chief of these seems to be that you don't have to learn to program to use them. Nonsense! I've been converting a game recently, off and on, that was written on just such a utility and trying to get it to run in good old Basic. Well, instructions like:

**if verb="help" then print message 300 wait**

I can just about cope with. If the verb typed in is equal to "help" then print a line feed, print message number 300, then wait for another input from the player. I have a standard way of printing out messages, so I could easily convert the above into something like:

**if vb="H then print mess=300;go to 3990;go to 10**



Here we're just looking for a verb number rather than a specific verb, we use the Basic keyword *PRINT* instead of *T*, and use a subroutine to print out the message rather than the utility itself. Finally we go to line 10 instead of using the word "wait" to wait for another input. That sort of thing is fairly straightforward, and variations on it were found throughout the game in question. Other commands could reasonably well be incorporated as well:

**if verb="T" and not verb="verb" with then if message 9990 list with message 215 wait**

As with writing messages I have standard routines for doing an inventory and all that the above is saying is that if the player is carrying at least one object then print message number 9990 and list all the objects being carried. Later on there would be another line for handling an inventory request if nothing was being carried. But if you just look at a line like the one above, is it any wonder that I require a great pinch of salt when I read claims like "you don't need

to know how to program"? Good grief, it's almost as complicated as learning machine code! Well, almost ...

But to give one final example from the game in question, what on earth would you expect to do with a command like this:

**if finob with then repeat if message 1010 list finob with object finob with drop finob with message 1001 pause 20 until verb="finob" finob with**

That sort of thing is just ridiculous, but I really is taken from an adventure game written as a utility and I have typed it in exactly as it is shown on the listing which is currently in my left as I write. No real programmer is going to get to grips with commands of that complexity, at least not straightaway, so the whole point of the thing is to not necessarily be seduced by advertisements for utilities that tell you that you don't need to learn to program. Read that above command line again and ponder on the wisdom of such a statement.

## A good routine

But this is not to knock utilities altogether. If you don't program, and want to have a set of the routines essential for an adventure game already written for you, then they do have a lot going for them. Particularly if you are approaching a computer for the first time, and if you think people are no longer approaching *Dragons* then read this month's *Adventure* that told a 37 year old man it is doing just that.

In the land of COB (Computers Other than *Dragons*), especially the two-ish range of 16 bit monstrosities, I doubt whether any one person could ever get sufficiently to grips with the machine to be able to write a brilliant adventure on it. In such a case, if a specific adventure writing utility exists then you might as well use it and save months and months of time learning how the machine works. Take a few weeks to learn how the utility works instead, and spend the rest of your previous time developing and writing the game. That's what I'm doing! The problem then, another applies to Basic adventures on the *Dragon* as much as it does to utility ones on anything else, is to make the game different and to stand out from the crowd. A good utility allows its use to be hidden from the player, and a good adventure writer on the *Dragon* disguises the fact that he's writing a computer game in Basic. The problem remains the same.

## Copy cats

Which brings us nicely to the remainder of this article, and a little chat about disguising adventures.

I should imagine that anyone setting out to write an adventure for the very first time has played at least one game from the genre, and thus has an idea of the sort of problems that are being posed in them. I remember my first game, a very humble affair, written after I had played *Colonel Cave* and a couple of Scott Adams games. Well someone has to! Anyway, in that humble adventure all I really did was to replace traditional problems with variations on them. (Giving the rope to the troll became giving a bottle of whisky to an ogreman. Having a rod to produce a bridge was replaced by ... waving a rod to produce a bridge. Original that. I was proud of that one. Other problems were mostly variations on a theme, but by the fourth or fifth adventure I had progressed far enough along the route to produce original and different problems of my own, with only the occasional borrowing from another game, and that was usually in the form of inventing the problem.

That's probably as good a place to start as any, inventing problems, and whether you're using a utility or not try and stay away from messages that are common to every other adventure in the world.



Something like "You can't do that" can easily be replaced by something else, as can "I don't understand that sentence" or "You're using a word I don't know", both of which seem to crop up in just about every game under the sun.

## Ooops

So do status lines at the top of the screen, although there's no great harm in having them, as they do pass on a lot of useful information to the player. The phrase "What now?" or "What next?" could probably be got rid of, replacing it with a simple prompt such as "Instead. And something which all adventures should have, and all too few do, is an "OOOPS" command, that allows you to take back your last move in the event of something disastrous happening. How to implement such a thing? Well, if you've got a RAM-SAVE routine then you're just about there. Simply perform a RAMSAVE after each input but before acting on it, and then if the player does have a disaster and therefore input is "OOOPS" then you just call back the last RAMSAVE position and the player can try again. Easy, isn't it? Easy for now.



A thousand apologies to devoted readers of this column for having in last month's pages what we in the trade refer to as a technical disaster. One could conjure up a myriad excuses (but one won't). Avoid collections of the *Adventure Trail* will now have two solutions to the *Pinnacle of Doom* adventure, and for that one can only offer a multi-lingual *muchos* apology. A straightforward solution and a Professor Goodrock solution have now been printed, and I promise never to refer to that particular adventure again. I hang my head in shame ...

But I quickly pick it up again and peer in to this month's mailbox.

First off is a letter from our old friend Nick Hodge. Like many people he has completed a formidable list of adventures for which he is offering help should any require it, and these adventures include *Pebbles*, *Apocalypse 67*, *Witch Palace*, *Justification*, *Synapse*, *The Ring of Darkness*, and *Pettigrew's Diary*. Anyone wanting to get in touch should write to Nick at Camrose, Haverthorpe, Ringwood, Somerset TA7 3AJ.

An interesting point arises in Nick's letter, and this is that he is finding it increasingly difficult to get hold of some of the older but still fascinating *Dragon* adventures. He would be willing to swap them for adventures that he's completed, or buy them if necessary, so perhaps we could start some sort of global *Dragon* adventure software swap shop if anyone's prepared to set the ball rolling. Adventures that young Hodge is keen to lay his hands on are *Madness and the Minotaur*, *Sea Quest*, *Shenlongs*, *Seraphim*, *Castle Island*, *Isle of Colours*, *Caverns of Doom*, *White Galls of Doom*, *The Karl Thing*, *Death Mines of Sin*, and (it says here) last but by no means least *El Diablo*.

If you've got *Dragon* adventures for sale, or are looking for a particular title, then drop us a line and I'll do my best to include you in the *Adventure Trail* as soon as time and deadlines allow. Just imagine *Dragon* adventures whizzing up and down all over the country! But no piracy, chaps and chapesses, let's stick to original or copies only (keep the backups for your own personal use, as always, and deal exclusively with

originals. I'm sure there's something wrong in that particular line of logic, but we'll ignore it and just repeat that we do not want to see any piracy going on.

Anyroad, as we Northerners are wont to say, Nick has more than a few hints concerning a natty little number called *Return of the Ring*, so without further ado we read on and find that he's nearly finished the game (he thinks), and this is how he's managed to get as far as he has ...

1) Find the stone Mandra in the Room of Doors, and give her the staff.

2) When she reappears on the planet take the back from her, go to the gates, and then type in the instruction *Drop-Flash*.

3) Go to Hamlet's chest and open it with the gem's key (not the treasure key).

4) Take the sack to King Cedar then take it to her Lord Krell. Lately if there, and when you return you'll find a unit.

5) Get the potion spell and cast it in the Ring's cave before taking the amulet. Now then, said Peter, interrupting sternly. A certain somebody 67 year old called Jim Foster from Romford (you're those latter dated adverts) tells me that the spell is called the

Sanctusmost apoll, We shall return to Jim ere too much water has passed under the bridge. Or something like that.

6) Get fake book from Oracle and go to Nightfall Mutant's cave and drop that very same fakebook. Get the book of skulls and take it back to the Oracle.

7) Take stone, black oil and cyclops's eye to the relevant Room of Many Quanta (sounds like something out of the Elytron Factor — go to the room of many quanta and there you will find — seventy three points of see-through plastic which have to be assembled into a working model of a high tech, number crunching telephone. Where was I? Oh yes, take all that to the Room of Many Quanta and you'll get a little something for your troubles.

8) Get the sack of magic grain from the grain store and take it to King Calban, who appears to be getting an awful lot of goodies in this game.

9) When you have the six units (uhh) take them to the time chamber and bind them. This will get you a Time Ring.

## Small and blue

All well and good, but that's as far as Nick has got. What does he do with the time ring, how does he pick it up, why can Xandra pick it up when he can't? These and many other questions are also asked by one Keith Partridge of Hackenthorpe in Sheffield, who writes on the smallest sized stationery that I've ever seen. About four inches by three (I refuse to go metric) and coloured a delicate shade of blue. What can it all mean? With an address like Hackenthorpe he ought to be able to take the code of the garments pieces and find out that way, but perhaps not. Self-same problem, apparently only the ring bearer can take the ring, which brings us back to the aforementioned Jim Pingle of Norfolk.

No, he's not a ring bearer, and is not essential to the completion of the game. He probably wouldn't fit in the packaging anyway. However, he is writing about the same game as our friend Nick, namely Return of the Ring, so let's take a look at what he has to say.



Rise-and — "This is the first time you've heard from me as I'm a baby/newborn to the Dragon. (Boy? Who's he trying to kid? He's pressing on 67 years old!) At last, a reader who doesn't claim to be 5-years-old and to have solved his first adventure before he was born. Apparently friend Jim is "hopelessly lary" and has "waited until now to write in the hope that someone else has done all the work anyway!" I too live in a dreamworld at times, especially on Monday mornings, when you turn the computer on and just stare at it in the hope that it will do something. You sit there and think "come-on, you do something for a change, it's always me that does all the typing, you do it for once!" It usually does. Anyway, back to Jim's letter and his own discoveries on Return of the Ring.

## On your own

Leaving the beer and heading north-north-west will bring you to the Oracle. From there due north will bring you to the time chamber, where you need to deposit six units. From there you're on your own because I've only found one seller (Thanks, friend! — PG). If you leave the Oracle ring and take the other four to the amplifier you can trade those of Helen for maximum strength, charisma and intelligence (why don't these things work in real life?). The fourth you can carry into the moon forest where, as you will, "ring ate, mutants ate, and you will avoid falling down traps."

"Geeze like living in bottles and this poor game is in a flap because he's broken his so give him another, or something like it: a flask will do. You haven't got a flask?"

Ask the Princess. Deposit the flask in the cave and go out. Then come back to find a happy repossessed cave and a key on the floor. This technique is helpful elsewhere: HINT!

"To get rid of the Trag, banish him, for that you will need a spell of banishment or eviction, if you're Nick Hodge — PG". Slight confusion then follows Jim's letter, as he can't remember where the spell of banishment is, so we'll skip over that bit and carry on later. "I've a note that the Healer is at the Temple of Regeneration. However, all that you can gain there is the restoration of lost lives, so if you haven't lost any, nothing will happen." There we reach the end of the help on Return of the Ring, but Jim does go on to tell me that some scoundrel rag which shall be unnamed has published a cheat for the game which gives you "unlimited pretty well everything. Why anyone should wish to take all the interest and sense of achievement out of the game I can't imagine!" says Jim, and I hotly agree. Hints yes, solutions



even, but if adventures go the way of arcade games and pages and pages are dedicated to wags of getting unlimited lives then we're in a sorry state indeed. Fine for arcade games, I defend The Expert to the hilt, but not for adventures.

A quipster to finish with. A chap called Rob Brown, from Middlesex, has a problem with the Water Potter, but fails to actually state what the problem is. He has all the cartridges, has got just the "Care of the good number sixteen bit", and then has given us a halt. Well, without knowing what the problem is not even this mighty column can give you a solution. We need more details! Bye for now.

## Adventure Contact

To help puzzled adventurers further, we are initiating an Adventure Helpline — simply fill in the coupon below, telling the name of the adventure, your problem and your name and address, and send it to: Oregon User Adventure Helpline, 40 Rossmore Road, Haverhill, Middle Third 440. As soon as enough entries have arrived, we will start printing them in the magazine.

Don't worry — you'll still have Adventure Time to write to us with!

**Adventure** .....

**Problem** .....

.....

**Name** .....

**Address** .....

# A little number

*Gordon Lee finds that slicing up pi is not simply a piece of cake.*

INVESTIGATING the infinite transcendental number pi have had a long and chequered history: a period of some five thousand years since it was first realised that there was more to this enigmatic number than meets the eye. Pi is a simply the ratio of a circle's circumference to its diameter. However, nothing's simple when it comes to calculating this number. The term 'transcendental' gives a clue to its intriguing nature; that is, it has a decimal value which extends to infinity without recurring

or repeating. Its true value has now been computed to over one million decimal places, although there can be no practical use for such a task!

For most purposes a value to six or seven decimal places is more than adequate, but if you require a greater degree of accuracy, here is pi to 35 decimal places:

3.14159 26535 89793 23846 26433 83279 50288

The problem is, of course, remembering such a sequence, and over the years a number of 'mnemonics' have been developed: sentences in which the number of letters in each word corresponds to the digits in pi. How I hope I write logically to Dragon users: can some problems enjoyably (or better) computers? would be one such mnemonic. OK, so I cheated a bit by running two words together near the end. A much better attempt was written by Adam C. Orr at Chicago in 1960:

Now I, even I, would celebrate  
in rhymes unapt the great  
Immortal Syracuse-linked nevermore,  
Who in his wondrous lore,  
Passed on before,  
Left men his guidance,  
How to circle themselves.

Note the American spelling of 'rivalled' to ensure a '7' for this digit. The 'Immortal'



## PERIMETERS OF INSCRIBED AND CIRCUMSCRIBED POLYGONS

n	Length of side (Internal)	Length of side (External)	Perimeter (Internal)	Perimeter (External)
3	0.8660254038	1.154700538	2.598076211	3.464101614
6	0.5	0.5358983846	3	3.215190308
12	0.259819045	0.2633049951	3.10582854	3.159659942
24	0.1305261923	0.1318968254	3.132628613	3.146086213
48	0.06540312921	0.0654732208	3.139350202	3.142714598
96	0.03271999282	0.03272784426	3.14083195	3.141873049
192	0.01636173162	0.01636282641	3.141452472	3.141662747
384	0.008181139603	0.008181276498	3.141557607	3.141610175
768	0.004090604824	0.004090621137	3.141563891	3.141597033
1536	0.002045306292	0.00204530843	3.141590462	3.141592748
3072	0.00102265368	0.001022653948	3.141592105	3.141592924
6144	0.000511326907	0.0005113263405	3.141592917	3.141592721

### Prize

The wheel is come full circle. Can it be that time of year again? Not quite - but looking ahead, Dragonfire Services are offering ten free entry tickets to the Colour Computer Convention in Weston-super-Mare in November - see Newsletter for further details. Those winners who know that they can't make the show can opt to take their chances with the Editor's Magic Bottomless Box. A piece of pi.

### Rules

When you have calculated the Great Unknown and scribbled back at the place you started from, put your conclusions, your feelings and the famous September COMPETITION and send it to us.

As for the letterhead, perhaps you

should all devise a mnemonic for pi in no less than seven lines of rhyme, including at least one ancient Greek ... but no, I will spare you. Mr Orr did some time ago, so poetry can't have been good for him. Instead, think of yet another way of mis-spelling a common word (such as rivalled or without) to help you remember something. Now, just which quarter we're judging this month?

### June winners

Lots of entries to this competition, with a high proportion of right answers. Few people broke the coded message, though - we advise the way for that. The 1979 ones are:

C. Hutchinson of Middletonbrough, G J Gray of Middletonbrough, J D Hartley of Chichester, D P Oke of Mansfield, T in Denton of South Norwood, Ronald D

Walters of Walsall, R M Gashmore of Market Harborough, Austin Henderson of Bromsgrove, John S Blanch of Weybridge and J J Taylor of Middletonbrough. All these will receive copies of Five Games Super from *Proton Software* who, incidentally, have some good new games on the market.

We had some excellent, practical suggestions for promoting the Dragon, including car stickers, local contact points and bounty for readers introducing new subscriptions. The most ambitious one was Austin Henderson's. 'Get someone to hack into the national newspaper computers and create an automatic full page ad, without anyone noticing.'

### Solution

See opposite.

Synsaron' referred to in this rhyme was the Greek mathematician and geometer, Archimedes, who was one of the earliest attempt to calculate the value of  $\pi$ . The method he used involved the calculation of the perimeter of regular polygons both inscribed and circumscribed about a circle of diameter 1 unit. In Figure one the length of each side of the inscribed triangle can be easily calculated using an extension of Pythagoras' theorem. As the circle has a diameter of 1 unit, its circumference will have the value  $\pi$ , and consequently the perimeter of the triangle will give a (very) rough approximation to this value. By doubling the sides of the polygon, each successive calculation in the series will give a closer and closer approximation to the required value. If a similar series of calculations is performed but using circumscribed polygons, then the true value of  $\pi$  will lie somewhere between each pair of values. The problem of using such a method to find the calculation of a series of square roots, each successive doubling of the number of sides in the polygon involves a more intricate and lengthy root to be evaluated. The table (figure two) shows the results of such an operation on polygonal sides in the doubling series of 3 to 8194. Archimedes calculated as far as a 96-sided polygon, but in the table the values have been extended a little further.

From his calculations, Archimedes was the first to give the approximation value of  $22/7$  for  $\pi$ , a figure that is still used today when only a rough computation is required. Three thousand years before Archimedes the Babylonians were using three-and-one-eighth in their calculations,

while in Egypt c. 1800 BC, the area of a circle was calculated as being the square of 8/9ths of its diameter. Chong Hong (Ch'ung Hong) believed  $\pi$  to be equal to the square root of 70, while Aryabhata (476-550) gives a remarkably accurate 3.1416. At about the same time, the Chinese engineer Tsu Ch'ung Chi devised the amazing fraction 355/113. This produces an accuracy of  $\pi$  to six decimal places, accurate enough to compute the circumference of the earth, given its radius, to within eleven feet!

More recently, the Indiana State Legislature considered a bill in 1897 to regard  $\pi$  as having a value of 3.2 exactly. The bill was defeated. On a more practical note, mathematicians have frequently developed rational approximations for  $\pi$ , but few have been able to exceed the Tsu Ch'ung Chi fraction for accuracy, and this value is probably the most useful for everyday calculations. In Figure three, the table

shows some of these approximations. The accuracy of each has been tested by using each value to compute the circumference of the earth. The difference from the true value is shown in the right hand column. The final value in the table remains blank as this forms the basis of this month's competition. In 1944, the Indian mathematician Srinivasa Ramanujan devised a rational approximation which gives  $\pi$  to an even greater accuracy. Using the test already described, this approximation will calculate the circumference of the earth to within one inch (assume that the earth has a radius of 3960 miles, and therefore a circumference of  $2\pi \times 3960$ ). The approximation that Ramanujan found is given as the square root of the square root of the value indicated in the brackets (7). This unknown, which is what you have to find, is a fraction with a whole number for both the numerator and the denominator. What are the simplest numbers which will fit?

Approximation		Decimal value	Accuracy
Babylon		3	-1521 miles
John Lambert	(28)	3.14159	-626 miles
Indiana State Legislature		3.2	-440 miles
Chong Hong	$\sqrt{70}$	3.1527756	-194 miles
Egyptian	area = $(8d/9)^2$	3.1604693	-160 miles
Babylonian	$3\frac{1}{8}$	3.125	-120 miles
John Lambert	(81/256)	3.1415916	-28 miles
Archimedes	22/7	3.14285714	-10 miles
Aryabhata		3.1416	-300 feet
Tsu Ch'ung Chi	355/113	3.1415926	-10 feet
Srinivasa Ramanujan	$\sqrt{175}$		<1 inch

## The Answer

### Puzzle one

**ANSWER:** the smallest number which halldorson's is a maximum in excess of one million is 1976. This starting value reaches a maximum of 1276836, the whole sequence taking 51 steps to reduce to 1.

**Listing one** runs the test on small numbers from 1 upwards, each time computing the path length (P) and the maximum value reached (M). As each run is completed the results are printed out. This is continued until the maximum printed at line 180 exceeds one million.

In the program, note that it is only necessary to test for a new maximum after an odd number has required the value to be multiplied (lines 150 and 160).

#### Listing 1

```

100 DIM M(1)=1
110 M=START
120 PRINT M:M
130 IF M=1 THEN 180
140 IF M=2 THEN 180
150 IF M=3 THEN 180
160 IF M=4 THEN 180
170 IF M=5 THEN 180
180 PRINT M:M:M^2
190 IF M=1000000 THEN STOP
200 DIM M(1)=START+1:GOTO 110

```

This is Gordon Lee's own solution to the Jang competition see page 28 for results.

### Puzzle two

**ANSWER:** the quotation was 'The only competition worthy a wise man is with himself' (Mrs Anna Jameson, 1794-1860). The code was a substitution code using a 'key' to denote the substitution required for each letter. Clearly, the phrase given was unlikely to have been in a straight substitution code as, in this case, the three-letter sequence EEF would indicate a word of three letters, the first two being the same. As this is unlikely, the use of a key is indicated.

This key is in fact the words 'Dragon User', used repeatedly throughout the message. Each letter in the quotation was advanced by the number of letters in

denoted by its corresponding 'key' letter (D = 4 as D is the fourth letter of the alphabet).

**THE ONLY COMPETITION WORTHY A WISE MAN IS WITH HIMSELF**  
 DRA GONU SERDRAGONHUS DRDRAG  
 O HUSE DRH AG DRUS EDRDRAG  
 RZF RZF VTETWRUPRAG BGRLJF P  
 RDLJ RZF JZ LWCH MACHFUS

So, T plus D (16) will give X, and so on. To decipher it (provided that you know the method to use), the process is reversed. This is done using Listing two, which uses the ASCII values of the letters as a basis for the substitution. Line 150 ensures that all non-letters (spaces, punctuation marks, etc.) are left unchanged.

#### Listing 2

```

100 DIM "DRAGONUSER"
110 PR="T Z ZP SCCT VETWRUPRAG BGRLJF P
120 J EEF JZ LWCH MACHFUS"
130 J="E"*(26)
140 FOR P=1 TO LEN(PR)
150 A=ASC(PR(P))-PR(P)+1
160 IF A=5: A=0: A=V+1426: A=0
170 A=A-ASC(J)
180 IF A=0: A=1: A=V+1426: A=0
190 IF A=5: A=0: A=V+1426: A=0
200 IF A=5: A=0: A=V+1426: A=0
210 IF A=5: A=0: A=V+1426: A=0
220 PRINT PR:PRINT J

```

# Dragon Answers

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

## Double your notes

Have a Dragon 64 and Microsoft's Composer program. Do you want them in any way of using the 64's extra memory to be able to produce longer musical pieces, as in finding the 720 note maximum note and maintaining?

John Blackburn  
68 Ince Green Lane  
Ince-in-Makerfield  
Wigan  
Lancs MK2 2AT

The first five lines of the Composer Basic program set where the music program and data are stored and the maximum number of notes allowed. By default, the max line indicator is address \$8000, and the compiled music immediately after this at \$8000 which gives space for 720 notes (the end of memory being set to \$FFFF).

Operating in 64K mode allows an extra 15K of music, but remember that the music is stored as \$A74 statements to the end of the program as it will be necessary to move the machine code and compiled music up in memory (this is easy as the code is relocatable, but it must fit an \$D54 byte boundary). Adjusting the \$D54 statement to reflect this will allow the extra \$A74 statements to fit.

By experimenting with different settings, you should find that you can get about twice as many notes in memory with the extra 15K.

## Sort it out

Have written a program in Basic, put all of which has to sort out about 400 short strings into alphabetical order, having loaded them from tape. I am using the 'bubble sort' technique for simplicity. The program works for a while, then for no apparent reason it 'hangs up' and the BBC Micro does not respond. After pressing RESET and examining the parity controller, some of the data seems to be meaningless strings of zeros!

Can you explain what is happening, is this task just too much for my Dragon 32?

John Smallwood  
51 Kings Drive  
Fulwood  
Preston  
Lancs PR3 3HQ



When working with large number of individual strings (in your case 400) the Dragon has to occasionally do a 'garbage collection' of string space. This accounts for swapping the values of other strings and move the strings of characters themselves, just the pointers to them in string space. Thus with strings of different lengths small segments of unused space build up the string space becomes fragmented.

The more string swapping there is, the more fragmented the string memory space becomes. As the bubble sort uses a small list of string swapping, the memory soon becomes too fragmented to use.

The 'bubble' sort program in the Dragon is organizing its string space, moving strings around until these small fragments become freeing more space. Pressing RESET in the middle of this will leave some string variables pointing at the wrong addresses and hence meaningless data.

The answer is either to get a larger write up of a better sorting algorithm than the bubble sort.

## Inside-out

ABOUT two months ago I wrote a simple program to calculate the missing side of a triangle when given the hypotenuse and the other side. However, when used the program went into a loop, sometimes it gave an FC error (see \$D54) or a halt.

CODE: 100:RPT "RPT:RPT:RPT"

Although sometimes the program works OK, I was wondering if you could identify this happening as I am very confused.

Michael McCullagh  
728 Cragg Road  
Dorset DT9 6LA

THE \$D54 occurs if the function will give an FC error if its parameters are

negative number as it is not possible to find the square root of any size positive number. In your program, this only happens if the value of A8 is greater than that of B77, which it should never be as the hypotenuse of a triangle is, by definition, the longest side.

Add a line to check that the values entered are valid before calculating the third side, such as:

55 IF A8>B77 THEN PRINT  
"NOT VALID"  
56 GOTO 10

## Dumb ascii

I would like to use my Dragon 64 computer as a dumb ascii terminal, communicating through the RS-232C serial port of the machine. The manual only mentions the use of DLAB and DLAB to download basic and machine code programs between the Dragon. I would be very grateful if you could kindly give me the information needed to write a terminal program.

F. Mander  
P.O. Box 681138  
Durban 4010  
South Africa

The information regarding the serial port has been printed here before, but actually only one of a number of letters regarding this information from the editor: 'Additional Information' booklet, ITV give it again, together with machine code versions for assembler programmers...

### Set Band Rates

POKE 40967, (PEEK(40967)AND4095) OR B

Where B is from 1 to 15 representing the rate: 50, 75, 110, 135, 150, 300, 600, 1200, 2400, 2400, 3600, 4800, 7200, 9600.

### Send a character

10 IF PEEK(40965)AND16=0 THEN 10  
20 POKE 40964,C

SETB LDA \$P07  
ANDA \$FF0  
ORA \$A0D  
STA \$P07  
RTS

### Wait for a character

10 IF PEEK(40965)AND8=0 THEN 10  
20 C1=PEEK(40964)

3000 LDA \$P05  
ANDA \$14  
BEO \$E0D  
LDA \$C0  
STA \$P04  
RTS

WAIT LDA \$P05  
ANDA \$8  
BEO WAIT  
LDA \$P04  
RTS