DRAGON USER

International edition

The independent Dragon magazine

95p US$3.25 July 1985

Adventure classics

Dragon windows

Manic Miner — official pokes

Dragbase data base

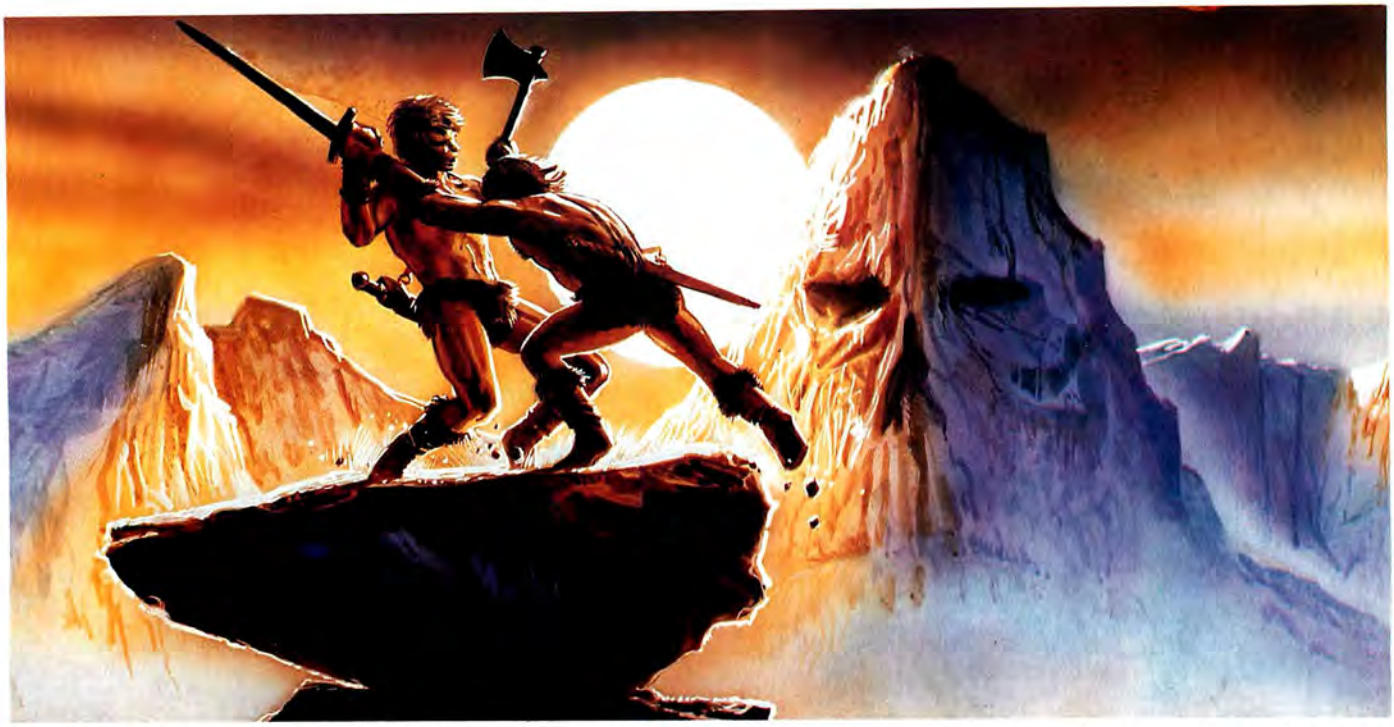
Win 20 copies of Rommel's Revenge

INCENTIVE

FOLLOWING THE EXEMPLARY BACKTRACK – INCENTIVE NOW PRESENTS FOR THE DRAGON

THE KET TRILOGY

BY JOHN MARTIN AND RICHARD McCORMACK



✻ THE KET TRILOGY – THE CELEBRATED ADVENTURE CLASSIC ✻

THE STORY SO FAR...

The Lords of Ket rule a strife-torn land where magic and mayhem are common place. Raiders from the east sweep in and devastate the countryside, spurred by the villainous Priest-King Vran Verusbel, arch-mage of the cult of mad monks and by the beautiful, though utterly evil, Priestess Delphia.

Unjustly condemned for a murder you did not commit, you have been offered the chance of escaping the hangman's noose by undertaking a perilous quest. Naturally you accept, but to ensure your loyalty to the cause, the Lords have placed a magic assasin bug on your neck, ordered to sink his poisonous fangs into you at the slightest sign of cowardice.

Poised at the brink of the unknown village, you stand alone with the daunting mission before you.. With just a handful of coins, your trusty sword and the will to succeed...

Your task is to travel beyond the mountains and then underground via Vran's Temple to the ultimate confrontation with Vran himself, penetrating his inner sanctum, beyond the Guardians of the Gates...

THE THREE 30K ADVENTURES TOGETHER FORMING THE CLASSIC AND COLOSSAL KET TRILOGY

MOUNTAINS OF KET

TEMPLE OF VRAN

THE FINAL MISSION

INCENTIVE

THE KET TRILOGY Series of adventures are available from selected Software Dealers nationwide. In case of difficulty, please use our fast and efficient mail order service.
PLEASE NOTE Each part of the Trilogy is a COMPLETE ADVENTURE IN ITSELF which can be played totally independently of the other two.
REGISTERED OFFICE 54 London Street, Reading RG1 4SQ.
TRADE AND CREDIT CARD ORDERS Telephone direct (0734) 591678.

ORDER FORM

Please rush me the titles as indicated for the Dragon 32/64 Computer

BACK TRACK	£6.50 ☐
THE KET TRILOGY	£9.95 ☐

I enclose cheque/PO or please debit my credit card No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Name/address _____

INCENTIVE SOFTWARE LTD, 54 LONDON STREET, READING RG1 4SQ. TELEPHONE: (0734) 591678

DRAGON USER

Telephone number
(All departments)
01-437 4343

Editor
MARTIN CROFT

Production Editor
BARBORA HÁJEK

Software Editor
GRAHAM TAYLOR

Editorial Secretary
GERALDINE SMYTH

Advertisement Manager
SIMON LANGSTON

Administration
GERALDINE SMYTHE

Managing Editor
DUNCAN SCOT

Publishing Director
JENNY IRELAND

Subscriptions
UK £10 for 12 issues
Overseas (surface) £16 for 12 issues

ISSN 0265-0177. Telex: 296275
Dragon User, 12/13 Little Newport Street, London WC2H 7PP

US address: c/o Business Press International, 205 East 42nd St, New York, NY 10017

ABC

Published by Sunshine Books, Scot Press Ltd. © Sunshine Books 1985
Typesetting by Chesham Press, Chesham, Bucks. Printed by Eden Fisher (Southend) Ltd, Southend-on-Sea, Essex
Distributed by S.M. Distribution, London SW9. 01-274 8611. Telex: 261643
Registered at the Post Office as a newspaper

Dragon and its logo are trademarks of Dragon Data Ltd

How to submit articles

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

Articles which are submitted to *Dragon User* for publication should not be more than 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 submitted article or program, so please keep a copy. If you want to have your program returned you must include a stamped, addressed envelope.

Contents

SUNSHINE

Letters 4
American cousins, writer writes, National Users Group, and more

News 7
Repairs and add-ons from Race and Compunsense, Dragon 128K, Adventurer's Club, North Eastern BBS, and communications from Cotswold Computers

Adventure Classics 9
Jason Orbaum with a look at some of the great — and not so great — adventures for your Dragon

Windows 12
Brian Cadge with a program which lets you put windows in your programs — great for adventure writers

Dragbase 19
Ever wanted to put all your names and addresses on a database? Lee Noble shows you how you can

Cover by Oliver Frey, courtesy Incentive Software

Manic-Miner cheats 23
Roy Coates, the programmer who converted *Manic-Miner* for the Dragon, with the authorised cheats — plus a tip on how to put machine code right where you want it

More Than 25
Rob Lee teaches you how to turn the Dragon into an educational tool with this simple mathematics program

Adventure Trail 28
This month, Mike Gerrard takes a long look at Incentive Software's *Ket Trilogy* — plus hints and tips on other adventures

Dragon Answers 31
Brian Cadge, the Dragon's doctor, with another of his monthly doses of timely medicine

Competition Corner 34
This month's competition looks like Gordon Lee got it all backwards — but if you can sort out the answer, you can win one of 20 copies of Design Design's *Rommel's Revenge*

Editorial

THE NEWS that Compusense has taken delivery of a 128K Dragon prototype may not cause much of a ripple outside Dragon circles.

But a Dragon 128K is far more than just an indication of how far computers, like clothes, follow the dictates of fashion.

For one thing it shows that something can be done with the Dragon — there is life after the 64.

Those readers who managed to catch a glimpse of Eurohard's Dragon 200 at the last 6809 show will remember that there seemed little to write home about at the time.

The case may have been restyled, but the keyboard was the same. So were all the internal workings — it was just a 64 in a new box. The only real difference is the addition of an LED to show when the computer is turned on.

But it now turns out that the 64's RAM chip could accommodate 128K of memory all along. So why hasn't Eurohard managed to put the extra chips in?

Let's face it, given the choice between a stylish case and a little red light on the one hand, and an extra 64K of memory on the other what would most Dragon users choose?

Another thing the 128K prototype proves is that Compusense at least is willing to show some commitment to the continued development of the Dragon.

On the software front, companies like Microdeal, Adventure International, Datacom and many others are also still supporting the Dragon — although most of the games being released at the moment are conversions of titles for other machines.

But the majority of the support which is responsible for the continued existence of the Dragon doesn't come from any of these companies — it comes from ordinary Dragon users. With all of its faults, the 6809 has thousands of loyal supporters.

Without the sort of commitment Dragon users have been showing over the last 12 months, there is no doubt that the machine would have been relegated to the museum like the Oric, the Lynx and others.

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.

Write on

WITH REFERENCE to my 'Writer' program published in May's *Dragon User*, readers may be interested to know that I can supply copies of listings 1 and 2 on a single cassette at £3.85 including postage and packing.

Please write to me at the address below, and not at the one contained in the listing.

Phil Brooks
1 Bodleian Close
Daventry
Northants

and on

MAY I congratulate Phil Brooks on his excellent 'Writer' extension interpreter program.

It is a pity that the manufacturers did not include a similar routine as a standard part of the Dragon's basic interpreter.

May I point out one small error in the accompanying article, though? EXEC 30596 causes the machine to crash. The machine code begins at location 30597 and therefore you should EXEC 30597 to install the program. Similarly you should CSAVEM"WRITER", 30597, 32767, 30597. Then upon reloading typing EXEC will install the routine.

S J Jones
35 Hillingford Avenue
Great Barr
Birmingham B43 7HP

Users USA

THERE IS now a Dragon User Group in the United States. The name of the group is "DRAGONET", and currently has a membership of approximately 50 subscribers. The group is headed by myself and I am currently enlisting the support of Dragon User Groups throughout the world.

DRAGONET will be publishing a monthly newsletter for all of its subscribers as well as other user groups. A national user group was greatly needed here in the US!

We are currently expanding our facilities to incorporate a Users' Bulletin Board System via telecom, and will be supporting users of OS-9, FLEX, and other features of the Dragon, which has until now been little or none here in the US. Subscription is free, and open to all!

All enquiries should be made to: Dragon Users' Group, c/o Wayne H. Schnell, 1011 Louisa Street, New Orleans, LA. 70117, USA.

Wayne H Schnell

OS9 America

DRAGON USERS running OS9 may be interested in the existence of an American OS9 User's Group. The address is OS9 Users' Group, PO Box 7586, Des Moines, Iowa 50322, USA.

Membership costs $25 per year (but may be more for non-US residents) and for this you get five or more issues of the newsletter, and access to various public domain OS9 software programs of which there are 10 disks currently available, and 25 or more planned for the near future. The group charges $3 per disk for handling, but again this may be more for postage outside the USA.

Robin Hamilton
113 Valley Road
Loughborough
Leicestershire LE11 3PY

Convert

I REFER to the "Conversion" program on page 31 of the April issue.

Unless used in the USA, the results of the gallons/litres conversion may cause some confusion. When dealing with Imperial gallons, the factor 4.546 will have to be used instead of 3.7854 in lines 760, 770, 840 and 850.

J Jeffries
10 Highlands Drive
Maldon
Essex CM9 6HX

Patch problem

REGRETTABLY, the gremlins got at the DRAGONDOS patches in the May 85 issue of *Dragon User*. The following are the corrected values (changes underlined):

Fault 1: +00BF 97
Fault 6: +001C D0 9D D0 CF
Problem 2, Patch b: +BFEF

There was also one error where documentation and patches did not keep pace:

Problem 4: replace line +179D with +1795 20 E5 12

Only this latter error should have caused a problem, resulting in PROTECT not operating correctly.

Philip Scott
4 Badgerwood Drive
Frimley
Camberley GU16 5UF

Fantasy Fight

IN REPLY to Mr Vine's plea for help in May's *Dragon User*, I have discovered three useful memory locations which make *Fantasy Fight* somewhat easier, as even the best games players would have difficulty in entering more than 15 of the 35 screens.

After loading the game normally press RESET and: POKE &H60D6, LIVES (0-16); POKE &H60E9, WEAPONS (0-127); POKE &H60C7, START ROOM (1-35) 29 is last room; Then EXEC 24718.

If more than 16 lives are entered then the extra men are drawn in program memory area, which could cause crashing. Also if more than 127 weapons/keys are collected you are left with none.

Clive Brace
8 Horners Croft
Greenleys
Bucks MK12 5DB

Users and repairers

HAVING JUST read the June issue of your magazine, I would like to answer the points raised in your Editorial.

I can only agree that software for the Dragons is becoming hard to find, but I don't think that the loss of a company like Websters, who have studious-rial for a long time, is any great loss to the Dragon scene.

There is still a lot of very good software being produced, even if much of it is available only by mail order, and a few more rats leaving the ship doesn't necessarily mean that it is just about to sink completely.

However, the main point that you raise, lack of service and repair facilities for the Dragons, isn't really valid.

We started the Dragon Users Group almost a year ago, with the intention not only of providing a means of communication between Dragon owners, but of providing help with Dragon-related problems, and that most certainly includes repairing sick Dragons if we can!

We aren't a commercial Group. Our £7.50 per year membership charge covers only the cost of producing and distributing the monthly copy of "Dragon Update", but we guarantee to do our best to find answers to ANY Dragon problem, and that means hardware as well as software. Having several electronics engineers in the Group, we can carry out most Dragon repairs at cost plus postage (I've had three to repair this week alone!), and in a lot of cases we can advise members on diagnosis and repair of their own machines. This service is, naturally, restricted to Group Members. It wouldn't be economic to make it a general offer, and in any event, I have no intention of treading on the toes of those few companies who (try to) make a living out of computer repair work, but we DO exist, and we will continue to do so as long as thee is a Dragon owner who needs us.

If anyone is interested in joining the Group, all they need to do is write or phone me for details. Although we started off as a "national" group, we now have members in most European countries and in the States, and members ages range from 11 to 74 . . . we try to cover all possible interests.

Paul Grade
National Dragon Users Group
6 Navarino Road
Worthing
Sussex

CUMANA Special Price Offers!

DOUBLE DENSITY DISK INTERFACE FOR THE DRAGON 32/64 FROM CUMANA

Dragon owners take full advantage of the speed, convenience and reliability of Cumana's 5¼" floppy disk drive systems (storage capacities of up to 1.6MB). Cumana are now offering 6 systems which come complete with a double density disk interface for the 32/64.

SYSTEM OFFER 1:
Double density interface with Cumana's 5¼" DS 250 single drive (40 track single sided) **£179.95**

SYSTEM OFFER 2:
Double density interface with Cumana's 5¼" DS 500 single drive (40 track double sided) **£209.95**

SYSTEM OFFER 3:
Double density interface with Cumana's 5¼" DS 1000 single drive (80 track double sided) **£224.95**

SYSTEM OFFER 4:
Double density interface with Cumana's 5¼" DD 500 dual drive (2 × 40 track single sided) **£269.95**

SYSTEM OFFER 5:
Double density interface with Cumana's 5¼" DD 1000 dual drive (2 × 40 track double sided) **£325.95**

SYSTEM OFFER 6:
Double density interface with Cumana 's 5¼" DD 2000 dual drive (2 × 80 track double sided) **£354.95**

All the above include Dragon compatible DOS and controller, PSU, Instruction guide and all connecting cables.
Other systems available – please ring for full details
Limited offer, all products are subject to availability. All prices are inclusive of VAT.
Delivery extra E&OE.

ORDER FORM (DRAGON 32/64 OFFER)

To: CUMANA LIMITED, THE PINES TRADING ESTATE, BROAD STREET, GUILDFORD, SURREY GU3 3BH. TEL: 0483 503121.

I wish to order ..... (Qty)
Please Tick
..... System 1 at £179.95 ☐ ..... System 3 at £224.95 ☐
..... System 2 at £209.95 ☐ ..... System 4 at £269.95 ☐
..... System 5 at £325.95 ☐ ..... System 6 at £354.95 ☐
..... D/D interface only at £99.95 ☐
I enclose cheque/PO* for ..... or debit my access/visa* card no.....
which includes £9.14 postage and packing *Delete as applicable

NAME.....

ADDRESS.....

CUMANA® The best name in memory

ONE STOP SHOPPING FOR DRAGON & TANDY PRODUCTS

With 5 years in the Computer Trade You Can Rely on Microdeal

	1.RETAIL (INC VAT)
********** DRAGON ACCESSORIES **********	
ALTAI 2XATARI JS TO DRAGON INT. T171	9.50
ALTAI DRAGON TRACKBALL SINGLE T161	14.25
CONSUMER/ELEC.STRIKE CONTROL JOYSTICKS	14.95
MICRODEAL FLOATING JOYSTICKS (PAIR)	15.00
MICRODEAL SELF/CENT JOYSTICKS (PAIR)	19.95
MICRODEAL CENTRONICS PRINTER CABLE	12.99
PROTEK DUST COVER	7.95
SPECTRAVISION QUICKSHOT I FOR DRAGON	12.95
SPECTRAVISION QUICKSHOT II FOR DRAGON	14.95
TROJAN DELUXE LIGHT PEN	17.95
TROJAN LIGHT PEN	11.50
ZIPSTICK JOYSTICK	15.50
********** DRAGON BOOKS **********	
BABANI INTRO TO PROGRAMMING THE DRAGON	1.95
DUCKWORTH EXPLORING ADVENTURES	6.95
PAN ARCADE GAMES FOR DRAGON	3.95
PAN SIXTY PROGS FOR THE DRAGON	5.95
SIGMA MOSAIC BEYOND THE ARCADE	6.95
HOT PROGS TO FEED A DRAGON/TANDY COL.	6.95
SIGMA LANGUAGE OF THE DRAGON	6.95
SUNSHINE GAMES MASTER	5.95
SUNSHINE DRAGON TRAINER BOOK	5.95
SUNSHINE WORKING DRAGON BOOK	5.95
********DRAGON EDUCATIONAL SOFTWARE********	
DRAGON DATA CIRCUS ADVENTURE	1.99
DRAGON DATA LET'S COUNT	5.49
DRAGON DATA CRANKY	5.49
DRAGON DATA FACE MAKER	5.49
DRAGON DATA HIDE AND SEEK	5.49
DRAGON DATA LOGO	19.95
DRAGON DATA NUMBER CHASER	5.49
DRAGON DATA NUMBER GULPER	5.49
DRAGON DATA NUMBER PUZZLER	5.49
DRAGON DATA SCHOOL MAZE	1.99
DRAGON DATA SHAPE UP	5.49
DRAGON DATA SYNTHER 7	3.95
DRAGON DATA TABLE ADVENTURES	5.49
DRAGON DATA WORDS WORDS WORDS	5.49
*MICRODEAL TOUCH TYPING TUTOR	4.99
********** DRAGON SOFTWARE **********	
$ DENOTES PROGRAMS TO RUN ON DRAGON & TANDY	
ADDICTIVE FOOTBALL MANAGER	5.95
ADVENTURE INTERNATIONAL "THE HULK"	7.95
A & F SOFTWARE CHUCKIE EGG	7.90
A & F SCREAMING ABDABS	6.90
CABLE FANTASY FIGHT	6.95
CABLE SOFTWARE ZAKSSON	6.95
CHANNEL 8 ARROW OF DEATH PART 2	6.95
CHANNEL 8 CIRCUS	6.95
CHANNEL 8 FEASIBILITY EXPERIMENT	6.95
CHANNEL 8 PERSEUS AND ANDROMEDA	6.95
*CUTHBERT CHRONICLE SKID ROW ADVENTURE	1.00
DESIGN DESIGN HOMELS REVENGE	7.95
DRAGON DATA BLACK SANCTUM	2.49
DRAGON DATA BUMPERS	3.95
DRAGON DATA CALIXTO ISLAND	2.49
DRAGON DATA CIMEEON MOON	3.95
DRAGON DATA DOODLE BUG CARTRIDGE	2.95
DRAGON DATA EL BANDITO	3.95
DRAGON DATA FINAL COUNTDOWN	1.99
DRAGON DATA GALAX ATTACK	3.95
DRAGON DATA GHOST ATTACK CARTRIDGE	2.95
DRAGON DATA MANSION OF DOOM	1.99
DRAGON DATA POSEIDON ADVENTURE	1.99
DRAGON DATA QUEST	5.49
DRAGON DATA SEA QUEST	5.49
DRAGON DATA SHAFT	3.95
DRAGON DATA SHENANIGANS	5.49
DRAGON DATA SHUTTLE ZAP	3.95
DRAGON DATA STALAG/ENO	1.99
DRAGON DATA STORM ARROWS	1.99
HARESOFT "HARERAISER" FINALE	8.95
HARESOFT "HARERAISER" PRELUDE	8.95
HONEY/DR.WATSON BASIC PROGRAMMING COURSE	10.99
IMAGINE ARCADIA	3.95
IMAGINE B C BILL	3.95
IMAGINE COSMIC CRUISER	3.95
IMAGINE LEGGIT	3.95
IMAGINE PEDRO	3.95
INCENTIVE BACK TRACK	6.50
INCENTIVE KET TRILOGY PRESENTATION PACK	9.95
LOTHLORIEN JOHNNY REB	6.95
*MICRODEAL AIR TRAFFIC CONTROL	2.99
*MICRODEAL ALCATRAZ	1.99
*MICRODEAL ATHLETYX	8.00
*MICRODEAL BACKGAMMON	2.99
*MICRODEAL BEAM RIDER	8.00
*MICRODEAL BLOC HEAD $ 32K	2.50
*MICRODEAL CASHMAN	8.00
*MICRODEAL CAVERNS OF DOOM $ 32K	4.99
*MICRODEAL CHAMBERS	8.00
*MICRODEAL COMPOSER	15.00
*MICRODEAL CO-RES EDITOR ASSEMBLER	19.95
*MICRODEAL COSMIC ZAP	2.99
*MICRODEAL CRASH	8.00
*MICRODEAL CRAZY PAINTER	8.00
*MICRODEAL CUTHBERT IN THE COOLER $ 32K	8.00
*MICRODEAL CUTHBERT GOES DIGGING	2.99
*MICRODEAL CUTHBERT IN THE MINES	8.00
*MICRODEAL CUTH IN SPACE DISK	9.95
*MICRODEAL CUTHBERT IN SPACE	8.00
*MICRODEAL CUTHBERT GOES WALKABOUT	1.99
*MICRODEAL CUTHBERT GOES WALKABOUT	9.95
*MICRODEAL DANGER RANGER	8.00
*MICRODEAL DANGER RANGER DISK	9.99
*MICRODEAL DEFENSE	1.99
*MICRODEAL DEMOLITION DERBY	8.00
*MICRODEAL DEMON SEED	4.99
*MICRODEAL DEVIL ASSAULT	8.00
*MICRODEAL DOODLE BUG $ 32K	1.99
*MICRODEAL DOWNLAND	8.00
*MICRODEAL DRACONIAN	8.00
*MICRODEAL DRAGON HAWK	2.99
*MICRODEAL DUNGEON RAID	8.00
*MICRODEAL DUNGEON RAID DISK	9.95
*MICRODEAL EIGHT BALL	8.00
*MICRODEAL EL DIABLERO(NO INLAY CARD) $ 32K	0.99
*MICRODEAL ESCAPE	2.99
*MICRODEAL FILMASTR DATA BASE	9.95
*MICRODEAL FILMASTR DATA BASE DISK	11.95
*MICRODEAL FLAG (NO INLAY CARD)	0.99
*MICRODEAL FLIPPER	2.99
*MICRODEAL FROGGER	1.99
*MICRODEAL FURY	8.00
*MICRODEAL GALACTIC AMBUSH	2.99
*MICRODEAL GALAGON	8.00
*MICRODEAL GHOST ATTACK(NO INLAY CARD) $16K	0.99
*MICRODEAL GLAXXONS	2.99
*MICRODEAL GOLF	2.99
*MICRODEAL GRABBER	8.00
*MICRODEAL INTERGALACTIC FORCE	8.00
*MICRODEAL INVADERS	2.99
*MICRODEAL INVADERS REVENGE	2.99
*MICRODEAL JERUSALEM ADVENTURE 2	2.99
*MICRODEAL JUNIORS REVENGE $ 32K	2.99
*MICRODEAL KATERPILLAR ATTACK	1.99
*MICRODEAL KEYS OF THE WIZARD	2.99
*MICRODEAL "THE KING"	8.00
*MICRODEAL KING TUT	8.00
*MICRODEAL LUNAR ROVER PATROL $ 32K	5.49
*MICRODEAL MACHINE LANGUAGE TUTORIAL	15.00
*MICRODEAL MANSION ADVENTURE 1	2.99
*MICRODEAL MOON HOPPER $ 16K	1.50
*MICRODEAL MOROCCO GRAND PRIX	8.00
*MICRODEAL MR DIG	8.00
*MICRODEAL MR DIG DISK	9.95
*MICRODEAL MUDPIES $ 32K	8.00
*MICRODEAL NERBLE FORCE $ 16K	1.50
*MICRODEAL PROGRAM PACK 1	1.99
*MICRODEAL PROGRAM PACK 2	1.99
*MICRODEAL PROGRAM PACK 3	1.99
*MICRODEAL PROGRAM PACK 4	1.99
*MICRODEAL PROGRAM PACK 5	1.99
*MICRODEAL PENGON	8.00
*MICRODEAL PENGON DISK	9.95
*MICRODEAL PHANTOM SLAYER	8.00
*MICRODEAL PINBALL	2.99
*MICRODEAL PLANET INVASION	1.99
*MICRODEAL PROGRAMMERS UTILITIES	8.00
*MICRODEAL RACER BALL	1.99
*MICRODEAL RAIL RUNNER(NO INLAY CARD) $16K	0.99
*MICRODEAL RAINBOW WRITER	19.95
*MICRODEAL RAINBOW WRITER DISK	21.95
*MICRODEAL SCARFMAN	2.99
*MICRODEAL SHARK TREASURE $ 16K	2.50
*MICRODEAL SPACE SHUTTLE	8.00
*MICRODEAL SKRAMBLE	8.00
*MICRODEAL SPACE FIGHTER	2.99
*MICRODEAL SPACE MONOPOLY	1.99
*MICRODEAL SPACE RAIDERS	1.99
*MICRODEAL SPACE WAR	1.99
*MICRODEAL SPEED RACER $ 32K	8.00
*MICRODEAL STAR SPORES	4.99
*MICRODEAL STARSHIP CHAMELEON $ 16K	1.99
*MICRODEAL STORM	2.99
*MICRODEAL SYNTHER 7 $ 16K	2.50
*MICRODEAL SYZYGY $ 32K	8.00
*MICRODEAL TALKING ANDROID ATTACK	1.99
*MICRODEAL TELE-ARTIST	4.99
*MICRODEAL TELE-WRITER WORD PROCESSOR	14.95
*MICRODEAL TELE-FORTH	9.95
*MICRODEAL TELE-TUTOR	6.95
*MICRODEAL TELEMOD FOR TELEWRITER	2.50
*MICRODEAL TIME BANDIT $ 32K	8.00
*MICRODEAL THE TOUCHSTONE	8.00
*MICRODEAL ULTIMATE ADVENTURE 4	2.99
*MICRODEAL WILLIAMSBERG ADVENTURE	2.99
*MICRODEAL WORLD OF FLIGHT $ 32K	8.00
MELBOURNE HOUSE HORACE GOES SKIING	5.95
OASIS CHESS	9.95
OCEAN HUNCHBACK	6.90
PEAKSOFT TIM LOVES CRICKET	8.95
*POCKET MONEY BANDITO	1.99
*POCKET MONEY SOFTWARE BUBBLEBUSTER	1.99
*POCKET MONEY SOFTWARE DATAFALL	1.99
*POCKET MONEY SOFTWARE FEARLESS FREDDY	1.99
*POCKET MONEY JET BOOT COLIN	1.99
*POCKET MONEY SOFTWARE PIT FIEND	1.99
*POCKET MONEY ROBIN HOOD	1.99
*POCKET MONEY SLIDE	1.99
*POCKET MONEY SOFTWARE TEA TIME	1.99
*POCKET MONEY SOFTWARE TOPPLER	1.99
QUICKSILVA MINED OUT	5.95
R & B MISSION 1 PROJECT VOLCANO	7.95
SALAMANDER FISHY BUSINESS	9.95
SALAMANDER FRANKLINS TOMB	9.95
SALAMANDER LOST IN SPACE	9.95
SHARDS FAMILY PROGRAMS	6.95
SHARDS FUN TO LEARN	6.95
SOFTEK ULTRAPEDE	6.95
*SPECTRAL ICE CASTLES $ 32K	8.00
SOFTWARE PROJECTS JET SET WILLY	7.95
SOFTWARE PROJECTS MANIC MINER	7.95
*TOM MIX BUZZARD BAIT	9.95
*TOM MIX CUBER	8.00
*TOM MIX ELECTRON	8.00
*TOM MIX KATERPILLA II	8.00
VIRGIN DEATH CRUISE	6.95
VIRGIN I CHING	6.95
WINTERSOFT RETURN OF THE RING	9.95
WINTERSOFT RING OF DARKNESS	9.95
***** TANDY COLOUR ACCESSORIES **********	
TROJAN PRODUCTS TANDY COLOUR LIGHT PEN	11.50
*******TANDY COLOUR BOOKS **********	
SPECTRAL "THE FACTS" BOOK	11.50
*****TANDY COLOUR EDUCATIONAL SOFTWARE*****	
********** TANDY COLOUR SOFTWARE **********	
COGNITEC TELEWRITER WORD PROCESSOR	19.95
*MICRODEAL ESCAPE	8.00
*MICRODEAL FLIPPER	8.00
*MICRODEAL GRABBER	8.00
*MICRODEAL MR DIG	8.00
*MICRODEAL MR DIG DISK	9.95
*MICRODEAL SCARFMAN	8.00
*MICRODEAL SPACE SHUTTLE	8.00
SPECTRAL ALCATRAZ II	8.00
SPECTRAL ALPHA SEARCH	10.00
SPECTRAL BATTLEFLEET	10.00
SPECTRAL CC POKER	8.00
SPECTRAL COLOR ZAP	8.00
SPECTRAL COLOUROUT	8.00
SPECTRAL COMPUVOICE	26.95
SPECTRAL COSMIC SUPER BOWL	11.50
SPECTRAL CROID	10.00
SPECTRAL C-THEK	6.95
SPECTRAL CUBIX	13.95
SPECTRAL DEFENSE	16.95
SPECTRAL DESERT GOLF	6.95
SPECTRAL DEVIOUS	16.95
SPECTRAL DISASSEMBLER	11.50
SPECTRAL DISKED DISK	18.50
SPECTRAL ESCAPE FROM PRISON CITY	6.95
SPECTRAL FLEX DISK	57.50
SPECTRAL GALAGON	16.95
SPECTRAL GAMBLING GAMES	11.50
SPECTRAL GAME PACK 1	11.50
SPECTRAL GAME PACK 2	8.00
SPECTRAL GAMES PACK 3	11.50
SPECTRAL GEOGRAPHY PACK	23.00
SPECTRAL GRAPHIC ANIMATOR	8.00
SPECTRAL GRAPH 'N' TEXT	15.50
SPECTRAL GRAPH 'N' TEXT DISK	18.50
SPECTRAL SPACE INVADERS	13.95
SPECTRAL LANCER	16.95
SPECTRAL LASER COMMAND	8.50
SPECTRAL LE MANS	11.50
SPECTRAL LOTHARS LABYRINTH	8.00
SPECTRAL LUNAR ROVER PATROL	16.95
SPECTRAL MAGIC BOX	19.00
SPECTRAL MAZE ESCAPE	10.00
SPECTRAL MS GOBBLER	16.95
SPECTRAL ORACLE DISK	23.00
SPECTRAL OTHELLO	11.50
SPECTRAL PICKWHICH	8.00
SPECTRAL PIGGY	8.00
SPECTRAL PIRATES HOY	8.00
SPECTRAL SOUNDSOURCE	19.00
SPECTRAL SPACE RACE	16.95
SPECTRAL SPACE SENTRY	11.50
SPECTRAL SPACE TRADERS	11.50
SPECTRAL SPACE WAR	16.95
SPECTRAL STORM ARROWS	16.95
SPECTRAL SUB HUNT	11.50
SPECTRAL TRILOGY	38.50
SPECTRAL TYPING TEACHER	15.50
SPECTRAL ULTRA BOOT + ORACLE DISK	47.95
SPECTRAL WHIRLY BIRD RUN	16.95
SPECTRAL YATCC	6.95
*T&D SOFTWARE COCO CASSETTE NO 1	5.00
*T&D SOFTWARE COCO CASSETTE NO 2	5.00
*T&D SOFTWARE COCO CASSETTE NO 3	5.00
*T&D SOFTWARE COCO CASSETTE NO 4	5.00
*T&D SOFTWARE COCO CASSETTE NO 5	5.00
*T&D SOFTWARE COCO CASSETTE NO 6	5.00
*T&D SOFTWARE COCO CASSETTE NO 7	5.00
*T&D SOFTWARE COCO CASSETTE NO 8	5.00
*T&D SOFTWARE COCO CASSETTE NO 9	5.00
*T&D SOFTWARE COCO CASSETTE NO 10	5.00
*T&D SOFTWARE COCO CASSETTE NO 11	5.00
*T&D SOFTWARE COCO CASSETTE NO 12	5.00
*T&D SOFTWARE COCO CASSETTE NO 13	5.00
*T&D SOFTWARE COCO CASSETTE NO 14	5.00
*T&D SOFTWARE COCO CASSETTE NO 15	5.00
*T&D SOFTWARE COCO CASSETTE NO 16	5.00
*T&D SOFTWARE COCO CASSETTE NO 17	5.00
*T&D SOFTWARE COCO CASSETTE NO 18	5.00
*T&D SOFTWARE COCO CASSETTE NO 19	5.00
*T&D SOFTWARE COCO CASSETTE NO 20	5.00
*T&D SOFTWARE COCO CASSETTE NO 21	5.00
*T&D SOFTWARE COCO CASSETTE NO 22	5.00
*T&D SOFTWARE COCO CASSETTE NO 23	5.00
*T&D SOFTWARE COCO CASSETTE NO 24	5.00
*T&D SOFTWARE COCO CASSETTE NO 25	5.00
*T&D SOFTWARE COCO CASSETTE NO 26	5.00
*T&D SOFTWARE COCO CASSETTE NO 27	5.00
*T&D SOFTWARE COCO CASSETTE NO 28	5.00
*T&D SOFTWARE COCO CASSETTE NO 29	5.00
*T & D SOFTWARE COCO CASSETTE NO. 30	5.00
*T & D SOFTWARE COCO CASSETTE NO. 31	5.00
*T & D SOFTWARE COCO CASSETTE NO. 32	5.00
T & D SOFTWARE COCO CASSETTE NO. 33	5.00
T & D SOFTWARE COCO CASSETTE NO. 34	5.00

ORDER FORM

POST TO

MICRODEAL
41 TRURO RD.
ST. AUSTELL
CORNWALL
PL25 5JE OR PHONE
WITH CREDIT CARD
0726 73456

Access VISA AMERICAN EXPRESS

NAME _____ TYPE OF COMPUTER _____

ADDRESS _____

_____ POST CODE _____

PLEASE SUPPLY	£
	£
	£
TOTAL	
ADD 50p POST & PACKING PER ORDER	50p
DEDUCT £1 IF YOUR ORDER IS OVER £10	
TOTAL CHEQUE/PO ENCLOSED	£

News desk

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

Add-ons and repairs

COMPUSENSE has appointed Race Electronics as a National Service Centre for the Dragon 32, 64 and peripherals.

In addition, Compusense will be distributing a wide variety of hardware add-ons made by the Welsh company.

Ted Oprychal, Compusense's managing director, said that Race had been appointed "because they were manufacturing Dragons last year, and they know a lot about them."

Dragon owners who wish to take advantage of the new service should contact Race Electronics direct. There will be a minimum charge of £20.

Compusense will also be setting up a local repair network, and would like to hear from any companies capable of doing such work.

The new add-ons from Race include an RS232 Interface Unit, a Sideways ROM Cartridge, an EPROM Programmer (all for the Dragon 32), and a Dragon expansion Box System for the Dragon 32 and 64.

Race also manufacture a floppy tape microdrive system, and prototyping cards for the DIY enthusiast.

The RS232 Interface will allow communication between a Dragon 32 and any other micro which uses the RS232 standard. It also means a 32 can control serial line printers, or connect to compatible modems. It will sell for around £50.

The sideways ROM Cartridge allows the user to hold up to four sets of EPROM banks simultaneously in memory, ready for instant access. It will cost around £45.

The EPROM Programmer will allow users to blow their own EPROM chips, at a cost of around £60.

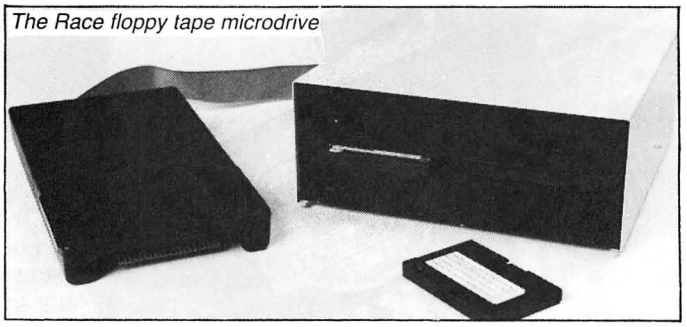
The Expansion box will allow the use of up to four cartridges at the same time. Each cartridge can then be individually selected from the keyboard. It will cost around £180.

The floppy tape microdrive system will give the users far faster access than audio cassettes can provide, at a lower price than disk.

The prototyping cards are available with tin plating at £6 and gold plating at £7. Compusense will also be selling a Project Case to protect the cards, at £3..

Race Electronics are at Race House, Lanelay Road, Talbot Green, Pontyclun, Mid Glamorgan CF7 8YY.

The Race floppy tape microdrive



Dragon 128K

COMPUSENSE has taken delivery of a prototype 128K Dragon.

The machine is basically an upgrade from a 64 to a 128K micro. The SAM chip used in the Dragon already has facilities for banking other memory, so the upgrade is just a matter of adding extra memory chips and changing the addresses.

Additionally, Compusense will also be developing an upgrade for the Dragon 32, which will make it a 96K machine.

Apparently, the 32 cannot be given 128K because of the video chip used.

Compusense's next project will be an onboard disk controller and hard disk interface.

Compusense is at PO Box 169, 286D Green Lanes, London N13 5XA.

National user group

THE NATIONAL Dragon Users Group costs £7.50 per year, which includes a monthly news letter covering software and hardware projects, hints and tips, articles and reviews.

Members can also write or phone in with any Dragon problems. Write to Paul Grade, National Dragon Users Group, 6 Navarino Road, Worthing, Sussex.

Bulletin north east

CoCo BBS is a new bulletin board designed for CoCo and Dragon users, especially those in the North East of England.

The system runs on a CoCo at present, but a Dragon 64 will be hooked in in the near future. Baud rate is 300/300 now, with 7 bit even parity, but either 1200/75 or 1200/1200 baud rates will be added once the 64 is on line.

There are the usual message facilities allowing 2.5K in 10 lines. Users can also upload and download basic programs.

The board goes on line at 9 pm Mondays to Thursdays until 10 am. From 9 pm Fridays it stays open until 9 am Monday mornings.

CoCo BBS can be contacted on 091-265 1944, or write to 186 Biddlestone Road, Heaton, Newcastle on Tyne, NE6 5SP.

Adventurer's Club

THE ADVENTURER'S Club is a new organisation aimed at relieving the sufferings of adventurers.

Membership of the club costs £10 per year. This includes 12 issues of the *Member's Dossier*, a monthly newsletter aimed at keeping readers informed of the latest happening in the adventure world.

The *Dossier* will also include reviews and tips for adventures. The first issue, 18 pages long, includes the first part of an in-depth study of *El Diablero* for the Dragon 32/64, with a number of very useful hints.

Henry Mueller, the Adventurer's Club Secretary, himself started with a Dragon and says that he has a great deal of fondness for it.

The Club also runs a phone-in adventure help service for members on 01-794 1261.

The Adventurer's Club is a 64c Menelik Road, London NW2 3RH.

Cotswold comms

COTSWOLD Computers has two new communications packages for the Dragon 32 and 64.

The first is a full feature viewdata package containing a British Telecom approved modem and a software cartridge.

The cartridge software allows log on and off and terminal mode. It also lets the user save Prestel screens to tape, print the screens, prepare messages on an offline buffer and download software.

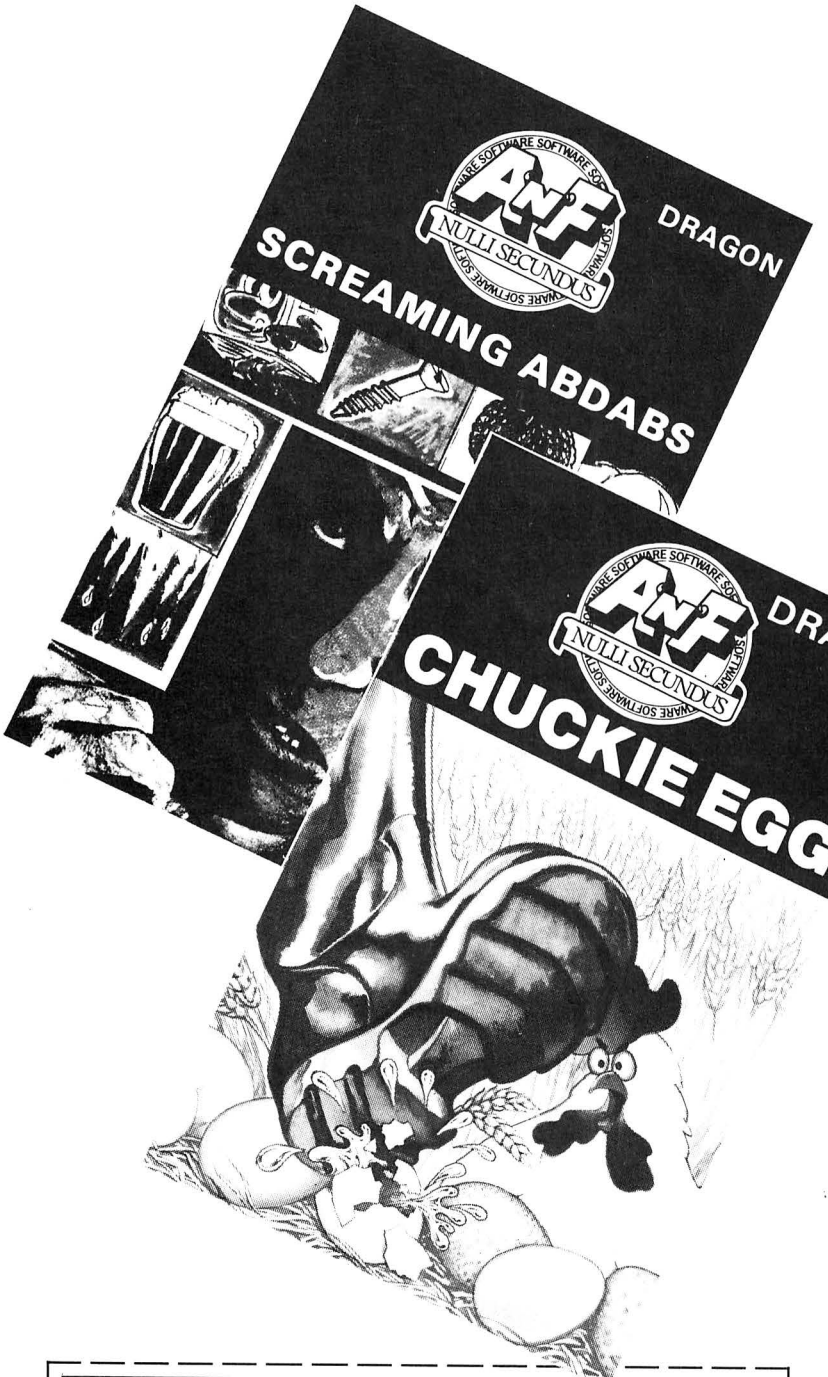
The Prestel Viewdata package costs £99 inclusive of VAT and delivery.

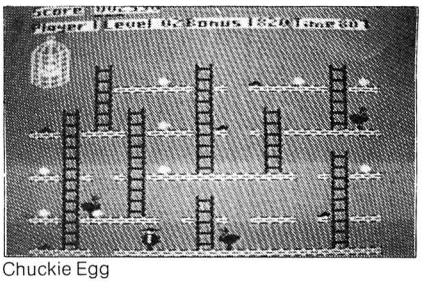
The other product from Cotswold is MODEM, a disk communication package running on OS-9 for the Dragon 64.

A cassette based program is also supplied which gives access to OS-9 disk files from Dragon Basic, and there is a comprehensive manual included. MODEM costs £29.95.

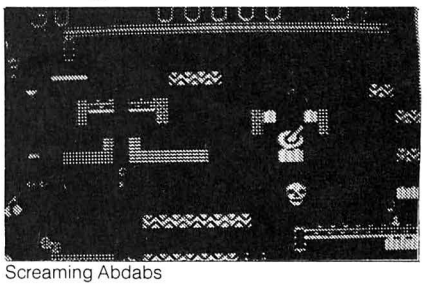
Cotswold Computers is at 6 Middle Row, Chipping Norton, Oxfordshire OX7 5NH.

Two more great games from A'N'F.





Chuckie Egg



Screaming Abdabs

CHUCKIE EGG™

Who'd have thought a country farmyard could be so stressful? You must collect the eggs before the nasties get out and eat up all your corn. Watch out for the crazy duck – if she gets out of the cage, you're in real trouble!

SCREAMING ABDABS

Monsters, screws, scissors and even food will impede your passage through this multi-screen game. Our hero must negotiate his way through the 35 complex screens, collecting the key to the next level on the way. There are numerous traps and monsters to hinder your progress, which include icicles, screws, drinks, food, scissors, electric walls, moving platforms, collapsing floors, balls, conveyor belts and many more.

By skilfull use of the platforms, walkways and the switches you might survive to level 34, then you have the challenge of the penultimate last level – only the experts will make it.

MAIL ORDER FROM A'N'F SOFTWARE

☐ Chuckie Egg **£7.90**
☐ Screaming Abdabs **£6.90**

Access — Buy it with Access
BARCLAYCARD VISA

Name_____

Address_____

48 hour delivery service. Or from selected computer stores.

A & F SOFTWARE LTD, Unit 8,
Canal Side Industrial Estate, Woodbine Street East,
Rochdale, Lancashire OL16 5LB. *Tel:* (0706) 341111.

Dragon adventures

Jason Orbaum takes another trip to the vaults to look at some classic Dragon adventure games

Pi-manic

Adventure: *Pi-Mania*
Supplier: *Automata*

THE ORIGINAL "Prize" adventure, the one that sparked off a series of similar programs with prizes, none of which quite came up to the splendour of the Golden Sundial of Pi, crafted in gold by Barbara Tipple.

However, if the rival prizes didn't quite come up to this standard, the adventures, almost without exception, were about 5,000 per cent better!

Pi-Mania has very little internal logic, several random elements, stunningly brief location descriptions, and takes the most amazing length of time to play.

The reason for this time expenditure is that the response is chronically slow, not that the player will spend a long time thinking, as there is really very little to think about that can logically be worked out. The problems seem to rely on trial and error tactics and there is the "Pi-Man" (an animated pest) to throw an extra spanner in the works.

After you have worked out the movement system (this is possibly the best puzzle in the adventure) making a move takes a super fast 40 seconds giving one just enough time to lob the cassette into a passing incinerator — a process I heartily recommend! (I exaggerate of course about the time, it's really about 38 seconds!)

Given the superb adventures now available for the Dragon, why you should ever give this one a second look escapes me, unless of course you think you could win that £6,000.

Wizard

Adventure: *Keys of the Wizard*
Supplier: *Microdeal*

THIS IS an adventure that puzzles me — I know what I have to do, and have almost done it, but haven't had to solve any problems yet!

The game, a real-time action D&D-type game, is also a pure text adventure of, at first sight, considerable verbosity.

There are two basic aims, and therefore two ways of playing the game; the first is to collect all the treasure in the adventure's domain and take it to the sanctuary, and the second is to kill all of the various inhabitants of the area (except the unicorn who is supposedly friendly) in a bloodthirsty, and noisy, series of battles.

The game talks to you (not very often, and with a very limited vocabulary I must admit) and has several other beeps and bangs to keep you awake. The presentation is superb, even allowing you to view information that has recently scrolled off the screen.

The parser (that's the bit that turns your English commands into things that the computer understands) is fairly standard (Verb/Noun, no Infocom stuff here), and the response, being in machine code, is nearly immediate.

The adventure, when it was released early in 1984, was the best available for the Dragon. Since its release it has been overshadowed by some incredibly good adventures. This does not mean that it is not an adventure worth buying; it most certainly is.

To sum up them, not an adventure for the puzzle player, more for those of us who like a colourful jaunt around another land, pausing only to pick up treasures and, of course, massacre the odd creature.

Franklin

Adventure: *Franklin's Tomb*
Supplier: *Salamander Software*

ANOTHER classic adventure, this time for the adventurers who have got past the beginnings of their craft but are not yet ready to take on the massed forces of a *Zork* or *Snowball* (neither of which, unfortunately, look like ever becoming available to the Dragon owner).

This game is the first in a series of three (the equally competent sequels are *Lost in Space* and *Fishy Business*) and the adventurer is cast in the roll of Dan Diamond, private detective. You have received a note saying "Please come. You're our only hope"

IT IS impossible to review all the other Dragon adventures on the market but here are my own personal ratings for several more. These are, of course, only personal so if you disagree with several of my reviews then these will probably not be of use to you.

The terms used are here explained:

GENERATION refers to the type of game along these lines:

1st) Text only (the purist's adventure).

2nd) Arcade adventure (3-D or "Tutankhamun" style).

3rd) Text with pictures (for those with little imagination or descriptive power).

4th) Multi-player adventures.

PARSER refers to the complexity of the sentences the game can understand.

LOGIC refers to the puzzles and whether they can be considered to be fair.

PLAYABILITY is a rating of how much chance the game has of keeping you up until the small hours playing.

MOOD is a rating of the pictures on a 2nd or 3rd generation adventure, and the text on a 1st generation.

The GENERAL rating is the same as that which would accompany a full review, and, like all the others is out of five.

As a final note, many of these adventures have been available for quite some time now and as such may be difficult to acquire. Also, it should be pointed out that during grading no allowance has been made for age of program.

Adventure: *The Cricklewood Incident*
Supplier: Salamander Software
Generation: 1st

Parser:	**2**
Logic:	**1**
Playability:	**3**
Mood:	**3**
General:	**2**

Adventure: *Lost in Space (Franklin II)*
Supplier: Salamander Software
Generation: 1st

Parser:	**3**
Logic:	**5**
Playability:	**4**
Mood:	**5**
General:	**5**

Adventure: *Fishy Business (Franklin III)*
Supplier: Salamander Software
Generation: 1st

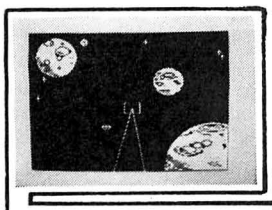
Parser:	**3**
Logic:	**4**
Playability:	**5**
Mood:	**4**
General:	**4**

Adventure: *The Emperor Must Die*
Supplier: Phoenix Software
Generation: N/A (there are two programs, an arcade game and an adventure, the successful completion of one takes you into the other, which is a 1st generation adventure with map on call, all ratings apply to the adventure)

Parser:	**1**
Logic:	**3**

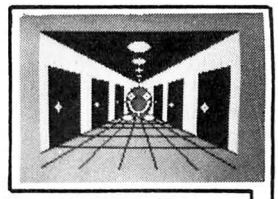
"JUST IMAGINE ...."

Paying only **44p*** *for each of these 9 games*



In the latest review ...April edition Cuthbert Chronicle

"...I reckon, this one alone is worth the full £3.95..."
"...If all the other six programs are as good as the first three I'd say this is indeed outstanding value..."
"...Some are actually better than software I've been selling for £8.00. GREAT VALUE!!..."



An all action shot of INTERPLANETARY TRADER. Face the perils of real time space adventure. Battle with awsome Space Pirates who are after your precious cargo, navigate meteor and magnetic storms in your quest to become a GALACTIC MEGABILLIONAIRE. This game uses the full 32K!

An all action shot of WUMPUS MANSION. Only a crazy person would go near WUMPUS MANSION. You have decided to go in!! Tempted by riches beyond imagination you raid the WUMPUS of their treasures. But it's harder than you thought! You never knew about the TIME BOMB, or the KAMIKAZIE WUMPUS, or the dreaded MAZE. Will you succeed? This game uses the full 32K!

The other games are HILO: an exciting gambling game, EXECUTION: a unique version of a popular word game, EMPIRE: an excellent strategy game, AIR ASSAULT: an arcade game, SNAIL PACE: a very entertaining racing simulation, WIPEOUT: a fast reaction snake game, ATOM HUNT: a brain straining game of logic.

* All games incorporate hi-res colour graphics and sound/music. The average length of each game is 27K - a total of 236K on one tape. The price of 44p is the average cost per game and refers only to the games on the 9 game cassette. These games are not available separately.

ORDER TODAY and join the several thousand satisfied DRAGON 32 owners. DATACOM'S 9 GAME CASSETTE

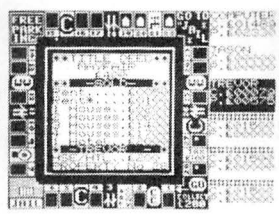
£3.95
inc VAT
and P & P

HOTEL ON MAYFAIR

ANOTHER BLOCKBUSTER FROM DATACOM!!!!

THIS IS THE BEST OF ITS TYPE FOR THE DRAGON 32 WITH MORE FEATURES THAN ANY OTHER AND AT LEAST HALF THE PRICE. HOTEL ON MAYFAIR IS JUST...

£3.95
inc VAT
and P & P



Play your friends or play the COMPUTER!
**Uses fast machine code HI-RES TEXT*
**GAME STATUS permanently displayed*
**SAVE GAME facility for those long games*
**Trading with the COMPUTER is catered for*
**Uses the full 32K with 100 bytes to spare!*

The WHOLE board is displayed all the time
**REPORTS at the push of a button*
**Computer acts as BANKER*
**Send detailed report to the LINE PRINTER*
**BID against the COMPUTER and/or opponents*
**Fun for all the family*

AUTORUN AII

£3.95
inc VAT and P & P

With AUTORUN II you too can design 8 colour text/block graphic loading screens and autorun your programs, both BASIC and MACHINE CODE. This is the best AUTORUN utility for the DRAGON 32 featuring:

**Easy to use menu driven program*
**No knowledge of machine code required*
**Super SCREEN FILE facility allows you to make a library of your best screens and use them at a later date.*
**Autoruns both BASIC and MACHINE CODE programs. No need to type RUN or EXEC anymore, simply type CLOADM to load your BASIC or MACHINE CODE program and let AUTORUN II do the rest!*

WHY PAY £7 or £8 FOR SOMETHING THAT DOES LESS?

AUTORUN II is available exclusively from DATACOM

SPECIAL OFFER.....SPECIAL OFFER.....SPECIAL OFFER.....SPECIAL OFFER.....SPECIAL OFFER.....SPECIAL OFFER.....SPECIAL OFFER

ORDER ALL 3 TAPES AND PAY ONLY £9.95

SPECIAL OFFER.....SPECIAL OFFER.....SPECIAL OFFER.....SPECIAL OFFER.....SPECIAL OFFER.....SPECIAL OFFER.....SPECIAL OFFER

Our new computerised Mail Order service means FAST order processing - and guarantees minimum delays so you can order with confidence. All cassettes are ex-stock.

ORDER TODAY FROM.....

DATACOM PUBLICATIONS 407F Hockley Centre, Birmingham. B18 6NF. Tel: 021-233 1800

with directions to a graveyard crypt. Suddenly, the ground gives way beneath you, and you are in the tomb . . .

The actual instructions that come with the game are done in a hilarious Raymond Chandler style, but this prose style is totally different from that used to describe the locations. Indeed, the detective theme does not re-occur within the adventure.

But what the game lacks in humour, it more than makes up for in puzzles of varying complexity, from a fairly easy starter, to the brilliance of the gallery.

I found the game a pleasure to play from beginning to end, and, although it was written in Basic, the responses were tolerable, and the screen display excellent (the format used has since been copied on several occasions).

I recommend this game to all but the hardened adventurer, who will find it too easy.

Doom

Adventure: *Caverns of Doom*
Supplier: *Microdeal*

THIS Microdeal adventure was released at the same time as *Syzygy* (reviewed elsewhere) and although another big adventure (100 different rooms), is not as likely to become a classic.

However, that does not affect the game's merits and they are considerable. The descriptions are pleasant, if not verbose enough for me, and the general mood conjured up is ideal.

Your task is quite simply to escape from an abandoned and crumbling mine complex . . . however, that may be more difficult than is at first suspected.

The response is fast — the game is in machine code — and the screen layout is absolutely superb (green on black, windowed screen).

Again, Microdeal have had the very good sense to list the commands on the cassette inlay, which saves a lot of time and energy hunting commands.

This is quite simply an excellent first generation (text only) adventure for the average adventurer. The game is selling for a fiver and this is a fiver that could be spent on many worse things than this.

It is available from your local Dragon supplier (if you still have one) or the Microdeal mail order service, which appears to have been designed by Harold Pinter judging by my experiences!

Syzygy

Adventure: *Syzygy*
Supplier: *Microdeal*

THIS IS Microdeal's latest adventure for the Dragon, and my initial impression is to say it's the best third generation (text with graphics) Dragon adventure available, if not the best third generation adventure I've seen for some time.

Stuck aboard the Death-Star, the blurb runs, you have already had one near fatal encounter with Darth Vader and your strength is nearly gone . . . a huge task lies before you as you attempt to destroy the Dark Lord of the Sith and escape the Death-Star.

No trouble with vocabulary — it is all there on the instruction leaflet. It is just a matter of using the right words at the right place.

The game is gigantic; there are 300 locations to explore, and over 250 pictures (as many of the corridors look alike) and the movement from location to location is instantaneous.

The screen (PMODE 4) is set out with an Inventory on permanent display, a clear small picture top right and the text input and cursor below all this.

The puzzles have been clearly thought out; the graphics have been excellently designed, and the whole game plays superbly.

It is a great adventure, although admitedly very difficult, and is a pleasure to play. If the Dragon adventurer doesn't own this one then they ought to be ashamed of themselves — buy it as once!

Pulsar

Adventure: *Escape from Pulsar 7*
Supplier: *Channel 8 Software*

THIS IS one of the Brian Howarth mysterious adventure series so often mentioned in the Adventure Trail.

This one has the adventurer on board a spaceship with a lethal alien who has escaped and killed all of the crew save you. All you have to do is escape in the shuttlecraft.

The game is played with text on the hi-res screen, and the Dragon 64 version produces graphics.

The display is very good except when printing up the location descriptions, at which point it jerks and flashes alarmingly.

The game is well structured and written, with puzzles of good design and increasing complexity, although the descriptions of the locations leave a lot to be desired.

The response is fast, the parser simple but effective and the feel just right, clinical, yet eerie.

Channel 8's entire range has now been taken over by Adventure International — it's good to see they are still available.

Playability: 1
Mood: 0
General: 1

Adventure: ***Downland***
Supplier: Microdeal
Generation: 2nd

Parser:	**N/A**
Logic:	**5**
Playability:	**5**
Mood:	**5**
General:	**5**

Adventure: ***Time Bandit***
Supplier: Microdeal
Generation: 2nd

Parser:	**N/A**
Logic:	**2**
Playability:	**5**
Mood:	**5**
General:	**4**

Adventure: ***The Ring of Darkness***
Supplier: Wintersoft
Generation: 2nd/3rd

Parser:	**3**
Logic:	**3**
Playability:	**1**
Mood:	**2**
General:	**3**

Adventure: ***Poseidon***
Supplier: Dragon-Data (I have no idea who now sells it)
Generation: 1st

Parser:	**3**
Logic:	**5**
Playability:	**4**
Mood:	**4**
General:	**4**

Adventure: ***Alcatraz II***
Supplier: Microdeal
Generation: 2nd

Parser:	**N/A**
Logic:	**2**
Playability:	**4**
Mood:	**3**
General:	**4**

Adventure: ***Ultimate Adventure***
Supplier: Microdeal
Generation: 1st

Parser:	**2**
Logic:	**1**
Playability:	**1**
Mood:	**1**
General:	**1**

Adventure: ***Pettigrews Diary*** **(in three parts on one cassette)**
Supplier: Shards Software
Generation: 2nd, 1st and N/A (the third program is a series of tests) respectively

Parser:	**N/A, 3, N/A**
Logic:	**2, 3, 4**
Playability:	**3, 2, 3**
Mood:	**3, 4, N/A**
General:	**3, 3, 4**

Adventure: ***Wings of War***
Supplier: Salamander Software
Generation: 1st

Parser:	**2**
Logic:	**4**
Playability:	**4**
Mood:	**4**
General:	**4**

Adventure: ***Fantasy Fight***
Supplier: Cable Software
Generation: 2nd

Parser:	**N/A**
Logic:	**4**
Playability:	**5**
Mood:	**5**
General:	**5**

Looking through the Dragon's windows

Brian Cadge *with two programs to help you put windows on your Dragon*

THE FACILITY to have several 'virtual' screens, or windows displayed at once is usually only found on the more expensive computers. The prcgram presented here gives this facility on the Dragon micros. Up to five separate windows can be used at once, and there are several new Basic commands to handle defining and utilising the windows. The window facility is not only very useful in programs, but also comes in handy when debugging software. For example, two windows could be set up, one occupying the top 12 lines, the other the bottom four lines. Listing could be sent to the main window, whilst editing is done in the smaller one. All windows have independent attributes, which means they have their own cursor position and inverse/normal characters, and all are capable of scrolling independently. Windows can overlap, but this is not generally very useful.

The program is loaded into reserved RAM at the top of memory. One EXEC call is made to initialise it and from then on all text output goes to the 'current' window. At startup this is defined as the whole screen and so will not look any different. To define your own window the WINDOW command is used. It has the following parameters: **WINDOW n,x1,x2,y1,y2,l** where 'n' is the window number (0 to 4), 'x1' is the left edge screen column, and 'x2' is the right edge column. The screen columns run from 0 to 31 and the rows from 0 to 15. 'y1' is the top row of the window, and 'y2' is the

```
10 ' BASIC LOADER PROGRAM
20 CLEAR 200,31799:CLS:PRINT
   "*LOADING CODE ...":PRINT@0,"";
30 FOR I=31800 TO 32654
40 EXEC 48053:READ A:CS=
   CS+A:POKE I,A
50 NEXT
60 IF CS<>93674 THEN PRINT
   "DATA ERROR - CHECK LISTING!":
   SOUND 1,5:STOP
70 CLS:PRINT@256,"LOAD
   SUCCESSFUL":EXEC 31800
80 END
90 DATA 134,126,183,1,103,142
100 DATA 125,238,191,1,104,158
110 DATA 176,16,190,127,143,16
120 DATA 159,176,198,20,166,128
130 DATA 167,160,90,38,249,142
140 DATA 1,42,16,142,1,52
150 DATA 166,128,167,160,140,1
160 DATA 52,37,247,134,4,183
170 DATA 1,42,142,124,144,191
180 DATA 1,43,142,124,171,191
190 DATA 1,45,134,2,183,1
200 DATA 47,142,124,192,191,1
210 DATA 50,142,124,163,191,1
220 DATA 48,189,132,52,189,189
230 DATA 220,126,131,113,87,73
240 DATA 78,68,79,215,85,83
250 DATA 197,87,67,76,211,67
260 DATA 85,82,83,79,210,88
270 DATA 80,79,211,89,80,79
280 DATA 211,128,206,42,3,126
290 DATA 137,180,142,124,184,126
300 DATA 132,237,124,211,125,70
310 DATA 125,137,125,89,192,68
320 DATA 42,3,126,137,180,142
330 DATA 124,207,173,149,126,136
340 DATA 116,125,220,125,229,189
350 DATA 142,81,193,5,36,103
360 DATA 182,127,99,183,127,98
370 DATA 247,127,99,189,137,170
380 DATA 189,142,81,193,31,36
390 DATA 84,247,127,101,189,137
400 DATA 170,189,142,81,193,32
410 DATA 36,71,241,127,101,35
420 DATA 66,247,127,102,189,137
430 DATA 170,189,142,81,193,15
440 DATA 36,53,247,127,103,189
450 DATA 137,170,189,142,81,193
460 DATA 16,36,40,241,127,103
470 DATA 35,35,247,127,104,127
480 DATA 127,105,157,165,39,9
490 DATA 189,137,170,189,142,81
500 DATA 247,127,105,127,127,106
510 DATA 127,127,107,189,126,83
520 DATA 182,127,98,183,127,99
530 DATA 57,198,7,126,131,68
540 DATA 189,142,81,193,5,36
550 DATA 244,247,127,99,189,126
560 DATA 43,189,125,253,159,136
570 DATA 57,189,126,43,189,126
580 DATA 23,189,126,33,189,142
590 DATA 81,241,127,96,34,26
600 DATA 247,127,106,189,137,170
610 DATA 189,142,81,241,127,95
620 DATA 34,12,247,127,107,189
630 DATA 125,253,159,136,189,126
640 DATA 83,57,198,8,126,131
650 DATA 68,39,25,189,126,43
660 DATA 189,142,81,193,8,34
670 DATA 172,93,38,4,198,128
680 DATA 32,14,134,16,90,61
690 DATA 203,143,32,6,189,126
700 DATA 43,246,127,100,127,127
710 DATA 106,127,127,107,189,125
720 DATA 253,159,136,189,126,23
730 DATA 189,126,33,124,127,96
740 DATA 124,127,95,182,127,96
750 DATA 183,127,97,79,231,134
760 DATA 76,122,127,97,38,248
770 DATA 48,136,32,122,127,95
780 DATA 38,233,189,126,83,57
790 DATA 189,126,43,246,127,106
800 DATA 126,140,54,189,126,43
810 DATA 246,127,107,126,140,54
820 DATA 13,111,39,1,57,50
830 DATA 98,52,54,189,126,111
840 DATA 53,54,57,52,6,182
850 DATA 127,103,187,127,107,198
860 DATA 32,61,142,4,0,48
870 DATA 139,182,127,101,187,127
880 DATA 106,48,134,53,134,182
890 DATA 127,102,176,127,101,183
900 DATA 127,96,57,182,127,104
910 DATA 176,127,103,183,127,95
920 DATA 57,52,54,182,127,99
930 DATA 198,7,61,142,127,108
940 DATA 48,133,198,7,16,142
950 DATA 127,101,166,128,167,160
960 DATA 90,38,249,134,32,125
970 DATA 127,105,38,2,134,96
980 DATA 183,127,100,53,182,52
990 DATA 54,182,127,99,198,7
1000 DATA 61,142,127,108,48,133
1010 DATA 198,7,16,142,127,101
1020 DATA 166,160,167,128,90,38
1030 DATA 249,53,182,141,186,189
1040 DATA 169,58,141,8,189,125
1050 DATA 253,159,136,141,214,57
1060 DATA 23,255,124,129,8,38
1070 DATA 49,182,127,106,38,26
1080 DATA 246,127,107,16,39,0
1090 DATA 135,182,127,100,167,132
1100 DATA 122,127,107,23,255,123
1110 DATA 182,127,96,183,127,106
1120 DATA 32,8,182,127,100,167
1130 DATA 132,122,127,106,23,255
1140 DATA 78,182,127,100,167,132
1150 DATA 32,98,129,13,38,28
1160 DATA 182,127,100,167,132,23
1170 DATA 255,95,127,127,106,182
1180 DATA 127,107,177,127,95,37
1190 DATA 4,141,74,32,71,124
1200 DATA 127,107,32,66,77,43
1210 DATA 21,129,32,37,59,129
1220 DATA 96,36,4,138,64,32
1230 DATA 2,128,96,125,127,105
1240 DATA 39,2,136,64,23,255
1250 DATA 12,167,132,23,255,33
1260 DATA 182,127,106,177,127,96
1270 DATA 37,23,127,127,106,23
1280 DATA 255,29,182,127,107,177
1290 DATA 127,95,37,4,141,11
1300 DATA 32,8,124,127,107,32
1310 DATA 3,124,127,106,57,189
1320 DATA 126,23,189,126,33,124
1330 DATA 127,96,182,127,103,198
1340 DATA 32,61,142,4,0,48
1350 DATA 139,246,127,95,52,20
1360 DATA 246,127,96,247,127,97
1370 DATA 246,127,101,49,133,166
1380 DATA 168,32,167,164,92,122
1390 DATA 127,97,38,243,53,20
1400 DATA 48,136,32,90,38,224
1410 DATA 246,127,101,182,127,100
1420 DATA 167,133,92,122,127,96
1430 DATA 38,248,57,0,0,0
1440 DATA 0,0,0,0,0,0
1450 DATA 0,0,0,0,0,31
1460 DATA 0,15,0,0,0,0
1470 DATA 31,13,15,0,0,0
1480 DATA 0,31,0,12,0,0
1490 DATA 0,0,31,0,15,1
1500 DATA 0,0,1,30,1,14
1510 DATA 1,0,0
```

bottom row. 'I' is optional and if used it should have the value '1', which means that this is an inverse video window, and all text sent to it will be in green on black, rather than black on green. This is generally more readable. The minimum size of a window is 2x2 characters, and the maximum size is the whole screen.

If any of the parameters are out of range, you will get a new error message, 'DF ERROR', meaning definition error. The WINDOW command defines a window's size, but to use the window you need to select it by using the USE command. This is followed by the number of the window to be used (0-4), so USE 2 would send all subsequent text to window 2 until another USE command was issued.

When using a particular window, it can be cleared by using the WCLS command (do not use CLS as this will clear the whole text screen). On its own this will clear the window to either green or black, depending on the setting of the inverse attribute for the particular window. WCLS n will clear the window to colour 'n' (0-8). Any other value generates an error message.

The PRINT@ command no longer has any meaning and so should not be used. Instead, use CURSOR x,y to position the cursor at column 'x', row 'y' in the current window. Note that x and y are relative to the window, so 0,0 is always the top left of the window, regardless of where the window is on screen. Attempting to position the cursor outside the window will cause an error.

HERE IS a summary of the new commands and functions. Items in <> are optional.

WINDOW n,x1,x2,y1,y2 <,I>	**define a window**
USE n	**Select window n**
WCLS <n>	**Clear window <to colour n>**
CURSOR x,y	**Put cursor at x,y in window**
XPOS	**Returns column position**
YPOS	**Returns row position**

Finally, there are two new functions. XPOS will return the current horizontal position of the cursor in the current window, and YPOS will return the current vertical position. Try PRINT YPOS,XPOS.

To use the program, type in the Basic Loader Program, taking care with the DATA statements and run it. It will stop and report if you have entered any of the DATA statements incorrectly, in which case you should recheck your listing. If all goes well an appropriate message is displayed and you are ready to use the new commands. The windows are predefined to useful settings, but you can change them as you need using the WINDOW command. For starters, try CLS 2:USE 4:WCLS and list the program.

The assembly language listing is included to show how the program actually works. The first section sets up the new Basic commands and redirects the print vector to the window software. The two main routines are PRINT which does the actual printing of a character, and SCROL which scrolls any section of the screen independently. The two main ROM routines used in the command handlers are GETNUM, which returns the value of the following number (variable or expression) in the 'B' register, and CKCOMA, which checks that the next character on a command line is a comma and produces a syntax error if it is not.

As it is the program supports up to five independent windows. This should be more than enough for most purposes, but as each window only takes seven bytes to store, many more can be added if required by a few simple changes to the assembly language listing (you will need an assembler to do this). This version of the software is not suitable for use alongside DOS — the program requires a few modifications for this.

Programs entered using the new commands should only by typed in with the extensions resident in the computer otherwise they will not be correctly tokenized and will not run.

```
2AC7                    *
2AC7                    * DRAGON TEXT WINDOWS BASIC
2AC7                    * EXTENSION PROGRAM V.1.1
2AC7                    *
7C38  7C38                      ORG   31800
7C38  89AA              CKCOMA  EQU   35242     ;CHK FOR ,
7C38  8E51              GETNUM  EQU   36433     ;B=VALUE
7C38
7C38 867E                       LDA   #126      ;PATCH IN
7C3A B70167                     STA   359       ;JUMP BLK
7C3D 8E7DEE                     LDX   #PRTJB    ;FOR PRINT
7C40 BF0168                     STX   360       ;ING CHARS
7C43 9EB0                       LDX   176
7C45 10BE7F8F                   LDY   USRLOC
7C49 109FB0                     STY   176
7C4C C614                       LDB   #20       ;MOVE USR
7C4E A680               COPUS   LDA   ,X+       ;VECTORS
7C50 A7A0                       STA   ,Y+
7C52 5A                         DECB
7C53 26F9                       BNE   COPUS
7C55 8E012A                     LDX   #298      ;MOVE END
7C58 108E0134                   LDY   #308      ;OF BASIC
7C5C A680               COSTB   LDA   ,X+       ;STUBS
7C5E A7A0                       STA   ,Y+
7C60 8C0134                     CMPX  #308
7C63 25F7                       BLO   COSTB
7C65 8604                       LDA   #4        ;NUMBER OF
7C67 B7012A                     STA   298       ;COMMANDS
7C6A 8E7C90                     LDX   #CMDS
7C6D BF012B                     STX   299
7C70 8E7CAB                     LDX   #DESP     ;DESPATCH
7C73 BF012D                     STX   301       ;ADDRESS
7C76 8602                       LDA   #2        ;NUMBER OF
7C78 B7012F                     STA   303       ;FUNCTIONS
7C7B 8E7CC0                     LDX   #FUNDP
7C7E BF0132                     STX   306
7C81 8E7CA3                     LDX   #FUNCS
7C84 BF0130                     STX   304
7C87 BD8434                     JSR   33844
7C8A BDBDDC                     JSR   48604
7C8D 7E8371                     JMP   33649     ;BASIC
7C90
7C90 57494E444F CMDS    FCC   /WINDO/,215
7C96 5553C5             FCC   /US/,197
7C99 57434CD3           FCC   /WCL/,211
7C9D 435552534F         FCC   /CURSO/,210
7CA3 58504FD3   FUNCS   FCC   /XPO/,211
7CA7 59504FD3           FCC   /YPO/,211
7CAB 80CE       DESP    SUBA  #$CE
7CAD 2A03               BPL   VALID
7CAF 7E89B4             JMP   35252
7CB2 8E7CB8     VALID   LDX   #CMDAD
7CB5 7E84ED             JMP   34029
7CB8 7CD3       CMDAD   FDB   WINDOW
7CBA 7D46               FDB   USEWIN
7CBC 7D89               FDB   WINCLS
7CBE 7D59               FDB   CURSOR
7CC0 C044       FUNDP   SUBB  #$44
7CC2 2A03               BPL   VALFN
7CC4 7E89B4             JMP   35252
7CC7 8E7CCF     VALFN   LDX   #FNCAD
7CCA AD95               JSR   (B,X)
7CCC 7E8874             JMP   $8874
7CCF 7DDC       FNCAD   FDB   XPOSF
7CD1 7DE5               FDB   YPOSF
7CD3
7CD3                    ********************************
7CD3                    *     NEW COMMAND HANDLERS     *
7CD3                    ********************************
7CD3
7CD3 BD8E51     WINDOW  JSR   GETNUM
7CD6 C105               CMPB  #5
7CD8 2467               BHS   ERROR
7CDA B67F63             LDA   WININU
7CDD B77F62             STA   TEMP
7CE0 F77F63             STB   WININU
7CE3 BD89AA             JSR   CKCOMA
7CE6 BD8E51             JSR   GETNUM
7CE9 C11F               CMPB  #31
7CEB 2454               BHS   ERROR
7CED F77F65             STB   X1
7CF0 BD89AA             JSR   CKCOMA
7CF3 BD8E51             JSR   GETNUM
7CF6 C120               CMPB  #32
7CF8 2447               BHS   ERROR
7CFA F17F65             CMPB  X1
```

What's your best source of information on color computing?

Now you can improve your color computing skills... and it's easy to do. **HOT CoCo** gives you more *practical* information on the Dragon* than any other publication. Nearly 150 pages a month!

Every issue is packed with exciting new things for you to do. We won't waste your time with filler stories. You'll get instructive columns:

- **Elmer's Arcade**—enjoy old-fashioned arcade style games on *your* computer
- **The Basic Beat**—learn everything you need to program in Basic
- **The Educated Guest**—discover how to use your computer as a teaching tool
- **Doctor ASCII**—get answers to your technical questions
- **Graphically Speaking**—create eye-catching designs that add appeal to your programs

You also get a dozen easy-to-understand articles every month. Games...utilities...programming techniques... tutorials...graphics...education...hardware projects. They'll help you expand what you can do. And complete program listings show you how to use what you learn.

That's not all. **HOT CoCo** saves you money too:

- Candid reviews help you make every purchase a sound investment.
- Informative ads let you comparison-shop from home.
- New-product announcements tell you what's available *before* it reaches the stores.

With all this at your fingertips, your subscription could pay for itself with one wise purchase.

And **HOT CoCo** is risk-free. If you don't like your first issue, just write "cancel" across the invoice and return it to us. You won't owe a thing.

Subscribe to **HOT CoCo** today. Twelve big issues are only $44.97 (US funds drawn on a US bank). Simply fill out the coupon below and return it right now to: **HOT CoCo** Subscription Dept., PO Box 975, Farmingdale, NY 11737, USA.

* *Dragon is a registered trademark of Dragon Data Ltd.*

YES! Help me improve my computing skills. Send me 12 issues of **HOT CoCo** for $44.97 (US). I understand that with payment enclosed or credit card order I will receive a **FREE** issue, making a total of 13 issues for $44.97 (US).

Get a 13th issue FREE when you enclose payment or charge it on your Mastercard, Visa, or American Express.

☐ **CHECK/MO** ☐ **MC** ☐ **VISA** ☐ **AE**

CARD #_____ EXP. DATE_____

SIGNATURE_____

NAME_____

ADDRESS_____

_____

POST CODE_____ COUNTRY_____

HOT CoCo • 80 Pine Street • Peterborough, NH 03458 • USA

73DFDU

```
7CFD 2342              BLS   ERROR
7CFF F77F66            STB   X2
7D02 BD89AA            JSR   CKCOMA
7D05 BD8E51            JSR   GETNUM
7D08 C10F              CMPB  #15
7D0A 2435              BHS   ERROR
7D0C F77F67            STB   Y1
7D0F BD89AA            JSR   CKCOMA
7D12 BD8E51            JSR   GETNUM
7D15 C110              CMPB  #16
7D17 2428              BHS   ERROR
7D19 F17F67            CMPB  Y1
7D1C 2323              BLS   ERROR
7D1E F77F68            STB   Y2
7D21 7F7F69            CLR   INV
7D24 9DA5              JSR   165
7D26 2709              BEQ   NOOPN
7D28 BD89AA            JSR   CKCOMA
7D2B BD8E51            JSR   GETNUM
7D2E F77F69            STB   INV
7D31 7F7F6A    NOOPN   CLR   XPOS
7D34 7F7F6B            CLR   YPOS
7D37 BD7E53            JSR   WINOFF
7D3A B67F62            LDA   TEMP
7D3D B77F63            STA   WININU
7D40 39                RTS
7D41 C607      ERROR   LDB   #7
7D43 7E8344            JMP   33604
7D46           ********************************
7D46 BD8E51    USEWIN  JSR   GETNUM
7D49 C105              CMPB  #5
7D4B 24F4              BHS   ERROR
7D4D F77F63            STB   WININU
7D50 BD7E2B            JSR   WINDON
7D53 BD7DFD            JSR   GETADR
7D56 9F88              STX   136
7D58 39                RTS
7D59           ********************************
7D59 BD7E2B    CURSOR  JSR   WINDON
7D5C BD7E17            JSR   GETWID
7D5F BD7E21            JSR   GETHGT
7D62 BD8E51            JSR   GETNUM
7D65 F17F60            CMPB  WIDTH
7D68 221A              BHI   FCERR
7D6A F77F6A            STB   XPOS
7D6D BD89AA            JSR   CKCOMA
7D70 BD8E51            JSR   GETNUM
7D73 F17F5F            CMPB  HEIGHT
7D76 220C              BHI   FCERR
7D78 F77F6B            STB   YPOS
7D7B BD7DFD            JSR   GETADR
7D7E 9F88              STX   136
7D80 BD7E53            JSR   WINOFF
7D83 39                RTS
7D84 C608      FCERR   LDB   #8
7D86 7E8344            JMP   33604
7D89           ********************************
7D89 2719      WINCLS  BEQ   TEXTC
7D8B BD7E2B            JSR   WINDON
7D8E BD8E51            JSR   GETNUM
7D91 C108              CMPB  #8
7D93 22AC              BHI   ERROR
7D95 5D                TSTB
7D96 2604              BNE   NOBLK
7D98 C680              LDB   #128
7D9A 200E              BRA   GOTCL
7D9C 8610      NOBLK   LDA   #16
7D9E 5A                DECB
7D9F 3D                MUL
7DA0 CB8F              ADDB  #143
7DA2 2006              BRA   GOTCL
7DA4 BD7E2B    TEXTC   JSR   WINDON
7DA7 F67F64            LDB   SPACE
7DAA 7F7F6A    GOTCL   CLR   XPOS
7DAD 7F7F6B            CLR   YPOS
7DB0 BD7DFD            JSR   GETADR
7DB3 9F88              STX   136
7DB5 BD7E17            JSR   GETWID
7DB8 BD7E21            JSR   GETHGT
7DBB 7C7F60            INC   WIDTH
7DBE 7C7F5F            INC   HEIGHT
7DC1 B67F60    CLSL1   LDA   WIDTH
7DC4 B77F61            STA   TWID
7DC7 4F                CLRA
7DC8 E786      CLSL2   STB   A,X
7DCA 4C                INCA
7DCB 7A7F61            DEC   TWID
7DCE 26F8              BNE   CLSL2
7DD0 308820            LEAX  32,X
7DD3 7A7F5F            DEC   HEIGHT
7DD6 26E9              BNE   CLSL1
7DD8 BD7E53            JSR   WINOFF
7DDB 39                RTS
7DDC           ********************************
7DDC BD7E2B    XPOSF   JSR   WINDON
7DDF F67F6A            LDB   XPOS
7DE2 7E8C36            JMP   35894
7DE5           ********************************
7DE5 BD7E2B    YPOSF   JSR   WINDON
7DE8 F67F6B            LDB   YPOS
7DEB 7E8C36            JMP   35894
7DEE           ********************************
7DEE
7DEE 0D6F      PRTJB   TST   111
7DF0 2701              BEQ   VDU
7DF2 39                RTS
7DF3 3262      VDU     LEAS  2,S
7DF5 3436              PSHS  A,B,X,Y
7DF7 BD7E6F            JSR   SETWIN
7DFA 3536              PULS  A,B,X,Y
7DFC 39                RTS
7DFD           ********************************
7DFD
7DFD 3406      GETADR  PSHS  A,B
7DFF B67F67            LDA   Y1
7E02 BB7F6B            ADDA  YPOS
7E05 C620              LDB   #32
7E07 3D                MUL
7E08 8E0400            LDX   #1024
7E0B 308B              LEAX  D,X
7E0D B67F65            LDA   X1
7E10 BB7F6A            ADDA  XPOS
7E13 3086              LEAX  A,X
7E15 3586              PULS  A,B,PC
7E17 B67F66    GETWID  LDA   X2
7E1A B07F65            SUBA  X1
7E1D B77F60            STA   WIDTH
7E20 39                RTS
7E21 B67F68    GETHGT  LDA   Y2
7E24 B07F67            SUBA  Y1
7E27 B77F5F            STA   HEIGHT
7E2A 39                RTS
7E2B 3436      WINDON  PSHS  A,B,X,Y
7E2D B67F63            LDA   WININU
7E30 C607              LDB   #7
7E32 3D                MUL
7E33 8E7F6C            LDX   #WIN1
7E36 3085              LEAX  B,X
7E38 C607              LDB   #7
7E3A 108E7F65          LDY   #X1
7E3E A680      COPY    LDA   ,X+
7E40 A7A0              STA   ,Y+
7E42 5A                DECB
7E43 26F9              BNE   COPY
7E45 8620              LDA   #32
7E47 7D7F69            TST   INV
7E4A 2602              BNE   INVET
7E4C 8660              LDA   #96
7E4E B77F64    INVET   STA   SPACE
7E51 35B6              PULS  A,B,X,Y,PC
7E53
7E53 3436      WINOFF  PSHS  A,B,X,Y
7E55 B67F63            LDA   WININU
7E58 C607              LDB   #7
7E5A 3D                MUL
7E5B 8E7F6C            LDX   #WIN1
7E5E 3085              LEAX  B,X
7E60 C607              LDB   #7
7E62 108E7F65          LDY   #X1
7E66 A6A0      COPB    LDA   ,Y+
7E68 A780              STA   ,X+
7E6A 5A                DECB
7E6B 26F9              BNE   COPB
7E6D 35B6              PULS  A,B,X,Y,PC
7E6F
7E6F 8DBA      SETWIN  BSR   WINDON
7E71 BDA93A            JSR   43322
7E74 8D08              BSR   PRINT
7E76 BD7DFD            JSR   GETADR
7E79 9F88              STX   136
```

A DRAGON + A DOT MATRIX PRINTER + PRINTER CONTROL

THE RESULT?

YOU WILL NEVER TOUCH A TYPEWRITER AGAIN!

PRINTER CONTROL represents a new approach to software - giving the customer what he really wants!

Everything you have ever wanted your printer to do can be done by PRINTER CONTROL plus things you never dreamt it could do!

Correspondence? It's a word processor. Forms? It's a graphics designer. Notices? How big? Posters? With pictures or without? Can't even sign your name? Use the User-Defined graphics facility and print your signature.

PRINTER CONTROL was written for his own use by an author who couldn't find anything on the market to give him what he really wanted - User-Friendly fingertip control of his printer. It has since been described by users as "PHANTASMOGORICAL!"
If you do not agree with this description you have an unconditional money-back guarantee!

-*-*-*-*-*-*-*-

PRINTER CONTROL is designed to make text and graphic printing on your dot matrix printer simple and a lot of fun.
The program will operate, with no modifications, on the DRAGON 32, the DRAGON 64 in 32 mode, and the DRAGON 64 in 64 mode. In 64 mode it will give the serial printer option.
The program operates in two modes.

MAIN MODE

In this mode you are able to load, save, verify, merge, edit and print text files. The edit and print facilities allow you to enter printer codes for individual letters, to mix text and graphics characters, to enlarge print up to eight times magnification and to access all the characters of your printer.
You are also able to print all or part of the working screen and magnify it up to 8 times.
Other features include left and right justify, block transfer/delete/copy, automatic address block positioning, automatic signing off block centreing, centreing of headings and page numbers; multiple prints - with a pause for cut sheet, user-defined graphics, user-defined strings, search/repeat search and variable page and line spacing.

PICTURE MODE

This allows you to load in a tape you have made from the hi-res screen of one of your own programs and then change the picture, add text to it, invert all or part of it, duplicate parts of it and to print any or all of it up to eight times magnification either horizontally or vertically. Any picture changed can be saved, verified, loaded or loaded back into your own program.

-*-*-*-*-*-*-*-

Comprehensive, user-friendly instruction manual supplied with each tape.

All registered users of PRINTER CONTROL are automatically enrolled in a FREE ADVICE AND INFORMATION SERVICE. You have this guarantee. If it is not the best then I do not put my name on it! If you are not satisfied then your money back in full without argument! If you have a problem then I am there to sort it out for you! What more could you ask?

PRINTER CONTROL will cost you £15.00 plus £1.00 p & p.

MacGowan Consultants

(0400 72085)

6, Arnhem Drive, Caythorpe, Nr Grantham, Lincs, NG32 3DQ

PRINTER CONTROL is a cassette based system which gives 10.5 K space for text files on the DRAGON 32, 36K on the 64. Users with disc systems requiring customized versions should enclose details of their DOS with their enquiry.

REAL VALUE FOR MONEY SOFTWARE

```
7E7B 8DD6              BSR   WINOFF
7E7D 39                RTS
7E7E
7E7E 17FF7C    PRINT   LBSR  GETADR
7E81 8108              CMPA  #8
7E83 2631              BNE   NOTBAK
7E85 B67F6A            LDA   XPOS
7E88 261A              BNE   DECSP
7E8A F67F6B            LDB   YPOS
7E8D 10270087          LBEQ  DONPRT
7E91 B67F64            LDA   SPACE
7E94 A784              STA   ,X
7E96 7A7F6B            DEC   YPOS
7E99 17FF7B            LBSR  GETWID
7E9C B67F60            LDA   WIDTH
7E9F B77F6A            STA   XPOS
7EA2 2008              BRA   DONBAK
7EA4 B67F64    DECSP   LDA   SPACE
7EA7 A784              STA   ,X
7EA9 7A7F6A            DEC   XPOS
7EAC 17FF4E    DONBAK  LBSR  GETADR
7EAF B67F64            LDA   SPACE
7EB2 A784              STA   ,X
7EB4 2062              BRA   DONPRT
7EB6 810D      NOTBAK  CMPA  #13
7EB8 261C              BNE   NOTLF
7EBA B67F64            LDA   SPACE
7EBD A784              STA   ,X
7EBF 17FF5F            LBSR  GETHGT
7EC2 7F7F6A            CLR   XPOS
7EC5 B67F6B            LDA   YPOS
7EC8 B17F5F            CMPA  HEIGHT
7ECB 2504              BLO   INCYC
7ECD 8D4A              BSR   SCROL
7ECF 2047              BRA   DONPRT
7ED1 7C7F6B    INCYC   INC   YPOS
7ED4 2042              BRA   DONPRT
7ED6 4D        NOTLF   TSTA
7ED7 2B15              BMI   GRAFIC
7ED9 8120              CMPA  #32
7EDB 253B              BLO   DONPRT
7EDD 8160              CMPA  #96
7EDF 2404              BHS   LOWCAS
7EE1 8A40              ORA   #64
7EE3 2002              BRA   OUTCHR
7EE5 8060      LOWCAS  SUBA  #96
7EE7 7D7F69    OUTCHR  TST   INV
7EEA 2702              BEQ   GRAFIC
7EEC 8840              EORA  #64
7EEE 17FF0C    GRAFIC  LBSR  GETADR
7EF1 A784              STA   ,X
7EF3 17FF21            LBSR  GETWID
7EF6 B67F6A            LDA   XPOS
7EF9 B17F60            CMPA  WIDTH
7EFC 2517              BLO   INCHZ
7EFE 7F7F6A            CLR   XPOS
7F01 17FF1D            LBSR  GETHGT
7F04 B67F6B            LDA   YPOS
7F07 B17F5F            CMPA  HEIGHT
7F0A 2504              BLO   INCVT
7F0C 8D0B              BSR   SCROL
7F0E 2008              BRA   DONPRT
7F10 7C7F6B    INCVT   INC   YPOS
7F13 2003              BRA   DONPRT
7F15 7C7F6A    INCHZ   INC   XPOS
7F18 39        DONPRT  RTS
7F19
7F19 BD7E17    SCROL   JSR   GETWID
7F1C BD7E21            JSR   GETHGT
7F1F 7C7F60            INC   WIDTH
7F22 B67F67            LDA   Y1
7F25 C620              LDB   #32
7F27 3D                MUL
7F28 8E0400            LDX   #1024
7F2B 308B              LEAX  D,X
7F2D F67F5F            LDB   HEIGHT
7F30 3414      SLP1    PSHS  X,B
7F32 F67F60            LDB   WIDTH
7F35 F77F61            STB   TWID
7F38 F67F65            LDB   X1
7F3B 3185      SLP2    LEAY  B,X
7F3D A6A820            LDA   32,Y
7F40 A7A4              STA   ,Y
7F42 5C                INCB
7F43 7A7F61            DEC   TWID
7F46 26F3              BNE   SLP2
7F48 3514              PULS  X,B
7F4A 308820            LEAX  32,X
7F4D 5A                DECB
7F4E 26E0              BNE   SLP1
7F50 F67F65            LDB   X1
7F53 B67F64            LDA   SPACE
7F56 A785      BLP1    STA   B,X
7F58 5C                INCB
7F59 7A7F60            DEC   WIDTH
7F5C 26F8              BNE   BLP1
7F5E 39                RTS
7F5F           HEIGHT  RMB   1
7F60           WIDTH   RMB   1
7F61           TWID    RMB   1
7F62           TEMP    RMB   1
7F63           WININU  RMB   1
7F64           SPACE   RMB   1
7F65           X1      RMB   1
7F66           X2      RMB   1
7F67           Y1      RMB   1
7F68           Y2      RMB   1
7F69           INV     RMB   1
7F6A           XPOS    RMB   1
7F6B           YPOS    RMB   1
7F6C
7F6C           *** DATA AREA FOR 5 WINDOWS ***
7F6C
7F6C 001F000F00 WIN1   FCB   0,31,0,15,0,0,0
7F73 001F0D0F00 WIN2   FCB   0,31,13,15,0,0,0
7F7A 001F000C00 WIN3   FCB   0,31,0,12,0,0,0
7F81 001F000F01 WIN4   FCB   0,31,0,15,1,0,0
7F88 011E010E01 WIN5   FCB   1,30,1,14,1,0,0
7F8F           USRLOC  RMB   20
7FA3
7FA3
```


R & P International

Programs for the Dragon 32/64

INSTANT GRAPH PLOTTER 1

UP TO SIX GRAPHS DISPLAYED

Input data and call up numerous functions and display aids by superbly clear graphics-text prompts
Cassette file storage and retrieval of data
Readily accessible Basic — adding your own functions easy

** Comprehensive 28-page Manual provided free. From beginner to expert. Over two dozen examples
** R & P will give advice on program use or modification to any user at any level of expertise. Free on request

". . . package is amply supported by . . . manual, and half an hour spent with this, and using the excellent screen prompts, will make its use simplicity itself . . . educational value . . ."
Gordon Lee (Dragon User January 1985)

*** ***Awarded Four Dragons in review*** ***
— highest rating yet for non-games program

INSTANT GRAPH PLOTTER 2

An extension of the popular "Instant Graph Plotter 1" IGP2 has the additional facilities of text graphics anywhere on screen (horizontal or vertical text, numbers, arrows, etc.). Highly display-orientated.

Prices: Instant Graph Plotter 1 Cassette with 28-page Manual ..... **£7.50** incl. p&p.
IGP1 and IGP2 28-page Manual + Manual appendix for IGP2..... **£14.50** incl. p&p.
IGP2 not available separately

ENDLESS NOUGHTS AND CROSSES

On a screen-wide grid
Get five noughts or crosses in a row to win (across, down or diagonal). Game for two, or play against the computer with Hint and Take-back facilities. Price **£5.50** incl. p&p.

Cheque/crossed P.O. to:

R & P International, P.O. Box 129
Wembley, Middlesex HA0 2UG

Datapen

A QUALITY LIGHTPEN

for the DRAGON 32 microcomputer

Datapen

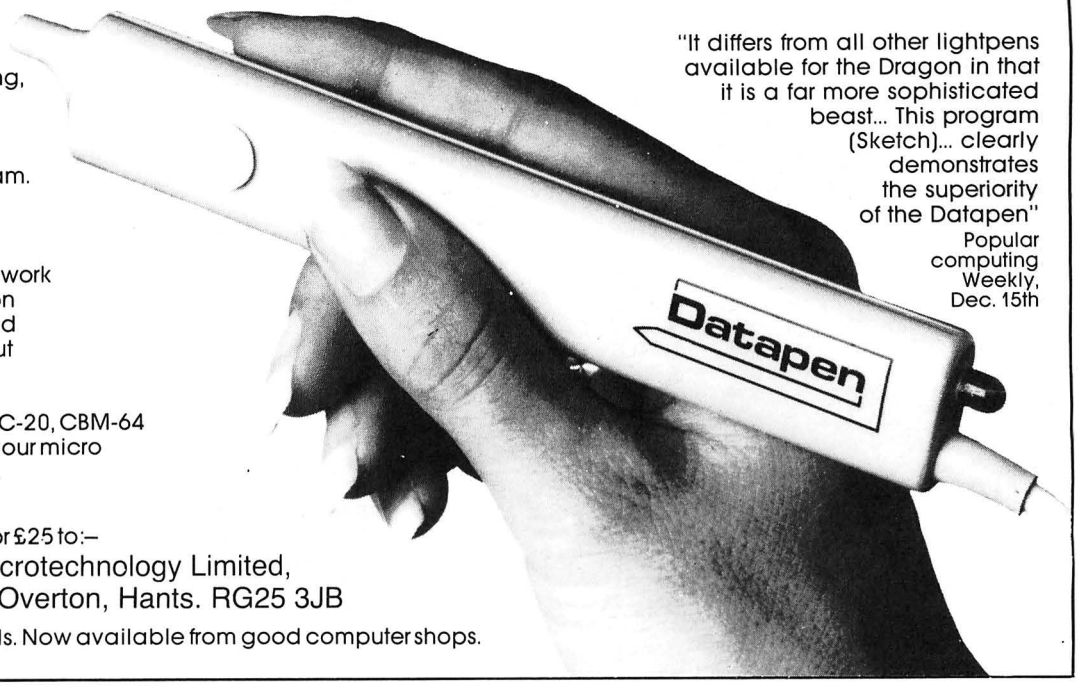
£25

inclusive of VAT, P&P. Two different drawing programs provided free with each lightpen. "SKETCH" and "SHAPE-CREATE". SKETCH is a superb high resolution colour drawing program allowing both precise drawing and freehand sketching, painting etc. SHAPE-CREATE is a high resolution library shape drawing program.

SUPERIOR PERFORMANCE
* Insensitive to ambient lighting
* Responds to different colours
* Program accessible LED lamp readout
* Switch for program control

"It differs from all other lightpens available for the Dragon in that it is a far more sophisticated beast... This program (Sketch)... clearly demonstrates the superiority of the Datapen"
Popular computing Weekly, Dec. 15th

SUPERIOR PROGRAMS
* Tape storage of your work
* Good documentation
* User routines provided on tape and on printout



Also available for:– VIC-20, CBM-64 or BBC B. Please state your micro when ordering.

Send cheque or P.O. for £25 to:–
D.U.7 Datapen Microtechnology Limited,
Kingsclere Road, Overton, Hants. RG25 3JB

Or send S.A.E. for details. Now available from good computer shops.

DRAGON GAMES USER'S GROUP

THE BRIGHTEST AND BEST DRAGON USERS' CLUB

WHY NOT JOIN US NOW AND RECEIVE:

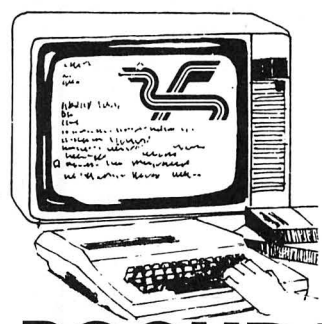
Our bi-monthly newsletter, DRAGON SOFTWARE, with lots of reviews, playing tips, an open section, details of the latest games, an adventure helpline, etc, etc.

Link-Up — puts you in touch with members in your area. Our own special discount scheme. We offer 15-25% off hundreds of Dragon games — saving you more than the membership fee!

MEMBERSHIP RATES

One year's membership is available now for only **£5.00**, whilst a 6 month trial costs a mere **£3.00**.

Please remember to make all cheques payable to **'ORON SOFTWARE'**.



OUR CURRENT RANGE INCLUDES:

Microdeal Games	£6.70
Return of the Ring	£7.95
Dragon Chess	£7.95
Tim Love's Cricket	£7.20
Zak'sson	£5.90
Quazimodo	£5.90
Buzzard Bait	£7.95
Ice Castles	£6.70
Manic Miner	£6.50
Jet Set Willy	£6.50
The Ket Trilogy	£7.95
Cricklewood Incident	£5.50
Junior's Revenge	£2.99
Cuthbert Goes Walkabout	£1.99
Cuthbert Goes Digging	£2.99
Chicken Run	£6.50
Quickshot 2	£13.45

FOR MEMBERS ONLY!!

64, PRINCE ST., ROCHDALE, LANCS.

Dragon database

Ever wanted to put all your vital information — names, addresses, birthdays — on database? **Lee Noble** shows you how.

DRAGBASE is a database designed to operate on the DRAGON 32/64 with Dragon data DOS attached. The program may easily be adapted to operate with cassette storage by changing the load and save routines and removing the error check and disk editor routines.

On running you will be presented with the MAIN MENU. From this menu you can:

[1] Load a file
[2] Construct a file or extend one which is in memory.
[3] View the file which is in memory.
[4] Save the file which is in memory.
[5] Construct the titles to the five different fields which make up one record in the datafile.
[6] Move to the disk editor which allows you to: Look at the disk directory, Initialise a disk, Kill a file or Protect a file.

The loading and saving of files is very easy. On selecting either [1] or [4] you are requested to enter the name of the file you wish to save or load. These names must be no more than eight characters long (you will not be able to enter more than eight characters) and must contain no spaces or punctuation marks. On entering an invalid file name you will be told of your mistake and the program will return to the main menu.

On selecting [2] you are initially asked to indicate whether you wish to extend or construct a file.

Construct file

Each file is split up into 200 records each of which has five fields. Each of the fields is given a name which is defined in [5]. These names all relate to the information stored in the file. For instance:

TITLE 1 Name
TITLE 2 Address
TITLE 3 Telephone number
TITLE 4 Birthday
TITLE 5 Other information

This file is storing information on people. You would enter the Name of the person under name, the address of the same person under Address and so on. Once this record of the file is completed you can go on and enter more records or return to the main menu. In the example above the information on 200 different people may be stored. Each person's record has five separate fields of information stored on them making a total of 200 × 5 = 1,000 separate pieces of data in one file, each of which may be up to 61 characters long.

Extend file

The extend facility allows you to extend a file, as the name suggests. In the above example, if you were to exit and return to

```
10 ERRORGOTO2840
20 REM ******************************************
30 REM *DRAGBASE.  WRITTEN BY LEE NOBLE.  1984.*
40 REM ******************************************
50 POKE65495,0
60 GOSUB3280
70 PCLEAR1
80 CLEAR7000
90 GOSUB2970:REM initialise invert
100 DIMRECORD$(200,5),TITLE$(5)
110 GOSUB130:REM menu one
120 GOTO110
130 REM menu one
140 CLS5
150 FOR X=33 TO449 STEP 32
160 PRINT@X,STRING$(30,32);
170 NEXT X
180 PRINT@101,"[1].........LOAD FILE.";
190 PRINT@165,"[2]..CONSTRUCT/EXTEND.";
200 PRINT@229,"[3].........VIEW FILE.";
210 PRINT@293,"[4].........SAVE FILE.";
220 PRINT@357,"[5]..CONSTRUCT TITLES.";
230 PRINT@421,"[6].......DISK EDITOR.";
240 EXEC&H6100
250 PRINT@11,"DRAG BASE.";
260 PRINT@483,"SELECT APPROPRIATE NUMBER";
270 A$=INKEY$:IF VAL(A$+" ")=0 OR VAL(A$+" ")>6 OR A$="" THEN 270
280 ON VAL(A$) GOSUB 300,640,970,1340,1680,1860
290 RETURN
300 REM load file
310 START=0
320 EXEC&H6100
330 FOR X=33TO449STEP32
340 PRINT@X,STRING$(30,32);
350 NEXTX
360 PRINT@163,"NAME OF FILE TO BE LOADED?";
370 PRINT@299,STRING$(10,207);
380 EXEC&H6100
390 PRINT@480,STRING$(30,32);
400 PLACE=300:MAX=7:GOSUB3050:NAME$=IMF$
410 IF NAME$="" THEN GOTO400
420 FOR X=1 TO8 :A$=MID$(NAME$,X,1):IFA$=" " OR A$="." OR A$="/"
THEN GOTO 400
430 PRINT@480,"  'ENTER'-ABORT    'CLEAR'-LOAD ";
440 A$=INKEY$
450 IF A$=CHR$(13) THEN RETURN
460 IF A$<>CHR$(12) THEN GOTO 440
470 PRINT@480,"                LOADING.            ";:PRINT@448,"";
480 IF EOF(NAME$)=1 THEN CLOSE1:RETURN
490 FREAD NAME$,FROM STAR,FOR 10,NUMBER
500 START=10
510 FOR X=1 TO 5
520 IF EOF(NAME$)=1 THEN CLOSE1:RETURN
530 FLREAD NAME$,FROM START,FOR 30;TITLE$(X)
540 START=START+30
550 NEXTX
560 X=1
570 FOR Y=1 TO 5
580 IF EOF(NAME$)=1 THEN CLOSE1:RETURN
590 FLREAD NAME$,FROM START,FOR 64;RECORD$(X,Y)
600 START=START+64
610 NEXT Y
620 X=X+1
630 GOTO570
640 REM construct files
650 EXEC&H6100:FOR X=33 TO 448 STEP 32
660 PRINT@X,STRING$(30,32);
670 NEXT X
680 PRINT@197,"[1].........CONSTRUCT.";
690 PRINT@261,"[2]..........EXTEND.";:EXEC&H6100
700 A$=INKEY$:IF A$="" OR VAL(A$)<1 OR VAL(A$)>2 THEN GOTO 700
710 IF A$="1" THEN NUMBER=1
720 IF A$="2" THEN NUMBER=NUMBER+1
730 F=FRE$
740 PRINT@480,""
750 PRINT@0,"  "+TITLE$(1)+STRING$(30-LEN(TITLE$(1)),32);
760 PRINTSTRING$(64,207);
770 PRINT@96,"  "+TITLE$(2)+STRING$(30-LEN(TITLE$(2)),32);
780 PRINTSTRING$(64,207);
790 PRINT@192,"  "+TITLE$(3)+STRING$(30-LEN(TITLE$(3)),32);
800 PRINTSTRING$(64,207);
810 PRINT@288,"  "+TITLE$(4)+STRING$(30-LEN(TITLE$(4)),32);
820 PRINTSTRING$(64,207);
830 PRINT@384,"  "+TITLE$(5)+STRING$(30-LEN(TITLE$(5)),32);
840 PRINTSTRING$(64,207);
850 PRINT@485,"SPACE AVALIABLE -";F;
860 EXEC&H6100
870 PRINT@448,""
880 PLACE=32:MAX=62:GOSUB3050:RECORD$(NUMBER,1)=IMF$
890 PLACE=128:GOSUB3050:RECORD$(NUMBER,2)=IMF$
900 PLACE=224:GOSUB3050:RECORD$(NUMBER,3)=IMF$
910 PLACE=320:GOSUB3050:RECORD$(NUMBER,4)=IMF$
920 PLACE=416:GOSUB3050:RECORD$(NUMBER,5)=IMF$
930 F=FRE$
940 PRINT@484,"'CLEAR'-NEXT 'ENTER'-END";
950 A$=INKEY$:IF A$=CHR$(13) THEN RETURN:ELSE IF A$=CHR$(12) THEN
NUMBER=NUMBER+1:GOTO740
960 GOTO950
970 REM view file
980 Y=0
990 FOR X=1 TO 5
1000 Y=LEN(TITLE$(X))
1010 IF Y>Y THEN Y=Y
1020 NEXT X
1030 PRINT@0,"              DRAGBASE."
1040 PRINT@480,"   SELECT APPROPRIATE NUMBER ";
1050 Z=(28-Y)/2
1060 EXEC&H6100
1070 FOR X=32TO448STEP32
1080 PRINT@X,STRING$(32,32);
1090 NEXTX
1100 PRINT@72,"CLASSIFICATIONS.";
1110 PRINT@128+Z,"[1]."+TITLE$(1);
1120 PRINT@192+Z,"[2]."+TITLE$(2);
1130 PRINT@256+Z,"[3]."+TITLE$(3);
1140 PRINT@320+Z,"[4]."+TITLE$(4);
1150 PRINT@384+Z,"[5]."+TITLE$(5);
1160 PRINT@448+Z,"[6].END"
1170 EXEC&H6100
1180 A$=INKEY$:IF A$="" OR VAL(A$)<1 OR VAL(A$)>6 THEN 1180 ELSE
CN=VAL(A$)
1190 IF CN=6 THEN RETURN
1200 PRINT@128,STRING$(32,32);
1210 PRINT@128+(32-(LEN(TITLE$(VAL(A$)))))/2,TITLE$(VAL(A$));
1220 PRINT@192,STRING$(32,32);
1230 PRINT@196,"ENTER ITEM TO SEARCH FOR";
1240 FOR E=256 TO 384 STEP 32
1250 PRINT@E,STRING$(32,32);
1260 NEXT E
```

the main menu in the middle of entering information you could then save the data you have entered and return to it at a later stage to continue entering information.

View file

There would be no point in entering a load of information if you couldn't get access to it again. The VIEW facility allows you to look at the information you have stored. But that's not all. Once again we will take the name, address, telephone number example we used before.

You must first select which field you wish to search through — the choices are:
1 Name
2 Address
3 Telephone number
4 Birthday
5 Other information

Let's say we select Name. Now we have to enter the search item. As this is in the name field we should enter a name. The program will now search through all the name fields in all the records until it finds the name you entered. On finding the search item, it, along with the rest of the information on that person, will be displayed on screen (Name, Address, Telephone number, Birthday, Other information).

If the search item occurs more than once (if, say, two or more people share the same name) then the records on both or all people with that name that are contained in the file will be displayed. When no more people with the search item as a name are found the total number of finds will be displayed and the program will return to the view menu. The information displayed may also be printed out (if a printer is connected) or edited.

Editor

If you select editor mode a black flashing cursor will appear to the top left of the screen. This cursor can be moved up and down with the cursor keys ↑ and ↓. If the 'ENTER' key is pressed while this cursor is flashing then the editor mode will be exited. If any other key is pressed then the information in the field that the cursor is pointing at will be cleared and the substitute information for that field may be entered. On pressing 'ENTER' again the editing of the present field will be terminated and the black flashing cursor will appear at the top left of the screen once more. You can now edit another field or exit the edit mode (press 'ENTER'). When you exit the edit mode the view mode will carry on.

Construct titles

With this facility you are able to give each of the five fields a name. In the above example field 1 is given the name 'NAME', field 2 is called 'ADDRESS' and so on for fields 3, 4 and 5. The field name is also the title which is displayed on screen. Being able to change the field names allows the database to be used for all sorts of things from names and addresses to cataloguing books or a record collection.

Disk editor

The disk editor makes life using the disk drive a lot easier. It allows you, for example, to initialise a disk or kill a file without having to exit the program to use the basic commands.

Program notes

050	Speed up poke
110-290	Main menu
300-630	Load file
640-960	Construct files
970-1330	View files
1340-1670	Save file
1680-1850	Title construction
1860-2740	Disk editor
1870-2080	Display disk directory
2090-2160	Initialise disk
2170-2290	Kill file
2300-2470	File Protection on/off
2480-2780	Search routine
2790-2830	Wait for space bar to be pressed
2840-2960	Display error messages
2970-3040	Initialise machine code screen invert
3050-3140	Input routine
3150-3270	Print out information
3280-3340	Break key disable
3350-3530	Edit routine

```
1270 PRINT@448,""
1280 PRINT@480,STRING$(30,32);
1290 PLACE=288:MAX=62:GOSUB3050:TA$=IMF$
1300 PRINT@192,""
1310 PRINT@491,"SEARCHING.";
1320 GOSUB2480:REM search routine
1330 GOTO970
1340 REM save file
1350 LEGHT=(64*NUMBER)+(30*5)
1360 START=0
1370 EXEC&H6100
1380 FOR X=33TO449STEP32
1390 PRINT@X,STRING$(30,32);
1400 NEXTX
1410 PRINT@163,"NAME OF FILE TO BE SAVED ?";
1420 PRINT@299,STRING$(10,207);
1430 EXEC&H6100
1440 PRINT@480,STRING$(30,32);
1450 PLACE=300:MAX=7:GOSUB3050:NAME$=IMF$
1460 IF NAME$="" THEN GOTO1450
1470 FOR X=1 TO8 :A$=MID$(NAME$,X,1):IFA$=" " OR A$="." OR A$="/"
THEN GOTO 1450
1480 PRINT@480,"  'ENTER'-ABORT    'CLEAR'-SAVE ";
1490 A$=INKEY$
1500 IF A$=CHR$(13) THEN RETURN
1510 IF A$<>CHR$(12) THEN GOTO1490
1520 PRINT@480,"            SAVEING.           ";:PRINT@448,"";
1530 CREATE(NAME$),LEGTH
1540 FWRITE NAME$,FROM START,FOR 10;NUMBER
1550 START=10
1560 FOR X=1 TO 5
1570 FWRITE NAME$,FROM START,FOR 30;TITLE$(X)
1580 START=START+30
1590 NEXTX
1600 FOR X=1 TO NUMBER
1610 FOR Y=1 TO 5
1620 FWRITE NAME$,FROM START,FOR 64;RECORD$(X,Y)
1630 START=START+64
1640 NEXTY,X
1650 CLOSE1
1660 PROTECT ON NAME$+".DAT"
1670 RETURN
1680 REM title construction
1690 PRINT@71,"title";:PRINT@77,"construction";
1700 PRINT@97,STRING$(30,32);
1710 FOR X=160 TO 416 STEP64
1720 PRINT@X,STRING$(32,32);
1730 NEXTX
1740 PRINT@480,STRING$(30,32);
1750 PRINT@129,"title";:PRINT@135,"one";
1760 PRINT@193,"title";:PRINT@199,"two";
1770 PRINT@257,"title";:PRINT@263,"three";
1780 PRINT@321,"title";:PRINT@327,"four";
1790 PRINT@385,"title";:PRINT@391,"five";
1800 PLACE=162:MAX=27:GOSUB3050:TITLE$(1)=IMF$
1810 PLACE=226:GOSUB3050:TITLE$(2)=IMF$
1820 PLACE=290:GOSUB3050:TITLE$(3)=IMF$
1830 PLACE=354:GOSUB3050:TITLE$(4)=IMF$
1840 PLACE=418:GOSUB3050:TITLE$(5)=IMF$
1850 RETURN
1860 REM disk editor
1870 CLS5
1880 FOR X=33 TO449 STEP 32
1890 PRINT@X,STRING$(30,32);
1900 NEXT X
1910 PRINT@69,"[1].....DISK DIRETORY";
1920 PRINT@133,"[2]...INITIALISE DISK";
1930 PRINT@197,"[3].........KILL FILE";
1940 PRINT@261,"[4]...FILE PROTECTION";
1950 PRINT@325,"[5]...............END";
1960 EXEC&H6100
1970 PRINT@11,"DRAG BASE.";
1980 PRINT@483,"SELECT APPROPRIATE NUMBER";
1990 A$=INKEY$:IF VAL(A$+" ")=0 OR VAL(A$+" ")>5 OR A$="" THEN
1990
2000 IF A$="5" THEN RETURN
2010 PRINT@448,"";
2020 ON VAL(A$) GOSUB 2040,2090,2170,2300
2030 GOTO1860
2040 CLS
2050 PRINT@480,"";
2060 DIR
2070 GOSUB2800
2080 RETURN
2090 REM initialise disk
2100 PRINT@133,"[2]...INITIALISE DISK";
2110 A$=INKEY$:IF A$="" THEN 2110
2120 IF A$<>"2" THEN RETURN
2130 PRINT@480,"       INITIALISING DISK.      ";
2140 PRINT@448,"";
2150 DSKINIT
2160 RETURN
2170 REM kill
2180 PRINT@384,"ENTER NAME OF FILE TO BE KILLED.";
2190 PRINT@480,STRING$(31,32);
2200 PRINT@425,STRING$(14,32);
2210 PLACE=426:MAX=11:GOSUB3050:NAME$=IMF$
2220 PRINT@480," 'ENTER'-ABORT 'CLEAR'-PROCEED";
2230 A$=INKEY$
2240 IF A$=CHR$(13) THEN RETURN
2250 IF A$<>CHR$(12) THEN GOTO 2230
2260 PRINT@480,"            KILLING.           ";
2270 PRINT@448,"";
2280 KILL NAME$
2290 RETURN
2300 REM protection
2310 EXEC&H6100:FOR X=33 TO 449 STEP 32
2320 PRINT@X,STRING$(30,32);
2330 NEXT X
2340 PRINT@133,"[1].......PROTECT ON.";
2350 PRINT@197,"[2].......PROTECT OFF.";:EXEC&H6100
2360 GA$=INKEY$:IF GA$="" OR VAL(GA$)<1 OR VAL(GA$)>2 THEN GOTO
2360
2370 EXEC&H6100:PRINT@293,"  ENTER NAME OF FILE
";:EXEC&H6100:PRINT@480,STRING$(31,32);
2380 PRINT@393,STRING$(14,32);
2390 PLACE=394:MAX=11:GOSUB3050:NAME$=IMF$
2400 PRINT@480," 'ENTER'-ABORT 'CLEAR'-PROCEED";
2410 A$=INKEY$
2420 IF A$=CHR$(13) THEN RETURN
2430 IF A$<>CHR$(12) THEN GOTO2410
2440 PRINT@480,STRING$(31,32);:PRINT@448,"";
2450 IF GA$="2" THEN PROTECT OFF NAME$
2460 IF GA$="1" THEN PROTECT ON NAME$
2470 RETURN
```

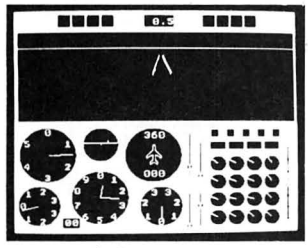
```
2480 REM search routine
2490 TF=0
2500 FOR R=1 TO NUMBER
2510 IF INSTR(1,RECORD$(R,CN),TA$)>0 THEN TF=TF+1:GOSUB2560
2520 NEXT
2530 PRINT@448,"      NUMBER OF
FINDS=";TF;:PRINT@480,STRING$(30,32);:BEEP1
2540 GOSUB2790
2550 RETURN
2560 EXEC&H6100
2570 PRINT@0,"  "+TITLE$(1)+STRING$(30-LEN(TITLE$(1)),32);
2580 PRINTSTRING$(64,207);
2590 PRINT@96,"  "+TITLE$(2)+STRING$(30-LEN(TITLE$(2)),32);
2600 PRINTSTRING$(64,207);
2610 PRINT@192,"  "+TITLE$(3)+STRING$(30-LEN(TITLE$(3)),32);
2620 PRINTSTRING$(64,207);
2630 PRINT@288,"  "+TITLE$(4)+STRING$(30-LEN(TITLE$(4)),32);
2640 PRINTSTRING$(64,207);
2650 PRINT@384,"  "+TITLE$(5)+STRING$(30-LEN(TITLE$(5)),32);
2660 PRINT@416,STRING$(64,207);
2670 EXEC&H6100
2680 PRINT@32,RECORD$(R,1);
2690 PRINT@128,RECORD$(R,2);
2700 PRINT@224,RECORD$(R,3);
2710 PRINT@320,RECORD$(R,4);
2720 PRINT@416,RECORD$(R,5);
2730 PRINT@480,"'SPACE'-NEXT/'E'-EDIT/'P'-PRINT";:POKE1535,110
2740 A$=INKEY$:IF A$="" THEN GOTO 2740
2750 IF A$=" " THEN RETURN
2760 IF A$="E" THEN GOSUB3350:RETURN
2770 IF A$="P" THEN GOSUB 3150:RETURN
2780 GOTO 2740
2790 REM
2800 PRINT@480,"  PRESS SPACE BAR TO CONTINUE. ";:POKE1535,96
2810 A$=INKEY$
2820 IF A$<>CHR$(32) THEN GOTO2810
2830 RETURN
2840 REM error messages
2850 IF ERR=160 THEN PRINT@480,"      FILE DOES NOT EXSIST     ";
2860 IF ERR=152 THEN PRINT@480," FILE EXSISTS AND IS PROTECTED.";
2870 IF ERR=148 THEN PRINT@480," THIS DISK IS FULL. USE ANOTHER";
2880 IF ERR=138 THEN PRINT@448,"FAULTY DISK. TRY
REINITIALISING       OR USE ANOTHER DISK.      ";
2890 IF ERR=128 THEN PRINT@448," SYSTEM NOT READY. FAULTY DISK?
DISK NOT INSERTED? DOOR OPEN?";
2900 IF ERR=144 THEN PRINT@480," INVALID DIRECTORY. FAULTY DISK";
2910 IF ERR=146 THEN PRINT@480,"          DIRECTORY IS FULL.      ";
2920 IF ERR=44 THEN PRINT@448," WRONG FILL MODE. FILE DOES NOT
CONTAIN DESIRED IMFORMATION  ";
2930 IF ERR=12 OR ERR=26 THEN PRINT@480," OUT OF MEMORY OR STRING
SPACE.";
2940 BEEP1
2950 WAIT 5000
2960 GOTO110
2970 REM screen invert
2980 FOR X=&H6100 TO &H610E
2990 READ A$
3000 POKE X,VAL("&H"+A$)
3010 NEXT X
```

```
3020 REM EXEC&H6100
3030 DATA8E,04,00,A6,84,88,40,A7,80,8C,06,00,25,F5,39
3040 RETURN
3050 REM input routine
3060 IN$="":IMF$=""
3070 IN$=INKEY$:PRINT@PLACE,">";:PRINT@PLACE," ";:IF IN$="" OR
IN$=CHR$(12)  THEN 3070
3080 IF ASC(IN$)=8 AND LEN(IMF$)>1 THEN
IMF$=LEFT$(IMF$,LEN(IMF$)-1):PLACE=PLACE-1:PRINT@PLACE," ";:GOTO3100
3090 IF ASC(IN$)=8 AND LEN(IMF$)=1 THEN
IMF$="":PLACE=PLACE-1:PRINT@PLACE," ";
3100 IF PLACE<=P1 THEN PLACE=P1
3110 IF ASC(IN$)<8 AND ASC(IN$)<13 AND LEN(IMF$)<=MAX THEN
IMF$=IMF$+IN$:PRINT@PLACE,IN$;:PLACE=PLACE+1
3120 IF PLACE<=P1 THEN PLACE=P1
3130 IF ASC(IN$+" ")<13 THEN GOTO 3070
3140 RETURN
3150 REM Print out
3160 PRINT@480,"        HEADINGS (Y/N)        ";:POKE1535,96
3170 A$=INKEY$:IF A$="N" OR A$="Y" THEN 3190
3180 GOTO 3170
3190 PRINT@480,"      SENDING TO PRINTER      ";:POKE1535,96
3200 FOR LOOP=1 TO 5
3210 IF A$="Y" THEN PRINT#-2,CHR$(8) + CHR$(28) + CHR$(255) +
CHR$(136) + CHR$(28) + CHR$(225) + CHR$(136) + CHR$(15)
3220 IF A$="Y" THEN PRINT#-2,CHR$(14)+TITLE$(LOOP)+CHR$(15)
3230 PRINT#-2,RECORD$(R,LOOP)
3240 NEXT LOOP
3250 IF A$="Y" THEN PRINT#-2,CHR$(8) + CHR$(28) + CHR$(255) +
CHR$(136) + CHR$(28) + CHR$(225) + CHR$(136) + CHR$(15)
3260 PRINT#-2,CHR$(13)
3270 RETURN
3280 POKE411,228
3290 POKE412,203
3300 POKE413,4
3310 POKE414,237
3320 POKE415,228
3330 POKE410,236
3340 RETURN
3350 REM edit
3360 PRINT@480,"   'ENTER' TO EXIT EDIT MODE.  ";
3370 POKE1535,96
3380 PS=1056:QT=1
3390 C1=PEEK(PS):C2=PEEK(PS+32)
3400 WAIT400
3410 POKEPS,62:POKEPS+32,62
3420 WAIT500
3430 POKEPS,C1:POKEPS+32,C2
3440 IF PEEK(341)=223 AND PS>1056 THEN PS=PS-96:QT=QT-1:GOTO3390
3450 IF PEEK(342)=223 AND PS<1440 THEN PS=PS+96:QT=QT+1:GOTO3390
3460 A$=INKEY$
3470 IF A$="" OR A$=CHR$(94) OR A$=CHR$(10) THEN 3390
3480 IF A$=CHR$(13) THEN RETURN
3490 RECORD$(R,QT)=IMF$
3500 PRINT@PS-1024,STRING$(54,32)
3510 PLACE=PS-1024:MAX=63:GOSUB3050
3520 RECORD$(R,QT)=IMF$
3530 GOTO3380
```


DRAGON/32 BBC MODEL/B ATARI 400/800 TRS80 C/C 32K ELECTRON

747 FLIGHT SIMULATOR

Superbly realistic instrumentation and pilot's view in lifelike simulation which includes emergencies such as engine fires and systems failures. This program uses high resolution graphics to the full to produce the most realistic flight-deck display yet seen on a home computer. There are 21 real dials and 25 other indicators (see diagram). Your controls operate throttle, ailerons, elevators, flaps, slats, spoilers, landing gear, reverse thrust, brakes, etc. You see the runway in true perspective. Uses joysticks and includes options to start with take-off or random landing approach. "A real simulation, not just another game" *(Your Computer, April 19 '83).*



Cassette ~~£9.95~~ (p&p and VAT included):

DACC Ltd (Dept. DU)

23 Waverley Road, Hindley, Greater Manchester WN2 3BN. (Despatch within 48 hours)

STOP PRESS!

STOCK CLEARANCE OFFER

After 2½ years of continued success (what a record) DACC are now selling the final stocks of 747 flight simulator to make way for new releases. The price of this exciting and realistic simulator is being slashed to £2.95. Offer only good while stocks last. Available to UK residents only. Price includes p&p (Please quote dept MD).

DRAGON 32 SUPER SALE

£1.99

Peaksoft	Ossie	**Beyond**	Up Periscope
	Lionheart	**Paramount**	Castle Of Doom
	Death's Head Hole	**PSS**	Dataplan
	Photo Finish	**Cascade**	50 Games Cassette
Blaby	Mission Attack	**Abrasco**	Fairground Fantasy
	Star Swoop	**Quicksilva**	Mined Out
	Boris The Bold	**Microdeal**	Cuthbert Goes W/bout
	Barmy Burgers		Defence
	Perilous Pit		Flipper
	Lazer Run		Invaders Revenge
	McDougal's Last Stand		Jerusalem Adventure 2
	Darts		Pinball
	The Bells		Storm
	Do Do		Space Monopoly
	Guardian Angel	**R. Sheperd**	Transsylvanian Tower
	Mutant Wars		Super Spy
Softek	Ugh!	**Lothlorien**	Samuri Warrior
	Ultrapede		Johnny Reb
	Galacticians		Roman Empire
	Monsters		Warlord
CRL	Skier		Tyrant Of Atlantis
	Handicap Golf	**Virgin**	Death Cruise
	Keys of Roth		I Ching
Audiogenic	Big Six		Castle Adventure
	Golf		UXB

ALL AT £2.99

MICRODEAL	Danger Ranger	**BLABY**	Olympia
	Devil Assult		Morbid Mansion
	Keys Of The Wizard		Cosmic Crusader
SALAMANDER	Wings Of War		Ruby Robba
	Everest	**SHARDS**	Pettigrew's Diary
PROGRAM FACT	Pacoids	**CABLE**	Drone Datatank

THIS MONTH'S EXTRA SPECIAL OFFERS AT £3.99

OASIS DRAGON CHESS (RRP £9.95) ★ SPRINT (BASIC COMPILER)
COMPUTERWARE **£5.50** Linkword ★ Darts ★ Blockbuster Quiz
INCENTIVE **£5.99** Back Track ★ NEW ★ The Ket Triology **£8.99**

PERIPHERALS

Vinyl Dust Cover (beige/brown)	**£2.50**	SS/SD Diskettes (10 pack)	**£15.00**
Centronics Cable (New low price)	**£9.95**	Phone lead	**£1.75**

ROTRONICS DX85. 120 cps Dot Matrix printer friction tractor **£199.95** + cable

NOTE: prices are for CHEQUE/PO WITH ORDER + **50p** PER ORDER P&P (**£5** AND OVER FREE)

CAPRI MARKETING LTD.
LTD. **16 Carter Walk, Tylers Green**
Penn, Bucks HP10 8ER

SPECIAL OFFER for limited period. Now only £14.95 inclusive

TOP VALUE LIGHT PEN

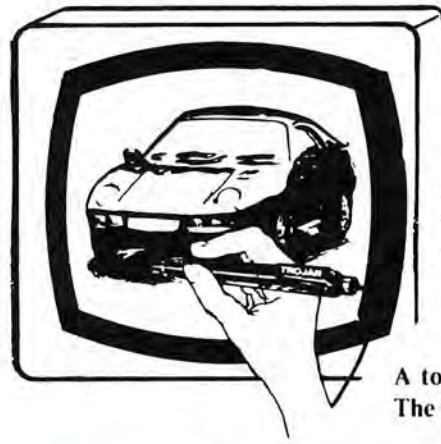
DRAGON 32/TANDY COLOUR 32K/SPECTRUM 48K

THE NEW ADVANCED PROGRAM

for the Trojan light pens include the following facilities-

* DRAW BOX
* DRAW CIRCLE
* DRAW LINE
* DRAW PICTURES FREEHAND
* COLOUR FILL DESIGNATED AREAS
* SAVE AND LOAD PICTURES TO AND FROM TAPE
* FULL ERASE FACILITIES

All in Hi-Res screen in any of 4 colours for the Dragon/Tandy, and 8 colours for the Spectrum.



* DATA ENTRY AND PROCESSING
* MENU SELECTION AND CONTROL
* GAMES PLAYING

This is a first class program which gives hints and tips on how to write programs for the pen. Ideal for many educational uses.

A top quality pen plus a first-class program. The best value pen package available.

Send cheques/P.O. to:
TROJAN PRODUCTS
166 Derlwyn, Dunvant, Swansea SA2 7PF
Tel: (0792) 205491

TROJAN
Micro Computer Software & Accessories

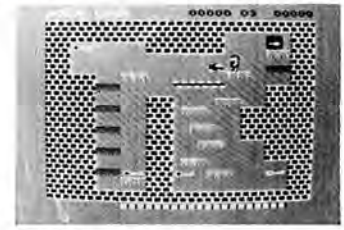
DEALERS CONTACT TROJAN NOW FOR DETAILS OF EXTRA SPECIAL DISCOUNTS

NEW GAMES FROM BLABY COMPUTERS TANDY & DRAGON

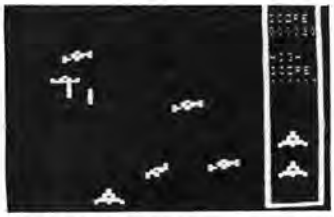
SWORD AND THE SORCERER — Our first graphic adventure. Journey back in time to the days of demons, vampires, werewolves and all. Fight to the death as they give no quarter. Keyboard uses single key entry.
DRAGON 32 £3.99 TANDY £3.99

GIS A JOB — Yobbo's desperately trying to find a job as a top games programmer. Not an easy thing to do, especially when everyone is out to stop you. Head-butt your way through 12 screens of fun. 12 screens. JS.
DRAGON 32 £3.99

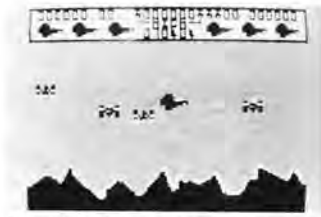
CAVERNS OF CHAOS — The ultimate platform game. If you've tried the rest, now try the best ever from Blaby. Words fail! We guarantee sheer delight. 20 screens. KB/JS.
DRAGON 32 £3.99



FINGERS — If you fancy yourself as a safe-cracker then read on. Thirteen screens of disappearing floors, conveyors and will you find out for yourself. Help tight-fingered Fred to collect his golden keys to open the safe. JS.
DRAGON 32 £3.99 TANDY EXT £3.99

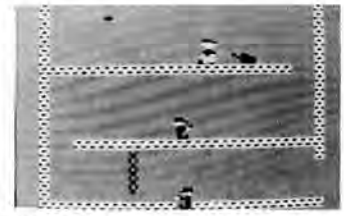


STAR SWOOP — Eliminate the Zargon fleet, wave after wave of them, they never stop, you will give in before they will, they are invincible. Fantastic sounds and graphics. KB.
DRAGON 32 £1.99 TANDY EXT £3.99



STAR DEFENCE — A defender-type game, smart bombs and advance radar scan. This game is only for the quick-fingered player. Three screens. One or two players. KB.
£1.99

COPTA SNATCH — A scramble-type game in which you must steal the enemy's secret plans, on the way you must cause as much damage to their installation as possible. Scrolling screens, fantastic sounds and graphics. KB/JS.
DRAGON 32 £1.99 TANDY EXT £3.99



DESPERADO DAN — Desperado Dan was a guest of Her Majesty's Prison, that was until his timely escape. Help him get back to where he hid his loot, but no one had told him a supermarket had been built over it. JS.
£1.99

Send stamped addressed envelope for catalogue of our large range of software
24 Titles

DRAGON 32 &
TANDY COLOUR 32K
PLEASE ADD 50p POSTAGE AND PACKING PER GAME

COMING SOON: 3 games on a tape @ £3.99 — GOOD QUALITY GAMES WANTED

BLABY COMPUTER GAMES

BARCLAYCARD VISA Access

CROSSWAYS HOUSE, LUTTERWORTH ROAD, BLABY, LEICESTER
TELEPHONE: 0533 773641. TELEX: 342829 DYNA-G
THESE PRICES APPLY TO MAINLAND UK ONLY

Manic-Miner cheats the official version

Roy Coates *gives the authorised cheat method*

WHEN *Manic-Miner* was written it was envisaged that many people would give up trying to complete the game owing to some of the more difficult screens such as the warehouse. Because of this a cheat routine was written into the game which may be accessed as follows.

1 — Set the game running on the Central Cavern.
2 — Press the 'P' key to Pause the game.
3 — Very quickly press the 'P' key again; this will re-start the game and will be taken as the first letter of the password which is 'PENGUIN'.
4 — Now enter the rest of the password 'ENGUIN'. If you have been successful a boot will appear at the bottom right hand corner of the screen.
5 — At any time whilst you are playing the game you may access the cheat. All you have to do is press the 'BREAK', key. The game will freeze. Now press a key in the range A to V to select your screen.

Please note that there is only one version of *Manic-Miner* and so this cheat will work on any valid copy of the game. For those of you who wish to make a permanent copy of the game with the cheat enabled and with unlimited lives read on.

Switch your Dragon OFF and then ON again ensuring that any cartridges are removed. Type in the BASIC program given below, carefully checking that the DATA statements are entered correctly. RUN the program and when prompted to press the ENTER key place a blank tape in your cassette player, press the ENTER key and the machine code routine held in the DATA statements will be saved to tape.

Again switch your Dragon OFF and then ON again, place your *Manic-Miner* tape in the cassette recorder and load the game with the command:

CLOADM"",2000

When this has loaded type in the following POKES.

POKE &H3B83,&HC0
POKE &H5146,&H0A
POKE &H46EF,&H20

These POKES will enable the cheat routine and give unlimited lives. CLOADM the program that was saved from above, place a black tape in your cassette recorder and when ready to record type

EXEC &H600

A new version of *Manic-Miner* will now be saved to tape and may be loaded in the same way as the original.

Finally, my thanks to all the people who have written to me regarding *Manic-Miner* and *JetSet Willy,* your letters are very much appreciated.

```
10 FOR A = &H600 TO &H632 : READ B$ : POKE A,VAL ("&H"+B$)
20 NEXT A
30 INPUT "Press ENTER when ready to save...";A
40 CSAVEM "SAVE",&H600,&H632,&H600
50 DATA 8E,06,2A,10,8E,01,D2,A6,80,27,04,A7,A0,20,F8,8E,01
60 DATA 50,BF,01,E7,8E,09,20,34,10,8E,7D,AF,34,10,8E,00,00
70 DATA BF,01,E5,34,10,7E,99,1B,4D,49,4E,45,52,32,20,20,00
```

Address specific loading

Another ***Roy Coates*** *routine — how to put machine code programs just where you want them*

THE ABILITY of the Dragon to load machine code programs into memory at an address specified by the user is obviously a very useful one. Unfortunately, saving a portion of the Dragon's memory so that it appears on the tape as having a different load address has always been a bit of a problem. The machine code routine given here does just that. The routine given is relocatable so that those using it without an assembler may choose any memory location as the origin for poking in the Opcodes here. This makes the listing very useful indeed.

The example shown hee saves memory from $2000 to $3000 to tape but changes the tape descriptor block so that when re-loaded the code will load at $1000 with an EXEC address of $1100 where 'tstart' and 'exec' are the start and exec addresses you wish the final tape copy to have, and 'mstart' and 'mend are the start and end addresses of the actual code in memory. replace 'FILENAME' with the name for your particular program.

```
0600                        ORG     $600
0600 30     8D 0027         LEAX    NAME,PCR
0604 10BE   01D2            LDY     #$01D2
060B A6     B0      NLOOP   LDA     ,X+
060A 27     04              BEQ     ADDRS
060C A7     A0              STA     ,Y+
060E 20     FB              BRA     NLOOP
0610 BE     1000    ADDRS   LDX     #$1000    ;'tstart'
0613 BF     01E7            STX     $01E7
0616 BE     2000            LDX     #$2000    ;'mstart'
0619 34     10              PSHS    X
061B BE     3000            LDX     #$3000    ;'mend'
061E 34     10              PSHS    X
0620 BE     1100            LDX     #$1100    ;'exec'
0623 BF     01E5            STX     $01E5
0626 34     10              PSHS    X
062B 7E     991B            JMP     $991B
062B 46 49   4C 45  NAME    FCC     /FILENAME/,0  ;Name for tape.
062F 4E 41   4D 45
0633 00
```

PRESTEL

FOR YOUR DRAGON 32 AND 64

AT LAST A LOW COST, FULL FEATURE VIEWDATA PACKAGE FOR YOUR DRAGON 1200/75 OPERATION MEANS LOCAL RATE PHONE CALLS, GRAPHICS AND TEXT SCREEN DISPLAY

CARTRIDGE SOFTWARE FEATURES INCLUDE:

★ LOG ON AND OFF ★ TERMINAL MODE ★
★ SAVE PRESTEL SCREEN TO TAPE ★ RELOAD AND DISPLAY SAVED SCREEN ★
★ PRINT SCREEN-GRAPHICS & TEXT ★ PREPARE MESSAGE (OFF-LINE BUFFER) ★
★ DOWNLOAD SOFTWARE ★

THE MODEM SUPPLIED IS TOP QUALITY, BT APPROVED, 1200/75 AND 1200/1200 AND MAINS POWERED. ALL CABLES AND MANUAL PROVIDED.

SOME SERVICES AVAILABLE VIA PRESTEL INCLUDE:

HOMEBANKING/BUILDING SOCIETY + HOMESHOPPING (LITTLEWOODS etc) + HOMEBETTING + HOMECONVEYANCING CITISERVICE (STOCK EXCHANGE etc) + EDUCATION & O U + FARMLINK + MEDITEL + TELEX + ELECTRONIC MAIL THEATRE + TV + TRAVEL BOOKINGS — FERRIES, AIR, BRITISH RAIL, COACH + CAR HIRE + MANY MANY MORE.

AT ONLY **£99** INC VAT AND DELIVERY — CAN YOU AFFORD NOT TO!

SEND CHEQUE, POSTAL ORDER OR ACCESS TO

COTSWOLD COMPUTERS

6 MIDDLE ROW, CHIPPING NORTON, OXON OX7 5NM
Tel: 0608 41232

KONG of the hill!

The RAINBOW is the biggest and best magazine available for the TRS-80® Color, TDP-100, MC-10 and Dragon-32 Computers.

And no wonder! It's over 300 pages thick each month . . . pages brimming with programs, product reviews, tutorials, columns, hints and tips about *your* computer. Yes, it is considered "the" Color Computer magazine to buy.

Don't delay. For only $28 you can get *the Rainbow* every month of the year. Then *your* CoCo will be Kong of the Hill too!

U.K. Subscription rates
U.S. $65 surface rate
U.S. $100 air rate

© 1983 the Rainbow

* Registered trademark of Fairsoft Inc. * Registered trademark the Tandy Corp

the Rainbow 9529 U.S. Highway 42
502/228-4492 P.O. Box 209
Prospect, Ky. 40059

YES! Sign me up for a year (12 issues) of **the RAINBOW.**

Name _____
Address _____
City _____ State _____ Zip _____

Payment Enclosed
Charge VISA MasterCard American Express
My Account# _____ Interbank# (MC only) _____
Signature _____ Card Expiration Date _____

AMERICAN EXPRESS
MasterCard
VISA

Subscriptions to **the RAINBOW** are $28 a year in the United States, Canadian and Mexican rate U.S. $35, surface rate to other countries U.S. $65; air rate U.S. $100. All subscriptions begin with the current issue. Please allow up to 5-6 weeks for first copy

Just for your TRS-80® COLOR TDP System 100 Dragon-32 MC-10

Greater than— or less than?

***Rob Lee** provides some educational interest for Dragon users with children*

UNDERSTANDING THE ideas of 'greater than' and 'less than' may come as second nature to Dragon users, but to children it is a concept which has to be learnt. In school, the idea is often introduced by small group discussion of more than, bigger than, thinner than, poorer than, etc, and then switching to using 'greater than' in number conversations. Formal exercises of this sort often end the day:

6+4 □ 2×6
19−3 □ 4+10

Using the computer, however, gives us the opportunity to penetrate further into children's thinking, for we can create the situation:

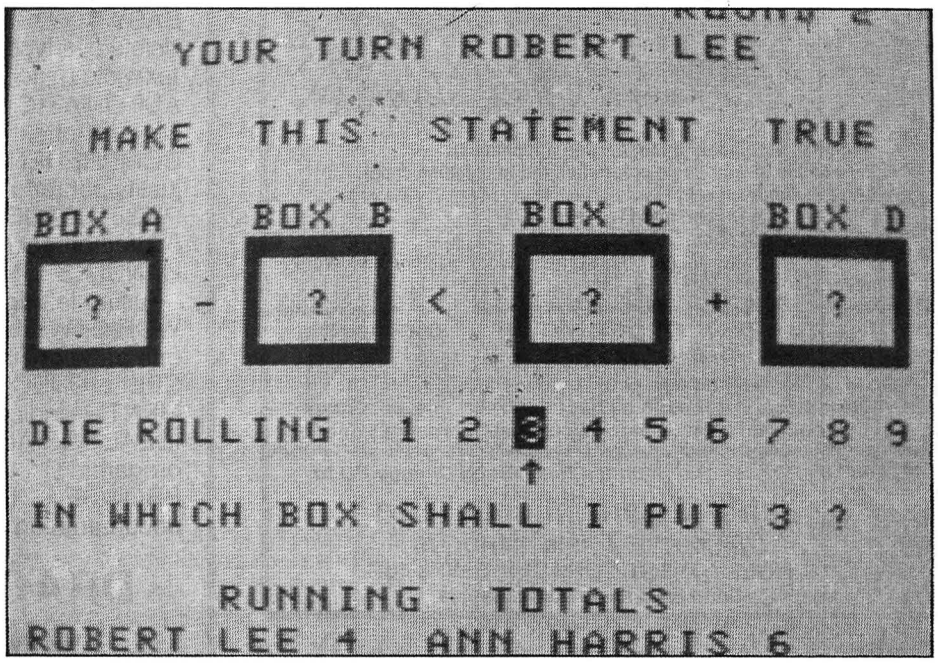
□ + □ > □ + □

and ask children to feed numbers into the boxes and test the validity of the resultant statement.

The following program is both a family game and a teacher. The numbers to be put into the boxes are randomly generated and the players decide which box to put them in.

Numbers chosen by the die stay blinking on the screen for a time proportional to the degree of difficulty chosen. Hence younger children can influence the number they get (by being quick on the spacebar), while those choosing harder options cannot. The type of statement (one of eight) you have to satisfy also alters with this choice. Obviously:

A + B > C−D



is easier than:

A + B < C−D

The points awarded to players who succeed in making the statement true vary with the play. In the easier statement, a winner would get the value in box C. In the second case, box A. So, some degree of tactics can help you and additional motivation is added by this variability.

The game is thereby made fun and has a 'come again' factor. It is not just a 'test' or 'quiz' however. If, at the end of a player's turn, the statement is false and he cannot see why, then a moving screen display does the appropriate substitutions to demonstrate the error.

Program Notes:

124-136	Title sequence
10-24	Input routine
28-43	Set up screen
60-94	Die rolling & Test sequence
144-146	Inkey subroutine (clears buffer)
148-162	Instructions & data lines ■

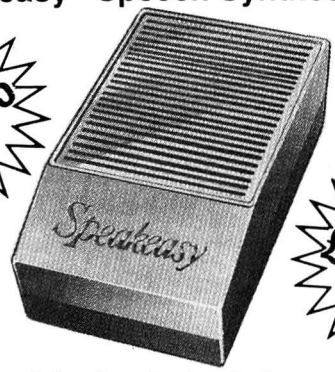
```
2 CLEAR 1000
4 BO$=" BOX A   BOX B    BOX C   BOX D "
6 B$(1)=CHR$(129)+STRING$(3,131)+CHR$(13
0):B$(2)=CHR$(133)+" ? "+CHR$(138):B$(3)
=CHR$(132)+STRING$(3,140)+CHR$(136)
8 FOR X=1 TO 3:B$(X)=" "+B$(X)+" ":B$(X)
=B$(X)+" "+B$(X):B$(X)=B$(X)+"  "+B$(X):
B$=B$+B$(X):NEXT:GOSUB 124
10 CLS:PRINT@200,"HOW MANY TO PLAY";:INP
UT NU$:NU=VAL(NU$):IF NU=0 GOTO 10
12 IF NU>6 THENPRINT@194,"MAX. NUMBER OF
 PLAYERS IS 6":T=1111:GOSUB142:GOTO10
14 FOR X=1 TO NUMBER:PRINT:PRINT "NAME O
F PLAYER";X;:INPUTN$(X):IF LEN(N$(X))>10
 THEN N$(X)=LEFT$(N$(X),10)
15 N(X)=0
16 NEXT
18 CLS:PRINT@104,"HOW HARD DO YOU WANT":
PRINT@170,"THE GAME TO BE ?"
20 PRINT@265,"LEVEL  1   (EASIEST)":PRIN
T@329,"LEVEL  2":PRINT@393,"LEVEL  3":PR
INT@457,"LEVEL  4  (HARDEST)"
22 GOSUB 144:EASY=VAL(K$):IF EASY>4 OR E
ASY<1 THEN GOTO 18
24 CLS:PRINT@192,"HOW MANY ROUNDS OF COM
PETITION ?":PRINT@334,"";:GOSUB 144:CHOI
CE=VAL(K$):IF CH<1 THEN GOTO 24
26 GOTO44
28 CLS:PRINT@23,"ROUND";ROUND
30 X$="YOUR TURN "+N$:PRINT@48-LEN(X$)/2
,X$
32 PRINT@99,"MAKE  THIS  STATEMENT  TRUE
     ":PRINTBOX$;B$;" "
34 LA=PL-1:IF LA<1 THEN LA=NU
36 IFOP=2 THEN S1$="-"ELSE S1$="+"
38 IF OS=2 THEN S2$="-"ELSE S2$="+"
40 PRINT@231,S1$;:PRINT@248,S2$;
42 PRINT@239,CA$;:PRINT@456,"RUNNING  TO
TALS":PRINT@481,N$(PL);N(PL);:IF NU>1 TH
EN PRINT@505-LEN(N$(LA)),N$(LA);N(LA);
43 RETURN
44 FOR ROUNDS=1 TO CHOICE:FOR PL=1 TO NU
```

The Dragon Speaks Out!

NEW

"Speakeasy" Speech Synthesiser

Only £24.95



Only £24.95

★ Unlimited vocabulary through using allophones.
★ Easy to use in your Basic programs (and in machine code).
★ Clear, audible speech.
★ Complete with Dragon interface lead.
★ 12 months guarantee.
★ 2 FREE programs to get you started: Word Factory and Word Compiler.

ORDER NOW!

Telephone (0532) 537507
and use your Access card
or send a cheque or PO

Access

until 10 pm Guaranteed same day despatch orders £5 or over

Add 50p P&P for orders under £5.00. Send Cheque/PO to:

J. Morrison (Micros) Ltd

Dept DU785, 4 REIN GARDENS
TINGLEY, WEST YORKSHIRE WF3 1JR
Send SAE for list of all games

MONEYBOX

Personal Accounts Program for Dragon 32/64

MONEYBOX program for personal accounts can analyse your income and expenses, control your bank account, credit card, building society, etc, forecast your bank balance, estimate your taxable income and much more.

On Cassette Price £9.99

DRAGONDOS DISK VERSION: prints 42 by 24 legible characters on Hi-Res screen, with true lower-case, £ sign, etc. Features direct access filing, large capacity, budgetting, optional VAT analysis.

"presents itself as a powerful and versatile package" — *"Home Computing Weekly"*

"an easy to use program that builds in a range of powerful facilities" — *"Which Micro"*

On Dragondos Price £14.99

NEW! MAILBOX

NAME AND ADDRESS DATABASE

Stores names, addresses and up to 10 user-defined fields. Fast retrieval by full/partial matching. Selects batches of records by name, town, region and powerful user-defined tests. Prints address labels, name and salutation, record cards and can print or display user-defined reports. Ideal for address books, membership or customer lists, mail shots etc.

On Dragondos (with Lower-case, etc.) Price £14.99

Cheques/POs/Further details/Dealer enquiries to:

HARRIS MICRO SOFTWARE

49 Alexandra Road, Hounslow, Middlesex TW3 4HP
Tel: (01) 570 8335

New

WORD PROCESSOR for FLEX

only £75.00

with

INTERACTIVE SPELLING CHECKER

EASY TO USE FULL SCREEN EDITOR — insert/delete/overtype/find/replace/move/copy/delete/scroll text/goto page/line
AUTOMATIC ON-SCREEN FORMATTING — shows the text as it will be printed
COMPREHENSIVE FORMATTING FACILITIES — justify/center/underline/bold/indent
PAGE HEADER/FOOTER — can be automatically printed on each page
HANDLES LINES OF UP TO 124 CHARACTERS — using left/right scroll
WORKS WITH ALL POPULAR PRINTERS — print one page or whole document
SPELL CHECK ONE WORD OR WHOLE DOCUMENT — indicates words in error
IDEAL FOR ALL EDITING REQUIREMENTS — eg. progams
BROWSE UTILITY — allows you to look at/search documents on disk while using word processor

DRAGON HARDWARE AND SOFTWARE

Dragon 64	**£195**
Dragon-dos controller	**£92**
Single Disk drive with Dragon-dos controller	**£249**
Upgrade kit — single to double disk drive	**£120**
Double sided disk upgrade (360 ksytes capacity)	**£170**
Flex operating system with editor/assembler/disk basic	**£99.99**
Dragon 64/single disk drive/flex software	**£499.99**
Dragon 64/double disk drive/flex software	**£649.99**

Flex and OS9 software in stock

EXCITING NEW DRAGON HARDWARE, SOFTWARE, EXPANSIONS, ADD-ONS COMING SOON
GET YOUR NAME ON OUR MAILING LIST
FOR OUR NEW FREE CATALOGUE

FAST MAIL ORDER SERVICE
01-882 0681

EXPORT AND DEALER ENQUIRIES WELCOME

PRICES INCLUDE VAT

COMPUSENSE

COMPUSENSE LTD.
PO Box 169, 286D Green Lanes,
London N13 5XA
Tel: 01-882 0681/6936
Telex: 8813271 GECOMSG

POSTAGE & PACKING £1 PER ORDER

```
MBER:N$=N$(PL):A=0:B=0:C=0:D=0:TEST=0
46 CASE=CASE+1:IF CASE/2=INT(CASE/2) THE
N SIGN=2 ELSE SIGN=1
48 IF SIGN=1 THEN CA$=" >":CH$="GREATER"
ELSE CA$="< ":CH$="  LESS "
50 IF CASE=1 OR CASE=3 OR CASE=4 OR CASE
=8 THEN OP=1ELSE OP=2
52 IF CASE=2 OR CASE=3 OR CASE=4 OR CASE
=7 THEN OS=1 ELSE OS=2
54 GOSUB 28:FOR TURN=1 TO 4:X$="HIT ANY
KEY TO START DIE ROLLING ":P=320:GOSUB 1
64:PRINT@384,"":GOSUB 144
56 X$=" DIE ROLLING  1 2 3 4 5 6 7 8 9 "
:GOSUB 164
58 X$=" HIT ANY KEY TO STOP DIE  ":P=384
:GOSUB 164
60 DIE=RND(9):B1=48+DIE:L=1356+2*DIE:FOR
 X=1 TO (5-EASY):POKEL,B1:POKEL+32,94
62 GOSUB 140
64 IFMM=1THEN MM=0: GOTO 72
66 K$=INKEY$:IF K$<>""THEN MM=1
68 POKEL,B1+64:POKEL+32,96:NEXT X
70 GOTO 60
72 PRINT@384," IN WHICH BOX SHALL I PUT"
;DIE;"?";
74 GOSUB 144:PRINTK$
76 ON INSTR(1,"ABCD",K$)GOTO 80,82,84,86
78 PRINT@384,"YOU MUST CHOOSE A B C OR D
 ":T=1000:GOSUB 142:GOTO 72
80 IF A=0 THEN A=DIE:PRINT@226,A;:NEXT T
URN ELSE S=A:GOTO 166
82 IF B=0 THEN B=DIE:PRINT@234,B;:NEXT T
URN ELSE S=B:GOTO 166
84 IF C=0 THEN C=DIE:PRINT@243,C;:NEXT T
URN ELSE S=C:GOTO166
86 IF D=0 THEN D=DIE:PRINT@251,D;:NEXT T
URN ELSE S=D:GOTO166
88 IF OP=2 THEN V1=A-B ELSE V1=A+B
90 IF OS=2 THEN V2=C-D ELSE V2=C+D
92 IF S1 =1 AND V1-V2>0 THEN TEST=1:P=30
8:W=C
94 IF S1=2 AND V1-V2<0 THEN TEST=1:P=291
:W=A
96 IF TEST=1 THEN PRINT@P,CHR$(94):PRINT
"YOU HAVE WON ";W;"POINTS  <ENTER>      "
:PRINT@384,"":GOSUB 144
98 IF TEST=1 THEN N(PL)=N(PL)+W:NEXT PL:
GOSUB 112:NEXT ROUND:GOTO116
100 PRINT@320," HARD LUCK IT DID NOT WOR
K OUT   ":PRINT@384,"":X$="CAN YOU SEE W
HY ? "+N$(PL):PRINT@399-LEN(X$)/2,X$
102 GOSUB 144
104 IF K$="Y"OR K$="y"THEN PRINT@320,"":
NEXT PL:GOSUB 112:NEXT ROUND:GOTO116
106 PRINT@320," YOU WERE TO MAKE BOX A "
;;S1$;" BOX B":PRINTCH$;" THAN BOX C ";S
2$;" BOX D":PRINT"":FOR X=1 TO 9:T=800:G
OSUB 142:PRINT@395,LEFT$("w a t c h",X);
:GOSUB 140:NEXT
108 P=338:P1=A:GOSUB122:P=346:P1=B:GOSUB
 122:P=365:P1=C:GOSUB  122:P=373:P1=D:GO
SUB 122
110 PRINT@385,V1;" IS  NOT ";CH$;" THAN
";V2:T=2000:GOSUB 144:NEXT PL:GOSUB 112:
NEXT ROUND:GOTO 116
112 CLS:PRINT@136,"after";RO;"rounds";:P
RINT:FOR X=1 TO NU:PRINT:PRINT"    ";N$(
X),N(X):NEXT
114 PRINT:PRINT:PRINT"  hit any key";:GO
SUB 144:RETURN
116 PRINTSTRING$(12,8);"ANOTHER GAME ?"
118 GOSUB 144:IF K$="Y" THEN GOTO 10
120 END
122 PRINT@P,"  ";P1;:GOSUB142:GOSUB140:R
ETURN
124 CLS:T=189
126 S1=192:S2=202:S3=1:S$=" DRAGON USER"
:GOSUB138
128 S1=248:S2=236:S3=-1:S$="PRESENTS ":G
OSUB 138
130 S1=288:S2=296:S3=1:S$=" IT'S IN THE
BOX":GOSUB138
132 S1=478:S2=486:S3=1:IF GG<2 THEN GG=G
G+1:S$=" WRITTEN BY MIKE HARRISON":GOSUB
 138:GOSUB 142:GOTO 124ELSE S$=" DO YOU
WANT INSTRUCTIONS?":S2=485:GOSUB138:GOSU
B 144
134 IF K$="Y" OR K$="y" THEN GOSUB 148
136 RETURN
138 FOR S=S1 TO S2 STEP S3:PRINT@S,S$;:G
OSUB 140:NEXT:RETURN
140 PLAY"V1T255O5A03A":RETURN
142 FOR DE=1 TO T:NEXT DE:RETURN
144 K$=INKEY$:IF K$<>""THEN144
146 K$=INKEY$:IF K$=""THEN 146ELSE RETUR
N
148 CLS:FOR P=62 TO 510 STEP 64:GOSUB 15
0:NEXT P:GOSUB 144:GOTO 152
150 READ X$:FOR X=1 TO 29:PRINT@P-X,LEFT
$(X$,X);:PLAY"O1L100CC":NEXT X:RETURN
152 P=510:FOR XX=1 TO 8:PRINT:PRINT:GOSU
B 150:NEXT XX:GOSUB 144
154 PRINT:PRINT:PRINT:PRINTBOX$;B$:GOSUB
 144
156 PRINT:PRINT" SO YOU SHOULD TRY TO  M
AKE THE  SCORING BOX AS  LARGE  AS  YOU
 DARE":PRINT:PRINT" HIT 'R' TO SEE THE R
ULES AGAIN  ANY OTHER KEY TO START PLAYI
NG"
158 GOSUB 144:IFK$="R" THEN RESTORE : GO
TO 148 ELSE RETURN
160 DATA IT'S IN THE BOX IS A THINKING,G
AME. IT  WILL  HELP  YOU  TO,UNDERSTAND
ABOUT INEQUALITIES.,ANY NUMBER OF PEOPLE
 CAN PLAY,UP TO A MAXIMUM OF 6. YOU CAN,
CHOOSE  ONE OF  4  LEVELS  OF ,DIFFICULT
Y  AND ANY NUMBER OF,ROUNDS. hit key for
 new pages
162 DATA BY PUTTING  NUMBERS THROWN BY,A
 DIE INTO EACH OF FOUR BOXES,YOU  MUST
TRY  TO  MAKE  THE,STATEMENT TRUE. ,IF T
HE TASK IS 'GREATER THAN' ,AND YOU WIN
-  YOU SCORE THE ,VALUE IN BOX C. IF YOU
 WIN AT,'LESS THAN' YOU SCORE BOX A.
164 FOR X=1 TO 33:PRINT@P,RIGHT$(X$,X):N
EXT:RETURN
166 IF TURN>4 THEN GOTO88ELSE PRINT@385,
"BOX ";K$;" ALREADY HAS";S;"IN IT":T=100
0:GOSUB 142:GOTO72
```

THREE FOR the price of one, this month, with the arrival of *The Ket Trilogy* from Incentive at the reasonable price of £9.95. This made its debut at the second 6809 Show, and some of you may have seen it there, and perhaps even bought it. For those who couldn't make the show, though, it's worth a fairly lengthy look. While at the show, incidentally, I was told by Microdeal that they have three Dragon adventures in the pipeline, so good luck to them and others who continue to be adventurous, while some drop out of the market.

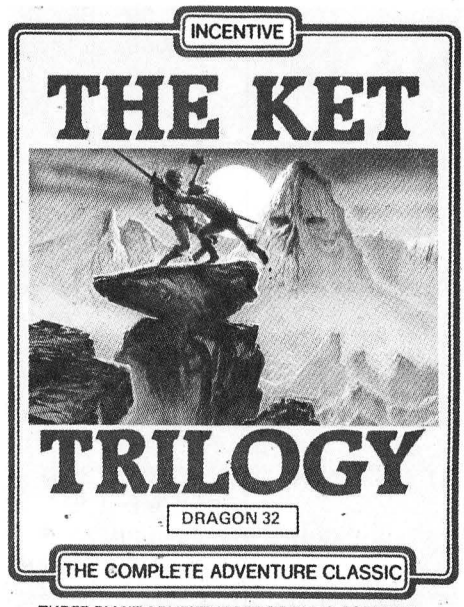
Three for one

Back to *Ket,* which comes on just one cassette, the first side containing *Mountains of Ket* and *Temple of Vran,* side two having *The Final Mission.* The adventures can all be played independently, so you can be working on all three at once, with success at each one revealing a part of a message for you. Throughout all the three you'll be accompanied by Edgar, a magic assassin bug who has been placed on your neck with orders to sink his poisoned fangs into you if you try to chicken out along the way. Fortunately this doesn't extend to the SAVE routine. Aside from Edgar, what the adventures have in common is that they are all three text-only, accepting most of the usual commands, generally in two-word form.

Each of the adventures also incorporates combat sequences, and while I don't normally care for this kind of intrusion, involving as it does an element of luck, at least here the sequences are brief and quite humorously done. You'll find you can fight all manner of creatures, humans and semi-humans: elephants, horses, warts. If they're in there, you can probably fight them, though it's frequently not a wise move.

The reason you have a creature called Edgar perched near your jugular vein is that you were recently sentenced to death for murder — though this was naturally a frame-up, you being an honest and intrepid adventurer. On the eve of your planned execution you were given a Do-or-Die option, and naturally you chose to Do, presumably on the grounds that an adventure where you choose to Die at the start would have limited appeal. Although you've been temporarily spared, no one's taking any chances, hence you have Edgar hovering at your throat.

The deed you have to do is try to bring peace to the lands of Ket, which are threatened by a group of mad monks living beyond the Mountains of Ket to the east of the village where you begin. A character called Vran is the leader of the monks, aided by the High Priestess, Delphia. Your overall task is to sort the two of them out, naughty people that they are.



THREE GIANT ADVENTURE PROGRAMS COMBINE TO CREATE THE COLOSSAL **KET TRILOGY**

Mountains of Ket simply requires you to get to the far side of the Mountain alive, and as soon as I'd loaded this up the first thing I did was QUIT. This wasn't sheer cowardice, but sheer common sense. When you begin you're randomly allocated points for Prowess, Energy and Luck, and I thought I could do better than my initial 8, 21 and 9 points, so I QUIT and QUIT till I got a reasonable respectable 9, 22 and 12 points. Then a quick INVENTORY showed I was carrying some coins and the good old trusty sword, which is better than a rusty sword, I suppose. COUNT COINS showed that I had just two. I was on a road with fields either side and the village to the east.

Mountains

Making my way to a stable I tried to buy a horse from the stableman, but he wouldn't let it go for less than four coins so I obviously had to increase my wealth somehow. Being kind to someone provided me with more coins and a map, and I was able to return to a hardware shop which did a nice line in lamps. Not so nice were the piranhas which prevented me swimming the river, and I wish the cartographer would let me past to have a look round upstairs in his posh house, but he won't. Not yet, anyway.

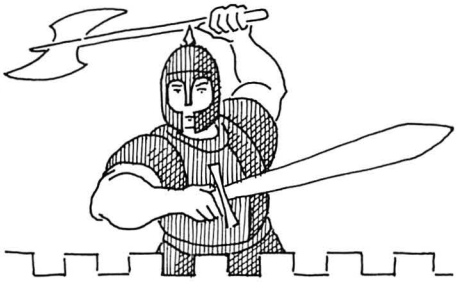
Temple of Vran takes you beyond the Mountains of Ket and has you going further eastwards with the hope of finding the Temple and bringing about the demise of Delphia. You begin this one in a passage, and if you think you can simply nip back from the second adventure to solve the first one restrospectively, I'm afraid the passage is blocked by a boulder, put there by the final guardian, a Zombie. Your way forward is blocked by a river, but it should take you all of about 10 seconds to figure out how to cross it — I wish all the problems were so easy. On second thoughts, no I don't, as it wouldn't be much of an adventure then.

Temple

The locations and objects here are rather strange, as you wander through a wilderness and suddenly meet up with an elephant, while further along is a sleeping kitten and a small trampoline. Hardly the most realistic of stories, but at least it sets you some unusual problems. Your way north is barred by some quicksand, and east by a cliff edge over which dangles a rope. Sadly the rope is fixed to something at the bottom of the cliff, not the top, so climbing down is not recommended. Nor can you pull the rope up. The place is populated by little people called warts, and my first encounter with one of these was when I had a flask of acid thrown over me. Fortunately I'd already taken preventive action, even if I hadn't realised what I was doing. Beyond here lies a door, which is difficult to open, but once through there you find yourself in a large room, off which is a wart kitchen, where no washing up has been done for years. Down some stairs is a ruby and a skeleton, with the skeleton somehow managing to block my way west, while upstairs there are lots of warts who insist on engaging you in combat. You can always run away, after the initial attack, but even so they somehow manage to get in a final blow as you go, and these slowly whittle away at your Energy points.

Having been warted to death several

times I tried *The Final Mission,* in which you confront the evil Vran himself, though your first task is to get out of the prison cell where you find yourself, with just a chair for company. Pretty easy, but then you find yourself in another cell with nothing more exciting than a bit of straw in the corner. The way out of here seemed a little unlikely, though you're sure to hit on it with the limited objects at your disposal. No sooner was I out of this cell though than I came face to face with something called the En Monster, and that polished me off with no trouble.



Though I wouldn't say *The Ket Trilogy* was the best set of adventures I'd ever seen, I'd certainly recommend them as giving good value for money and problems enough to keep you going for ages. When originally published on the Spectrum, a prize of a video recorder was being offered to the first to solve all three titles, and although that's now been claimed you can take some comfort in knowing that it wasn't won for some considerable time after the adventures appeared.

Less room for letters this month, but here are a few tips and pleas. Simon Ward of Whitehaven asked me for general help on *Sea Quest,* and also wanted to know how to open the trapdoor in the beach hut. General help is virtually impossible to give, unless you know exactly where a person is stuck and how far they've explored the adventure, so always try to ask fairly specific questions. The answer to Simon's specific question (written backwards) is that: DIAM REMEH TMORF YEKE HTDE ENUO Y.

Joy Birley of Eryl Don, Mona Terrace, Criccieth is stuck in *Franklin's Tomb,* unable to find a coin to use in the juke box and unable to get out of the pulley room and obtaining the Copper Star. If you can offer Joy any joy on those, let her know.

Rolf Michelsen of Sigrids vei 33, 7700 Steinkjer, Norway, kindly says thanks "for an excellent page in an excellent magazine. Continue like this!" Well we'll all try to, Rolf. He's completely stuck, he says, in *Return of the Ring,* and listed four questions: how to get the amulet from the trog; where to find the transportal eight miles into the forest; how to escape from the monsters in the forest; and how to use the rings to get some useful results. I've answered Rolf on some of those, which are a little lengthy to print backwards, but if you too can offer advice on those problems then do write to him in Norway.

Some of you may know the name of Neil Scrimgeour, who runs the ASCI column of the National Dragon User Group, and Neil writes to recommend a few Tandy adventures for anyone with the Dragon's sister machine. He says *Pyramid 2000* is good, being a Tandy implementation of the original *Colossal Cave,* while he also rates *Raaka-tu* and *Bedlam,* even if he is unable to get past the guard dog in the latter. Help to Neil at 125 Occupation Road, Corby, Northants NN17 1EG.

Finally, to show that some people do actually read the column, a letter from Nemesis, whose adventure *The Trial of Arnold Blackwood* I reviewed some months ago. It's a good adventure, but I complained that it didn't have a SAVE routine. Programmer Colin Harris has now incorporated this, and sent a new version to prove it, mentioning that copies are now also available from Touchmaster. If he sells a few more he may set about converting more Arnold adventures for the Dragon, so over to you, dear readers. In fact, it's over and out. ■

GO SUB DRAGON USER

Don't lose out — make sure you receive the next twelve issues of your favourite microcomputer magazine by sending away for a year (or two years) subscription today.
Just complete this special subscription order form now, and send it with your cheque or postal order to our subscription department.
And if you subscribe for **two years,** you can claim a **free book.** Choose from any one of these superb Sunshine microcomputer books — *The Working Dragon 32, Dragon 32 Games Master, The Dragon Trainer, Advanced Sound and Graphics for the Dragon computer,* or *Artificial Intelligence on the Dragon computer.*

Subscription type:
☐ 1 year at £10 UK
☐ 2 years at £20 UK
plus free book
☐ 1 year at US$33.95 US/Canada airspeed
☐ 2 years at US$67.90 US/Canada airspeed
plus free book
☐ 1 year at £16 Rest of World surface
☐ 2 years at £32 Rest of World surface
plus free book
Other overseas airmail rates available on request

Payment Method
☐ I enclose a cheque payable to Dragon User
☐ I enclose a postal order payable to Dragon User

FREE BOOK CLAIM FOR 2 YEAR SUBSCRIPTIONS

☐ I claim my free book (title)

Name .....

Address .....

.....

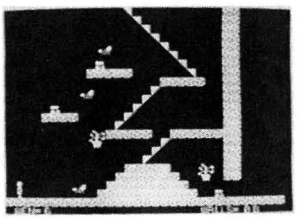
Postcode .....

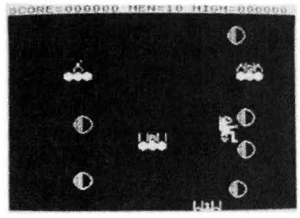
Send this complete form, with your payment, to:
Dragon User
Subscription Department, Oakfield House,
Perrymount House Road, Haywards Heath,
Sussex RH16 3DH

QUICKBEAM

PRESENTS

ARCADE





DICKIE'S DEN DICKIE SPACEMAN

DICKIE'S DEN **£5.95**
DICKIE SPACEMAN **£5.95**

ADVENTURE

THE SHRUNKEN SCIENTIST (Pick of the month Dragon User March 1985) **£5.95**
TERROR CASTLE **£5.95**
TOMBSTONE AND CODCREEK (Two games for 1 to 4 players only) **£5.95**

UTILITY

DUPLICAS 4 — The latest version of this very successful back-up utility **£7.95**
NB: Update service available, please send old tape plus £1.50 for handling.

Send SAE for latest catalogue

Add 50p P&P to all orders, overseas **£1.25**

Make cheques and postal orders payable to:

QUICKBEAM SOFTWARE
67 OLD NAZEING ROAD, BROXBOURNE, HERTS EN10 6RN

Wizard Software

COMPUTA FRUITA **£5.95**

A de-luxe fruit machine simulation presented in colourful high resolution graphics featuring: 4 drums, Spin, Respin, Hold, Gamble, Collect Nudge, Bounce, Blind, Cancel, Jackpot, Hi-Lo, Bonus, Roller, and Auto-Win. New drums manufactured for each game.

JUMBO'S TROUBLES **NEW** **£5.95**

A 100 per cent machine code game presented in high resolution graphics. Guide JUMBO, an animated elephant, up and down the ladders in the house to collect a variety of household items. Beware of the revolving screws and Nokes which inhabit the house as they will try to stop you from repossessing their goods. Score, high score, lives remaining and bonus points are continuously displayed.

TRACE CHASE **NEW** **£4.95**

A colourful 100 per cent machine code game presented in high resolution graphics. Move your man around the lines of the grids but beware of the chasers unless you can STOP them. 9 grids are provided. Number of lives, STOPS, and score are continuously displayed. One joystick required.

STARTING FRACTIONS **£5.95**

A teaching program designed by teachers, for primary school children, which presents and teaches the concept of a fraction. There are four units contained in the program, the first three deal respectively with HALF, QUARTER and THIRD, the fourth unit deals with the concept of "Fractions of Numbers" consolidating the material learned in the first three units. After each unit there is a test to assess readiness to proceed with the next stage.

TIME PORT 2 — The Staff of Life **£6.45**

The second adult strategy adventure game in the Time Port series, containing a complex lexical and logic analyser that allows instructions to be input as sentences containing articles, nouns, verbs, adverbs, adjectives etc. A game of logic and manipulation structured to exercise your powers of deduction, observation and association. Contains a game save facility.

Also available;

TIME PORT 1	£6.45	EVICTOR	£4.95	SMASH	£3.95
DRAGON STARTREK	£6.45	RED ALERT	£4.95	DISMON	£3.95
STRATEGY	£6.45	ALIENS+	£4.95	STARWORD	£2.95
DECATHLON	£5.95	CLOWNS	£3.95	TRIPLET	£2.95
TOUCHDOWN	£5.95	CRAZI PLUMBER	£3.95	SIRIUS IV	£2.95
		WIZARD	£2.95		

All prices inclusive, mail order, cheques or postal orders to:

WIZARD SOFTWARE, DEPT. DU, PO BOX 23
DUNFERMLINE, FIFE KY11 5RW

Send large SAE (7in × 5in) for full program catalogue.
Royalties paid for machine code DRAGON software.

Comput Tape

27 COOMBE ROAD
SOUTHMINSTER, ESSEX CM0 7AH
Tel: MALDON 772589

*Computape's new catalogue has over **260 Software Titles** on Tape, Cartridge and Disk. **Arcade Games/Adventure/Educational/Board Games/Utilities***

MICRODEAL
Cashman
Pengon
Mr Dig
Worlds of Flight
Fury
Downland
8 Ball Pool
Phantom Slayer
The Touchstone
Dungeon Raid
Cuthbert in Space
Cuthbert in the Mines
Space Shuttle
Skramble

NEW PROGRAMS
★ Time Bandit
★ Athletics
★ Speed Racer
★ Mud Pies
★ Syzygy
★ Cuthbert in the Cooler
RSP £8.00
OUR PRICE £6.95

WINTERSOFT
Return of the Ring
Ring of Darkness
RSP £9.95
OUR PRICE £8.95

SOFTWARE PROJECTS
Manic Miner
Jet Set Willy
RSP £7.95
OUR PRICE £6.95

HEWSON CONSULTANTS
3D Luna Attack
3D Seiddab Attack
3D Space Wars
RSP £7.95
OUR PRICE £6.95

POCKET MONEY SOFTWARE
Bandito
Fearless Freddie
Jet Boot Colin
Robin Hood
Teatime
Toppler
ONLY £1.99

IMPSOFT
Chicken Run
RSP £7.95
OUR PRICE £6.95
Fruity
RSP £4.95
OUR PRICE £3.95

INCENTIVE
The Ket Trilogy
RSP £9.95
OUR PRICE £8.95

A 'n' F SOFTWARE
Chuckie Egg
RSP £7.95
OUR PRICE £6.90
Screamin' Abdabs
RSP £6.90
OUR PRICE £5.80

PEAKSOFT
Tim Loves Cricket
RSP £8.95
OUR PRICE £7.75
Champions
RSP £6.95
OUR PRICE £5.95

JOYSTICK
£5.50 each
£9.95 a pair

Alba cassette recorder
OUR PRICE £17.25

MELBOURNE HOUSE
Horace Goes Skiing
RSP £5.95
OUR PRICE £4.95

ADDICTIVE
Football Manager
RSP £5.95
OUR PRICE £5.50

DRAGON DATA
Bumpers
El Bandito
Cimeeon Moon
Shuttle Zap
RSP £3.95
OUR PRICE £3.75

DESIGN DESIGN
Rommels Revenge
RSP £7.95
OUR PRICE £6.50

CABLE SOFTWARE
Superbowl
Zaks Son
Fantasy Flight
Quasimodo
RSP £6.95
OUR PRICE £5.95

SPECTRAL
Ice Castle
RSP £8.00
OUR PRICE £6.95

SPECIAL OFFER order two Microdeal tapes and choose 1 Pocket Money title **FREE**

Order from the above sending Cheque or Postal Order made payable to Computape and we'll send our Catalogue free of charge. For Catalogue only send SAE.

Prices include first class postage and packing. Overseas orders welcomed. (Tandy Software also available.)

Computape THE ONLY SOFTWARE COMPANY TO MAKE YOUR DRAGON CHIPS FRY NOT CRY.

The Adventurers Club Ltd.

64c Menelik Road, London NW2 3RH. Telephone: 01-794 1261

£10,000 PRIZES ON OFFER

SPECIAL INTRODUCTORY OFFER

THE SEARCH IS ON! FOR THE MASTER ADVENTURER 1985

WE OFFER:

★ The Master Adventurer Trophy Competition
★ Monthly Member's Dossier with reviews, maps, tips, solutions, new releases etc . . .
★ Unlimited help through our phone-in helpline
★ Discounted software
★ Members own games marketed for royalties
★ AND MANY OTHER SERVICES

SPECIAL INTRODUCTORY OFFER

~~£10.95~~ £9.95

(OVERSEAS RATES ON REQUEST)

Please complete coupon or give us a ring for our FREE leaflet or any other information

Name: .....
Address: .....
.....

I apply for membership of the Adventurers Club – I enclose a cheque/postal order for £9.95

The Adventurers Club Ltd. run by Professionals for ALL the Adventurers!

(We are not connected in any way to the International Adventure Club) PD385

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

Dragon Answers

Alldream

COULD YOU possibly tell me how to change *Alldream* cassette to allow saving and loading text files to and from Dragon disk instead of cassette.

Ian Ferguson
10 Woodhall Road
Calderbank

IT IS not possible to change the *Dream* program to save to disk rather than cassette directly. However, one method is to have a Basic program running which calls DREAM and also handles commands such as SAVE and LOAD. The start address of a *Dream* text file can be found by ST=PEEK (27641)★256+PEEK (27642), assuming that Dream is loaded at its default address.

The text file is then saved by SAVE "filename", ST,27776, 27776. The file can simply be loaded by LOAD "filename", as the vectors were saved with the file these will be restored automatically on loading.

On the edge!

I HAVE recently purchased the Electroanalytical Technology interface, and have obtained a circuit diagram from Dr Mark Varney to allow simultaneous use of Dragon DOS with the interface.

The address decoding circuit is quite straight forward, but I cannot obtain edge connectors of the type in the Dragon cartridge port (2 × 20).

Can you give me the address of a supplier as I have tried numerous ones?

Martin Main
63 Grampian Road
Aberdeen

YOU CAN obtain 2 × 22 way edge connectors from your local Tandy store, or Maplins to name but two. These can be trimmed down to 2 × 20 way if required. The Tandy catalogue number is 276-1551, and the Maplin catalogue number is FG22Y. Maplins can be contacted on 0702 554155. Both should cost less than £3.

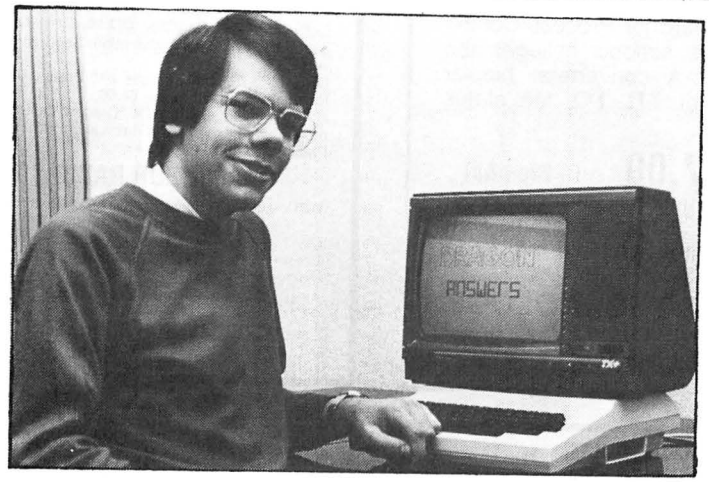
CoCo

COULD YOU please let me know what changes are required to run the two following programs on the TRS CoCo:

1 Autorun (July 1984 issue)
2 Break Key Disable (October 1984 issue)

I would be most grateful as I have searched everywhere in vain.

David Powis
4 Prie Street
Farnworth
Bolton BL4 7PN



THIS IS one of a number of letters from Tandy owners asking about the Autorun listing. The only reason these routines will not work on a Tandy machine is that the ROM routines used are at different addresses. A version of the Break Key disable routine for the CoCo is listed below.

The ROM calls you will need to change in the AUTORUN listing are as follows:

Dragon	Tandy
33604	44102
46757	42089
33649	44147
39195	33597
48604	42987
33823	44321
33773	44271
33951	44446

Autorune

WHEN I was working on a program for writing runic script I found a very strange bug in my Dragon. I had set my Seikosha GP-100A in graphic mode, and intended to use a dual sound to warn of "line full". However, when the Printer was to Print the runes, it started with a long graphic string of CHR$(255). After a lot of frustration I finally managed to find that two consecutive sound commands somehow fed a string of characters to the Printer.

```
10 ?#-2,CHR$(8)
20 SOUND100,1
30 SOUND200,1
40 ?#-2
```

should just produce a line feed in line 40, but instead there is this strange string.

Could you explain this?

With kind greetings from a Dragon's lair in Sweden.

Nils Lindgren
Waxholm
Sweden

THE PROBLEM you have found is indeed a bug in the Dragon 32's ROM which was cleared up in the 64's ROM. The problem comes because the Keyboard and Printer share the same output PIA port, and the Printer Strobe line is part of the same address as the D/A converter used for generating sound. The bug is in the sound generation routines which occasionally strobe the printer line, which results in the Keyboard data going out to the Printer!

You can best avoid the problem by avoiding the use of SOUND and by keeping your hands off the keys whilst the program is running.

Define

I AM currently in the process of writing a program, in machine code, for the Dragon 32. In this program I need to define my own BASIC words. My only problem is how to convert variables and constants used by the words, into machine equivalents.

I would be grateful if you could tell me how to do this without producing 'syntax' and 'function call' errors.

Simon Joyce
41 King Street
Bradley
Bilston
West Midlands

THE FOLLOWING ROM routines can be used in your own command handlers for accessing numeric variables:

JSR 36433 returns the value of the following variable as an 8 bit number in the 'B' register.

JSR 36483 returns the value of the following variable as a 16 bit number in the 'X' register.

If either value is out of range, ie greater than 255 in the first case and greater than 65535 in the second case then a FC error is automatically produced.

Screen dumps

A NUMBER of letters have come in regarding problems with screen dumps.

The common problem is unexpected characters appearing in the middle of the screen dump, or unwanted blank lines appearing. These problems are all caused by the Dragon's printer routine. This has the annoying habit of outputting an extra 'space' character if it thinks the printer is at the start of a line when a carriage return code is to be printed.

The solution to the problem depends upon how the original screen dump program was written. For basic programs, add the command POKE 156,10 immediately before any ?£-2 commands. This will also have the effect of disabling the auto-LF feature, so you should set the dip switches in your printer so that a LF is not required.

For machine code screen dumps change any calls to the printer routine at 48410 (JSR 48410) to a call to the routine at 48373 (JSR 48373). This latter routine simply outputs the character in the A register directly to the printer without intercepting newlines and CR characters.

Finally, you can also try typing POKE 65283,PEEK(65283) AND 254 before using the screen dump program, this will disable interrupts and prevent 'extra' characters being printed.

New!! — Hardware for robotics, artificial intelligence, speech recognition, microprocessor control, etc.

ANALOG CONTROL INTERFACE

An Analog and Digital Control Board for Process Control and Data Acquisition for hobbyists, schools, colleges and industry. 8-bit A-to-D and D-to-A converters, bipolar buffered amplifiers, nine lines of TTL I/O, led status indicators, relay control.

SPECIAL PRICE £27.00 (+98p p&p)

Detailed Manual with full instructions and numerous application notes, along with Basic programs and machine code routines for use. Kit available mail order only from:

ELECTROANALYTICAL TECHNOLOGY
COMPUTER DIVISION
8 Access Road, West Derby, Liverpool L12 4YN

GROSVENOR SOFTWARE

ALLDREAM — Editor/Assembler/Monitor/Disassembler

"The best Editor Assembler in the world." A dream come true."
Cassette **£12.95**,Cartridge **£22.95**, Disk (Dragondos) **£19.95** (disk version supports direct disk to memory assembly). Send your cartridge with £10.00 to convert to disk version.
DREAMPRT: A utility for use with Dream/Alldream to give 64 characters per print line for letter writing, etc. Tape **£4.50.**
A Programmer's Guide to Dragon DOS — a detailed information booklet with programmed examples in Basic and machine code **£2.50.**
Please add 40p P&P (£1 export).

AMATEUR RADIO SOFTWARE BY G4BMK

RTTY+ASCII Transceive: Will receive without a terminal unit. Split screen, type ahead, etc. Tape **£12** Cartridge **£22.**
CW Transceive. Automatic speed tracking. 5-200 WPM. Tape **£10.75.**
Return RTTY or RTTY/CW Cart. with **£29** to add AMTOR software.
Morse tutor tape **£6.50**
All supplied with full manuals. Please add 40p P&P (£1 export).

22 GROSVENOR ROAD, SEAFORD, EAST SUSSEX BN25 2BS
Tel: (0323) 893378

GAMESMANSHIP

PROUDLY PRESENTS FOR
THE DRAGON 32/64 ($ TANDY COMPATIBLE)

JET SET WILLY	£6.75	Mudpies $	£6.50	Keys of Wizard	£2.75
Speed Racer $	£6.50	MODULE MAN	£6.50	Scarfman	£2.75
Football Manager	£4.95	Mr Dig	£6.50	Invaders Revenge	£2.75
Grabber	£6.50	Return of Ring	£8.45	Danger Ranger	£2.75
World of Flight $	£6.50	Katerpilla 2	£6.50	Katerpilla Attack	£2.75
Time Bandit $	£6.50	Rommels Revenge	£6.50	Devil Assault	£2.75
Syzygy $	£6.50	Chambers	£6.50	Air Traffic Control	£2.75
Cuthbert In The Cooler	£6.50	Screaming Abdabs	£5.90	Transylvanian Tower	£2.75
The King	£6.50	Juniors Revenge $	£4.25	Adventures 1/4 (each)	£2.75
Athletyx	£6.50	Tubeway Army	£6.50	Arcadia	£2.75
Dark Star	£6.75	Ket Trilogy	£8.45	B C Bill	£2.75
Downlands	£6.50	Draconian	£6.50	Leggit	£2.75
Cashman	£6.50	Ice Castles	£6.50	Pedro	£2.75
Manic Miner	£6.75	Tim Love's Cricket	£7.20	Frogger	£2.75
Johnny Reb	£5.75	Demolitian Derby	£6.50	Android Attack	£2.75
Cuthbert in Space	£6.50	Chuckie Egg	£6.75	Space Monopoly	£2.75

★★★ **IN STOCK 'TOUCHSTONE' £6.50** ★★★
Quickshot 2 with Dragon Interface **£13.00**
Cheques/POs to Gamesmanship, 65 Cassiobury Avenue, Bedfont, Middx, TW14 9JE.
SAE for full list. All computers catered for. Ring 01-890 5636 for latest releases.

NEW AND REVOLUTIONARY!

THE FRENCH FLAG

Foreign Language Assembler and Guide

Years of expertise and analysis are programmed into **FLAG**, so that variant forms (verb, adjective, etc.) are assembled by the computer.

FLAG assembly is beyond A. level standards, yet the helpful guides (e.g. tu . . . vous) assume no knowledge of French — opening the program to all.

A powerful service to beginners and teachers alike.
(on cassette)

DRAGON 32/64 SHARP 700 SERIES COMMODORE 64 **£9.95**

Telephone 021-557 9286 Personal Callers welcome
TUDOR WILLIAMS
15 Summerhill Road, Bilston, West Midlands WV14 8RD

DRAGON IN FARNBOROUGH

Commercial and General Typewriter Co.

WE SPECIALISE ONLY IN DRAGON COMPUTERS
Lots of software always in stock. Try before you buy
Latest titles available include: World of Flight, Ket Trilogy, Screening Abdabs, Jet Set Willy, Jet Boot Colin, Chicken Run, Speedracer and Cuthbert in The Cooler
★ Books ★ Cassette Recorders ★ Printers and Printer Leads
Silver-Reed 4 Colour pen graph with adapter and built in interface parallel £172.50 inc. VAT

Come and see us at:

Commercial and General Typewriter Co.
165 Lynchford Road
Farnborough, Hampshire
Telephone: Farnborough (0252) 540125

'KEYDATA'

PROUDLY PRESENT

'BRITANNIA'

NEW

A challenging strategic battle game for DRAGON 32/64 Only **£5.99** inc P&P
Also available:
A colour screen dump for the MCP 40 Printer/Plotter **£1.99** inc P&P

Cheques/POs payable to **KEYDATA**
KEYDATA, PO Box 5, Lytham St Annes, Lancs FY8 4SH

ACCESSORIES & NECESSITIES FOR YOUR DRAGON

T9008 TRANSFORMER	£9.95
A1001 CASSETTE LEAD	£2.05
A1060 AERIAL LEAD	£2.05
T9000 JOYSTICKS	£7.95 pair
T9001 DUST COVER	£4.95
T9002 BLANK CASSETTE (C15)	50p each
T9004 BLANK DISKS	£3.99 pair
T9006 CARRYING CASE	£14.95

All high quality and excellent value for money!
Orders despatched within 48 hours!

CHEQUES/POs INCLUDING 75p FOR P&P TO:
TOUCHMASTER LIMITED
PO BOX 45
MARGAM, PORT TALBOT
W. GLAMORGAN SA13 1WD

CREDIT CARD ORDERS WELCOME — Tel (0639) 820310

*** DRAGON REPAIRS ***

S.P. ELECTRONICS

Quickshot II Joystick	£14.95
Strike Control Joystick	£9.95
Dragon/Atari Joystick Adaptor	£9.50
Trojan Lightpen	£17.95
Touchmaster Touchpad	£149.00
CP 80 Dot Matrix Printer	£199.00
CPA 80 Dot Matrix Printer	£228.00
Parallel Printer Cable	£12.90
Cannon 160 CPS NLQ Printer	£350.00
Green Screen Monitors	£85.00

Large range of software available. SAE for free list.
Large range of spares available
Also complete repair service

S.P. ELECTRONICS,
48 Limby Road, Hucknall, Notts
(Nottingham 640377)

Access BARCLAYCARD VISA

Classified

DRAGON 32/64
BUSINESS/UTILITY SOFTWARE

DRAGWORD — Disk word processor, menu driven, 50/64 column display, true lower case, print, multiple copies, save, load, merge, delete, catalogue format, simple editing (overtyping), etc. £10 (disk) or cassette version £8.

DRAGBASE — Disk address storer, menu driven, up to 600 addresses per disk, add, delete, search, view, format, catalogue, optional printer output, etc. £10 (disk).

DATA REPRESENTATION — Pie Chart and 3-D Bar graph programs, 100 per cent hi-res, 50 column × 24 row display (with lower case), titles, save charts for later use, etc. £10 (disk) or cassette version £8.

DISK UTILITIES — 10 simple utilities for the disk user. £10 (disk).

MCP-40/TANDY CPP-115 SCREEN DUMPS — any PMODE, colour/b. and w. picture, two sizes, bi-directional. £4.50 (cssette) or £6.50 (disk).

SPECIAL OFFER— Dragword, Dragbase, Data Representation and Disk Utilities available on one disk for £25.

Send S.A.E. for more information on above. All disks are single sided 40 track for DRAGON DATA disk system.

Send cheques/POs to: **Ian Elkington, 11 Wharfedale Gardens, Baildon, Shipley, West Yorks BD17 6TN.**

3 MORE DRAGON SINGLE DISK DRIVES, with card controller, brand new, in box, bargain at, £145.00. Telephone Glossop (455) 5408.

CRASHED DISC! Killed the wrong file! You need the Walrus Disc Doctor. Runs under Dragon Delta Dos to simply edit any byte on a disc. Only £6.99 from Walrus Software, 91 Beaconsfield, Withernsea, N. Humberside HU19 2EW.

DRAGON D.O.S. CARTRIDGE, cables, case. Offers? Dasm/Demon, shaper, composer, games. Ian (0274) 583734.

DRAGON 64, brand new, guaranteed, with software, £140. Telephone (0733) 64312 evenings.

MEDIA CALC SPREADSHEET
AMAZING VALUE
+ − ÷ × % › ‹ Average
Plus all Dragon functions supported 756 cells plus overlay feature.
Full instructions included all for only **£9.99** inc
MEDIA MAGNETICS, Freepost West Bromwich, West Midlands B70 6BR
Agents required in countries other than Sp., S.A. & U.K.

"ELECTRONIC AUTHOR" is THE machine code advanced word processor. Realise the true power of your Dragon using this superb program! Features include: automatic page numbering, centring, paragraphing; 51/64 × 24 true upper/lower case screen display with full screen editing; define your page size, all print types catered for, and it's all VERY easy to use. JUSTIFIED TEXT, making your letters, documents etc, beautifully neat. Full block copy, delete included. Repeat key, excellent phrase search, change or delete facility. Fast typing, no missing out characters. Loading/saving rewritten to abolish I/O errors and allowing filenames of up to 20 characters. Comes with full documentation and configure program to allow it to run with ANY printer. Cost is £19.95, payable to Smithson Computing, 24 Coal Hill Green, Leeds 13. Tel: (0532) 551631 for more details.

JET SET WILLY, menu driven, machine code program. Chose your own level of difficulty ie infinite lives, harmless arrows etc, £1 and SAE for instructions and listing, plan 50p extra. David Brown, 331 Mossy Lea Road, Wrightington Lancs, WN6 9SB.

CAR FAULT DIAGNOSTIC PROGRAM, 42 character, hi-res display, no motorist can afford to be without one, only £3.00. R. Reilly 50 Dymokes Way, Hoddesdon, Herts, EM11 9NB.

Here's my classified ad.

(Please write your copy in capital letters on the lines below.)

£0.20	£0.40
£0.60	£0.80
£1.00	£1.20
£1.40	£1.60
£1.80	£2.00
£2.20	£2.40
£2.60	£2.80
£3.00	£3.20
£3.40	£3.60
£3.80	£4.00
Please continue on a separate sheet of paper	

I make this ..... words, at 20p per word so I enclose £.....

Name .....

Address .....

.....

Telephone .....

Please cut out and send this form to: Classified Department, *Dragon User,* 12-13 Little Newport Street, London WC2H 7PP

JOYSTICKS

For Dragon/Tandy, top quality Joysticks easier to handle and faster than others costing twice as much, £5.95 each, £10.95 the pair inc. Cheques and POs to: Peritron, Dept. DU, 21 Woodhouse Road, London N12 9EN.

THE ULTIMATE, any format, guaranteed. Money back if not satisfied. Send £3.50. Bob Hewitt, 7 Ouse Road, St Neots, Cambs PE19 3AY.

DRAGON 32 HI-TEXT, place text on the A1 res screen with this machine languge utility, features full upper/lower case, reverse field, double height characters, 448 definable characters, 51 × 24, 32 × 24, displays, 16 CLS colours, 6 display modes, £4.95, super basic (all dragons). A machine language utility adding 58 commands to basic, features 4 channel sound, alarm clock, function keys, procedures, error trapping, 33 colours, autorun on loading and lots more!, £4.95. To R. Thompson, 7 Brindley Way, Southall, Middlesex UB1 3JN. Telephone (01) 571 3610.

MANIC MINER, pokes get to any screen, £1.00. Marshall, 11 Oaklands Road, Groombridge, Tunbridge Wells, Kent, TW3 9SB.

DRAGON 32 COMPUTER, and disk drive and DOS only, £215.00, separately £160 and £60. Phone (01) 346 5635 ask for Mahmood.

DRAGON 32K, unused, boxed, plus games, £60. Telephone 01-986 2658 Suhail.

DRAGON 32, thirty games, joysticks, books, cassette recorder, £98. Gosport 504216.

TWIN DRAGON DISK DRIVE, for sale, only 3 months old, £350 ono. Also Tandy CGP115 printer, £100. Telephone 0532 491849 (Leeds).

DRAGON CARTRIDGE CASES, and bare printed circuit boards for sale, cases at £1.25 each, PCB's at £1.75 each. PCB's will accept 2 × 2716, 2 × 2732 or 2 × 2764 EPROMS. Prices plus postage and VAT, call for 100+ prices. Windrush Micro Systems Ltd, Worsted Labs, Worsted, North Walsham, Norfolk. Telephone 0692 404086.

SHINWA CPA 80 PRINTER, used only three times, with lead and manual, gives many different types of print, £190. Southport 73464.

THE CANAL GAME!!, 100% machine code game, excellent sound and Pmode 4 graphics, £5.00. Also screen copier for CGP-115, including colour dump! £3.00. Send to: Unique Software, 5 Milton Drive, Poynton, Cheshire, SK12 1EZ.

DRAGON 32, only 2 months old, unused and still boxed, £75 ono. Phone Bracknell 55986 evenings.

DRAGON CHIPS, 6809E and 74LS783, £6.00 each, £55.00 for 10; 2764 EPROMS, £3.50 each, £30 for 10; Phone Nick evenings 0892 44070.

STEEL SWORDS, daggers, helmets, armour, 3000BC/now, 30 page illustrated weapons list, £1. Tudor Armoury, 90 Christchurch Road, Ringwood, Hants. Telephone 04254-4620.

BARGAIN SALE
New Dragon 32's **£49 only**
FARMFAX programs all with memory:
Cow Records **£199**
Cash Accounts **£199**
Dairy Management **£39**
Ration Formulation **£39**
Dairy Prediction **£39**
Contact:
Riverlea, Crymych, Dyfed
Tel. 023973 387/472

CHALLENGE YOUR DRAGON! Pentzy, professional hires game requiring strategy and skill. Now, choose your opponent(s), £3.00. Anthony Lincoln, 10 Turmar Avenue, Thingwall, Wirral, L61 7XB.

EXPAND YOUR DRAGON 32/64, with these utilities, screen expander, (128 character width display), 24 new commands envelope, move copy etc, all machine code, screen dump programs (CGP115/MCP40, Sekoshi, Epson), 3D bargraphs, disable commands, reset etc, auto-run, tape disk, tape copier and much, much more. Total programs/routines/new commands, with detailed instruction manual all for only £4.99. Send Cheques/Postal Orders, to Pegasoft, 226 Darnall Road, Sheffield S95AN. Immediate dispatch guaranteed.

NEW COMPUSENSE EDIT+ CARTRIDGE, including hi-res, usually £34.00, yours for £20.00. Phone Belper 2193.

ADVENTURE, can you survive the journey to the centre of Phobos. This illustrated text adventure features over 80 locations. This cassette also includes anti-gravity. Just send £2.00 to R. Kent, 39 Long Elms, Abbots Langley, Herts, WD5 0PF.

DRAGON 32 JOYSTICKS, and several hit games, excellent condition £80. 360-4887.

DRAGONDOS EPROMS reprogrammed to include patches describes in *Dragon User* May '85 (plus corrections). Send your Dragondos Eprom (£5) or cartridge (£5.50) to P. G. Scott, 4 Badgerwood Drive, Frimley, Camberley, Surrey GU16 5UF.

ULTRADRIVE Dragon 32/64 also disk drive and OS9 software and various other software, offers invited. Radnage 3270 for details.

3 GAMES on one cassette, Brick-up, Fruit machine and 3D Count, £3.00, from Simon Roche, 5 Greenloons Drive, Formby, Merseyside, L37 2LX.

WANTED! Premier Scribe and Toolkit (on cassettee, disc or inherent on Delta-Dos) and Dragon 32 Premier-upgraded 64k. D. Moodley, Institute of Hist. Research, Senat House, Malet Street, London.

LIFE AND IMPLEMENTATION, for 32k Dragon of Conway's solitaire game of living and dying cells. See patters of cells grow and spread or wither and die on a 40 × 30 grid, £3 from T. Marlow, 74 St Anthonys Avenue, Woodford Green, Essex.

NO MORE SPAGHETTI
Organise all those messy leads, recorder, transformer, joysticks and Dragon 32/64 in a COMPUTRAY.
Integral carrying handles, all wood quality construction, approximately 68 × 40 cm.
Offer includes 2 **free** games to:
A. Samwell
Flixton Cottage, 168 Flixton Road
Manchester M31 3DA

Palindromic number puzzles

***Gordon Lee** sets the challenge — Design Design provide the prizes*

PALINDROMIC numbers can provide quite a few surprises! These, as might be expected, are numbers which read the same forwards as backwards. Here are a few examples: 121, 14641, 40804, 44944, 1234321 and 4008004.

You may have noticed that as well as being palindromic, these numbers are also perfect squares. Even more curiously, their square roots are also palindromic. In fact, research shows that there is an infinite number of palindromic squares and many of these appear to have roots which are also palindromes.

It is not difficult to program a computer to print out a list of palindromic squares, and if this is done it will be seen that the majority have an *odd* number of digits. Amongst the lower orders of squares there are just two with an even number, 698,896 which is the square of 836, and 637,832,238,736 — the square of 798,644. One particularly unusual palindromic square is 111111111^2 = 12345678987654321.

Curious cubes

If palindromic squares are curious, then palindromic cubes are even more so. In general, every cube that is palindromic will have a palindromic cube root. (Note that this is not the same as saying that the cube of a palindrome will be palindromic). Every cube so far tested seems to obey this rule *with just one exception!*

Quite why this should be has not yet been demonstrated, nor does any proof exist that there is a second exception to this rule, but all cubes under $2.8 * 10^{14}$ have been tested by computer and all but one agree with the rule. I will not give this exception here as readers might enjoy solving this problem for themselves. Although it is not a particularly high number, its computation is slightly beyond the normal mathematical functions of the 'Dragon' and so a slightly more sophisticated approach is required.

Just as there are an infinite number of palindromic squares, so too are there an infinity of palindromic primes. Every palindromic prime must have an odd number of digits, with just one exception — the two-digit prime 11.

Number theorists will very soon realise that all palindromes with an even number of digits must automatically be exactly divisible by 11, and therefore — except for 11 itself — cannot be prime. Of particular interest are the four numbers 13931, 14741, 15551, and 16361. Apart from them all being palindromic primes, they have a common difference of 810.

Rep-units

Also of interest are the so-called rep-unit primes. These are numbers consisting of the single digit '1', and so are palindromic in a rather special way. Apart from 11, the only other known primes of this type were, for many years, 1111111111111111111 and 11111111111111111111111. More recently the number consisting of 317 ones has also been shown to be prime!

There is one particular problem relating to palindromic numbers which has been of interest to mathematicians for many years. The advent of high-speed computers has enabled the problem to be attacked further, but the problem's enigmatic nature still remains.

Take any positive integer, write down its digits in reverse order and add the two numbers together. Take this new total and repeat the procedure until the total becomes palindromic. For example, the starting number 139 becomes palindromic in just two steps:

```
  139
  931
 1070
 0701
 1771
```

The theory is that all numbers should eventually become palindromic, but this is far from proved. Of the first ten thousand integers tested by computer, all but 249 of them have formed palindromes in under 25 steps. Of these, the longest palindrome is 16,668,488,486,661 formed after 20 steps from the starting values 6999 and 7998 (or their reversals).

Small exception

The smallest number that does not form a palindrome is 196, and this has been computed beyond many thousands of steps without obligingly forming a palindrome. This month's competition involves this value, 196. If this number is taken as described to the three hundreth step, somewhere along the number so formed at that stage will be the sequence of nine digits: 44 – – – – – 45. Can you fill in the missing five digits?

Of course, you will have to work out the rest of the number too!

Prize

THIS MONTH'S prize is 20 copies of Design Design's arcade game *Rommel's Revenge* — possibly the best implementation of *Battlezone* on any micro.

Rules

To win a copy of Design Design's *Rommel's Revenge,* you must both show the answer to the competition and how to solve it with the use of a Basic program written on your Dragon. Please do not send in a cassette containing you answer.

As a tiebreaker, complete the following sentence in 12 words or less: "I want to take on Rommel because . . ."

Your entry must reach Dragon User by the last working day in July. The winners will be announced in the October issue.

April Winners

Four perspicacious *Dragon User* readers managed to win themselves Dragon 64s donated by Compusense. They are Christine Richmond of Preston, J. Bowen of Rugeley, G. Hamilton of Stalybridge and R. Gosling of Alveston. They will be receiving written confirmation soon.

```
10 CLEAR 500:V$="1"
20 FOR P=1 TO 100
30 W$="":CARRY=0
40 FOR F=LEN(V$)TO 1 STEP-1
50 A=VAL(MID$(V$,F,1))
60 A=A*5+CARRY
70 IF A>9 THEN CARRY=INT(A/10):A=A-(CARRY*10):ELSE CARRY=0
80 Z$=STR$(A):W$=RIGHT$(Z$,LEN(Z$)-1)+W$
90 NEXT F
100 IF CARRY>0 THEN Z$=STR$(CARRY):W$=RIGHT$(Z$,LEN(Z$)-1)+W$
110 V$=W$:PRINT V$:NEXT P
```

This program should have appeared in June's competition page

RETURN OF THE RING

THE RING OF DARKNESS PART II

At last the saga continues . . .

The Guardian of Shedir is defeated, the Hell spawned hordes of the Evil Sage lie at bay. Now Ringbearer, wielder of the Four Bright Rings, must face the greatest challenge: to return the Ring Of Darkness to its creators on the hidden planet Ringworld . . . And somewhere at the ends of time the forces of evil are preparing their revenge.

After one year of development, Wintersoft are proud to present the most sophisticated game ever created for the Dragon 32. Written 100% in machine code, RETURN OF THE RING is an astounding multi program blend of superb high resolution colour graphics and advanced routines that allow you to communicate with your computer in complete sentences. You will face challenge and excitement as you and your Ringworld companions travel a mysterious planet and brave the dangers of an amazing three-dimensional forest moon. An epic adventure unrivalled for its wealth of detail and diversity.

May luck travel your path.

Please note: RETURN OF THE RING is a complete adventure. You need not buy THE RING OF DARKNESS to play it.

DEALERS PHONE 01-367 5720

WINTERSOFT SOFTWARE

30 UPLANDS PARK ROAD, ENFIELD, MIDDLESEX, EN2 7PT

ALSO AVAILABLE:-

DRAGON 32
Return of the Ring **£9.95**
The Ring of Darkness. **£9.95**
Dragon Trek **£6.95**

SPECTRUM 48K
The Ring of Darkness **£9.95**

ORIC-1 48K
The Ring of Darkness. **£9.95**
Operation Gremlin **£6.95**

PRICES INCLUDE P&P, VAT, AND OUR LIFETIME GUARANTEE.

SELECTED TITLES AVAILABLE FROM LARGER BRANCHES OF Boots

PLEASE RUSH ME:-

QUANTITY	TITLE	COMPUTER

I ENCLOSE MY CHEQUE/P.O. FOR £ . . . . . .

NAME: . . . . . .

ADDRESS: . . . . . .

St. George now has two choices!

Red or green will slay the Dragon

- **Nylon encased-Steel shafted joystick with ball and socket joint.**
- **Fast sprung return to centre.**
- **Graphite wiper linear potentiometers.**
- **12 Months Guarantee.**
- **7 day Money back Guarantee.**

Complete control at your fingertips

The smooth control of the Voltmace delta sprung return joystick is now available to Dragon owners. Each joystick has been individually tested before it leaves our factory, following extensive robot testing to prove the design (we tested it more than a million times). This means that not only will your joystick be strong, tough and reliable, but it ensures long life, accurate control and with the choice of red or green fire buttons, gives instant recognition between the left and right joysticks.

If you are not completely satisfied with the delta 3d, return it to us within seven days for a full refund.

Dragon dealers come out of your caverns!

More stockists required in some areas.

Made in England

DELTA 3d JOYSTICK £10.00
TWO DELTA 3d JOYSTICKS £19.50
PLEASE STATE COLOURS REQUIRED
Prices include VAT and P&P.

Voltmace delta 3d

Callers welcome at the factory—Monday to Friday.

VOLTMACE LTD
PARK DRIVE
BALDOCK
HERTS
SG7 6ED
Tel: (0462) 894410

Access
BARCLAYCARD VISA