

DRAGON



USER

October 1987

The independent Dragon magazine

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STOP PRESS—STOP PRESS—STOP PRESS
John Peme Software are organising a 68030
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December 5th. More news next month.
Brier-Cludge is on holiday.

Telephone number
(All departments)
437-4343

Editor
HELEN ARMSTRONG

Production Editors
DAVID PAVETT/ELIANA GLIMAN

Editorial Secretary
GWOL BIRTH

Advertisement Manager
ATHENA FREEMAN

Administration
ANNE MARIE ALLEN

Marketing Manager
HELEN PERRY

Managing Editor
PETER WICKLOCK

Publishing Director
JERRY WELAND

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Editorial

IT'S apologies month again this month.
Everything will be resolved, of course, by
the time you read this, but I would just
like you to know that my first thought,
when I was told that Dragon User
wouldn't be mailed till the 17th
September, was "They'll lynch me in
Rochdale!"

What I can't tell you just yet is whether
they did lynch me in Rochdale. I can't
even guess whether or not. It's too early
for 1 one and too late for 1 other. All I can
say is that, well, we were waiting till later
the printers. Not two whole weeks late,
but, well, late is late, isn't it?

Twiddle it, if you leave the office for a
week, your hardworking friends and col-
leagues can do one of two things: do
something or do nothing. If normally
causes fewer problems. Normally. For-
unately, the ghost of the much missed
Barbosa, who hid a few spare days in the
timetable, and the long suffering Armit
'send us your discs and we'll show you
what you can do with them' made sure that
we were stuck down and parcelled up
rather less late than we would otherwise
have been.

By the way, it's a little known fact that
designers of computer mags gradually
go insane. There are only so many things
you can do, visually that is, with little
stick boxes. Editors don't, of course (..
twiddle ..)

How to submit articles

The quality of the material we can publish in
Dragon User each month will be a very great in-
tent depend on the quality of the submissions that
you can make with your Dragon. The Dragon
computer was launched on its first mission 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 3000
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 submit-
ted article or program, so please keep a copy. If
you want to have your program returned you must
include a stamped addressed envelope.

Letters

This is the chance to air your views — send your tips, compliments and complaints to Letters
Page, Dragon User, 12-13 Little Newport Street, London WC2H 7PP.

Mystery draw

WHILE reading DU August 1986 I came across an item called Graphics by J.H. Plesler in Dragon Answers. So here is something for Mr. Plesler to add to it.

15 PBOCE 2-1 SCREEN 1-0
30 PORE SHFF22/PEEK
(SHFF22/AND-8)
15 DATA 121, 12, 12, 12, 12, 12,
12, 12, 12, 12, 33
30 GOTO 10

or
20 PORE SHFF22/PEEK
(SHFF22/AND-8)

or
20 PORE SHFF22/PEEK
(SHFF22/AND-7)

or
20 PORE SHFF22/PEEK
(SHFF18/AND-8)

or
20 PORE SHFF22/PEEK
(SHFF18/AND-8)

or
20 PORE SHFF22/PEEK
(SHFF15/AND-2)

If there's any complaints about the above, please contact or phone the, And could J. H. Plesler, and Simon of Country Hill Farm who wanted help with Sisyph get in touch. Sorry, Simon.

Paul Matthews
43, Seilly Avenue
Park St. Holes
Mereville
WA3 2SD

(St. Helen) 01827 (between 4 and 4.30pm)

Write-a-DOS?

COMMERCIAL support for the Dragon is not very good to put it mildly, although some interesting new names and items have appeared of late. One thing I have noticed though is if someone says there is a special road for some particular program or item, especially in your pages, it seems to start somewhere on "I can produce that" line somewhere.

So what's the point of this? Well I have spotted a market gap and I want someone to fill it. The books-on-everything-computer phase ended as the DRAGONDOS appeared on the scene, and the manual

Every month we will be shelling out a game or two, courtesy of Microdeal, 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?!

EXTRA
PUFF

There's gold in them thar bills!

AS new software is now almost extinct I would like to pass on my experience of obtaining software direct from Canada and America. Payment can easily be accepted on any of the major credit cards.

I ordered Cantelot and Paper Route from Canada by phone at about 5pm in the UK. Due to the time difference it was early afternoon in Canada. The games took about 1 month to arrive. They both ran without conversion on a Dragon 64 except if you use the keyboard mode instead of using the joystick as the keyboard scan is different, although this can be overcome by using different keys.

The main drawback is that the games cost about £20 each including shipping. Custom duties and charges add another £3 when they enter this country.

From the above information it appears useful to anyone thinking of ordering direct from an American or Canadian source.

R.K. Deane
184 Northdown Avenue
Cliffonside
Aber
CT9 2JNR

AND who has recently inherited their aunt's estates ... well, that should stop folk complaining about the cost of new software here for a bit.

Anyone who is this dedicated deserves one free tape, I reckon, but we would be interested to hear from anyone who has a (legitimate) method of getting compatible software from the USA without having to pay £20 a shot!

supporting it is abysmal. I would like a good book on this peripheral, starting with simple use and programming, fully covering the handling in an easy to follow manner with plenty of short example programs, and going on to memory maps etc. I am sure there is more than one person out there with the knowledge and skill to write such a book, and a market for it once written. Perhaps Sunshine will take you up and do the actual publishing? If not I see no reason why it shouldn't be printed, photocopied, or duplicated form. You might even make a bit of money!

Philip Reed
27 Pinden Road
Elsen
Gosport
Hants PO12 4EP

WELL, money is something there isn't a lot of about, as we all know, but you never know, do you? Just out of idle curiosity, if there anyone out there who has the means to write a book like this?

Out of print

HAVING read with interest your review Jake Ten Pinters in the July edition of Dragon User, I was very impressed with the report on the Tandy DMPT08 by Ian Martin. He suggested that the competitive price is £120, but has since been reduced to £99.95. With this information in mind I paid visit to my local Tandy shop. I asked the salesman if

I might see the DMPT08 at work, to which he replied, "Sorry! That model was discontinued at Christmas". The printer has been replaced by the DMPT05, but the price has increased considerably to £169.95.

The review now seemed rather pointless and as you can imagine I am very disappointed.

Now after the complaint, please can you give any information as to where I may obtain Buzzard Series Term file? The only copy I have seen locally is at Tandy's and that was for the CoCo and would not even load into the Dragon. As this is one of the games recently under review by Dragon User, I wondered if you can supply a source?

Gerrie Wright
23 Moor Drive
Alverstoe
Derby DE2 0DD

NOW, using my eyes, but I'll be damned if I can find a review of Buzzard! But around the old place just now. There's one in my brown paper bag ... perhaps we'll run it. But the word is that Microdeal, who used to sell it, no longer do so, so unless you can beg, borrow or steal one, it's no longer available.

Help with old WP?

I HAVE recently been experimenting with Coding the Words, Peter Whitaker's Word Processor in the September 1985 issue of Dragon User. I think it is an excellent program and if more software like this had been available commercially earlier on, the Dragon would still be selling in its thousands today.

However, I have two problems and would be grateful if Peter or one of your other readers could assist. Firstly, I am not every good touch type and would like to increase the auto repeat delay so that I do not repeat unwanted letters; is there some location I can POC with a longer delay? The second problem is more difficult, when I save to disc, after entering the 8 character

My name followed by ENTER) the disc motor starts, the busy light comes on, the head moves and it plays like this for 10 minutes on monosound presenter (RESET) button, on checking the directory, no file has been written. If I try to load a file, any file, the program crashes with an FM error. I presume that Peter uses a different disc controller and that he is making calls to routines which reside in different locations. I should be most grateful for any help in converting the program, even if it is only a list of the disc routine calls used by Peter.

John Lawrence Hennessy
The First
4 Foxcroft Rd
Bilwerth, Northampton
NN7 3BL

UNFORTUNATELY, we have lost touch with Peter after efforts to locate him. Perhaps another reader can help.

Double spaced Stylo

I am a Spanish member of the OS-9 User Group and subscriber of your good magazine. I write you about the article of David Peckery and the correction of the double space printing with the Stylograph program.

Well, making the change that he proposes the printing is correct with both Stylo and MM. But if you try to use the MM with the screen, it doesn't work properly and in addition both programs don't respond to the Xmode set up.

The problem of the double space printing, in both programs, comes from the use of a system calling. The characters are sent to the printer one by one, with a BWrite calling. This calling doesn't allow line editing, and to end a line it is necessary to send a CR+LF sequence. This causes the double space printing giving the Xmode set up.

To avoid this dreadful problem I have changed the BWrite calling by a BWriteLn, which allows line editing, and I have modified the LF sequence with NOP instructions. With this change in both programs the printing is correct on the printer and the screen, and always follows the Xmode set up conditions.

This is the program to make the changes with the systems

```
disc (with the Debugger) in DOS
and the Stylo in DOS
DOSBUG
$LOAD id /vondastyle
L style
... = 0x0E
... = 0C
L style
... = 0F0F
... = 0F
... = 0F
... = 0F
... = 0F
Q
$SAVE id /vondastyle.mod
DEL id /vondastyle
VERIFY U /vondastyle.mod
mod id /vondastyle
DEL id /vondastyle.mod
ATTR id /vondastyle +p
The program for the Mail Merge is the same with the addresses:
+00F0 and +1010.
```

I hope that this change will be a definitive solution for this problem. Apologies for my English. Thank you for your attention.

Andrés M. Pascual Cinguer
Santander Norte S-5
30000 Elber (Garcos)
Extremad Spain

Quick Tally mod

I WAS very interested to read your article on printer and I myself own the program Tally-88+ and have found the variety of print modes and character sets to be very useful in writing technical reports for my degree course at the local polytechnic.

It can be found, if the paper is removed, that on the left under the input card are two sockets marked Ram 1 & Ram 2, these are in fact in place of two sockets and should be removed by lifting it directly upwards as it is plugged into the board below. Now if two 6116 memory chips are fitted in these sockets then the input buffer will be increased to 1K as opposed to only 100 bytes which is the standard. The cost of the chips is only about £4.50 each but the extra postage and putting the chips into the sockets can be done by it but the very cheapest of cash.

I hope this information will be of interest to your readers.

C. Nicholson
21 Newington Rd
Beechwood
Middlebrough
Cleveland YO21 3JD

PS I bought the chips from Granada Ltd for £1.85p + VAT + 50p postage. The address can be found in Practical Electronics.

Better video?

SINCE the Dragon came out, people are trying to upgrade it to give it a better video performance. The Tandy Color has managed it by having a raster memory system by Motorola installed, but the Dragon got stuck by having an out of date video system.

Compromise with its upgrade has been better used the MOS 7220 instead of most of date MOS 6845, then when all is in RAM, one could modify the Basic to use the 7220 to full potential:

- 128 columns x 70 lines, more than A1 page (using an A1 or double A4 monitor by E&L, Belgium)
- High resolution of 768 x 1024 pixels, better than Atari ST or Amiga or IBM PC/2
- Using any log. video, animated colours, CAGI/MSI possibilities.
- 128K Video RAM (use the 7220 only, not interfering with the Dragon's own 64K, etc., or having a complete new RAM board at 1M).

For quite a while a friend of mine called Mory Campey has had another solution: Microvix II.

One can order this as a kit or as a complete package, take your pick, they can be reached at 2 St. Gaspard Road, Cheltenham, Gloucestershire GL5 1AA, phone (0244) 570525.

Maarten '82', via Xmode
34, ynterstrat
Creston 8330
Belgium

Cluster correction

THANK you for publishing the article into the Directory in the May issue, and for the program ReadDD.

However (first) I should point out to Paul Delglish, a misunderstanding he has. He comments that the device description was set up for 8 sectors and as the Dragon discs will not read directly. In fact the OS-9 device description does not contain any reference to the cluster size. This is chosen by the format program used to write onto the disk. The byte bit Delglish specifies to change should have no effect at all on the operation of the program. The byte referred to is called the 'Segment Allocation Size' and

is the minimum number of sectors allocated to a file. See page 6-4 (4th paragraph) of the OS-9 System 5.

Programmers Manual. Note file is shortened 8 sectors, then when the file is closed, these extra sectors are de-allocated to the file. If you have two or more files open for writing simultaneously and you have altered the device description to enable Delglish's suggestion you could get a 'Segment Limit Full' error due to excessive fragmentation of the files. This byte is therefore best left as it is. The program ReadDD works perfectly well anyway.

To check the cluster size, try using the PEEK command. This displays the cluster size amongst its 4 bytes.

P D Smith
University Hall
Beechwood Road
Poyser
Cardiff
CF2 5YB

Thanks and a favour...

FIRSTLY may I thank yourself for your backing and continual support to Dragon owners. It is organisations such as yours that help keep our family together.

Next I would like to thank the Hardware and Software Businesses for supplying these owners with their necessary tools. If you will excuse the term.

Finally I must congratulate all the owners of Dragon and Tandy (never forget the Tandy owners) machines for not discarding their computers in pursuit of 'poxy' forgive me if 'poxy' is a bit strong) machines such as Sinclair — say to name, Atari etc. It is the owners themselves who deserve congratulating as they keep a computer alive and I am sure they will continue to support their suppliers.

Could please ask you to print my name and address alongside this letter so I can get in touch with other Dragon owners, and swap games, tips, and for the female cardinals — telephone numbers?

Steve Clements
287 The Halfway
Street 1st
Birmingham
B24 6BN

WHY? that, why? I think only the birds have telephones to per? What about an chips, then? A? Ay?

News desk

New disc set to chart



THE lady with a 3 inch-disc clinging to her ear is part of a new advertising campaign by TDK, already well known for their video and audio cassette tapes.

TDK hasn't made a claim yet whether the new range will include 3.25in or 5in discs, but TDK magnetic tape is already a byword for good quality, so they could become a major force in the disc market in future.

But they aren't likely to start any trends in the starting business.

Dragon User back issues

FOLLOWING the launch of Pulse Software's database program *Magbase*, with an optional *Dragon User* index, this seems like a good time to bring a list of DU back issues still available.

We have small quantities (under 20 copies) of the following:

August 1983, December 1983, February 1984, March 1984, May 1984, June 1984, August 1984, September 1984, October 1984, November 1984, January 1985, February 1985, March 1985, June 1985, November 1985, January 1986, February 1986, March 1986, May 1986.

We have substantial quantities (over 50 copies) of September 1985, December 1985, April 1986, August 1986, September 1986, October 1986, November 1986, December

1986 (which contains adverts from virtually every supplier still in the Dragon market, including other *twentieth century* magazines, and as such is a useful work of reference) and all 1987 issues.

We have a very small number of September 1983, November 1983, January 1984, April 1984, July 1984 and July 1986. Don't order these — drop the Editor a line if you want copies, and we will check with the warehouse and let you know, after which we will despatch any orders on a first come first serve basis. This will help us to avoid losing track of orders for issues which may or may not be in stock.

Back numbers of *Dragon User* cost £1.25 regardless of quantity or rarity! Please send any orders to the address below, making payments out to Scott Press Ltd.

Magbase price list

HERE is a full list of prices for the different versions of Pulse Software's *Magbase*:

Tap version £1.99; disc version £2.99; tape version with *Dragon User* files £2.99; disc version with *Dragon User* files £3.99. *Dragon User* hard copy only £1.99; tape version + DU files + Dufiled copy £3.99; disc version + DU files + Dufiled copy £4.99. Post and packing is 50p, except for the DU file only copy, where it is 25p. Overseas

postage is £1.25.

Orders should be crossed and made payable to Pulse Software at 30 Fossil, High Clonmore, Shane, Clontarf, Laragh, Co. DU19 7H2.

The disc versions are available for *DragonDisc*, *Commandos 2.0* and *Grimm Dos*, so specify which version you want.

We understand that there are also index files available for *Dragon Update*.

Solver Steps Out

SIMON 'The Solver' Hargrave would like to announce the release of his new range of adventure games.

No I have the reputation of 'The Solver' you will not expect them to be easy! writes Simon. The titles are as follows:

Starcross — a space adventure which you can imagine as a hostile planet with a sinister secret.

The King's Quest — 'an indirect re-creation of *Starcross*'. You are trapped in a castle on 12th century Earth at the mercy of a mad king.

The Quest for the Meaning of Life — 'You have to control four characters, and must use them to find the answer to the meaning of life.'

All the games will run on a Dragon 32 or 64. Simon is currently working on *Handy Characters*. The games all have stable characters and play in real time, except *Starcross*, which uses real time. There are various little additions to the keyboard panel, including a orange/green option from the *Oneskey* and a pointer history of your moves by using Shift and the UP arrow. But again, not on Starcross.

The adventures cost £5 each (including post and packing). Allow 28 days for delivery from Simon Hargrave, Cuckley Hill Farm, Uxley Gurdley, Wilt. GU11 5BU.

Simon also sells solution sheets for many adventures. They cost 20p each. Send an SAE to Simon for more information.

Missing person

WE'RE still hoping Mr. John Carmel will contact us about another reader who's trying to get a letter to him.

Editor adjusts eyeshade

SINCE I have a couple of spare columns inches this looks like a good time for me, your Editor to offer both an apology and an appeal to DU's loyal and patient subscribers. The subject often queries from disappointed users noted in this column is the form of a mild grumble from one reader who had 'sent in coupons with the appropriate coupon' but neither were printed or acknowledged', and another from a hopeful who had sent in an 'Adventure' but coupon with a stamped self-addressed envelope, asking for a reply.

Well, nothing makes me happier than a reader who contacts this office with a heart full of rage, and goes away happy, as the lucky ones will readily, if we get a letter — or call, but letters are more likely to reach the right person — and we can supply the answers, they're likely to do, even if we have to let it sit for a long time. And if enough of our subscribers can supply an answer directly, enquiries are re-routed to Communications, Adventure Help-line or the letters page.

BUT The *Dragon* is a little magazine with a little staff (most of those good people with their names on the banner panel run the company rather than the magazine) and for this reason we have never, ever, at least not since well before my time, undertaken to reply personally to letters, no matter how many SAEs arrive with them. Nor do we run any kind of coupon system for replies. Anything which arrives here on a CD1666 or AD1666 coupon gets listed in the next available issue of *Dragon User* just like it does on the coupon. After that, it's in the hands of you, gentle readers. Likewise, Mr. Carmel is the only one of our contributors who offers a readers' service, and that only involves the adventure help sheets. This is still entirely at his discretion, because the *Miss Horlock* and *Computer Journalists* Act of 1983 states that we are not allowed to keep writers in deep despair and make them stare for a glancing

until their fingers drop off. We do it anyway, but we have to keep up appearances.

Gordon Lee isn't allowed to discuss competition results with anyone (which is the universal rule for competition organisations), and although he has been known to courteously apologise for our typos, these are formally corrected in subsequent issues.

The appearance of a "Secretary" on our front page leads a few hopeful souls to

picture me, feet on desk, carelessly dictating missives to a fat-fingered assistant. Wrong. The fat-fingered assistant is tied up typing out this year's regular magazine for the typesetters, in between answering the phone and being shouted at by people who want stationery. She is concerned with nothing so humble as typing letters. It's what a letter typed, I type it myself. If the MFP isn't tied up on official business, which is why those

of you who type a reply usually get a copy slip scribbled in what looks like red ink. It's actually blue ink written on under my category/fingerprints. Journales always write in their own hand, because it's cheap, reliable, and doesn't need a requisition.

So, we are sorry we can't offer a slicker readers' service, but it was a choice between getting another assistant or keeping the magazine on, y'know...we will go on coping

with as many queries as we can. Please don't feel neglected if you don't hear from us personally. And yes, it's worth checking if you have something you are concerned about, in case it has gone astray. While, or after, it leaves a message. Live dangerously! But don't ask them where I am. Some things it is better for humankind not to know...and they usually don't.

Now if you'll excuse me, I must go and write a couple of letters.

Dragonsoft

New software for review should be sent to Dragon User
12-13 Little Newport Street, London WC2E 8PP.

A PC when you need one

Program: Dragon/PC Convert
Supplier: Compusera
Price: £25.95

HOME computers have been around long enough now for everyone to have seen, played, and usually loved, in most forms of computer game. Having exhausted the seemingly endless supply of games, most people sit down and begin to wonder to what practical use they can put their beloved micro. It is at this time that most people realise that for any 'real' application the Dragon has many shortcomings such as poor communications ability, awful screen display, slow working speed, lack of software etc., and with the increasing number of desk-top computers finding their way into offices, more and more people are becoming aware of just what is possible with a decent micro. It is due to these and other reasons that many home computer users are either using their Dragons in prop doors open and keeping computers completely or are going out and buying something with a little more horsepower.

The popular choice at the moment seems to be either the Atari 550 or the ubiquitous IBM PC or one of its many clones. But there are a small number of people who still keep the old Dragon handy simply because they have so much software or data for it. Having had to change computers several times in the past myself, I know that a com-

puter frustrating when you face a programming problem to which you already have the solution on an old machine. Well now thanks to Compusera's PC Convert package it is a simple matter for you to copy them over to your new price and just go!

There are currently five Convert packages available on disk transfer: DragonDOS files (either dBASIC or dBASIC) to the IBM PC or one of its many compatibles. The packages are so easy to use that there is little to say about them!

Using Convert program couldn't be easier: you simply load the PC and run it. A menu is displayed giving options that allow you to select the target path-name, target drive number, show the source disc directory etc., make your choices, put the DragonDOS/PCDOS disc in one PC drive, a formatted PC disc in the other drive and make your selection from the disc directory displayed. The drives and the cursor blink, and voilà! your precious file is now available as a PC format text file.

For someone moving up (to a PC these programs are simply essential. Those of you who have decided to stay with your Dragon will not be interested in this review anyway (And I don't care!) If you have bought a PC then buy PC Convert!

Ray Coates



Put your left arm up...

Program: Crazy Fozz
Supplier: Computer
Price: £2.99

Notes: Available on cassette and DragonDOS for Dragon 32 and 64. Requires two players.

IT WAS VERY appropriate that this game should arrive on the day that the English football season kicks off: if there's anyone out there who hasn't heighed yet, then I think you that Crazy Fozz is a football game, OK?

It is also an unusual football game. Initial it's not like Champions or Football Manager, where you decide the club's moves and if all goes well and the odds are on your side you'll have a good chance of winning. In Crazy Fozz you control your team and battle away with the other team, controlling all the players and scoring all the goals.

The object of the game is to score as many goals as you can against your opponent within a set time. To select a player, you move or enter on your side of the screen using joystick, then left-click to move the player. This controls the player's formation. The first button-click is the ball in the direction which the joystick is facing. This allows you to pass the ball or shoot.

The game is played in Pseudo3D, and because there's no colour it's hard to distinguish between your own players and the opposition. However, if you look closely one team has its right hands up in the air and the other team has its left hands up, which makes all the players look as if they are about to do a signified thing.

There are eleven players in each team, which means 22



Dragonsoft

New software for review should be sent to Dragon User
12-13 Little Newport Street, London WC2H 7PP.

figures packed into one little screen. This does get a little confusing.

The graphics are simple but nice, and the players look surprisingly like Jack from *Steamboat Willie*. The title music is also fairly simple. The chess from the crowd sound like a congested cat.

There are a number of faults in the game which spoil an otherwise enjoyable program. Firstly, the goals are larger than the goals, which means that you can score by shooting diagonally over his head or under his legs. It sounds fair but it is annoying. Secondly, you can walk straight into a player and take the ball away from him. This is especially annoying when it's the opposition keeper who is the culprit, because he can walk straight into your goal leaving you unable to catch up. Finally,

because you can walk through a player, it is possible to walk through the other keeper's goals while he is standing in them, and to cancel back your way (or you kiss). You simply push him further into the goals, and there is nothing you can do about it.

It's nice to see Computer release something new by themselves, although the presentation is rather amateurish. The play is made good a thin piece of yellow paper with a point of a screen shot. How about a bit of colour with some proper pictures! Apart from the last problems, I found the game very enjoyable and it is well worth the price of £2.98.

Donald Morrison



Program: Kamakury
Supplier: Risk Precision
Price: £3.99

THIS is a version of the old arcade game where you have to collect all the flags in a maze in-happily by the other cars which are out to kill you (Kamakury drivers), your only defence to release clouds of smoke from your car. You have to watch your fuel gauge or else your car will meet with a sticky end, thankfully there are fuel cans scattered about the screen. As in the arcade the screen scrolls as you look for the flags. On later levels there are more obstacles and even more mad drivers out to get you! On screen 2 there are giant cabbages which block the routes to the flags and make life that bit harder.

Everything in the game is done professionally. The car speeds through the remaining parts spin round when you die, there is a screen with a very good tune which complements the screen and even if you enter the name in the hi-score table is easy to do. When you load the game you should stick with it as it hasn't crashed out is supposed to load that way.

Even though this quite an old game it is still worth every penny.

Stephen Cooper



Life is full of little ups and downs

Program: Biohythms
Supplier: Dragon Software
Price: No information

BIOHYTHMS is one of those things that like horoscopes you either believe in or don't. For those that don't know, followers of biohythms maintain that the three main facets of your personality, intellect, emotions and physical well-being go through 'cycles' during which time they vary in strength. The lengths of these cycles differ in that the cycles of 33, 28 and 23 days duration respectively hence the need for a computer to calculate their current positions.

This program comes on cassette with a series of printer drivers on side A for Epiwin, Centronics GP105A and Sinesis CP202. The biohythms program itself is an idle file and having loaded starts by giving you a choice of foreground and background colours (black, but and green since it is all in PMODE4) and then asks for the

'subject's' name and date of birth. Having entered this vital information you may then enter the target month that you wish the biohythms to be calculated for. This is where the fun starts.

The program begins by calculating the number of days that have elapsed since the birth date and the target month LAST YEAR (leap years are made for leap years). The program then goes on to add the number of days month by month until the target month is reached. Eventually (and I mean EVENTUALLY), a graph is drawn for the target month showing the status of each of the three cycles and showing the critical days at which time things start to run low. You have the option to print the graph or to go on and get the biohythms for the next month but that is it.

If you are a biophysical believer then the information shown will make you very happy. I am not a believer and so the output of the program is as exciting to me as an empty beer can. I had a bad analogy that at? since I don't possess Jason's literary wit, when Glad was asking that out Jason was at the front of the queue and I was in beer hell, but what annoyed me was the fact that the program shows all of its calculations one step at a time and after each step you must press a key to continue to the next.

This would not normally be too bad but because the steps are shown on the first screen using an immeasurably slow text driver I found myself reading the paper and occasionally nudging the space-bar with my elbow.

The program is very neat and has obviously had a lot of hard work put into it. It is simply taken to the next level to get the biohythms that show the information that you bought the program for. Before the letters page starts loading with results there is my decision. I am not believing biohythms, that is your choice, my comments are only directed at the programming.

If biohythms are your cup of tea then this program is all that you need to know. It is just as slowly that's all.

Roy Coates



Gus goes gambling through space

Program: Galactic Gus
Supplier: Quickdraw
Price: £4.00

THIS review is of a standard game and, unfortunately, I did not even have the usual Quickdraw sheet that accompanies their games. When I first tried Galactic Gus I absolutely hated it. I was losing all of my eight lives within seconds of starting and felt very dejected.

Having persisted with it I am hooked on it and spend quite a lot of time trying to beat my own many problems facing Gus, the fighter pilot who is searching for fuel pods to refuel his fighter so that he can reach the Spaceport Dragon. He is located on a rocket chair and has to be moved round laser droids, creatures and other supplies.

This is not a simple type game but one has to be very skillful to avoid the creatures on many of the 278 screens as you move through the maze trying to find fuel. The type of maze involved is one called Dark Pit. There are also bananas and small white objects, and I have seen a key (but can't yet reach it) which must be taken to the keyhole to reach further screens.

Once you have mastered how to avoid the creatures by invisible Laser which you can see the creatures but Gus is invisible. For the beginner there is a combination to be entered to get help.

The graphics on this game are nothing special at all but for £4 you are presented with a series of challenges which will keep even the most delinquent for many hours. Not a classic game but certainly good value for money and containing a variety of problems some of which I have not even come across.

First printed in Dragon Update

Mike Scott



Valuable archaeological artefacts discovered by explorers in Delta

Programs: Scribe & Scribe
Supplier: Premier
Microsystems
Prices: No Longer Available

ALTHOUGH the demise of Premier was some time ago, I decided that other Dragon owners (in particular DeltaDOS users), should know about the excellent software that the company produced. Here they have got the recognition they deserved at the title and this might have been a reason for their collapse. Both of these products must be used in conjunction with DeltaDOS.

TOOLKIT

This comes in the form of an EPROM fitted inside your DOS controller. I can almost hear you say "Ah! But you can't say they are any more. And some get one to test!" Well I tried and I tried to find a supplier and although I'm sorry, but in the end I found a very helpful person who was kind enough to supply an EPROM for me. ANYHOW, this TOOLKIT gives the user 60 extra basic commands and functions. I have condensed a description of these below. There are 24 screens, screens available to the user also.

AUTO *x,y* — Gives automatic line numbering from *x* in increments of *y*.
DEEP — Produces one single tone through normal sound channel.
DEEP *n* — Produces *n* tones.
DEEPON — Produces a single line every line a key is pressed.
REPEAT *OFF* — Stops the above.
BLACK *x,y,x2,y2* — Draw block, start *x,y*, length *x2*, height *y2*, character *c*, screen *s*.
BREAK ON/OFF — Disable and enable the break key.
CAPPEND — Append a cassette program from tape.
CDR — spreadsheet/comprehensive tape directory.
CLIX *x* — Fill screen *s* with character *x*.
DEFSOURCE — Disable type equivalents to PEEK & POKE.
DOH *x,y* — Copy lines *x* to *y*

to line *y* creates
EMCA *x,y,EMC* *EMC* — Set architecture characters for
SEARCH *REPLACE*
ER *x* — Returns line where an error was encountered.
ERR — Returns a generated error code.
ERROR *n* — Simulate error number *n*.
ERROR GOTO *n* — Goto line number *n* when error occurs.
ERROROFF — Turn off error trapping.
E — Bold last line entered.
E *x* — Edit line *x*.
E *x* *y* — Bold next line.
E *x* *y* — Bold line previous to *E*.
FRAME *x,y,x2,y2* — Draw an open rectangle as per BLOCK.
FREE — Display amount of string space remaining.
GOSUB *n* — Variable controlled GOSUB.
GOTO *n* — Variable controlled GOTO.
HANG — Holds program until a key is pressed.
HOM — Returns the cursor to top left without clearing screen.
HLINE *x,y,x2* — Draw horizontal line starting *x,y*, length character *x2*, screen *s*.
INKEY — Same as INKEY but returns ASCII value.
INP *n*, *AI* — Controlled input of length *n*, into variable *AI*.
INP *n*, *AI* *AI* — As INP but to specific screen location *AI*.
KEYS — Auto-repeat keyboard scan — returns with character.
KEY — As KEYS but returns ASCII value of key pressed.
LEFT *n* — Set the delimiter character for SEARCH and REPLACE.
LOCK *x,y* — PEEK at screen location *x,y* on screen *s*.
MAPS — Give a list to the center of active variables in a program.
MOVE *x,y* — Move contents of screen *x* to screen *y*.
OLD — Attempt to recover a NEWED or crashed program.
PAUSE — List program in controlled chunks.
PAUSE *n* — Cause program to pause *n* milliseconds.
PLAN — Suite of printer commands.
PROG *n* — Program definable keys A-H (shifted).
PROG *i* — Define printer

header.
PRINT — Reinserts all statements following REM or
REPEAT *x, AI* — Read *x* items of DATA into *AI*.
REPLACE *x,y* — Replace *x* with *y* in program at users discretion.
REPLACE *x,y* — As above but does all occurrences without asking.
RESUME — Resume program from error statement.
RESUME NEXT — Resume program from statement after error.
RESUME GOTO *n* — Resume program at line *n*.
SEARCH *x* — Search for all occurrences of *x* in a program.
SET *x,y,x2* — Fill single column/row address *x,y* with character *x2*, screen *s*.
SWOP *x,y* — Swap contents of screens *x* and *y*.
TRACE ON/OFF — Same as TRON except outputs go to top right of screen.
WAP — Displays a list of active variables in a program.
VLINE *x,y,x2* — Draw a vertical line starting *x,y*, height, character *x2*, screen *s*.
WILD *n* — Set wild card character for SEARCH function.

As you can see, this is an excellent utility and you might be surprised to know that the above list is not the end of the story! TOOLKIT also provides a Screen Editor, which can be used on its own or with the Dragons line editor. If anyone has used a BBC micro, they'll know what type of editor this is. Basically you use certain keys to move a cursor around and another key to copy everything that falls under the cursor. The difference here is that you can put text onto a temporary screen, edit it without disturbing your main editing and then return it to the screen. (BRILLIANT!)

SCRIBE

This is quite simply a hi-top text generator. The difference is that it fully interacts with the Dragon basic/DeltaDOS, in other words you can write your programs us-

ing it. It is supplied in disc and therefore is portable. By using control codes, you can perform special tasks such as selecting inverse characters and changing the colour set, the screen area is increased to 48 x 24 character density and spatially interfaces with BASIC, although you cannot take characters to the text screen as is usual with programs of this type. A very useful feature has been added to allow you to generate new characters from within a program, the PRINT command. The character set also includes quite a few graphic characters such as playing card symbols, and can be saved for later retrieval. Another new command is the PUT (command), allowing you to position place characters on the graphics screen. This is extremely useful when dealing with text effects and superscripts.

The only failing of this software must be its fully interface with TOOLKIT, you cannot use the MAP command in the TOOLKIT editor whilst running SCRIBE. This is because the screen locations are not translated, it should be possible for a competent programmer to modify these problems though. I hope that this review gets published and that it is of some interest. I hold a personal opinion that DeltaDOS users have been given a standard in terms of regards to ported matter and hopefully this will refresh the future supply.

Oh yes, I nearly forgot, I want TOOLKIT for Dragons AND SCRIBE for Dragons only 4 because it does not interface with TOOLKIT.

D. Minto

Toolkit:



Scribe:



Auto Boot

Julian Osbourne outruns the BT Error in Basic or MAC.

ACCORDING to pages 26 and 27 of the DragonDOS manual the **BOOT** command is provided for "loading other operating systems from disc" and it goes on (in no great depth) to say that the system is loaded into memory at address 9700 (decimal) and executed from address 9730 (decimal). Great. So what actually happens when you type **BOOT** with a normal disc in the drive? Answer: a BT Error (code 142).

Nothing about the **BOOT** command (or the BT error) is covered in any detail in any of the general reference books such as Inside the Dragon or Anatomy of the Dragon, in fact the only time **BOOT** is mentioned is to say that its BASIC token is 9701 and the **BOOT** dispatch address is at 8040C which, if you are anything like me, means nothing at all.

The object of this article is to show how to use the **BOOT** command on your own disc to simplify the running of your most often used programs, so here goes...

When it is called the **BOOT** routine in DragonDOS reads sector 3 of track 0 on the current drive (address 818, default = drive 1). If the first two bytes of this sector are the ascii codes for OS (00P and 002 respectively) then 4K of code is loaded from disc into address 9700 (decimal) starting with sector 3 of track 0. When this code has been loaded it is executed from address 9730 (decimal).

The program given in this article uses the **BOOT** routine to implement an auto-run facility for a given program (MENU.BAS in this example) so that simply typing **BOOT** the named program is loaded and run with no further action needed.

The assembly listing is in three distinct pieces:

- 1) The assembly code for OS at placed at 32600 (9700 decimal)
- 2) The code to run 'MENU.BAS' when executed
- 3) The routine to save the above code to sector 3, track 0 (My thanks to Iain Gudge for supplying the code for part 3 in his Dragon Advertiser column for August 1989).

The 'save to disc' part of the routine works as follows:

To save a sector (256 bytes long) to disc, location 236 (decimal) is set to the drive number, locations 238 and 237 (decimal) are set to the track and sector after which data is to be saved, to and locations 236 and 238 (decimal) are zero the address in memory where data is to be saved from. The disc write routine at 4640A (decimal) is then called to save a sector at a time until the end of track 0 (which is approximately 4k of code) when the routine returns to BASIC.

On entering this program (by assembler or by machine code loader) save it to disc with:

SAVE "BOOT.BIN",32600,32627,402 655

Now insert a blank disc into the drive and run the routine with:

EXEC 65465

The routine will then assemble, auto-run part of the program to disc (eg from address 9000 onwards) at track 0, sector 3 and return to BASIC. Now save onto this disc the program that you require the **BOOT** to operate on (eg the program MENU.BAS in

this example) and then type **BOOT**. The program will then load and auto-run itself.

The routine given will auto-run BASIC or machine code programs by just changing the filename in the **IF** statement as you could use it to load Moon Crests or Dean Steller just as easily as using it to run a menu program for your utilities disc.

I am willing to attempt to answer any queries regarding the use of this **BOOT** program that may arise during its use. My address is 6 Holston Road, Pooleton, Bristol, BS20 2UR, or messages can be left in my Private Mailbox 277883335.

```

                                ORG 9728
START FCC /OS/ BOOT FLAG
*****
*THE PROGRAM BELOW WILL BE RUN *
*WHenever BOOT IS TYPED *
*****
LDR $PNAME
STX 164
JMP 80444

FRAME FCC 34, /MENU.BAS/, 34, 0
*****
*THE NEXT PART OF THE PROGRAM *
*SAVES THE ABOVE BOOT PROGRAM *
*TO DISK AT TRACK 0, SECTOR 3 *
*****
*START CLR
CLR 236 TRACK 1
LDR 13
STA 237 SECTOR 4
LDR 49739 START ADDR
SAVE PSNG X
STX 238 BUFFER ADDR
JSR 49409 WRITE DISK
PULS X
LEAD 234, X
INC 237
LDA 237
CMPA 619
BLG SAVE
JMP 30649 GOTO BASIC

```

```

2600 2400                                ORG 9728
2600 4F55 START FCC /OS/ BOOT FLAG
2600 *****
2600 *THE PROGRAM BELOW WILL BE RUN *
2600 *WHenever BOOT IS TYPED *
2600 *****
2600 LDR $PNAME
2600 STX 164
2600 JMP 80444
2600 3240434E35 FRAME FCC 34, /MENU.BAS/, 34, 0
2615 *****
2615 *THE NEXT PART OF THE PROGRAM *

```

```

2810          SBAVES THE ABOVE BOOT PROGRAM #
2810          $TO DISK AT TRACK 0,SECTOR 3 #
2810          #####
2810 4F      RSTART CLRA
2816 0F0C          CLR 2816      TRACK 1
2818 0603          LDA 03
281A 77ED          STA 237      SECTOR 2
281C 0E2400        LDX 07728      START ADDR
281F 3410          SAVE  FSHS X
2821 9FEE          STX 238      BUFFER ADDR
2823 0DC101        JSR 40409      WRITE DISK
2826 3510          PULS X
2828 00090100      LEAX 256,X
282C 0CED          INC 237
282E 94ED          LDA 237
2830 0113          CMPA 019
2832 25EB          BCS 284F
2834 700371        JMP 2849      GOTO BASIC
2837
2837

```

```

>B #2809,42837
2800 4F 53 0E 24      0 0 . L      240A 2240      BHI #2859      E
2804 0A 9F A8 7E      . . . .      240C 45      E
2808 04 A4 22 4D      . . . H      240E 4E      H
280C 43 4E 53 2E      E H U .      2408 55      U
2810 42 41 53 32      8 A 5 "      240F 2E42      00T 42853      A
2814 00 4F 0F 0C      . 0 . .      2411 41
2818 04 03 97 ED      . . . .      2412 53      COMB
281C 0E 36 00 34      . L . 4      2413 2200      BHI #2415
2820 10 9F 0E 0D      . . . .      2415 4F      CLRA
2824 01 01 35 10      . . 3 .      2416 0F0C      CLR 060C
2828 30 87 01 00      0 . . .      2818 0603      LDA 0603
282C 0C ED 04 EB      . . . .      281A 77ED      STA 06ED
2830 01 13 25 08      . . 5 .      281C 0E2400      LDX 0E2400
2834 7E 03 71 39      . . 3 9      281F 3410      FSHS X
2837
2821 9FEE          STX 06EE
2823 0DC101        JSR 0C101
2826 3510          PULS X
2828 00090100      LEAX 00100,X
282C 0CED          INC 06ED
282E 94ED          LDA 06ED
2830 0113          CMPA 013
2832 25EB          BCS 284F
2834 700371        JMP 06371
2837 37          RTS
>
>U #2600,02637
2600 4F          CLRA
2601 53          COMB
2602 0E240A      LDX 0E260A
2605 9F42          STX 0642
2607 7034A4      JMP 024A4

```

```

10 A=0H2600
20 READ A#
30 IF A#="00" THEN END
40 POKE A,VAL("&H"+A#)
50 A=A+1:GOTO20
60 DATA 4F,53,0E,24,0A,9F,A8,7E,04,A4,22,4D
70 DATA 43,4E,53,2E,42,41,53,22,00,4F,0F,0C
80 DATA 04,03,97,ED,0E,36,00,34,10,9F,0E,0D
90 DATA 01,01,35,10,30,87,01,00,0C,EB,96,EB
100 DATA 01,13,25,08,7E,03,71,39,00

```

Two extra commands

R. G. Whittaker inverts his text and scrolls it to the right

THIS article shows one of many ways to add new commands to Dragon Basic, it uses the fact that each time the Dragon reads a statement, it jumps to location 377. Normally this contains code 87 which is an RTS instruction, and so the processor returns to where it was, but if we store code 126 (JMP instruction) in this location and then load location 378 with the address of a new routine we can cause the processor to access our routine every time it reads a statement.

Using this we can write a routine to check if our new command has been typed in and then execute a new routine to perform this command's function. This could be a routine to, for example, scroll the screen or execute an autographed function. The two commands I have added are INVT,

which inverts the text screen, and SCRL, which scrolls the text screen to the right one character space.

First of all the program stores code 126 in location 377 and the start address of the program in 378. Then it returns to basic. When the routine INVT is executed, it checks the X register to see if it is within the required range 85 (X) is 98 (Z). Then it checks if this is the first letter of the new command (P) and if not it jumps to another routine to check for the second command, otherwise it checks the rest of the letters in the command using the locations pointed to by location 168 which hold the rest of the letters in statement.

If the command is correct, the routine checks the next character to see if this is

valid. Usually the only characters one has after commands are colons or spaces (except for input, print etc) and so these are checked for. If the character is an equals sign, the processor would return to basic and allow you to use INVT or SCRL as a variable (ie SCRL=10) and so if an equals sign or any other character is found, the routine loads the W register with 2 and jumps to the ROM routine at 30684 which gives a syntax error.

To enter the new commands, type in the loader and enter the codes line by line when asked then save the routine as instructed. Alternatively, type in the assembly listing. The routines are easy to change and so you should be able to add different commands to your Dragon Basic.

Listing 1

32000	067D4CBF0176667E8781	32070	0646825F55668A37815327
32010	7737815A223C01412530	32080	037E7D4CE6A6E601C143
32020	015227837E7D4D66A666	32090	276837E7D4CE682C15227
32030	01C145276837E7D4CE682	32100	037E7D4CE683C13A2787
32040	C184376837E7D4CE683C1	32110	C12125037E7D919D0660
32050	3A2787C12125037E7D91	32120	E68234040A1FA46A781
32060	0E8408A6408648A7889C	32130	8A26F93884E7848C0480
32070		32140	22EA066637C4822D05344

Listing 2

```

10 CLS
20 CLEAR200:3199:AD=32000:CS=0
30 PRINT" ENTER LINE OF HEX 4'XX' TO END:"
40 PRINTAD:INPUTH
50 FORC=1TOUN(H)/STEP2
60 H=HID8(H8-K,2):IFH="":IX=THEN100
70 V=VAL("H"+H8):POKEAD,V:CS=CS+V
80 AD=AD+1:NEXTK
90 GOTO40
100 CLS
110 IFCS<14558THENPRINT"DATA ERROR TRY AGAIN":END
120 PRINT224:" PRESS ANY KEY TO SAVE CODE :-"
130 A=INKEY$:IFH="":THEN130
140 CSAVDH"COMMANDS":32000:32150:32000

```

Listing 3

32000	0F 01 7A	32003	8F 01 7A	32006	5F 01 7E
32009	5F 01 7E	32012	5F 01 7E	32015	5F 01 7E
32018	0F 01 79	32021	0F 01 79	32024	0F 01 79
32027	0F 01 79	32030	0F 01 79	32033	0F 01 79
32036	0F 01 79	32039	0F 01 79	32042	0F 01 79
32045	0F 01 79	32048	0F 01 79	32051	0F 01 79
32054	0F 01 79	32057	0F 01 79	32060	0F 01 79
32063	0F 01 79	32066	0F 01 79	32069	0F 01 79
32072	0F 01 79	32075	0F 01 79	32078	0F 01 79
32081	0F 01 79	32084	0F 01 79	32087	0F 01 79
32090	0F 01 79	32093	0F 01 79	32096	0F 01 79
32099	0F 01 79	32102	0F 01 79	32105	0F 01 79
32108	0F 01 79	32111	0F 01 79	32114	0F 01 79
32117	0F 01 79	32120	0F 01 79	32123	0F 01 79
32126	0F 01 79	32129	0F 01 79	32132	0F 01 79
32135	0F 01 79	32138	0F 01 79	32141	0F 01 79
32144	0F 01 79	32147	0F 01 79	32150	0F 01 79

7D9C 81 5A	START CHPA #48	7D91 7E 7D 4C	JMP END
7DA0 20 7C	BHI END	7D9A 9E A8	BCR1 LDB 165
7D10 81 41	CHPA #45	7D94 E5 01	LDB 1,X
7D12 28 30	BLO END	7D98 C1 03	CHPB #47
7D14 01 52	CHPA #52	7D9A 27 03	BEO SCR2
7D16 27 03	BEO PASS	7D9C 7E 7D 4C	JMP END
7D18 7E 7D 4D	JMP SCR	7D9F 84 02	SCR2 LDB 2,X
7D1B 9E A6	PASS LDB 166	7DA1 C1 52	CHPB #52
7D1D 02 01	LDB 1,X	7DA3 27 03	BEO SCR3
7D1F C1 45	CHPB #49	7DA5 7E 7D 4C	JMP END
7D21 27 03	BEO PASS1	7DA8 5A 03	SCR3 LDB 3,X
7D23 7E 7D 4C	JMP END	7DA4 C1 3A	CHPB #58
7D25 E4 02	PASS1 LDB 2,X	7DA0 27 07	BEO COMH2
7D28 C1 54	CHPB #56	7DAE C1 21	CHPB #33
7D2A 27 03	BEO PASS2	7DB0 25 03	BLO COMH2
7D2C 7E 7D 4C	JMP END	7DB2 7E 7D 91	JMP ERR
7D2F E4 03	PASS2 LDB 3,X	7DB5 8E 04 00	COMH2 LDB #1536
7D31 C1 3A	CHPB #50	7DB8 E4 02	LOOP1 LDB 1,X
7D33 27 07	BEO COMH	7DBA 34 04	PUSH B
7D35 C1 21	CHPB #33	7DB0 C4 1F	LDB #31
7D37 25 03	BLO COMH	7DBE A6 02	LOOP3 LDA 1,X
7D39 7E 7D 91	JMP ERR	7DB8 A7 01	STA 1,X
7D3C 8E 04 00	COMH LDB #1824	7DB2 5A *	DECB
7D3F A6 04	LOOP LDA 1,X	7DB3 2A FF	BNE LOOP3
7D41 00 48	CPCH #48	7DB5 35 04	PUSH B
7D43 A7 00	STA 1,X	7DB7 E7 04	STB 1,X
7D45 8C 04 00	CHPX #1536	7DBF 8C 04 00	CHPX #1824
7D48 25 FF	BLO LOOP	7DB0 22 5A	BH1 LOOP2
7D4A 04 04	LDA #174	7DBE 04 06	LDA #174
7D4C 39	END RTS	7DB8 39	RTS
7D4D 81 33	SCR CHPA #53	7DB1 C4 02	ERR LDB #2
7D4F 27 03	BEO SCR1	7DB3 8D 03 44	JSR 33484

Scopy for SuperDos

Martyn Armitage remembers his youth and the horrors of swapping discs around.

RECENTLY a member of our Dragon Club upgraded his Compaq Dos V10 to Groveton SuperDos. One of his regrets was the loss of the SCOPY command that the Compaq Dos provides.

Horrified it was possible for me to write a utility that would replace this lost piece of software, and set being the knight in shining armour that I am, and always willing to accept a challenge, I took up the gauntlet. The result of my efforts follows.

The function of the SCOPY command, for those who are strangers to the Compaq Dos, is to enable the user to copy a file from one disc to another, using one disc drive. How I shudder when thinking back to my 'one-drive' days and the pain and effort involved in copying files from disc to disc, especially with GATA files. The program that follows will remove all the frustrations of the (old) drive owner (well, perhaps I exaggerate, one of them).

Using a free assembler source code was written using the DSKDISKMM package from Groveton. Owners of other assemblers should have very little or no difficulty in converting it to their own assembler format. For those who want an assembler the BASC program in Listing 2 will install the machine code ready for saving the disc. In both cases the resultant code will only run on the Eurohard and Super Dos DOSs. If you want to run the program on the original Dragon Dos V10 then, in the assembler source code don't include the V10s equates and replace all the references to them with the V10s version, ie, for V102 use V102, etc. If you are assembling other than for the V1 Dos then the V10s equates can be left out.

If you are using the basic listing to install the code then you will notice that some GATA statements, as well as having a number have a second number following it in brackets, ie, line 140 has as one of the pieces of data DND41. If you are wanting to produce the version for Eurohard/SuperDos then use the first number and ignore the number in brackets. If you are wanting to produce the version for Dragon/Dos 1 then ignore the first number and use the number in brackets.

To use the program is simply itself. Before loading with a CLEARDISK, SH7500, the program can be summoned to your aid by the use of the following:

SCOPYGATEDV10jurnal vol 1 TO :Yours
2nd ENTER)

Once this is entered a check is made to see if there is sufficient free memory for the utility to operate. If there is less than 256K bytes the command will be aborted with an OM error. If there is sufficient memory the

screen will be cleared and the message:

INSERT SOURCE
PRESS ANY KEY

will be printed. Once these instructions have been carried out, the screen will clear and the message:

READING SOURCE

will be displayed. The disc is then checked to see if the file exists. If it doesn't then you'll be too surprised to get a ME error. If the file does exist then the screen will clear again and the next prompt:

INSERT DESTINATION
PRESS ANY KEY

will be displayed. After carrying out these instructions the screen will, for an instant, while the file is copied on the destination disc, display the message:

WRITING DESTINATION

The screen will then clear again and re-display the INSERT SOURCE, PRESS

ANY KEY message. The program will then proceed to read as much of the file into memory as will fit. When memory is full, or all the file has been read you will be prompted to change the disc, etc. This prompting for disc changes will continue until the whole file has been transferred. As this disc swapping may sound a bit tedious, but you will find that, providing there is no program in memory (apart from SCOPY) then most files will be copied in two or three disc changes. When copying very large files the number of disc changes can be reduced by ensuring that the only program in memory is the SCOPY one, and by issuing a CLEARDISK command before use, the result being that as much memory as is available will be claimed by the utility.

When copying a file it is most important that the two file names differ in some respect, ie, PR00N, PR0002 and that the extensions are included. If the names are identical then the file will not be copied. Changing the extension will suffice as the required difference. The utility will copy a file to the same disc, prompting for disc changes, which should be ignored, but saving it is done so would be a waste of time as the COPY command of the Dos will do it without the prompts.

Listing 1. Assembler Source Code

- * Written in Position Independent Code
- * So the resultant code can be easily
- * relocated.

```
ORG      $7ED1
PUT      $4ED1

*****
*  SCOPY FOR DRAGON/EUROHARD/SUPER DOS  *
*  WRITTEN USING DSKDISKMM                *
*  BY: MARTYN ARMITAGE                    *
*  01/06/87                               *
*****

CREATE    EQU    PC80C
LENFIL    EQU    PC80E
CLOSEAL   EQU    PC810
READSPL   EQU    PC814
WRITFL    EQU    PC816
BACKDS    EQU    PC824

*****
*  USE V10x EQUATES FOR DRAGON DOS 1  *
*****

V101      EQU    $B6D4
V102      EQU    $C63E
V103      EQU    $CEAC
V104      EQU    $DF54
V105      EQU    $DF63
```



```

V104 EQU $DP17
*****
* USE V404 EQUATES FOR *
* SUBRoutines AND SUPERDOS *
*****
V401 EQU $DCD1
V402 EQU $DCD3
V403 EQU $DCD2
V404 EQU $DFSA
V405 EQU $DFPD
V406 EQU $DFPG
*****
7ED1 909F SCOPY JER <99F
7ED3 AD9FC010 JER (CLOSEAL)
7ED7 2643 BNE PASERR
7ED9 1708BC LBR SOURCE
7EDC 3279 LEAS -7,9
7EDE 1F40 TFR 2,9
7EE0 830100 SUBD $90100
7EE3 331F SUBD <91F
7EE5 3804 BHI OMERR
7EE7 5F CLRR
7EE9 40 TSTA
7EEF 2603 BNE NOERR
7EEB 780342 OMERR JMF 90342
7EEE ED63 NOERR STD 2,9
7EF0 ED60D1 JER V401 ;** V101 **
7EF3 2627 BNE PASERR
7EF5 A7E4 STA ,9
7EF7 AD9FC088 JER (LENFIL)
7EF9 261F BNE PASERR
7EFD 1700AA LBR DESTIN
7F00 9DA5 JER <9A5
7F02 81BC CMPL $9BC ;TO ?
7F04 2703 BRQ NOERR1
7F06 7E95B4 JMF 909B4
7F09 909F NOERR1 JER <99F
7F0B ED60D1 JER V401 ;** V101 **
7F0E 2704 BRQ NOERR2
7F10 C1A0 CMPL $9A0 ;ME ERROR ?
7F12 2600 BNE PASERR
7F14 A761 NOERR2 STA 1,9
7F16 AD9FC06C JER (CREATE)
7F1A 2703 BRQ NOERR
7F1C 78C6C5 PASERR JMF V402 ;** V102 **
7F1F AD9FC024 NOERR JER (BACKDR)
7F23 A6B4 LDA ,9
7F25 91F1 STA <9F1
7F27 ED60D2 JER V403 ;** V103 **
7F2A EC0C LDD 12,9
7F2C 18A38010 CMPL $8A0
7F30 2507 BNE NOCHK
7F32 A60E LDA 14,9
7F34 A18012 CMPL $8,9
7F37 2756 BRQ NOCHK
7F39 EC0C NOCHK LDD 12,9
7F3B A60E LDA 14,9
7F3D A766 STA 6,9
7F3F EF64 STU 4,9
7F41 EC62 LDD 8,9
7F43 E165 ADD 5,9
7F45 ED65 STD 5,9

```

7F47	2403		BCC	BOINC	7700	000	0000
7F48	6C64		INC	4,2			
7F48	A664	BOINC	LDA	4,2			
7F4D	A08810		SUBA	16,X			
7F50	2508		BCC	HERE1			
7F51	8C66		LDD	5,2	0000	000	1000
7F54	A08811		SUBD	17,X	0000	000	0000
7F57	2307		BLE	HERE1			1000
7F59	8C8811		LDD	17,X	0000	000	1000
7F5C	A30D		SUBD	17,X	0000	000	0000
7F5E	8D62		STD	2,2	0000	000	1000
7F60	8C36	HERE1	BSR	SOURCE			
7F62	A684		LDA	,2			
7F64	8E0C		LBU	13,X			
7F66	8E0E		LBR	14,X			
7F68	18AE62		LBY	2,2			
7F6B	9E1F		LBY	<01F			
7F6D	AD9FC014		JSR	(READPL)			
7F71	24A9		BNE	PASERR			
7F73	8D35		BSR	DESTIN			
7F75	A661		LDA	1,2			
7F77	97F1		STA	<0F1			
7F79	8DCED3		JSR	V403	** V101 **		
7F7C	10A88810		LDF	16,X			
7F80	8E8812		LDB	18,X			
7F83	8E62		LBU	2,2			
7F85	9E1F		LBY	<01F			
7F87	AD9FC016		JSR	(WRITPL)			
7F88	268F		BNE	PASERR			
7F8D	2090		BNA	MORE			
7F8F	AD9FC010	NOMORE	JSR	(CLOSEAL)			
7F93	2687		BNE	PASERR			
7F95	3267		LEAS	7,2			
7F97	39		RTS				
7F98	3476	SOURCE	PSHS	D,X,Y,U			
7F9A	8DA77		JSR	8DA77			
7F9D	8EDF5A		LBY	8V404	** V104 **		
7FA0	8D90E5		JSR	890E5			
7FA3	8D1A		BSR	KEY			
7FA5	388C13		LEAX	READ-1,PCN			
7FA6	2610		BNA	RETURN			
7FAA	3476	DESTIN	PSHS	D,X,Y,U			
7FAC	8DA77		JSR	8DA77			
7FAP	8EDF60		LBY	8V405	** V105 **		
7FB2	8D90E5		JSR	890E5			
7FB5	8D08		BSR	KEY			
7FB7	388C20		LEAX	WRITE-1,PCN			
7FBA	8D90E5	RETURN	JSR	890E5			
7FBD	35F8		PULB	D,X,Y,U,PC			
7FBF	8EDF86	KEY	LBY	8V406	** V106 **		
7FC2	8D90E5		JSR	890E5			
7FC5	8D8505		JSR	8D505			
7FC8	8DA77		JSR	8DA77			
7FCB	39		RTS				
7FCC	52454184	READ	POC	/READ/			
7FCD	49484720		POC	/IMG /			
7FDD	934F5552		POC	/SOURCE/			
7FDE	424300		POC	/CR/,0			
7FDE	57534954	WRITE	POC	/WRIT/			
7FDF	49484720		POC	/IMG /			
7FE3	44455354		POC	/DEST/			
7FE7	49484154		POC	/INAT/			

```

;WHEN THE PROGRAM HAS BEEN ASSEMBLED SAVE IT TO
;DISK WITH SAVE"SCOPY",&H7ED1,&H1FEF,&H7ED1 THEN
;ENTER CLEAR200,&H7ED0:LOAD"SCOPY.BIN",&H7ED1
;ONCE LOADED RESAVE TO DISK WITH
;SAVE"SCOPY",&H7ED1,&H1FEF,&H7ED1
;THE PROGRAM CAN THEN SUBSEQUENTLY BE RELOADED
;WITHOUT HAVING TO USE AN OFFSET TO RELOCATE IT.
0 REM *USERS OF DRAGON DOS V.1. USE THE
1 REM *NUMBERS IN BRACKETS INSTEAD OF THE
2 REM *NUMBER IMMEDIATELY BEFORE IT
3 REM *IE... DATA 4E(42) USE 42 INSTEAD OF 4E
4 REM *USERS OF OTHER DOS'S IGNORE THE NUMBERS
5 REM *IN BRACKETS...
6 REM *****
7 REM * SCOPY FOR DRAGON/EUROCARD/SUPER/DOS *
8 REM * BY MARTIN ARMITAGE 01/08/1987 *
9 REM *****
10 CLEAR 200,&H7ED0:CLS:PRINT"INSTALLING SCOPY"
20 FOR I = &H7ED1 TO &H1FEF
30 READ A:I=A:VAL("AH"+A:I)
40 FOR J,A:IC=CE+A
50 NEXT
60 IF CE<>32404132264 THEN PRINT "ERROR IN DATA":END
70 CLS:PRINT"SCOPY INSTALLED.":PRINT"START ADDRESS &H7ED1"
80 PRINT" END ADDRESS &H1FEF"
90 PRINT" EXEC ADDRESS &H7ED1"
100 PRINT"REMEMBER TO SAVE IT!":END
110 DATA 9D,9F,AD,9F,CD,10,36,41,17,08
120 DATA 8C,32,79,1F,40,83,01,08,93,1F
130 DATA 38,44,5F,4D,26,08,7E,81,42,ED
140 DATA 62,8D,06,01(043),24,27,A7,E4
150 DATA AD,9F,CD,0E,26,1F,17,08,AA,9D
160 DATA A5,81,8C,27,03,7E,89,04,3D,9F
170 DATA 8D,06,01(043),27,04,C1,A0,34
180 DATA 08,A7,81,AD,9F,CD,0C,27,03,7E
190 DATA C6,C5(9E),AD,9F,CD,34,A6,E4
200 DATA 97,F1,8D,CE,D2(AC),8C,8C,10
210 DATA A3,88,10,38,07,A6,0E,A1,88,12
220 DATA 27,56,EE,0C,AA,0E,A7,64,EF,64
230 DATA 8C,42,E3,85,ED,85,24,07,6C,64
240 DATA A8,44,A0,88,10,25,0E,8C,85,A3
250 DATA 88,11,23,07,8E,88,11,A3,0D,8D
260 DATA 62,8D,36,AC,E4,EE,0C,E1,0E,18
270 DATA AE,62,9E,1F,AD,9F,CD,14,26,A9
280 DATA 8D,35,A6,61,97,F1,8D,CE,D2(AC)
290 DATA 10,AE,88,10,8E,88,12,EE,63,9E
300 DATA 1F,AD,9F,CD,14,26,8F,28,68,AD
310 DATA 9F,CD,10,36,87,32,67,39,34,76
320 DATA 8D,8A,77,8E,DF,5A(541),8D,90
330 DATA 85,8D,1A,30,8C,23,28,18,34,76
340 DATA 8D,8A,77,8E,DF,8D(831),8D,90
350 DATA 85,8D,08,30,8C,28,8D,98,E3,39
360 DATA F8,8E,DF,86(77),8D,90,E3,8D
370 DATA 85,05,8D,8A,77,39,53,45,41,44
380 DATA 49,4E,47,28,53,4F,55,53,43,46
390 DATA 8D,57,52,49,54,49,4E,47,28,44
400 DATA 49,53,54,49,4E,41,54,49,4F,4E
410 DATA 00,00,00,00,00,00,00,00,00,00

```


Winners and Losers

Every month, Gordon Lee will look at some prize programming points from a previous month's competition.

THE insertion of a single word in the May competition would have made all the difference! How I wish that I had specified sets of common words — or even reasonably common words — in even sorts of words that the average user in the street is likely to know if he hasn't a copy of the OED stuffed up his jumper!

As it was, all sorts of sequences came flooding in, rich with the dealings from numerous dictionaries. Let me confess that I would have been quite happy with the two sets of four words that almost every entrant managed to find:

GOD-CHIL, SAMP-NET
ADD-BEE, LIL-LOO

(Incidentally, 'lool' is a card game, but the more usual meaning is alright by me!)

I must have seen the definition of E.A. Newman who made his letter with the philosophically optimistic words — I look forward to hearing about the sets I have missed in due course! Well, E.A., some of the more bizarre attempts will follow in due course, but first, what methods did our competitors use?

The minority choice was to use a vocabulary of several hundred words typed into DATA lines. Each word was then in turn, the 'offset' of the second used third letters is calculated, and the remaining list of words is scanned for other words having an identical offset. The limitation of this method is that it can only be as comprehensive as the list of words, and also the selection of just three-letter words can be difficult. A crossword compiler such as Caspell's is ideal for this purpose.

By far the most popular method was to generate all possible permutations of three-letter sequences. A condition was usually included to reject all sets which did not contain a vowel (or 'Y'). The set was displayed and the operator either accepted or rejected it, depending on whether it was an acceptable word. In the event of an acceptance all other three-letter combinations containing at least one vowel were displayed. By inspection the sets of four (or more) words were compiled. A representative example from Keith David is shown.

And now for the results (at least the ones that we can print). Taking as reference Chambers Twentieth Century Dictionary (1972 edition), I'm discarding *evik*, *ahm*, *ahs*, *add*, *apl*, *lil*, and *loo* — whatever they might mean. Nevertheless, the amazing erudition of our competitors provided no shortage of sets of four words and, amazingly, a few five word sets! From Keith David comes:

DAN HER IFS ROB URE
ALS IFA, PWR TEL, WND
CHY IFA PWR LAN TYP

Keith also included five-word sets using *QUL*, *HUH*, and *GEL* — sorry! not in Chambers!



John Anderson supplied
CRY IFA PWR LAN TYP
CHL DRL PWR LAN TYP
APW DUN JAT PWR ULE

Of the four-word sets there were too many to print, but here is a bit of modern verse compiled from some of them:

Dan her rob us, are an ran bos,
Dom jay say too, add bee il loo,
Oly too ire ran, bod egg sap net,
Dol hep il spa, god sel sap net.

Bum too too pla, dol too too too,
Pah ek cat too, lah into egg too,
Dol too too too, rob jet too too,
Bop too too too, and egg too too.

I don't expect it means much — but it sounds good, doesn't you think?

[That just about takes the biscuit for Wagon wheels. Gordon: We don't know your name! You — how about taking it back? — Ed.]

Keith David's Word-Generating Program.

```
10 CLS
20 AB="ABCDEFGHIJKLMNOPQRSTUVWXYZ"
30 FOR B=1 TO 26
40 FOR C=1 TO 26
50 BB=RIGHT$(AB,26-B)+LEFT$(AB,B)
60 CB=RIGHT$(AB,26-C)+LEFT$(AB,C)
70 FOR D=1 TO 26
80 YD=RIGHT$(BB,26-D)+MID$(BB,D,1)+MID$(CB,D,1)
90 FOR N=1 TO 3
100 ID=MID$(YD,N,1)
110 IF INSTR("AEIOUY",ID)=0 THEN NEXT N ELSE PRINT ID,
120 NEXT D
130 ID=INSTR(YD,ID)-1:IF ID=-1 THEN 130
140 CLS
150 NEXT C,B
```

Communication

Send in your questions, requests, and pleas to Communication, Dragon User, 12-13 Little Newport Street, London WC2E.

Problem: I need help in converting Dragon games to disk under SuperDOS.

Name: K. Hunt

Address: 11 Denmark Close, West Greenwich, W. Midlands, D9 9JH

Problem: Has anyone got a Sony D5121 recorder for sale?

Name: T. Connor

Address: 9 Newington Drive, St. Paul's Cray, Orpington, Kent

Problem: I have a Logique P1600 printer made by the Kato Denso Corporation of Japan. Unfortunately I have not got a printer

manual, and have not been able to find an agent in this country as yet. Has anyone heard of them? Has anyone got a manual? The printer seems to run on a mixture of Epson, Star and IBM codes.
Name: George Dawson
Address: Moonchilly Girl, 18 Caroline Close, Alverstoe, Derby DE2 0QX

Problem: Do you know where I can get any information on Floating Point Mathematics routines for the Dragon or other microprocessor based systems?

Name: R. W. Fox

Address: 10 Wilford Place, Marshall, Southampton, Southampton SO1 7LL

Write: ADVENTURE

What is that strange creature which keeps popping up? It must be Pete Gerrard!

In this month's *Adventure* I tell a little bit of space was devoted to a crop of games from Simon Harrigan, and a quote used to describe them: mentioned "mobile creatures". So, how would you go about programming such a beastie into your own program? Perhaps, more importantly, what is such a beastie?

Just about every adventure that I've ever seen has, by virtue of being an adventure game, you, in your role as player, as either the hero or the villain of the piece. You are the one who makes the decisions and controls the action, deciding what to do when and where, and how to go about doing it. But, even going back to the very first Colossal Cave adventure, there were always other characters, or mobile creatures, involved.

The annoying pirate would steal your treasure and the even more annoying dwarf would leap out on you from trap to trap and indulge in a little fight. The pirate would appear whenever certain conditions in the game were met, and you (the player) would have to be carrying at least one treasure before he would put in his appearance. The dwarf would leap out, always thinking up in which mission on a first encounter, and thereafter indulge in some banter and, let's face it, boring combat: he was a nuisance who couldn't be avoided. One can see that there was nothing particularly sophisticated about those two, and later adventures saw something of an advance on these early ideas.

Moving on a year or two, Infocom's *Starcross* had a whole host of characters in it, from native chiefs that you had to barter with to get a brown rat, to enormous spiders with a locomotion for tape recorders, and meeting along the way the infuriating mechanical maintenance mouse, always claiming any debris he might find lying around. He had a capacity for going through a hole in the wall that immediately closed up behind him, thus hampering your progress. A tricky problem, until solved with the aid of a couple of tin disks. The tumber of times that I tried to disguise myself as a piece of rubbish and lie down on the floor, thus poisoning the mouse into picking me up (or so I thought) was legion, and needless to say I never worked at all. The tin disks held the key.

Any other games, like *Lord of the Rings* and *The Hobbit*, featured characters of varying degrees of intelligence, including the now-legendary Thrim and his total inability to do anything other than sit down and sing about gold, or so it seemed. Certain characters were obviously essential to the completion of the game, like Elend and his ability to read a map (and save

much — Ed.). Gandalf's propensity for showing up in the most unlikely (but welcome) circumstances, often falling to make it onto Buzbuz and guesting in a computer game, and a variety of humorous opponents such as wargs and trolls.

How do we go about controlling them?

Back in Time

If you remember your Colossal Cave you'll no doubt recall the bear, a ferocious beast easily tamed with a morsel of food and, once freed from his golden chain, blessed with the ability to attach himself to you like a leopards and follow you around for days. Follow you onto the bridge, too, if you're not careful, sending you back plummeting downwards into a bottomless abyss while reaching for the ceiling smoke. Now something like that is relatively easy to program. Once the bear has been fed and the chain removed we could set a variable flag, BF, for example, and then everytime you came round to the WHAT NOW prompt just check to see whether or not BF was set. If it was, then print out the message "You are being followed by a large, tame bear, but if it wasn't then don't print anything and just carry on as normal.

Character could be given to the bear quite easily if, for instance, you dropped two things at the same time and the flag BF was set you could print "As you drop the (whatever) the bear runs away, thinking you're following something as it. However, as soon as you calm down and resume to your side." When you approach the bridge and the text asks for his treasure (the original troll booth perhaps?), and provided once more that the bear flag is set, you would print out "The troll screams at the sight of the bear and suddenly shrieking, the bear starts to follow (and soon comes back to your side again). That way you solve the problem of the troll but still leave the player with the possibility of walking onto a sticky old bridge with an enormous animal by his side. The weight is more than the bridge can bear, of course.

Of Dwarves and Pirates

The dwarf and the pirate are similarly easy to program. Provided that the player's current position falls within a given range (can't have the dwarf leaping out from behind a rock in the wall house) you could use the random function of your computer. Like this, for example:

```
IF (CP10 AND CP10) AND  
RND(100)/99 THEN PF=1
```

Here we set the dwarf flag, and program control could leap off somewhere and engage you in a duel with the dwarf. Checking for the pirate would follow the same sort of lines.

```
IF (CP130 AND CP40) AND  
RND(100)/99 THEN PF=1
```

and again you'd set the appropriate flag. Then, by whisking program control away somewhere you could check to see whether the player was carrying any treasures or not, and provided that he has removed them from him and is the bear's old place carry them away to his treasure chest deep underneath with a yoi hoi and a bottle of rum thrown in for good measure. If he wasn't carrying any booty worth stealing then carry on as if nothing had happened.

But that is all done I say in fairly straightforward stuff, and in the increasingly sophisticated adventures that we are now seeing the player is beginning to get used to ever more complicated scenes.

Other Characters

I once wrote a special version of Colossal Cave called *Enormous Cave*. Looking back at that program I'm forced to say that I am fairly embarrassed by the person that I used (so, permission by standards nowadays), but one thing that I'm most definitely not embarrassed by was the use of a character called Eddie. In the game you played the traditional role of exploring caves and finding treasures, although everything had been moved about and solutions to problems were not quite what they used to be, and during these explosions you bumped into Eddie. He was an underground dweller, a Mellic Young One's larva really, who secretly hindered more than helped, but was essential for the complete solving of the game. You could talk to him, ask him to do things, sometimes he followed you and sometimes not, depending on your behaviour, and overall he behaved like a happy companion of the caves would be expected to behave. He was, in other words, an integral part of the adventure: the part of person you'd move away from if you met them in the pub, but deep underground when there's no-one else around you have no choice in the matter.

This sort of character is reasonably easy to introduce into a game, but presumably you don't always want a determined hippy walking around and blundering through your adventure. Other, perhaps multiple, characters are just as useful, and could

also be added without any undue problems. Basically what sort of character you use is obviously up to you and your adventure, but they do add to the game as a whole. It's hard enough in real life to walk through a town without meeting people leaping off buses and saying hello to you, so to create for months through an unknown land facing unknown hazards in a maze of tunnelled corridors, without bumping into anyone, is pretty much well nigh impossible. But like shopping in Wigan, really.

Unfortunately for us the problems increase with the more characters that you have. A western adventure that I once did solved this problem by only making a couple of them into really intelligent chaps, giving you the ability to talk to them and ask them to do things, whereas the others just appeared and either shot at you, attempted to rob you, and whenever you asked them a question they pleaded death and walked away.

This isn't too hard to control, if you use a 'say' verb, as in 'say to Wyatt Earp: shoot the sheriff'. Then you could analyse the first part of the sentence, so that we know that the player wants to talk to Wyatt Earp, and if Earp is one of those characters who can sometimes be persuaded to do something we can use the parser again to work through the rest of the input contained within quotes and see whether or not Earp is going to obey your instructions. He

might or he might not, depending on how you've programmed him, whether or not he's got any bullets left, or any one of a collection of different parameters which will obviously vary from game to game.

If the character was one of those who would never do anything, you could just use a stock response like 'He looks at you as if you were mad, and walks away' or something like that, making sure that you then put said character into another location, so that if the player tried to talk to him again you could say 'Talking to yourself is a sure sign of madness', or whatever else you feel like telling the player when he's attempting to talk to someone who isn't there.

After this we just control all the rest of the characters in the game as if they were so many walls, doors, or other inanimate objects. They do precisely what we tell them (like throwing axes or stealing treasures) and no more. This still gives them the illusion of reality without the player really knowing whether they are real or not. Obviously it doesn't threaten or kill or in any way presents a real enough danger, but if he never does anything else then he can be more or less discounted from the rest of the game.

One simple trick that can be used in your games works as follows. I always try and have some kind of 'status line' on display, telling the player where he is, what his score is, how many moves he's had and

how much time is left. If it's a time-related adventure, to tell him where he is you obviously can't print the entire room description out as part of one line, so an enormous piece of prose about the inside of a stable might be reduced to 'just inside the stable door'. Then you can use this to print up either 'You are just inside the stable door', or 'Wyatt Earp is just inside the stable door', using the same piece of description for the different characters.

Dragon Adventures

We can then find out where everyone is in the game (perhaps an extended 'look' command) by using all these short room descriptions. Saves on memory and adds to the game, so it can't be all bad.

Conclusion

Next month, in response to a few requests, we'll take a look at building up a verb or two, so that you can see how that is done. Other characters might come into it as well, so we'll try and cram as many awkward things in as possible, thus making it (in the long run) easier for you to enter your own verbs. I hope!

Anybody that I have to enter this month, Bye for now.

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adventure eventerwriter, just describe and to the point. And!

Besides, anyone who can spell "cop-sule" or "cop-sul" deserves a mention.

Okay, okay, naming the end and Simon Hargrave appears yet again. This is because, bless his word processor, I've just received a rather long letter from him, the sort of thing that if Moses had been given the choice between postscripting and writing two minuscule letters of thirty with the Ten Commandments engraved within down a mountain, would still have for the Ten Commandments and he'd not have sent this letter. What is the boy doing, then?

I was going to say that he was being extremely prolific, but according to my dictionary the origin of the word lies with our Latin friends and means, literally, to make offspring. Since the endemagopet is "my pet harner" where as prolific that they have needed larger paper ("my harvest is full of eggs, I think") I think I'll just say that he's been writing a lot of Dragon adventures, so if any of you lot but there are feeling adventure starved, here's a quick resume.

Starash I've already mentioned in a previous column, and following on from that we have part two of the saga, called The King's Quest. Hargrave is to be seen in the twelfth century wandering around a castle at the mercy of a Mad King, Charming.

The Meaning of Life (Hello, hello) sees you in control of four characters who can work in various states, either normal, asleep, waiting and dead. More creatures and real-time adventures eh?

The latest one Simon refers to as a "monster" adventure, with around 200 locations and a full English parser if he can fit it

into the memory. Hmmm. He describes it as being a bit like a science fiction Mashera and the Mincotus, so if it can live up to that it should really be rather good. More details on this, and the rest, as and when Simon sends them on to me, but if you feel like diving blind and buying one it'll set you back £3.00, available from the mad himself, Simon Hargrave, at Crawley Hill Farm, Utley, Dursley, Gloucestershire GL21 5BP. This includes the usual post and packing, by the way.

As well as writing all this, he has an extremely comprehensive list of solutions to adventures (apart from Scott Adams ones, which he says he can't stand!), so by sending him £6p and an SAE he'll send you back the required solution. Presumably he also has a list of all the solutions on offer but since he neglected to mention this all important fact you'd better write and ask for one.

For someone to give me a few tips

on some of his own adventures, but since I haven't seen them yet, and you probably haven't either, I think we'll skate quickly on to the end of this month's column and a saga that could go on, and on, and . . .

Because ago I mentioned a magazine called Adventure Contest, published up here in Wigan by Phil Winstanley. Last issue I brought the sad news of its demise. Now, it has re-appeared again, with a different editor at the helm. Name and address if you want to send off for a sample copy (£1.00 I believe) of this interesting, though not Dragon specific, look at the world of adventures is Colin Page, Kingfisher Restaurant, 91 Palmerton Road, Burslem, Stoke-on-Trent ST6 4HP. Yes, Kingfisher Restaurant, which makes me think of something that's a cross between the Restaurant at the end of the Universe and Family Tones, but we shall see.

Okay chops and chappesses, that's all for now. Bye.

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All around the square

When is a triangle a tetrahedron? Gordon Lee figures it out.

HOW many squares are there in a standard chessboard? I don't mean just the 64 small squares, but squares of all larger size as well. For example, there are larger squares which are made up of four of the smaller squares, and so on. And don't forget the single large square which encloses the complete board and which measures eight units along its edge.

If you manage to work that out, what about including rectangles as well as squares — and what about grids of a larger order than the 8 x 8 of the chessboard? Fortunately, there are mathematical formulae which can save us the bother of actually counting them by inspection. The total number of rectangles (including squares) is given by

$$\frac{n^2 + n}{2}$$

of which

$$\frac{2n^2 + 2n}{8}$$

are squares, and

$$\frac{2n^2 + 2n^2 - 2n^2 - 2n}{8}$$

are rectangles (not including squares). In these expressions the value n is the order of the grid in question — so this would be equal to 8 in the case of a chessboard.

From these formulae we can readily

determine that in the problem quoted there are a total of 1286 rectangles, of which 304 are squares and 982 are not. Clearly, for any value of n , the total value by the first expression must be equal to the sum of the other two totals.

	$n=8$
	$n(n+1)/2$ 36
	n^2 64
	n^2 512
	$n(n+1)(n+2)/6$ 120
	$n^2(n+1)(2n+1)/6$ 204

A similar problem relates to a triangular lattice. This is taken from a puzzle-book of the last century and asks for the total number of triangles which can be found. This is a more difficult problem than the one of the squares, not least because there are also triangles which point downwards as well. Once again, there is a mathematical expression which comes to our rescue!

$$\frac{n(n+1)(n+2)}{6}$$

In this formula, if the value of n is odd, the division by six does not come out exactly, so in this case ignore the remainder. So in the diagram, which is of order 11, there are 411 triangles to be found.

Formulae (and books) of great help when dealing with the 'figure' numbers, reference to which is frequently made of these pages. The five principal figures are triangular, square, cubic, tetrahedral, and pyramidal numbers, and by using the formulae given the nth term of any of the series can be easily found. The table gives the formulae for these figures and, as an example, the value when $n=8$.



Problems are often found in which it is necessary to find values which belong simultaneously to two of the categories of figure numbers. For example, what is the smallest number (not including 1) that can be both triangular and square? The answer is 36, this being the eighth triangular number and the sixth square number. There are an infinite number of triangular/square numbers but 36 is the smallest, and this forms the basis of the competition for this month. Complete the grid so as to indicate the first three terms which match up in each of the pairs of categories as shown. We have started you off with the 36 in space (a). Note that we are not including 1 in any of the sections. Also, in section (d) we only require two values (there are only four), and in section (f) only one as there is only one value that is both square and pyramidal.

Triangular	<table border="1"> <tr> <td>1st</td> <td>2nd</td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td>3rd</td> <td>4th</td> </tr> <tr> <td>5th</td> <td>6th</td> </tr> </table>	1st	2nd		X	3rd	4th	5th	6th	
1st	2nd									
	X									
3rd	4th									
5th	6th									
Square	<table border="1"> <tr> <td>1st</td> <td>2nd</td> <td>3rd</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table>	1st	2nd	3rd						
1st	2nd	3rd								
Cubic	<table border="1"> <tr> <td>1st</td> <td>2nd</td> </tr> <tr> <td></td> <td>X</td> </tr> <tr> <td>3rd</td> <td>X</td> </tr> </table>	1st	2nd		X	3rd	X			
1st	2nd									
	X									
3rd	X									
Tetrahedral	<table border="1"> <tr> <td>1st</td> <td>2nd</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td>P</td> </tr> </table>	1st	2nd				P			
1st	2nd									
	P									
Pyramidal										

Don't bother trying to fill in the other boxes. Those marked with an 'X' have been proved to be impossible. As for the box marked 'P', although the existence of such a number has not been disproved, if one exists it will be so enormously large that it will fall outside the requirements of even these competitions!

Prize

Checker, Egg and Swimming Albatross have been around a long time, and played so much (and the ongoing popularity in the square corner) that they have attained almost legendary status.

In keeping with Dragon User's status as a legend in its own right, we have collected Computas (also a legend, of course) into putting aside a table of both games for the winners of this month's comp. So state your preference — y'heer kiloes, you might get it.

Rules

First, complete your grid. Secondly, print it out, along with any program notes you wish to include. Third, enclose said grid and printout in an envelope, along with your name and address, mark the whole envelope OCTOBER COMPETITION, and send it to us fast.

But not before completing the telexsheet! To do that thing, provide the sentence "I go to work on an egg because..." and send it along. We may put you to work on an egg...

July winners

New everyone knows that these competitions are judged entirely on the correctness of the solutions, the elegance of the programming and the ingenuity of the

winners' excuses for not getting it in till the last moment — but it does hurts to have a contest where the best few lost any trouble solving the STUPID MAKER problem, but some real computerists were slow upon the English language, of which some of the best were:

Skills and PCs by the Dave Clark 101, (Dave Lander)

What's All Going On 4 Summer Holiday by Revier Blackpool (Rachel Hart, all written out in music...)

It's So Easy by The Winners and How Do We Do It by The Losers (and most of our other contributors as well (Fred Taylor)

Superstitions and Computers by S.M. Jones (John Smallwood)

Score Symphony by Normanus Turner (Richard Long)

and a very special mention for Super Salami by an Emma d'Eximal (Fred Taylor)

The ten best overall entries will be getting copies of John Perry Software's Music Maker, and the next ten will get £3.00 discount vouchers from the Peris. Stay tuned!

Solution

This month's solution is, as before, on the opposite page.

The Answer

This is Gordon Lee's own solution to the June competition see page 24 for results

ANSWER: There are two possible substitutions for MURDER and MAKER: 12036 and 16876

or 23776 and 29684

Solution: As there are nine different letters in the words MURDER and MAKER each of the nine digits (1 to 9) must be used on a one-to-one substitution. First of all we need to find all perfect squares which consist of five different digits, then we need to select possible pairs from this list.

These possible values are computed in the loop 'N'. Each value in the range 112 to 314 is squared in turn, and the resulting value is placed in the string variable 'S\$' (line 140). Because of the 'leading ' space placed in this string when the computer

creates a string variable from a numeric variable, this extra character is removed using the MID\$(S\$,2) command. The remaining five digits are then tested, first to see if a zero is present (lines 160 to 180), and then to check that all five digits are different (lines 200 to 220). A flag (FL) is set initially to zero for each test and is raised to 1 if either a zero or a duplicate digit is found. Values which pass both tests are then stored in the array A\$(I).

This array is originally dimensioned to a size of 50 units, although in fact, only 42 numbers are eventually stored. Once this array is filled the program cross-checks the values that it contains for suitable pairs. To satisfy the terms of the question each pair of numbers should start with the same

number (as both words commence with the letter 'M'), while all other digits should be different. The program takes each unit of the array in turn and compares it with all those values which are to be found further down the list (lines 280 to 320).

First, line 308 checks that both numbers commence with the same digit. Then all possible values are combined into variable 'Y\$'. This variable contains the whole of the first number and the last four characters of the second number. The final test (lines 330 to 350) checks to see that each of the nine digits contained in the string are different from each other. Those pairs that pass this test are then printed out.

This results in the two pairs of values given.

```
5 CLEAR 500
100 DIM A$(50)
110 T=1
120 FOR N=112 TO 314
130 S=N+N
140 S$=STR$(S):S$=MID$(S$,2)
150 FL=0
160 FOR F=1 TO 5
170 IF MID$(S$,F,1)=""0" THEN FL=1
180 NEXT F
190 IF FL=1 THEN 240
200 FOR F=1 TO 4:FOR G=F+1 TO 5
210 IF MID$(S$,F,1)=MID$(S$,G,1) THEN FL=1
220 NEXT G:NEXT F
230 IF FL=0 THEN PRINT N;" ";S$:A$(T)=S$:T=T+1
240 NEXT N
250 T=T-1
260 PRINT:PRINT"REPORT-No of Variables:";T
270 PRINT:PRINT"CROSS-CHECKING:"
280 FOR P=1 TO T-1:FOR Q=P+1 TO T
290 Y$=A$(P):Z$=A$(Q)
300 IF LEFT$(Y$,1)<>LEFT$(Z$,1) THEN 370
310 Y$=Y$+MID$(Z$,2)
320 FL=0
330 FOR F=1 TO 8:FOR G=F+1 TO 9
340 IF MID$(Y$,F,1)=MID$(Y$,G,1) THEN FL=1
350 NEXT G:NEXT F
360 IF FL=0 THEN PRINT A$(P);" ";A$(Q)
370 NEXT Q:NEXT P
```

