CANADA $ 3.50 USA $3·25 Vol 2 No 12 UK £1

COMMODORE

COMPUTING INTERNATIONAL

The Independent Commodore Magazine

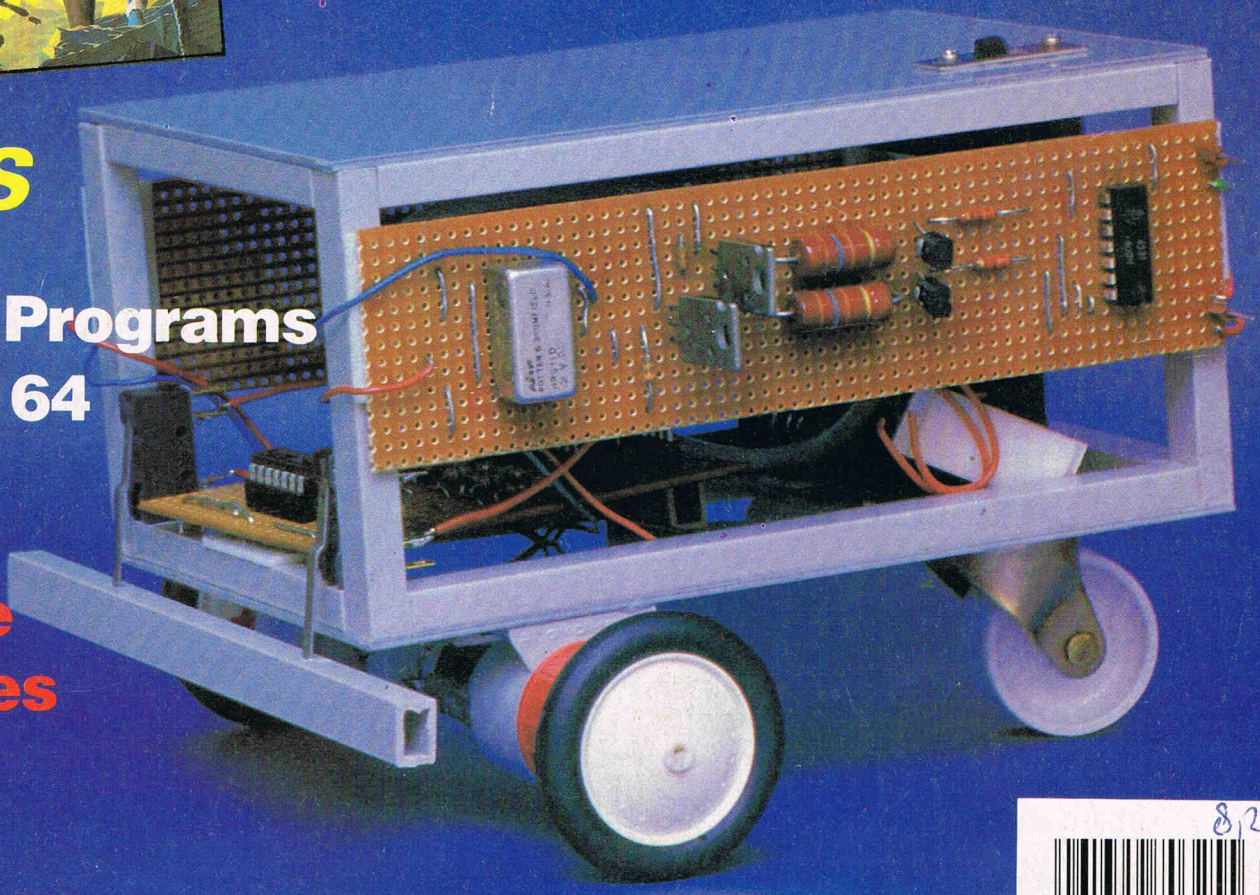
WIN
The Hobbit
in our *FREE* supplement

PLUS
- News
- Reviews
- Program Listings

PLUS

Music Programs on the 64

Micro Mouse Amazes



BELGIUM FR130 FRANCE FR18.5 GERMANY 6DM

8/28

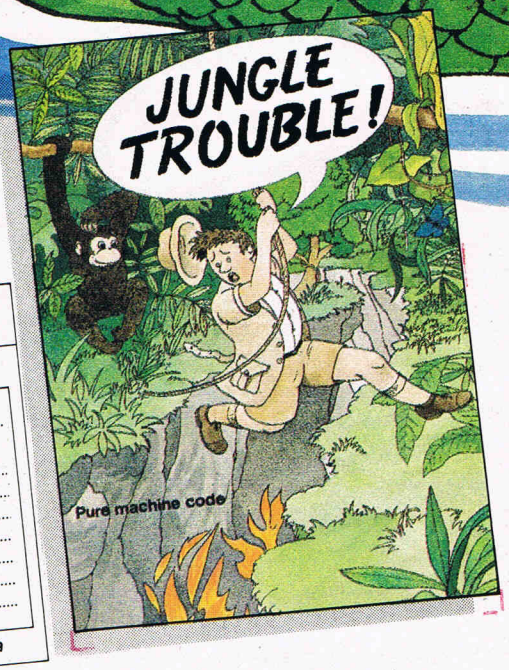
If the apes don't get you the crocodiles will!

Our intrepid explorer is forced to leap across rivers on stepping-stones, cut his way through trees, swing over a fire-pit and by-pass a flame-throwing dragon ...

... all the time harassed by falling coconuts, rampaging apes and ravenous crocodiles!

JUNGLE TROUBLE –

Another great quality game from the house which brought you **HARRIER ATTACK** and **SCUBA DIVE**



DURELL software

available from

W. H. SMITH • LASKYS • GREENS at DEBENHAMS • BOOTS • MARTINS • COMPUTERS FOR ALL • SPECTRUM CENTRES and many other retail outlets

or order direct from
CASTLE LODGE, CASTLE GREEN,
TAUNTON, SOMERSET. TA1.4AB

MAIL ORDER

All games £6.95 including postage and packing.

TYPE OF COMPUTER: .....

CASSETTE TITLES:

1) .....

2) .....

3) .....

NAME: .....

ADDRESS: .....

.....

.....

Overseas customers please allow £1.00 extra

COMMODORE

COMPUTING INTERNATIONAL

MAY 1984

COVER STORY

With the approach of the 1984 Euromouse competition, we offer some guidelines to building your own robot mouse

Published by Nick Hampshire Publications, 167-169 Great Portland Street, London W1.

Managing Editor .....Nick Hampshire
Consultant Editor .....Peter Arnott-Job
Production Manager.....Richard Povey
Assistant Editor .....Sue Pearce
Staff writer .....Sally Wood
Technical Editor..... Richard Franklin
Programmer .....Carl Graham
Art Editing .....Frank Ashia
Advertisement Manager Peter Chandler
Sales Executive ..... Paul Fenton

Telephone:

Editorial	01-636 6531
Advertising	01-636 6408
Subscriptions	01-636 6354

Distribution by Magnum Distribution Ltd, Chronicle House, 72-78 Fleet Street, London EC4Y 1HY.
Printed by Ambassador Press, Radlett Road, Colney Street, Radlett, St Albans, Herts AL2 2EG.

© Nick Hampshire Publications 1984.

ISSN 0265-475X

Commodore Computing International – an independent magazine for Commodore computer users – is not connected in any way with Commodore Business Machines U.K. Ltd. It is published 12 times per year by Nick Hampshire Publications Ltd. The Publishers do not accept liability for any incorrect statements or errors contained in material from independent sources or authors which may be reproduced from time to time.

NEWS 5
All that's happening in the computer world

PRODUCT NEWS 7
The latest hardware and software for Commodore machines

MOUSE 12
Looking at the Euro-mouse competition and the first in a series on building your own robot mouse

SOFTWARE REVIEWS 19
Basic, my dear Watson... a guide for newcomers

HARDWARE REVIEWS 21
An economical printer for use at home

HINTS AND TIPS 22
An auto-line numbering routine for the 64, and an auto-run routine for the VIC

MUSIC 26
More programs for use with the keyboard project published in our December issue

BASIC PROGRAMMING 33
The first half in a desk-diary routine designed for the 64

MACHINE CODE 40
A program to enable smooth-scrolling on your 64

BUSINESS PRODUCTS 49
The latest hardware and software for business users

BUSINESS SOFTWARE 51
We look at an electronic spreadsheet for use with the 64

BUSINESS HARDWARE 53
A quality daisy wheel printer for use in business

PRODUCT SURVEY 54
This month we look at a selection of printer buffers

NEXT ISSUE

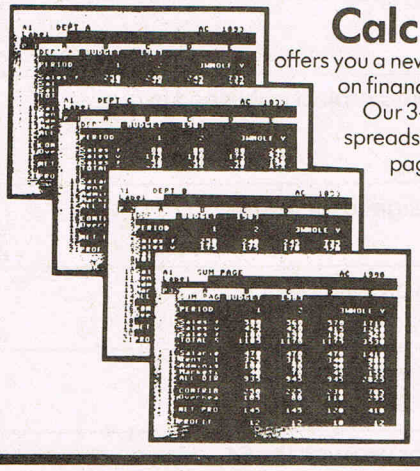
SHOW MUSIC: Some surprises for the Commodore show.

MORE MUSIC: How far have you got with our keyboard project? In our June issue we recap the project so far and show how to display your keyboard on the screen.

MORE MOUSE: The next in our series on building your own robot mouse.

Now the Commodore 64 means business

The Game's over. Wouldn't you like to increase the applications potential of your Commodore 64? Transform it from a fun family computer into a truly professional tool? Now — thanks to Handic, the world's largest creator of Commodore software — you can give a powerful new dimension to your 64's performance. We have pioneered a new program called CALC RESULT that dramatically expands the financial planning potential of your Commodore.
Doctors, Dentists, Lawyers, Bankers, Brokers and other money managers exploit it to keep track of complex client accounts. Builders, Garage Owners, Retailers of all sizes, and descriptions now use the spread sheet formula for instant feedback and analysis of trading results. In a world where ease of access and speed of assessment are essential, CALC RESULT gives everyone the power to harness the untapped potential of their Commodore.
CALC RESULT is versatile... use it to calculate loan and mortgage payments, forecast budgets, balance cash flow, monitor stocks and shares, plan personal and corporate taxation, check expenses, log and analyse all kinds of bills.
CALC RESULT instantly translates figures into multi-coloured bar charts. It has a built-in 'HELP' function and is absolutely accident proof.



Calc Result

offers you a new perspective on financial planning. Our 3-dimensional spreadsheet sums up pages of figures in one easily understood financial model.

£99·00 (inc.VAT)

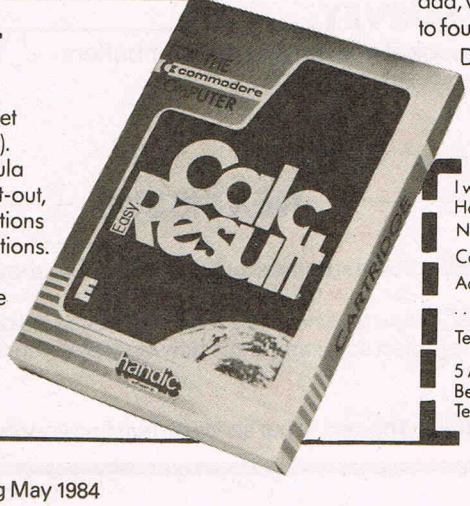
Calc Result Advanced

All functions in **Calc Result Easy** plus 32 pages (Three-dimensional viewing). Page add, window, split-screen (up to four pages on the screen at the same time), and help functions.
Delivered on plug-in cartridge plus disk. Requires disk drive.

£49·95 (inc.VAT)

Calc Result Easy

Single page spreadsheet (64 columns x 254 rows). Built-in graphics. Formula protection, flexible print-out, colour conditional functions and mathematical functions. Delivered on plug-in cartridge. Data storage on cassette or disk.



For more information contact our Advisory Centre on 0344-778800 or simply contact your local Commodore or Lightning dealer, or clip the coupon.

I would like you to send by return post further information on the Handic 64 range. CC2

Name ..... Title .....

Company .....

Address .....

.....

Tel. .....

5 Albert Road, Crowthorne
Berkshire, RG11 7LT
Tel: 0344 778800 Telex: 849426

handic software Ltd
Thinking ahead

Ping-Pong

Robots already look set to take over all our manual labour, but now it seems that they are about to take over our leisure as well! A Ping-Pong (table tennis) competition has been announced, not for humans but robots.

The Steering Committee of the International Personal Robot Congress and Exposition (IPRC) have accepted a British challenge for the tournament which is to take place in 1986.

Dr John Billingsley of Portsmouth Polytechnic conceived the idea and contest organisers believe that the sensor technology enabling robots to 'see' the ball and then return it to their opponents will become available in the next two years. It is also expected that most of the 'competitors' will be built by enterprising individuals rather than by large manufacturers.

Trials for the selection of the American team will take place at IPRC '85.

A special scaled-down version of a Ping-Pong table has been designed for the competition, with a frame at either end. Above the net is another 50cm square frame to outlaw the unsportsrobotlike practice of lobbing the ball out of view of the opponents sensors!

For information on the IPRC **contact:** IPRC, 777 Locust Street, Denver, Colorado 80220.

For information on the contest itself **contact:** Dr John Billingsley, Dept of Electrical and Electronic Engineering, Portsmouth Polytechnic, Anglesea Road, Portsmouth.

Housing

Advances in Microtechnology, particularly in microelectronics, are having considerable effects on the design of homes. The number of people working from home has risen dramatically in the last few years and few homes are built to encourage working activity.

In the last decade public and private housing have been at least 10% smaller in area than in the '60s and the Housing Associations Charitable Trust are concerned that everyone in the Housing Industry should realise that there will have to be changes in housing designs in the UK.

Concept

Lion House, a new computer retail centre is launching a new concept in selling micros to the business and home markets. The redecoration of their Tottenham Court Road premises is just being completed and it will be renamed Micro Systems.

Spread over five floors, Lion plan to have several different sections including departments concentrating on hardware and accessories for the home market; business systems; an advisory centre for first time buyers; a fifty seat lecture theatre for seminars and training and a press centre with free database and word processing facilities.

Contact: Lion House, 227 Tottenham Court Road, London W1P 0HX. Tel: 01-580 7383.

In the Pipeline

Marshall Smith, the new president of Commodore has been planning some interesting moves since he took over from Jack Tramiel. Commodore have signed a technology licensing agreement with the manufacturers of Hyperion, a IBM compatible machine and by the end of this year Commodore are hoping to have their own IBM compatible machine in production.

CBM packages

Commodore are trying to consolidate their position in the microcomputer business market by offering five packages with considerable price reductions to cover every size of business.

Each package includes hardware, software and peripherals necessary to satisfy the demands of most businesses. The five packages available are as follows:

A 700B computer and monitor, SFD 1001 single disk drive, 4023 printer, cables and three software packages (Superscript word processing systems, Superbase filing system and Calc Result spreadsheets) reduced from £2,713 to £1,495.

A 700B computer and monitor, SFD 1001 single disk drive, 6400 printer plus cables and three software packages (Superscript, Superbase and Calc Result) reduced from £3,363 to £1,995. A 7105B computer with integral monitor, 8250 dual disk drive, 4023 printer, cables and three software packages (Superbase and Calc Result) reduced from £3,204 to £1,975.

A 710B computer with integral monitor, 8250 dual disk drive, 1361 printer, cables and three software packages (Superscript, Superbase and Calc Result) reduced from £3,484 to £1,995.

A 710B computer with integral monitor, 8250 dual disk drive, 6400 printer, cables and three software packages (Superscript, Superbase and Calc Result) reduced from £3,854 to £2,495.

Contact: Commodore Information Centre, 675 Ajax Avenue, Slough. Berkshire SL1 4BG. Tel: 0753 79292.

Welcome

Kenneth Baker MP, Minister of State for Industry and Information Technology, recently welcomed Commodore's decision to open a factory in Corby. He said: "Regional financial incentives have been used in a constructive way to help this project go ahead in Britain and bring the benefits of a significant number of new jobs for Corby and a welcome addition to our growing information technology related industries."

Commodore's Corby factory is Europe's largest microcomputer factory, creating 600 jobs this year with an additional 400 jobs being generated as the factory gears up production.

Production commences in September. The factory will initially produce 200,000 microcomputers a month and has the expansion capacity to produce over 350,000 units a month. Two-thirds of production will be exported to Europe and countries such as Australia and the Middle East.

Talk

A two-day conference discussing how to avoid losses through piracy is being organised by Business Research International. It will take place at the Park Lane Hotel, London on June 4-5.

Subjects on the agenda include: specific steps you can take to combat piracy; what your rights are in law; when to use litigation – a cost/benefit analysis; why protection should be treated as an investment; the latest technology available to protect your programs; how proposed changes in legislation will affect your position; what new protection problems may be created by knowledge based systems; plus two case studies.

The cost of this conference is £396.75, with a 10% reduction if two or more delegates attend.

Contact: Business Research International, 57/61 Mortimer Street, London W1N 7TD. Tel: 01-637 4383.

64 hardware

Product	OUR PRICE
(a) Commodore 64	£195
(b) 1530 cassette unit	£ 45
(c) 1541 disk unit	£199
(d) SX64 + £250 software	£850
(e) MPS801 printer	£199
(f) 1526 printer	£310
(g) Epson FX80	£400
(h) Epson RX80	£275
(i) 1701 monitor	£210
(j) parallel interface to link 64 to (g)	£ 25
(k) interface to convert any cassette recorder to 64/Vic20 use	£15
(n) package (a) + (b)	£230
(o) package (a) + (c)	£387
(p) package (a) + (c) + (e) + Easy Script, Easy File and Intro to Basic (all on disk)	£620

(Offers subject to Commodore supply)

Prices include VAT. Carriage is free except on credit orders. A full range of hardware and software is available by mail from us. Ask for prices and details. Alternatively, visit The DGH Software Centre's new shop at 10 North Street, Ashford, opening end of May. A full range of books also available by mail order at normal retail price plus £1 p&p.

VISA Access

ACCESS/VISA credit card hot-line:

(0227) 266289

If answering machine is in use be prepared to state program name, your credit card number and expiry date, your address and telephone number.

software selection

This is a selection of some of the best programs for the Commodore 64 from a list of over 800 we can supply, covering the products of 100+ software houses from the UK, rest of Europe and the USA. A 20-page listing and later updates are available free to customers (otherwise 50p and large SAE. Add 50p p&p for orders under £20. (Europe £1 on each item of software).

Please note that the prefix (d) before a price denotes that the program is available on disk (for example d25). The prefix (r) (as in r29) indicates that the program is in cartridge form and costs £29.00. Tape program prices have no prefix. Thus (d29) indicates a disk version at £29.00 and a tape version at £16.00.

WORD PROCESSING

PAPERCLIP (d90) is the most sophisticated and versatile wp program for the 64. Very good too is **VIZAWRITE** (r78 d65) which also has a spell-check program **VIZASPELL** (d20 if bought with VIZAWRITE, else d65). But for casual wordprocessing of extreme sophistication we recommend **HOMEWORD** (d35) which is outstanding value and very easy to master. It uses 'icons' to symbolize menu options (as used by Lisa). Contains several really innovative features. Much further down the scale but ideal as a low cost text editor is **WORD WIZARD** (5.99). Compatible labelling programs are available.

UTILITIES

DISKEY (d36) is a really powerful disk editor which enables you to manipulate fully your 1541 and files produced on it. **PROGRAMMER'S UTILITIES** (d14.99) surely represents the best value if you have a disk: sprite, character, and sound editors are provided in addition to a PET emulator, and disk copy utilities – a dozen in all! **COMPACTOR** (d10.50 8.50) cuts out all wasteful programming including REMs and spaces. This can speed up programs and salvage memory. Various good quality sprite and character editors are available including **SUPERFONT 4.0** (6.75) **SPRITE/GRAPHICS EDITOR** (5.99) **SPRITEMAKER 64** (6.75). On the music side there's **MUSIC COMPOSER** (r9.99) **ULTISYNTH** (14.95) and **SYNTHESOUND** (r25 d25). If you have a lot of tape-based software, **DISCO** (c9.95) can be used to transfer much of it to disk – this is a truly powerful utility which is the best of its type. **KOALAPAD** (75) is an outstanding hardware accessory which enables you or your children to create wonderful screen pictures which can be saved and displayed independently – requires **KPAINT** (d20). Other 'pad' software also available.

PROGRAMMING AIDS

These range from improvements to C64 BASIC to actual programming aids. **SIMONS BASIC** (r50) adds 114 extra commands and facilities, and the rather better planned program **BC BASIC** (r50 17.95) does much the same. Best of the compilers and excellent value is **PETSPEED** (d50). On the machine code front there are numerous monitors and assemblers the best of which is **MIKRO ASSEMBLER** (r53) but **MONITOR** (r29.95) **ASSEMBLER 64** (6.75) **ASSEMBLER DEVELOPMENT** d24.95) **HESMON 64** (r29) **MASTERCODE ASSEMBLER** (14.95) can all be recommended. If you want to learn about machine code programming we suggest **ASSEMBLER TUTOR** (d29.95 29.95) or Honeyfold's **BEGINNER'S ASSEMBLY LANGUAGE PROGRAMMING** (14.95) If you plan writing your own database programs highly recommended are **CODEWRITER** (d85) and **THE LAST ONE** (d97) which both produce stand-alone code.

DATAFILES/DATABASES

Unquestionably the one program to have if you can afford it is **SUPERBASE 64** (d88) which we have on special offer by way of encouragement! This is a sophisticated programmable relational database. Think of what you would like your database program to do – and SUPERBASE will probably be able to do it! Very, very powerful and very, very versatile. **INFODISK** (d73) and **DELPHI'S ORACLE** (d90) are very similar and offer larger individual records but more restricted programming constraints. Multifunction database/wordprocessors include the excellent **MAGPIE** 64 (r95) **INFOMAST** (d90) and **VIZASTAR** (d99). All these programs are capable of serious disk-orientated business applications. **DIARY 64** (r30) is a really excellent 'single page' datafile for tape or disk records.

FINANCE & BUSINESS

CALCRESULT (d95) is a very sophisticated 3D spreadsheet we highly recommend for serious business uses. **PRACTICALC** (d40 35) is very good value. Also: **FUTURE FINANCE** (d75) and **BUSICALC 2** (d79 77). For home accounts there's **BANK MANAGER** (d10 7.50) **HOUSEHOLD FINANCE** (21) **MONEY MANAGER** (9.99) the very sophisticated **HOME ACCOUNTANT** (d52.50) **TIME & MONEY MANAGER** (d49). Business account programs are available also. These usually form part of a suite of related business programs. For a low cost example **BUSCOM-1, BUSCOM-2, BUSCOM-3** and **BUSCOM-4** are for monthly accounts, wages, retail accounts, and stock system respectively (all d21 19 – demonstration versions at d4.50 2.50 each). Expensive and sophisticated alternatives are also available. For VAT record-keeping and a full audit trail we unreservedly recommend **MICRO SIMPLEX 64** (d175). A very professional program with full product support. Suits Schemes A to F. Demo available.

RECREATIONAL

We can supply any of the popular games from established software houses and this includes an unbeatable selection of imported material. If there's a program for the 64 ... we can usually provide it! Look out for ALICE IN WONDERLAND (d27) and the definitive C64 **FLIGHT SIMULATOR II** (d35). Really good imports include **BLUE MAX** (d29 29) which has truly outstanding graphics and diagonal scrolling like **ZAXXON** (d29 29) which is at last available. There's also **PROTECTOR II** (d25 25) **FORT APOCALYPSE** (d23 23) **PITSTOP** (r27.50) **JUMPMAN** (d27.50 27.50) and **JUMPMAN JUNIOR** (r27.50) ... but there are many others! Interested in adventuring? Highly recommended are the following: **COLOSSAL ADVENTURE, ADVENTURE QUEST, DUNGEON ADVENTURE, SNOWBALL, TIME LORDS** and **TWIN KINGDOM VALLEY** (all 9.50 each) **THE HOBBIT** (14.50), plus Infocom's **ZORK I/II/III, STARCROSS** (all d29 each) **WITNESS, DEADLINE, SUSPENDED, ENCHANTER, INFIDEL, PLANETFALL** (all d36 each). A good range of Commodore cartridge software is now available – best of these is **INTERNATIONAL SOCCER** (r9.99). **CP/M** (rd 60) gives you the benefits of the Z80 processor and a full operating system. **PILOT** (d65) is an outstanding tool and authoring language for creating educational programs with ease. **LOGO** (d39.95) also now available.

Our list includes details of EDUCATIONAL, ACCOUNTING, BUSINESS and GAMES programs not possible to itemize here. PLEASE TRY US IF YOU ARE HAVING DIFFICULTY LOCATING A PROGRAM. Please make cheques/PO's payable to the Six-Four Supplies Company.

the six-four supplies company

P.O. Box 19, Whitstable, Kent CT5 1TJ. Incorporated by The DGH Software Centre, Ashford, Kent (a division of T. Denne & Sons Ltd)

Monitor range

New company Compuser are launching a range of British-made colour monitors for home users as well as small businesses.

Two medium resolution and two standard 14 inch monitors are available. The medium resolution monitors, costing £395 plus VAT, display a text width of 80 characters and feature an anti-reflection face plate to eliminate glare. They have a RGB linear input and are also available in RGB/TTL and composite versions.

The standard resolution composite monitors have two inputs, the RGB/TTL and Pal encoded composite signals with separate sound inputs and will cost £265 plus VAT. All the monitors are housed in cabinets with optional carrying handles. A number of other specialist products will follow on from the monitors later in the year.

Contact: Compuser Ltd, 27 Vulcan Way, New Addington, Croydon, Surrey CR9 0BG. Tel: 0689 46116.

Partners

W H Smith has linked up with Softeam, a major US Software distributor in a bid to capture more than 25% of the UK business software supply over the next three years.

The new partnership, now called WHS Softeam have produced a bi-monthly software catalogue which is displayed in all WH Smith stores. The catalogue costs 75p and contains descriptions of all the software and is aimed at both new and add-on users. Other functions of WHS Softeam include after sales service, advice and supply.

Contact: W H S Softeam, Warehouse and Distribution, Euston Street, Freemans Common, Aylestone Road, Leicester LE2 7SS.

Grafpad

British Micro have plans to release the Grafpad, priced at £125, later this year. The proposed package will contain a cassette and accompanying software programs which will enable you to draw your own designs or trace the outlines of maps and pictures. These can be saved on disk or cassette and copied through a printer.

It has a working area of 240 x 192mm, with a resolution of 320 x 256 pixels. A freehand drawing program, called Draw, accompanies the Grafpad and together with the detachable pen and a choice of red, green or blue, there is scope for a variety of drawings.

Contact: British Micro, Penfold Works, Imperial Way, Watford, Herts WD2 4YY. Tel: 0923 48222.

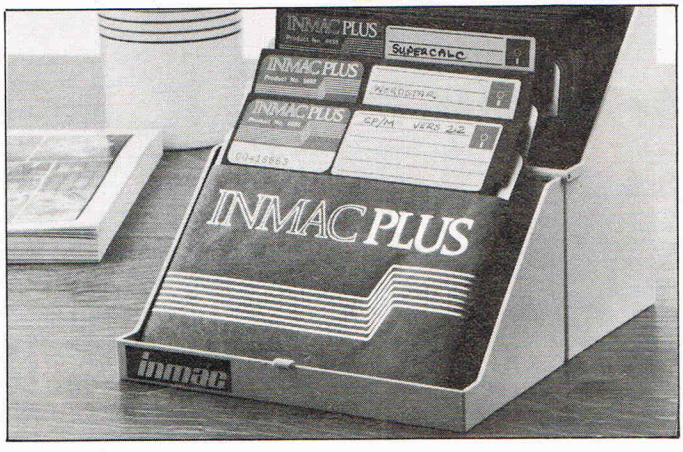
Miracle modem

The WS2000 modem for Minor Miracles costs £99.95 and will support communication systems all over the world including the American Bell system.

It conforms to the V21 and V23 CCITT standards and is switchable to the 300 baud full duplex, 1200 half duplex, 1200/75 and 75/1200 (for communication with the Prestel, Viewdata and Micronet terminals).

A plug in Auto-Dial and Auto Answer Board can be bought for £39 and a lead control set for £9.50. It has a RS232C and will need an interface to connect with the Pet, 64 or VIC 20. These can be purchased from the company.

Contact: Minor Miracles Ltd, PO Box 48, Ipswich IP4 2AB. Tel: 0473 50304.



Data storage

A floppies deskbox from Inmac will store up to 40 5¼ inch floppies in a beige plastic box costing £7.

Dividers keep the disks separate and the snap action lid is hinged so that it drops forward and provides a space for the temporary storage of disks.

Also from Inmac is a printout binder in which printouts can be filed flat for easier reference. The fixing mechanism is adjustable so that odd sized paper can be accommodated.

The binders are available in two sizes: the 132 column version costs £4.90 and will take paper up to 15⅝ inches wide and 11 inches deep; and the smaller 80 column binder, costs £4.50 and takes paper up to 9⅛ inches wide and 12 inches deep. They have blue PVC covers with a clear index pockets in the spine and inside cover.

Contact: Inmac (UK) Ltd, Davy Road, Astmoor, Runcorn, Cheshire WA7 1PZ. Tel: 09285 67551.

Shortage

Unprecedented demand and a semi conductor shortage have severely affected the availability of Epson's LQ-1500 dot matrix, letter quality printer.

Deliveries to meet the current demands will not be made until late August or September and so in the meantime Epson are supplying the printer by allocation.

Contact: Epson Printers, Dorland House, 388 High Road, Wembley, Middlesex HA9 6UH. Tel: 01-902 8892.

Compile

C P White have produced a Basic Compiler on cassette for the 64. It comes complete with a manual and costs £34.50.

The company claims that any program written in Basic will run 62 times faster if this compiler is used. It will not save the compiler with a machine code program.

Contact: C P White (Services), 54 Northfield Avenue, West Ealing, London W13 1RR.

commodore

Now with Audio Learning Cassette

Superbase 64

The natural development for Commodore 64 users

Unlock the full potential of your disk-based Commodore 64, use Superbase 64 – the complete records-handling system that puts business-style power and practicality at your fingertips.

Superbase 64 solves a host of filing problems with its easy record formatting, powerful indexing and sorting, extensive outputting options, and its 'Superbasic' programming capability.

Invoices/Finance & Banking/Membership/ Collections/Recipes/Personal Filing/Stock/ Prospects/Management Accounts/Car Fleet Records and many, many more!

And Superbase 64 comes with a simple-to-follow manual and audio-learning cassette so you'll have no trouble getting the benefits straight away.

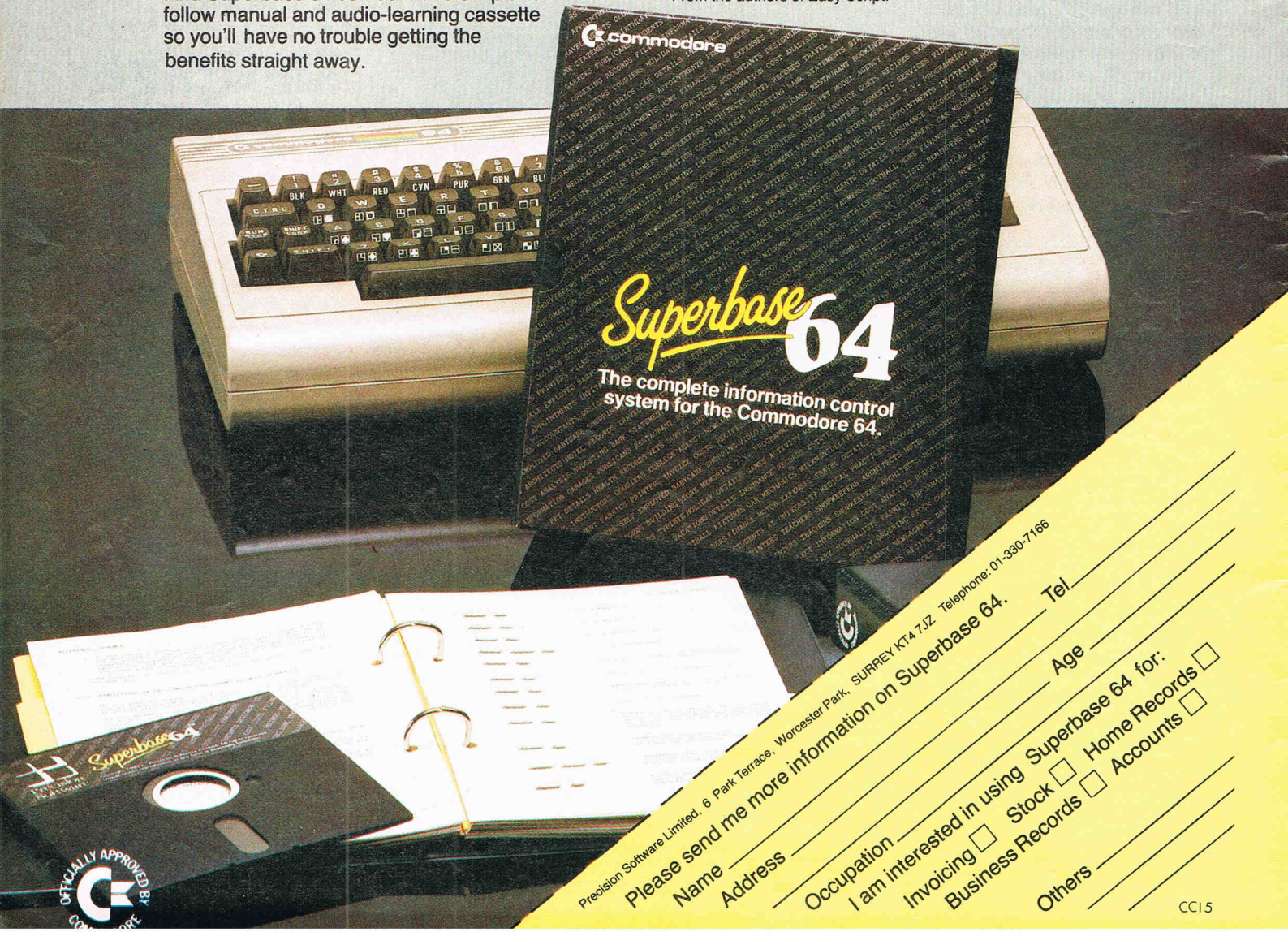
Superbase 64 – The complete information control system for the Commodore 64.

Complete your Commodore 64 – Complete the coupon

Precision Software Ltd.
6 Park Terrace, Worcester Park,
Surrey, KT4 7JZ
Telephone: 01-330 7166
Telex: 8955021 PRECIS G

More information on Superbase 64 is available from Commodore Dealers, Major Retailers or from Precision Software direct.

From the authors of Easy Script.



Precision Software Limited, 6 Park Terrace, Worcester Park, SURREY KT4 7JZ Telephone: 01-330-7166

Please send me more information on Superbase 64. Tel

Name Age

Address

Occupation

I am interested in using Superbase 64 for:

Invoicing ☐ Stock ☐ Home Records ☐

Business Records ☐ Accounts ☐

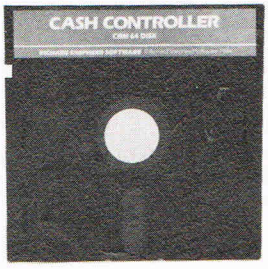
Others

CC15

RICHARD SHEPHERD SOFTWARE

A HOME BUDGETING & BANKING SYSTEM THAT REALLY MAKES YOUR COMMODORE 64 WORK!

NOW ON CBM 64 DISK AND CASSETTE



A professional style multi function Cash Controller program. In disk format you can load, and make an entry . . . or update your existing records . . . in just seconds. This easy to use program can handle up to 400 transactions, giving instant statements of your bank balance. Now there's no excuses for going into 'the red' and paying unnecessary bank charges!

BANK ACCOUNT

- Statements on demand from any date to date.
- Holds up to 400 transactions.
- Standing order facility.
- All transactions can be automatically coded to allocate up to 16 budget headings.
- Search facility for any single item by description or amount.

HOME BUDGETING

- 16 budget headings, e.g. Gas, Rates, Car, Tax - you can choose the headings
- Highlights under/over spending
- Full budget expenditure breakdown
- Budget "re-think" facility

LOAN/MORTGAGE CALCULATOR

All you ever wanted to know but didn't like to ask! Calculates:

- **Interest rates**
- **Payback periods**
- **Capital sum**
- **Period of loan**

- **PRINTOUT FACILITY**
- **FULL SECURITY WITH PERSONAL PASSWORD**
- **SAVE DATA ONTO CASSETTE OR DISK**

Available from good computer stores or direct by mail order... **at a price that won't upset the Bank Manager!**

CASSETTE
£9.95
INC P & P

DISK
£14.95
INC P & P

Dealer enquiries welcome.
Generous discounts.

PRIORITY MAIL ORDER

Please send me _____ CASH CONTROLLERS
at £9.95 each 64 Cassette ☐ Please tick
at £14.95 each 64 Disk ☐ version required
including post & packing (overseas orders add £1.50)

Name _____

Address _____

_____

_____

I enclose cash/cheque/P.O. payable to Richard Shepherd Software.

Or debit my Access/VISA Card Number

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

CCI 5/84

Signature _____

ALSO AVAILABLE ON CASSETTE FOR 48K SPECTRUM

All programs are sold subject to the condition that they may not by way of trade or otherwise be lent, hired out, resold or otherwise circulated without the written permission of Richard Shepherd Software Ltd.

24 Hour Credit Card Hotline (06286) 63531 REMEMBER TO STATE IF YOU REQUIRE CASSETTE OR DISK

RICHARD SHEPHERD SOFTWARE
ELM HOUSE, 23-25 ELMSHOTT LANE, CIPPENHAM, SLOUGH, BERKS. TEL. (06286) 63531

The best accessory for your micro

ONLY
£34.49
(P+P £2.50)

The Rotronics Portable Case

Here is the ideal portable work station for home, school or work. Specially made for most home microcomputers, it contains your VIC 20 or CBM 64 within a smart executive style case with removable lid for convenience in use.

The individually tailored foam insert securely protects your micro and cassette recorder (both types) during transit. Additional storage space in the lid holds manuals and up to twenty cassettes. A scalpel is provided to modify the insert for expansion units and an alternative insert can be supplied if you change your hardware in the future. The case is also available with uncut foam inserts.

All components remain fully operational within the case via inter-connections routed between the double layers of foam, so there are no unsightly leads.

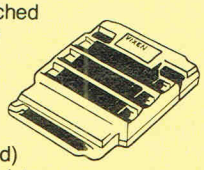
This is the first case designed for easy use with each component positioned for convenient operation. The overall dimensions are 138mm x 700mm x 363mm.

VIXEN RAM Cartridge

Versatile unit with switchable memory blocks. Allows standard 16K BASIC memory expansion, or RAM to be relocated for machine code use. Two VIXENs may be combined (using the Motherboard) and set so as to fully expand the VIC to 32K. £34.45 (p+p 50p)

VIXEN Motherboard

Allows up to four cartridges to share the VIC 20 expansion connector. Switches allow two of these ports to be switched in or out, or to be relocated in memory. The VIXEN also incorporates a socket which accepts software in PROM form: a utility PROM is already available (not supplied) which adds 18 new and useful commands to VIC BASIC. £31.95 (p+p 50p)



Order Form

CCI 5/84

Trade Enquiries Welcome

Please send me (tick appropriate box)

- ☐ Rotronics Portable Case at £36.99 (inc. £2.50 p+p) for VIC 20/CBM 64/Uncut Foam (please delete as necessary)
- ☐ Vixen 16K Switchable RAM Cartridge at £34.95 (inc. 50p p+p)
- ☐ Vixen Switchable Motherboard at £32.45 (inc. 50p p+p)

All prices inclusive of VAT
I enclose a cheque/PO for £_____ made payable to SMT.

SMT

Name_____

Address_____

_____

Please allow 28 days for delivery. Send to (no stamp required)
FREEPOST Greens Norton Towcester Northants NN12 8BR

Paint pic

Paintpic, a complete colour drawing and painting program for the 64 is now available from Kuma Computers for £19.50.

Available on cassette, the program can draw in three modes – pen, brush and text and it can draw both curved and straight shapes – circles, arcs and triangles for example. Pen, bristles, borders and background colours can be set. There are a number of selectable features including eight storable brushes, graphics characters and tilted shapes.

Contact: Kuma Computers Ltd, 12 Horseshoe Park, Pangbourne RG8 7JW. Tel: 07357 4335.

Show

Walthamsoft '84, a home computer show, is being held in the main hall of Waltham Forest Technical College, Forest Road, Walthamstow, London E17 on Saturday May 19.

It opens to the public from 10am until 5pm and the admission fee will be £1. Stands exhibiting software, hardware, peripherals and allied electronics will be among the attractions. Walthamstow is easily accessible by public transport and there is ample parking space for cars.

Data 20

The Data 20 interface from Impex connects the 64 or Vic 20 to a parallel printer and costs £54.95.

It will work with printers with programmable character sets and will disable ASCII conversion. Supporting the Commodore handshaking protocol, the interface appears to the system as a 1525 printer. It generates its own power by using a small amount of energy from the signs passing to the printer from the computer.

Contact: Impex Designs (UK) Ltd, Metro House, Second Way, Wembley, Middx. HA9 0TY. Tel: 01-900 0999.

64 centre

Griceglen, a software centre specialising in products for the 64, has opened in London. It is stocking all sorts of items ranging from business applications – accounts, database systems and spreadsheets to programmers aids, books and utilities – games and educational programs.

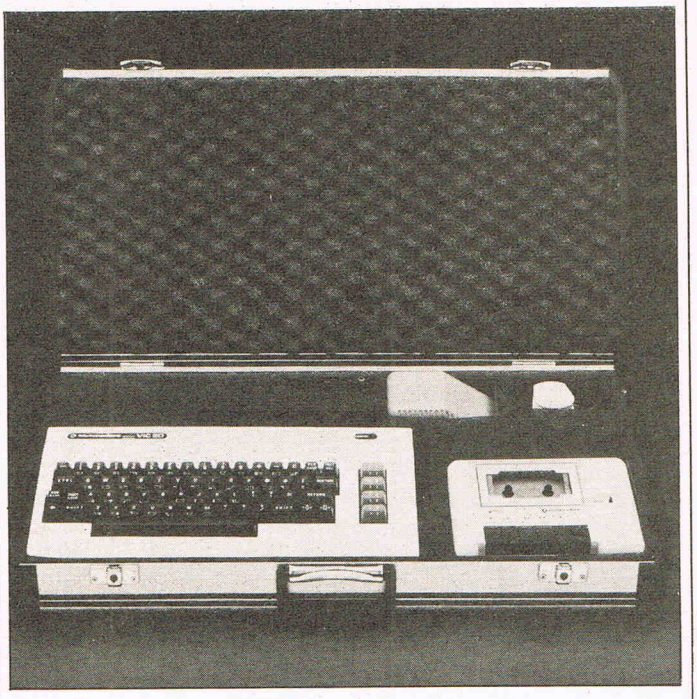
Product Demonstrations and after sales support for business customers are also available. The centre aims to keep adequate stocks up and currently have over 200 different items.

Contact: Griceglen Ltd, 26 Red Lion Square, London WC1V 4RL. Tel: 01-242 9462.

US supply

The North American division of Precision Software have signed with Commodore to supply Easy Script and Easy Spell as the standard word processing packages for the new 264 and V364 series. At present, these will only be available in North America.

Optional voice synthesis on the V364 means that commands and error messages can be spoken as well as written on the screen. There are also a number of enhancements designed to take advantage of the additional facilities on these models. Easy Spell will also feature more technical words.



Hold-all

Ever had problems transporting your 64 or VIC 20 and the various peripherals around the country? If you have, then read on because Rotronics have designed a computer case which will hold everything – the keyboard, cassette recorder, power supply, leads and even the manuals. It retails at £34.49 plus £2.50 p&p.

It weighs about 3.5Kg when empty and is about 690 x 360 x 140mm in size. Foam inserts protect the equipment, keeping it secure, and the case has black leather-look sides, aluminium extrusions and chrome-plated locks and hinges.

Contact: Rotronics Ltd, 29 Octagon Parade, High Wycombe, Bucks HP11 2HX. Tel: 0494 449623.

Programs

Handic Software have produced a number of programs which they hope will boost the commercial applications of the 64 and also a catalogue listing products available for all of the Commodore Computers.

Among the software produced is the MON 64, a Machine Code Monitor on cartridge and REL 64 which turns the 64 into a remote Command and Control Centre – activating burglar alarms, lamps, telephones, and televisions.

Contact: Handic Software, 5 Albert Road, Crowthorne, Berkshire RG11 7LT. Tel: 0344 778800.

Budgeting

Kuma Computers have at last released a 64 version of Home Budget for £9.95.

Designed to help keep track of home finances, it builds up a file of incomes and expenditures and produces tabulated reports or bar charts on these. It also has a facility to do "what if" calculations. Up to 12 categories of expenditure and three categories of income are defined and all data can be logged for date and time.

Contact: Kuma Computers, 12 Horseshoe Park, Pangbourne RG6 7JW. Tel: 07357 4335.

Twin pack

BASF are launching a twin pack of disks, providing an alternative to the traditional box of ten.

Four types of 5¼ inch disks will be offered in the new packaging: single and double-sided versions of both double density and quad density flexy-disks. A cross reference chart on the reverse will aid potential buyers to select the right disk.

Contact: BASF, 4 Fitzroy Square, London W1P 6ER. Tel: 01-388 4200.

PROJECT

Mice, mazes and micros

"Eeek! A mouse!" might not be quite the appropriate response to the mice which will be appearing at the Computer Fair although the 'chips on wheels' bumbling their way round a maze might well produce a puzzled reaction from onlookers. Here, John Billingsley, who might be regarded as the cat's whiskers of the Mouse Movement, looks at the Euromouse competition.

First, a word of explanation for the uninitiated. A micro mouse is basically a mobile chip. It's a machine that's capable of finding its way round a maze by using logic.

The Euromouse contest was first proposed just five years ago – it seems much longer. IEEE Spectrum magazine had launched its Micromouse contest in the USA; could a similar contest be used to lend light relief to the Euromicro conference planned to take place in London in September 1980?

A press announcement brought a deluge of enquiries, and the contest was on. Then the real problems started. Spectrum printed an account of a contest with a simple maze, where dumb wall-followers found the corner exit in record time. Machine intelligence was left standing. How could the Euromouse maze pose a real challenge to 'intelligent' mice?

The answer was to put the target at the centre, and to surround it with a 'moat' of passages, so that a wall-follower would merely arrive back at the start. Just in case this proved too simple, a 'cat hunt' and a 'virtuoso display' were added as extra classes.

A practice heat was organised at Portsmouth Polytechnic for July 1980. As the day approached the mice seemed to have been smitten by a plague. From 20 mice in construction their numbers shrank to ten, then seemed in danger of approaching zero. Frantic telephone calls imploring builders to bring anything that moved succeeded in gathering just five mice for the contest.

The mice were outnumbered by the Japanese delegation researching a contest of their own, and by the television crew bent on filming the marvels of robotics. One mouse was able to navigate a corner, and might perhaps have found the centre but for a defective sensor. One ricocheted from wall to wall and made progress by Brownian motion. (These were the 'home team' of Portsmouth Polytechnic final year projects). An industrial entrant representing several thousand pounds of effort could only spin on the spot – the result of a last-minute 'improvement' to an interrupt routine. Another 'big league' mouse entertained the audience guided by two switches and an embarrassed builder. A school-built entrant covered all of six inches before its wrongly connected feedback rammed it into the wall.

Despite all this the practice was enormous fun, and the greater the chaos the more the audience and the TV presenter seemed to enjoy it. Nevertheless it was with some trepidation that I looked forward to September!

The Euromicro final was a different matter. Nine mice arrived, all potential contenders for the championship (except one which refused to move). Some sported furry coats, one sang with a raucous voice, one was built from Lego bricks. A Swiss mouse had ingenious wheels of which the 'tyres' were themselves cross-pivoted wheels, allowing the mouse to move in any direction without turning.

A Finnish mouse, Midnight Sun, could play Beatles tunes and write its name. But only one mouse, a modest clattering tin contraption with mechanical paddle sensors, succeeded in reaching the centre knowing that it had arrived there. This was Nick Smith's 'Sterling Mouse', still occasionally to be seen in action to this day.

Following an Easter 'fancy' hosted by ICL's amateur computer club, the 1981 British finals were held at the Online exhibition at Wembley Conference centre. Fifteen mice now arrived from Britain alone. The BBC 'Computer Programme' series has immortalised Quester's brainless bumblings, and two new mice made their historic debuts. These were Thumper, a square machine which switched the directions of all four wheels to change direction without turning, and Thezeus.

Cardboard and balsa-wood featured largely in Thezeus' construction, with model-aircraft seros proclaiming Alan Dibley's other hobby of model gliding. A sawn-off ZX80 provided computing power, and Thezeus turned by lowering a circular plate to the floor, lifting its wheels and spinning on the spot, meanwhile using cotton strands to hoist in its thin wire sensors.

The mouse builders were a lively bunch, and attached so much attention from visitors to the show that other stands complained of the disturbance – that was the last time the Mice were invited to Online.

September 1981 found fifteen mice competing in the Palais de la Decouverte in Paris, and David Woodfield's Thumper established itself as champion. Mice could now be relied on to find the centre, and the contest was becoming transformed from a puzzle to a race. A 'first' at Paris was the participation of a school team – although their mouse arrived as a kit of parts in a carrier bag, and did not exactly cover itself in glory.

In 1982, Practical Computing's 'Computer Fair' at Earls Court played host to the mice for the British Final. Two new Thezeii arrived, to relegate Thumper to third place, whilst several promising novices made an appearance. The planned European final was to be held at the Euromicro conference in Haifa, but affairs in the Lebanon changed all that. Tampere University in Finland stepped in as hosts in the nick of time – and then won first place with Microsaurus by a margin of two seconds.

1983 became the year of the school teams. They didn't win – by a long chalk

– but their performance at the Computer fair won them sponsorship to take part in the finals in Madrid. The top mice were taking on a new shape. Steered tricycles emulating an earlier Thezeus, they concentrated on clearing corners without faltering, and the winning mouse reached the centre in just over thirty seconds. Again the winner was a Finn from Tampere.

This year's heats will again be held at the Computer Fair, the start of a trail which could lead to Japan. T5 should be unveiled by Alan Dibley, and David Woodfield threatens a successor to KnownAim, in turn much faster than Thumper. Hopefully the winner will be sponsored to the Euromicro Final in Copenhagen in August, where the European winner has been promised an expenses-paid trip to compete in Japan in 1985.

Nick Smith's original 1980 algorithm for solving the maze still holds good today, and the challenge is more one of good engineering, reliability and tolerance to disturbances than one of conundrum solving. It is a challenge which will hold good for many years to come, perhaps with an increasing schools participation. So what sort of contest can baffle the experts?

Next year will see the introduction of a Robot Ping-Pong contest. It's not as impossible as it sounds. The table is two metres long, but only half a metre wide, so the bat movement is restricted to a reasonable range. The ball must bounce once and leave the table through a frame half a metre square, so lobs and slams are kept in check.

The ball is served automatically from a position in full view above the net, so the vision task is only one of tracking, not of spotting the ball. The net is quarter of a metre high, slowing down the game to a third of a second or so for the journey down the table, and at 12.5 cm diameter the bat covers a substantial part of the playing frame area. I don't say that the contest will be easy, but several teams are well under way with their construction.

The first aspect of the contest is a race to claim the best names – CY Borg and Machineroe have already been christened. If you would like to compete in Mouse or Ping-Pong contest, please contact me at Portsmouth Polytechnic Department of Electrical Engineering, Anglesea Road, Portsmouth PO1 3DJ.

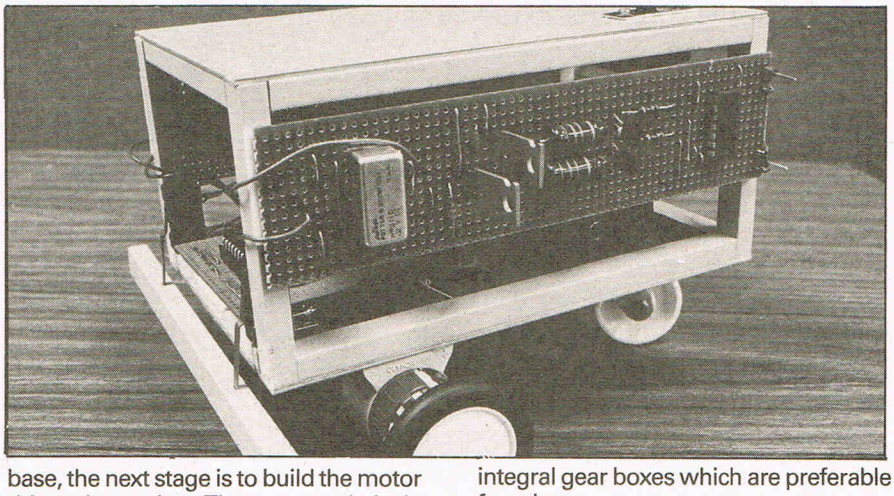
Build a robot mouse

The first part in a series on the circuitry and software required to control a robot

The idea of building a computer controlled robot is very appealing. What usually stops people constructing such machines is the design and construction of the hardware. Building robots requires a range of different skills: computing for the control software, electronics for the control hardware and mechanical construction to build the mechanical base of the machine. To simplify these problems the robot design should be kept as basic as possible. The simplest form of robot is the mobile or "turtle" robot.

A turtle robot has a very simple mechanical base and consists of a rectangular perspex plate to the front end of which are attached two small five volt DC motors. These motors directly drive small model airplane wheels. In the centre of the rear end of the plastic base plate is a small furniture castor.

The construction is very simple and for the "turtle" shown on the front cover of this magazine all the mechanical parts were bought from a model shop for just a few pounds (except the castor which came from a hardware store). Construction tools were confined to a sharp knife, a small hacksaw, a ruler, and plastic cement.

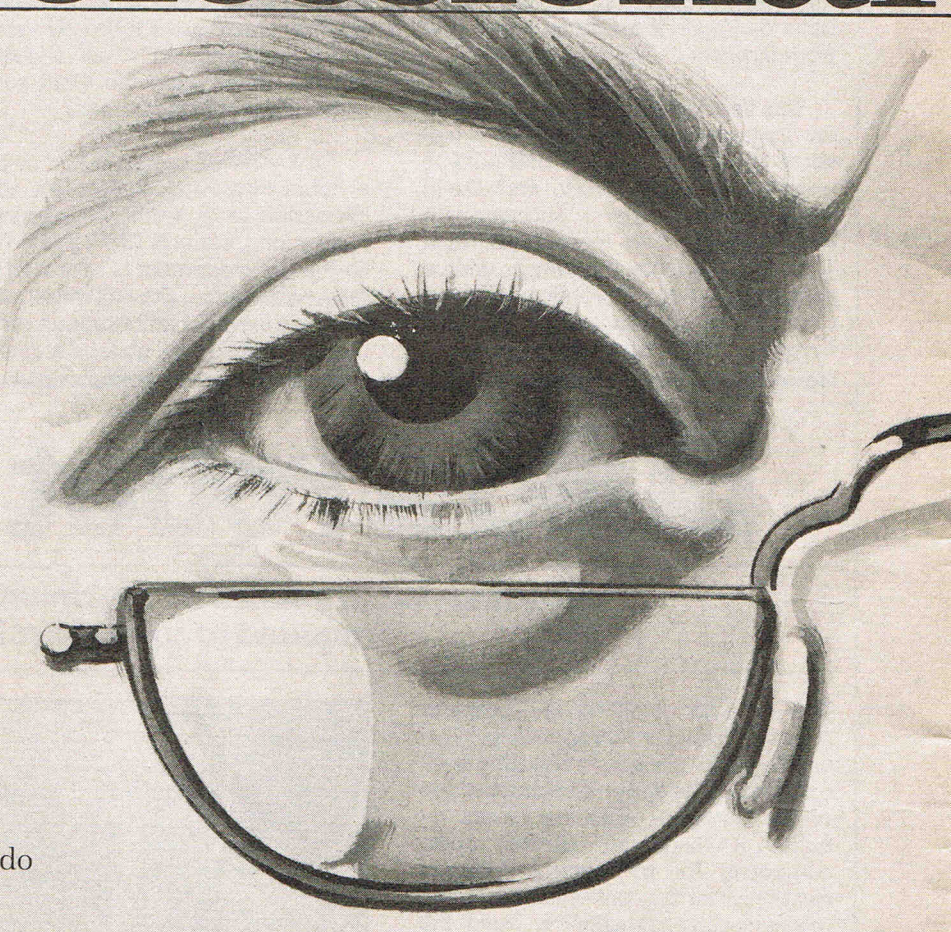


Having constructed a mechanical base, the next stage is to build the motor drive electronics. These are relatively simple to construct and the dedicated experimenter will find the circuits useful for controlling a whole range of power devices.

The simplest and cheapest type of robot motors are the small, low-voltage DC motors sold in model shops. Such motors usually run on five or six volts at 750 milliamps and can thus be conveniently powered by a rechargeable battery onboard the robot. The usual cost of such motors is £2. For about £10 you can hire small DC motors with integral gear boxes which are preferable for robots.

Two controls are required for a DC motor – speed and direction. Speed can be controlled by changing the supply voltage, and direction of rotation by switching the polarity of the motor power supply. In order to perform both these functions we need a simple switch circuit which will allow the computer to control the DC load in a small motor. Additional circuitry is also required to protect the computer if high voltages are used.

Consider our s professional



If you ever have to bring work home from the office you can now tackle it in a fraction of the time, thanks to our range of software.

With these inexpensive new programs you can turn a Commodore 64 personal computer into a fully-fledged business tool to improve the smooth operation of your calculations, filing and ordering or information storage.

All the programs are easy to learn and use, and all cost less than £50.

There's no more cost effective way to turn your home computer to practical use.

Practicalc 64. The complete spreadsheet for Commodore 64.

With this program your cashflow will do just that.

Flow.

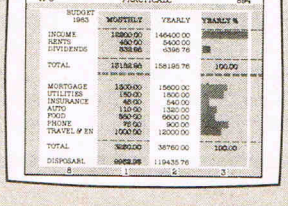
Practicalc 64 accepts both numerical and alphabetical entries and allows you to work out sales forecasts, long-term budgets, sales models or long term cash plans.

All in a fraction of the time they normally take.

Practicalc 64 has 2000 cells, more than 20 mathematical functions, (including logarithms and roots), can insert or delete rows or columns, can 'SORT' information alpha-numerically and has a 'SEEK' function to search for specific information.

It can even display the information in graph form to allow a quick visual appraisal of the situation. Disc £44.50 (Tape £39.95).

Over 20 mathematical functions. Column width up to 38 characters 2000 cells. Graph function.



Practifile 64. The database for Commodore 64.

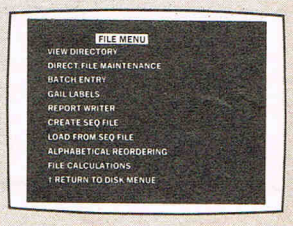
Practifile means an end to bulky and time-consuming storage of files, client or patient information or names and addresses.

And it means you'll no longer have to spend minutes or hours searching through piles of paper for a specific piece of information.

Each file on the program is able to handle 3,800 record entries, and Practifile can sort the files it contains by number or letter in less than a second.

The system is so flexible that you can add, subtract, multiply or divide within individual files, while its use with a word-processing system means that you

Sorts files by number or letter in less than one second. Fully compatible with Practicalc 64.



oftware from a point of view.

can have instant 'hard-copies' in a matter of minutes.

While Practifile means instant access to mailing lists.

At just £44.50 you won't find a more versatile, flexible and professionally useful data-base.

Inventory 64. The quick, reliable inventory system.

With its capacity of 650 items, Inventory 64 is ideal for the average small business, and means a vast improvement in the efficiency of good stock control.

All you have to do is to enter each item, followed by the information which the program will prompt.

That means things like part number, description, location, stock, year-to-date sales, re-order date, minimum quantity, vendor, list price and other important facts.

From this information your personal computer, with the help of Inventory 64, will be able to collate and assess the major points of an efficient system and be able to present you with a complete and instantaneous view of current stock situations.

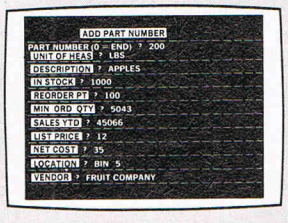
And ensure that stock control problems really are a thing of the past.

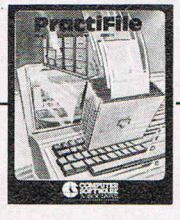
Pretty good value at just £29.95.

You'll find our superb range of Commodore 64 software for professional and business use in all good computer stores including selected branches of Boots, W. H. Smith, Menzies and Laskys.

If you'd like more information about our software or require any technical help fill in the coupon or phone us on 0473 462721.

Handles up to 650 parts. The quick answer to stock control problems.





Name

Address

PRACTICORP

Goddard Road, Whitehouse Industrial Estate, Ipswich IP1 5NP. Tel: 0473 462721

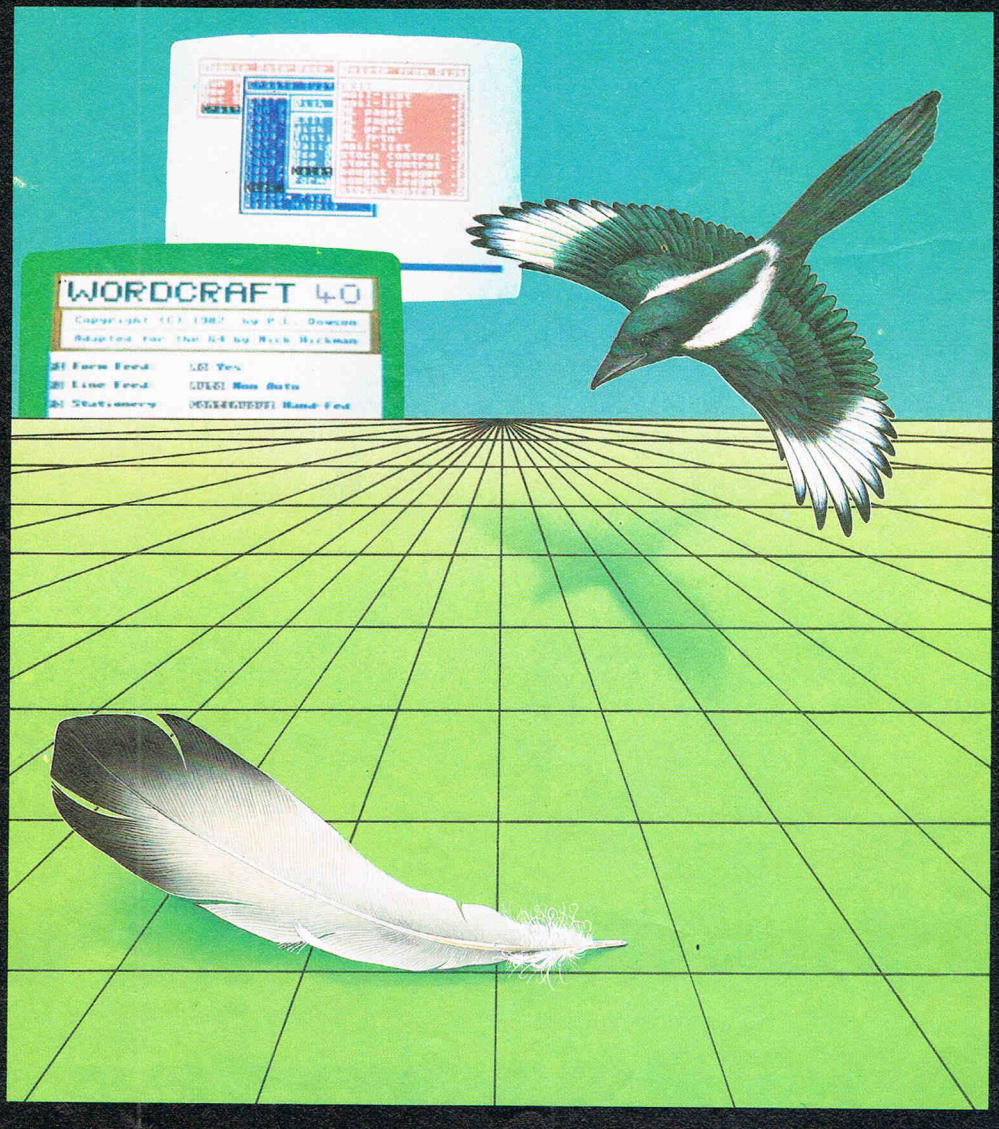
SERIOUS SOFTWARE FOR THE 64

magpie

DATABASE SYSTEM

WORDCRAFT 40

WORD PROCESSOR



MAILING LIST, INVOICING, STOCK CONTROL, SALES LEDGER, BOUGHT LEDGER, DIARY, EXPENSES, CHEQUE BOOK!

Now there is one program which can handle all these things

- **MAGPIE** -

The most powerful Database System for ANY Home Micro!

WORDCRAFT 40 gives you all the powerful Word Processing facilities of an office system at a fraction of the cost. WORDCRAFT 40 works with any printer and because it comes on cartridge you can use it with disk or tape files!
SEND FOR FURTHER DETAILS NOW !

PLEASE SEND ME FURTHER DETAILS OF MAGPIE AND WORDCRAFT 40

Name .....

Address .....

.....

.....

.....

CC1/585

AUDIOGENIC LTD
P.O. BOX 88
READING
BERKS.

Audiogenic LTD

A basic circuit configuration for switching small DC loads is shown in Fig. 1. These loads can range from five to 25 volts with current consumption of several amps. Such a circuit can be used not only for controlling DC motors but also relays, solanoids, lamps and stepper motors and is therefore an invaluable basic circuit for the experiment. This circuit is, of course, not the only way of performing this function – solid state relays offer an excellent method with the benefits of opto-isolation, ease of driving by a computer I/O port and both fairly high load switching and response frequency. They are however still fairly expensive.

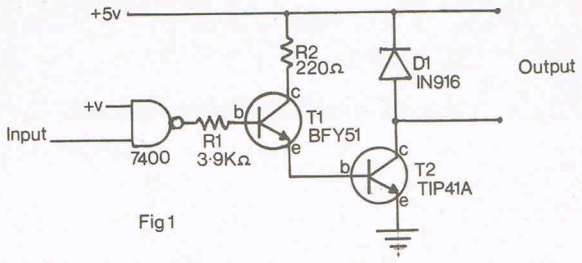


Fig 1

The basic operation of the circuit is quite simple. When the output of the 7400 inverting gate rises, the emitter of transistor T1 rises to the same voltage as its base. Current then flows through the circuit limiting resistor R2 and T1 into the base of T2. While the base of T2 is held more than 0.8 volts above its emitter, the device will conduct. Current can then flow through the load. When the ouput of the 7400 drops to logic 0, then the emitter of T1 also falls to a low voltage level and T2 ceases to conduct.

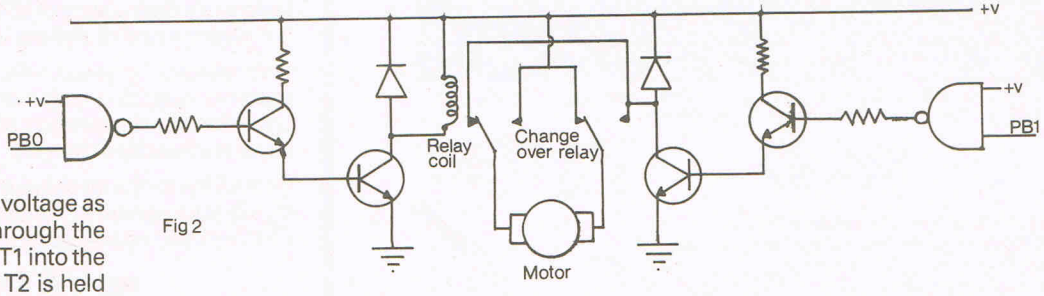


Fig 2

The power transistor used in this circuit TIA 41A has the disadvantage of a low current gain. This means that if it is to pass a large current through its load then T1 must supply a smaller, but still high current to its base. The resistor R2 is placed in the circuit to prevent excessive current flowing through T1. If the TIP 41A is used then the load should not be more than one amp. For large loads the 2N 3055 can be used to replace the TIP 41A and the value of R2 can now be reduced to 10 ohms. Since this transistor has a higher current gain, current loads of several amps can now be switched.

It should be added that many devices with inductive loads, such as motors and relays, produce spikes of back emf. These could damage the circuit components, and therefore diode DI is included to protect against this.

To control a small DC motor, two of these circuits were built on a single PC board and the inputs to the 7400 connected to two output lines of the computer. One of the circuits is used to energise the coil of a double pole changeover relay, the function of which is to reverse the motor's polarity and therefore its direction of rotation.

The method of connection is shown in figure 2 – this is the complete motor control circuit. The second circuit controls the power supply to the motor, switching it on or off. The motor can now be directly controlled by the computer via the connections between the circuits and the I/O ports.

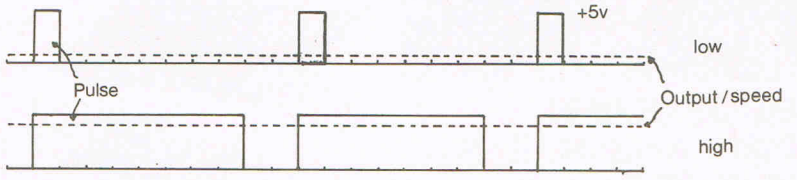


Fig 3

Since these currents only switch the motor on and off, the motor's speed is controlled by a technique known as pulse-width modulation. Here the motor is turned on for a period and then off. The ratio of on and off times determines the speed of rotation. If these time periods are very small then the mechanical inertia within the motor will cause the pulses to be smoothed out and the consequential integration gives a varying motor supply voltage and therefore speed. This is diagramatically shown in figure 3. A program to control the speed of a DC motor is shown in figure 4.

```
   0  C000  A940     LDA  #$40
   1  C002  8D03DD   STA  $DD03
   2  C005  A200     LDX  #$00
   3  C007  8E01DD   STX  $DD01
   4  C00A  E8       INX
   5  C00B  E4FB     CPX  $FB
   6  C00D  D0FB     BNE  $C00A
   7  C00F  A940     LDA  #$40
   8  C011  8D01DD   STA  $DD01
   9  C014  E8       INX
  10  C015  D0FD     BNE  $C014
  11  C017  A5C5     LDA  $C5
  12  C019  C940     CMP  #$40
  13  C01B  F0E8     BEQ  $C005
  14  C01D  60       RTS
READY.
```

```
10 SYS49152
20 GETA$
30 POKE251,VAL(A$)*25+1
40 WAIT197,64:POKE198,0:GOTO10
READY.
```

Fig 4

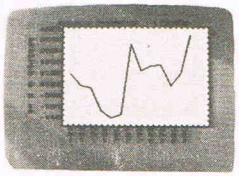
Saxon Computing

FIGARO 64

for

commodore 64

Much more than a business graphics package or spreadsheet, FIGARO 64 is a powerful numeric database system for maintaining files of numbers and their descriptive data, plus hi-res graphics and slide show option. Easy-to-use menus provide built in statistics, calculating routines, and even seasonal forecasting, with full data security.



Features include:
Create New File, Open File, Close File, Disk Directory, New Series, Copy Data, Shift Data Left, Shift Data Right, Add, Subtract, Multiply, Divide, Cumulate, Display Data, Print Data, Enter Data, Amend Data, Mean, Harmonic Mean, Maximum, Minimum, Range, Moving Totals, Moving Averages, Standard Deviation, Correlation Coefficient, Growth Rates, Indices, Percentages, Seasonal Forecasting, Bar Charts, Line Charts, Dual Line Charts, Mixed Bar & Line Charts, Cluster Bar Charts, Pie Charts (all with Text and Hi-Res Graphics mixed on the screen), Screen Dump of Graphs or Save for Slide Show Option.

Ideal for Sales, Marketing, Finance, Education, Local Authorities, Biology, Meteorology and many other applications.

£86.25
inc VAT and P&P

Supplied on disk, with a comprehensive manual complete with worked examples.

Trade and export enquiries to:
CMS Cornforth Marketing Services Ltd
41 Brighton Road, Godalming, Surrey GU7 1NT
Tel: 04868 4599 Telex: 877837 MERIT G

Mail Orders, Access and Barclaycard to:
Saxon Computing,
3 St. Catherines Drive, Leconfield,
Beverley, North Humberside HU17 7NT
Tel: 0401 50697

Trade/Export Enquires Welcome

BOOKKEEPING FOR THE CASH TRADER ON THE CBM 64

- ✻ Purchase day book
- ✻ Weekly takings summary
- ✻ VAT Account (Retailer schemes A & B)
- ✻ Trading Account
- ✻ Profit & Loss Account
- ✻ Balance Sheet

"Excellent little manual," "Very good for the cash trader" – *Commodore User, March 84.*

FREE 14 DAY TRIAL OFFER

Send us a cheque for £25.00 as a deposit, and we will send you a demonstration cassette or disk, the user guide and specimen reports on 14 days trial.

If you then wish to buy the live system, return the demonstration cassette or disk (keep the user guide) and a cheque for the balance of £64.70 and we will send you the live cassette or disk and our VAT invoice.

Alternatively, if you return to us the cassette or disk, the specimen reports and the user guide in good clean condition, we shall return £20.00 to you retaining £5.00 to cover our handling charges.

Receipt by us of your cheque for the £25.00 deposit will signify your agreement with these conditions. Please state whether you require cassette or disk.

PRICE £78.00 = VAT

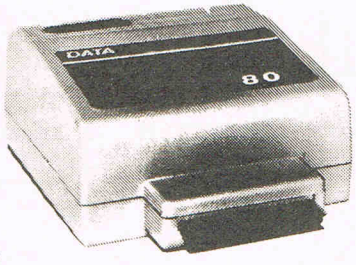
QUICKCOUNT LTD

15 NEELD CRESCENT LONDON NW4 TEL: 01-202 5486

VIC 20

40/80 COLUMN DISPLAY MANAGER

ONLY £99.99 INC P/P & VAT



Just pop this cartridge into your expansion port, and your display instantly goes to the industry-standard 24 lines, with a choice of 40 or 80 characters. Displayed this way, you'll know exactly what you're going to get on the printout. And you really increase the amount of data you can see on the screen!

DISPLAY MANAGER WITH 8K RAM BUILT IN

ONLY **£125.95** INC P/P & VAT

PARALLEL PRINTER INTERFACE
for VIC-20 or C-64

So easy to use – simply plug-in and print. Includes all cables and connectors to a Centronics Type Parallel Printer. Includes all Commodore Graphics. No power supply needed. Works with all printers and all programs.
£54.95 INC P/P & VAT

COMMODORE 64

VIDEO PAC 80

ONLY **£145.95** INC P/P & VAT

Move up to the industry standard 80-column format, and you'll wonder how you ever did without it! Use software control to go from 40 to 80 characters in monochrome – and back to 40 characters in colour. With VIDEO PAK 80, you can take full advantage of the terminal emulator mode and screen print feature with software we include. And this is a great package for word processing – particularly with our FREE WORD MANAGER software and spreadsheet.

FREE

WORD MANAGER SOFTWARE AND SPREADSHEET

This software gives your VIC-20 or Commodore 64 capabilities found only in the most expensive word processing programs. Like full-function status display, and up-and-down scrolling, plus 13 advanced editing features including merging and block move. In addition, we've included complementary mailing list programs. All are written in machine language for fast execution and minimal memory requirements. They're self-documenting and exceptionally easy to use. A self-adhesive strip for function keys makes most commands one-key simple. So simple, in fact, that we've eliminated the need for time-consuming menus and prompts. WORD MANAGER is provided on tape for VIC-20 and C-64, also available on disk for C-64. It's yours free with VIDEO PAK or DISPLAY MANAGER.

The following number of cells are available with the following configuration:–
VIC-20 8K EXPANSION RAM 50 CELLS
16K EXPANSION RAM 300 CELLS
24K EXPANSION RAM 500 CELLS

PLAN MANAGER performs all basic mathematical functions, plus automatically summing and calculating the formula for all cells. Cells can be moved, changed or deleted. Columns can be set to any width, individually or globally. The print option prints the full spreadsheet, restricted cells, or the spreadsheet model.

PLAN MANAGER was designed to be easy to use and very fast for users who require a spreadsheet for their home and business applications.

PLAN MANAGER is written entirely in machine language, handles up to 63 columns and 245 rows, calculates to 11 digits of precision, and can be formatted for integer, floating or fixed decimal points. Individual cells are unrestricted and many contain titles, numbers or formulas.

C64 WITH VIDEO PAK 80, 1,100 CELLS
Note:– These numbers are approximate and will depend on what is actually stored in the spreadsheet.

NOTE:– 80 COLUMN FORMAT REQUIRES A MONOCHROME MONITOR

Send Cheque/Money Order/Barclaycard/Access/Visa to:–

IMPEX DESIGNS (UK) LTD, METRO HOUSE, SECOND WAY, WEMBLEY, MIDDX HA9 0TY TELEPHONE 01-900 0999

Elementary Watson

No-one could possibly expect to buy a Commodore computer and find out all they need to know about computing from the manuals provided. Unfortunately much of the other material that's available takes you no further than the manuals. There are exceptions, of course, and one of these is Dr Watson's Beginners Basic Course for the 64.

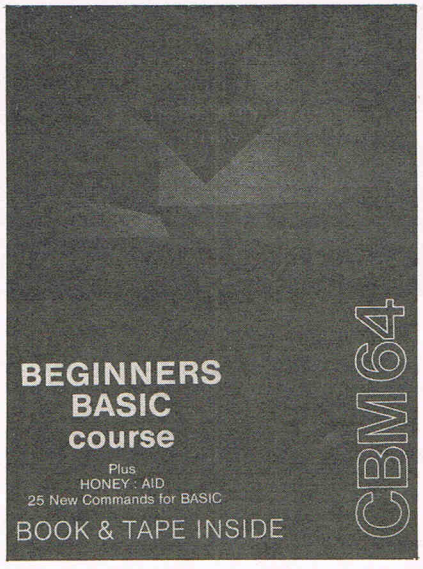
This is one of the range of Dr Watson tutorial packages consisting of programs and written material. The Dr Watson series is rapidly becoming recognised as quality material.

This course consists of a program tape and a 300 plus page book. The whole package is excellently presented in a hardwearing plastic cover. The manual starts off with a guided tour of the keyboard and finishes with a brief introduction to machine code, covering almost everything else along the way.

Realising that most newcomers to computers play games, seven games are provided on tape. Although none of these would warrant a CCI star rating, they have each been carefully chosen, and written, to demonstrate various capabilities of the 64 and particular programming techniques. After the initial chapter, the listings for these games are used to show how programs are built up and new commands are introduced and explained both with written text, and small example programs. Interspersed throughout the book are exercises to ensure that you really are understanding each new command or technique, but at no stage do these become 'hard work', in fact the course consistantly encourages you to learn more and more by making learning fun.

The two authors, P Holmes and D J Bush have obviously taken a great deal of time to produce a well thought out tutorial, and if this was the total content of the course, it would prove excellent value. However there is more . . . much more.

Side two of the cassette contains 'HONEYAID', a collection of no less than



28 additional basic commands in a 4K machine code program. Once loaded these commands sit 'above' basic, and allow many features of the '64' to be explored effortlessly. The commands are split into three broad sections, Toolkit commands, and supplementary Graphic and Sound commands. Among the 15 Toolkit commands are Append, Auto (line numbering), Delete, Old and (Re)Number, and these soon become invaluable when writing your own programs. The five Graphic and seven Sound commands make it almost possible to eliminate all those thousands of POKE commands that seem to make up the bulk of any 64 program. All commands are 'tokenised' and can be reduced to the first one or two letters followed by the shifted next letter as per the standard Commodore commands. These 28 commands almost totally dispel the main criticism of the '64', its version 2 basic.

Side two also contains a clever 'Compuer Aided Learning Program', "guess the number". After allowing you to play this simple game, the program then explains itself to you line by line and command by command, and graphically demonstrates some of the more familiar commands and concepts of programming such as the For . . Next loop and comparative operators (< >). And still there is more. A Character editor, a Sprite editor and a marvellous sound manipulation program Composatune.

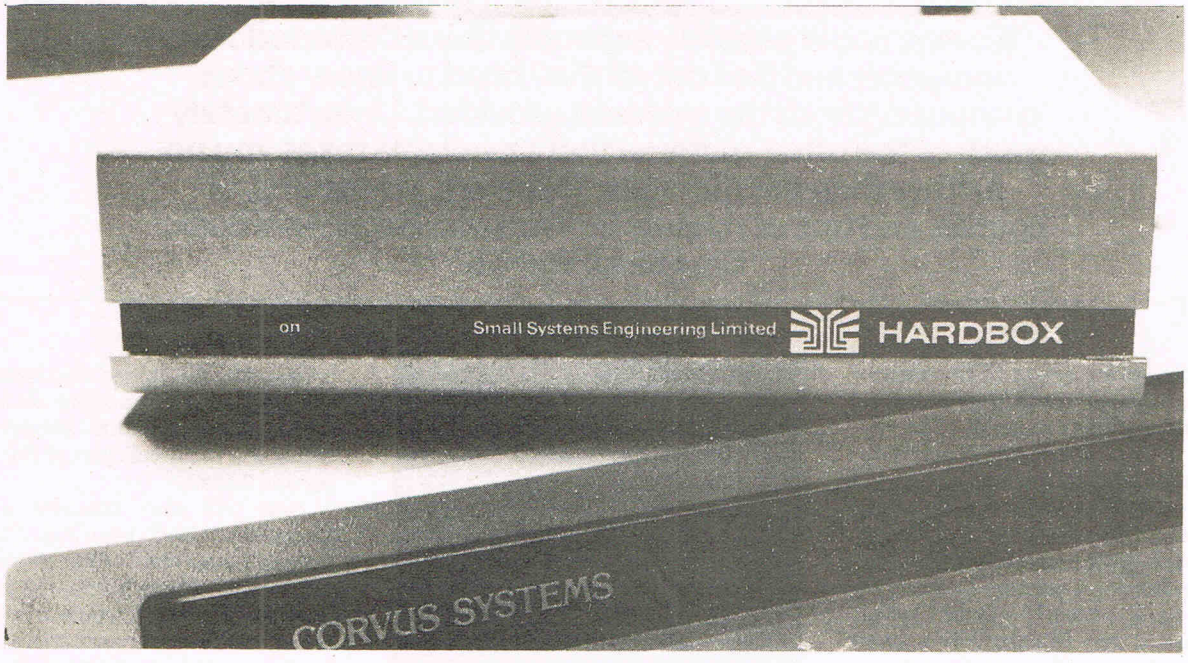
Composatune allows you to compose melodies note by note on a musical stave and save these for later use in your own program, it also incorporates a useful sound synthesizer subroutine which allows you to alter the sound of each note whilst hearing what you are doing and seeing which values are being poked into which locations. Unless you have a PHd in music, this is the easiest way to discover the effects of Attack, Delay and rest of those strange words referred to in the Commodore manual.

As with the games, these last three programmes are all explained line by line in the manual, and themselves form the latter part of the course.

If the remainder of The Dr. Watson computer learning series match the standard of this, then not only Commodore, but many other computer manufacturers have been shown how an introductory manual should be written.

NOW AVAILABLE WITH SOFTWARE-CONTROLLED OVERNIGHT VIDEO BACK-UP

HARDBOX—Hard Disks for Commodore Micro-Computers



HARD DISK INTERFACE

HARDBOX is the intelligent controller that lets you add a Corvus hard disk drive to your Commodore computer. In fact, you can chain up to 4 hard disk drives of 6, 11 or 20 Megabyte capacities.

Compatible with CBM DOS versions 1 and 2, the HARDBOX operates with existing Commodore programs and appears to the Commodore as a high speed, high capacity floppy drive.

Multi-User System

Create a multi-user network by adding the Corvus Constellation multiplexer to your hard disk system. With a HARDBOX at each work station, up to 64 users can simultaneously access the same drive.

As a multi-user system, the HARDBOX provides:

- Separate user areas on each hard disk.
- Multi-user work areas for shared programs.
- File and record locking for shared databases.
- Password protection of user areas.
- Access to any user area from any station using the password.

Video Cassette Backup

The HARDBOX supports the Corvus *Mirror Option*. This provides a high-speed, low cost means of backup, using a commercial video cassette recorder. Backup speeds of 7½ kilobytes per second let you save contents of a 10 MByte drive in less than 20 minutes. Video cassette capacity is approximately 100 Megabytes.

Hardware Requirements

- Commodore 3000, 4000, or 8000 series computer with BASIC 2 or 4.
- One HARDBOX and PET-IEEE cable per work station.
- Corvus bare drive and ribbon cable.
- Access to a floppy disk or cassette.

Price £495.00

small systems engineering limited

2-4 Canfield Place, London NW6 3BT. Telephone: 328 7145 Telex 264538

Distributed in the UK by:

Carfleet Control, Ltd., Cannon House, 2255, Coventry Road, Sheldon, Birmingham B26 3NX. Tel: 021-742 8771.
Computer Sales and Software Centre, Ltd., 190/192, Cranbrook Road, Ilford, Essex IG1 4LU. Tel: 01-554 3344.

Versatile plotter

This month we look at Micro Peripherals MCP-40, a four-colour printer/plotter

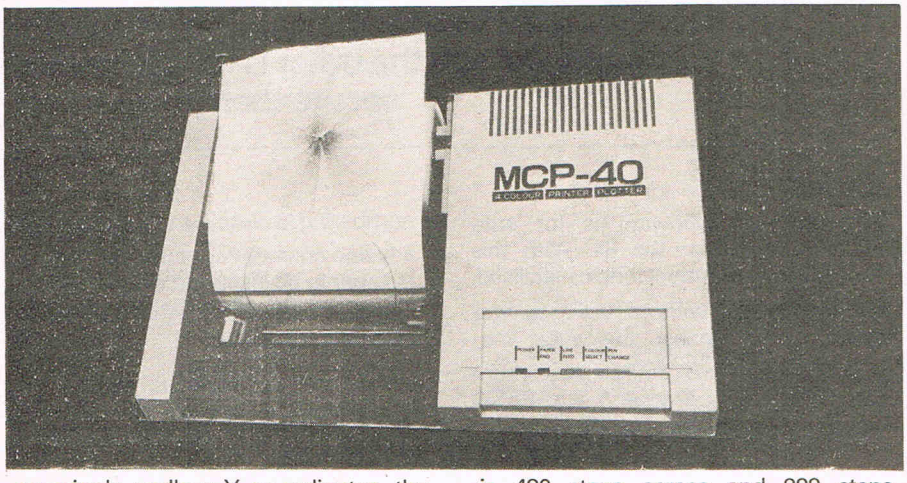
One of the most pleasing things about the MCP-40, besides its extremely versatile plotting abilities, quality print and four colours is that it was so easy to use. Unfortunately, to connect it to the 64 an interface is needed – either a Commodore serial to Centronics or a Commodore user port to Centronics.

The panel on the front of the plotter contains controls to select a colour, move the paper or change a pen. It also indicates if the power is on or if the paper has run out. The pens, which look rather like biros, are fitted into a holder and rotated by the plotter itself. Graphics and text are drawn on a roll of paper about 4.5 inches wide. The pen holder is a delicate mechanism, but the panel controls can be used to change any pen minimising unnecessary handling.

There are two modes of operation; the Text mode for word processing, writing text and programs and the Graphic Mode for generating graphs, pie charts and other pictures which need to be plotted. It should be noted here that it will not reproduce Commodore Graphic characters in listings, but it wouldn't be too difficult to write a driver program to actually draw the characters on the paper itself. There is also a self test mode in which four boxes are drawn, one in each colour so that the user can check that they are all working.

Micro Peripherals have programmed the plotter to understand certain commands and these are clearly explained in the manual together with an example showing how each one can be used in a program. To vary the print size in Text mode, the DIP switch can be set at either 80 or 40 characters per line. There is no problem switching to graphics mode and text mode in the program so if a diagram needs to be accompanied by an explanation this is quite straightforward. Anyone with some knowledge of BASIC and the CBM 64 would have no trouble in producing some very interesting and versatile pictures or diagrams using the commands available.

The plotter can print backwards, upwards, upside down and with the 63 different sizes of text, four colours and



seemingly endless Y co-ordinates, the users imagination and curiosity will be rewarded with spectacular displays. The paper is friction fed and can be made to move backwards as well as forwards providing extra versatility.

The Plotter always knows what colour pen it is using and will usually start with black unless programmed to do otherwise. The initials that are used to control the plotting functions are straightforward. For instance 'C' is used to change the pen colour and the Green is '2', so to change the pen to green in the program, 'C2' is typed in. 'D' stands for destination and specifies the end point that the pen must go to, 'Q' represents direction and the user can specify what direction the printing goes in. The paper is 480 steps across and 999 steps downwards so it can plot and print very accurately.

There are some sample programs in the manual which demonstrate the plotting and printing capabilities of the printer. There is also a table listing all the characters the printer will print together with the ASCII and JIS code which will print them.

The MCP-40 is surprisingly small when its capabilities are considered and operates with very little noise. Small businesses may find it useful, but they would have to write their own programs. Any 64 enthusiast would probably find a use for this printer/plotter and its price, which is low for what it can do, puts it within reach of a lot of people.

Product Name:
MCP-40
Product:
4-colour printer/plotter
Company:
Micro Peripherals Ltd, 69 The Street, Basing, Basingstoke, Hants RG24 0BX
Specifications:
4 pens: red, green, black and blue
Paper roll 4.25 in wide x 180 ft long
Plotting speed: 2.05 ips horizontal
3.80 ips vertical
Printing speed: 12cps
Resolution: 0.00787 inch
Plotting range: 3.804 inch X axis –
Divided into 480 steps, no limit in Y axis
80 or 40 characters per line
Pen life is 250m
8-bit parallel interface
3 Modes: Self Test, Text and Graphics
Size:
276mm wide x 174mm deep x 68mm high
Applications:
Plotting and printing in four different colours
Documentation:
Very detailed and clearly worded manual with sample plotting and printing programs
Price:
£129 + VAT

Auto solutions

This month we have two machine code routines. One is for the 64 and is the next instalment in our Basic Aid routines, and the other is for VIC owners who wish to secure their programs.

Basic Aid

The program following is for auto line-numbering on the 64. With this routine, line numbers once initialised, will be displayed without having to type them in. To enable the auto line-numbering, enter SYS50156, step where step is a value between 1 and 65535 (usually something like 10). Until the line numbering is disabled, using SYS50156, any line entered will cause the next line number to be displayed on the next line. The next line number is the previous one with the step added.

All that is done is that if line numbering is enabled, the next line number is put into the keyboard buffer. Therefore to exit the facility, just press SHIFT RETURN or delete to the beginning of the line. The other way to exit is to press return on a blank line. The latter method, however, will still delete that line.

Like all the other routines, the locations that this routine take up do not conflict with others in the Basic Aids.

```
10 I=50156:T=0
20 READA:IFA=-1THEN50
30 POKEI,A:I=I+1
40 T=T+A:GOTO20
50 IFT<>14298THENPRINT"■■CHECKSUM ERROR:"14298,T
60 PRINT"■■USE SYS50156,STEP TO ENABLE AUTO LINE   NUMBERING.
70 PRINT"■■USE SYS50156 TO DISABLE NUMBERING."
80 PRINT"■■":END
100 DATA32,121,0,240,27,32,253
110 DATA174,32,107,169,165,20,141
120 DATA23,196,165,21,141,24,196
130 DATA169,25,141,4,3,169,196
140 DATA141,5,3,96,169,124,141
150 DATA4,3,169,165,141,5,3
160 DATA96,0,0,173,0,2,201
170 DATA48,144,10,201,58,176,6
180 DATA169,1,133,2,208,4,169
190 DATA0,133,2,32,124,165,165
200 DATA2,208,1,96,192,5,208
210 DATA1,96,173,23,196,24,101
220 DATA20,170,173,24,196,101,21
230 DATA134,99,133,98,162,144,56
240 DATA152,72,32,73,188,32,223
250 DATA189,133,251,132,252,160,0
260 DATA177,251,240,6,153,119,2
270 DATA200,208,246,200,169,32,153
280 DATA119,2,132,198,104,168,96
290 DATA-1
READY.
```

```
 0  C3EC  207900     JSR  $0079
 1  C3EF  F01B       BEQ  $C40C
 2  C3F1  20FDAE     JSR  $AEFD
 3  C3F4  206BA9     JSR  $A96B
 4  C3F7  A514       LDA  $14
 5  C3F9  8D17C4     STA  $C417
 6  C3FC  A515       LDA  $15
 7  C3FE  8D18C4     STA  $C418
 8  C401  A919       LDA  #$19
 9  C403  8D0403     STA  $0304

10  C406  A9C4       LDA  #$C4
11  C408  8D0503     STA  $0305
12  C40B  60         RTS
13  C40C  A97C       LDA  #$7C
14  C40E  8D0403     STA  $0304
15  C411  A9A5       LDA  #$A5
16  C413  8D0503     STA  $0305
17  C416  60         RTS
18  C417  00         BRK
19  C418  00         BRK
20  C419  AD0002     LDA  $0200

21  C41C  C930       CMP  #$30
22  C41E  900A       BCC  $C42A
23  C420  C93A       CMP  #$3A
24  C422  B006       BCS  $C42A
25  C424  A901       LDA  #$01
26  C426  8502       STA  $02
27  C428  D004       BNE  $C42E
28  C42A  A900       LDA  #$00
29  C42C  8502       STA  $02
30  C42E  207CA5     JSR  $A57C
31  C431  A502       LDA  $02
32  C433  D001       BNE  $C436
33  C435  60         RTS
34  C436  C005       CPY  #$05
35  C438  D001       BNE  $C43B
36  C43A  60         RTS
37  C43B  AD17C4     LDA  $C417
38  C43E  18         CLC
39  C43F  6514       ADC  $14
40  C441  AA         TAX
41  C442  AD18C4     LDA  $C418
42  C445  6515       ADC  $15
43  C447  8663       STX  $63
44  C449  8562       STA  $62
45  C44B  A290       LDX  #$90
46  C44D  38         SEC
47  C44E  98         TYA
48  C44F  48         PHA
49  C450  2049BC     JSR  $BC49
50  C453  20DFBD     JSR  $BDDF
51  C456  85FB       STA  $FB
52  C458  84FC       STY  $FC
53  C45A  A000       LDY  #$00
54  C45C  B1FB       LDA  ($FB),Y
55  C45E  F006       BEQ  $C466
56  C460  997702     STA  $0277,Y
57  C463  C8         INY
58  C464  D0F6       BNE  $C45C
59  C466  C8         INY
60  C467  A920       LDA  #$20
61  C469  997702     STA  $0277,Y
62  C46C  84C6       STY  $C6
63  C46E  68         PLA
64  C46F  A8         TAY
65  C470  60         RTS
READY.
```

Auto-Run

Last month we published a routine that would save a Basic program on the 64 with auto-run. In response to that article, one of our readers asked if we could do anything for VIC owners. Well, here it is – an auto-run routine for the VIC.

When run, the routine will be put at the top of memory and it will be protected. 256 bytes are reserved but the routine will work on any expansion of VIC. The problem is that if it is saved with 8K or more expansion, it will only load back in to computers with that expansion and vice-versa.

Also with the auto-run, the screen is cleared and RUN/STOP-RESTORE is disabled as outlined in last month's issue.

```
10 POKE56,PEEK(56)-1:POKE52,PEEK(52)-1
20 I=PEEK(55)+PEEK(56)*256:T=0
30 READA:IFA=-1THEN60
40 POKEI,A:I=I+1
50 T=T+A:GOTO30
60 IFT<>20661THENPRINT"CHECKSUM ERROR":END
70 PRINT"□TO SAVE WITH AUTO-RUN,ENTER:"
80 PRINT"SYS"PEEK(55)+PEEK(56)*256:CHR$(34)"FILENAME"CHR$(34)
90 END
```

commodore

Superbase

SuperBase, the complete information storage and control system, is ideal for any business, office or professional environment where records are kept... The very latest design techniques make SuperBase the last word in database technology, with all the power you need to control today's information, for tomorrow's needs! That's why SuperBase is...

The Ultimate CBM Database Manager

Key SuperBase features include fast key access, large record size, user-definable inputs, outputs, record formats... multiple screens, multiple selection criteria... word processor links, sorting, calendar, calculator... program or menu control, on-line or batch processing, transaction linking... and it's available NOW for Commodore models 700, 8096 and 64!

Superscript

A Commodore enthusiast wanted a word processor that was simple, fast, and easy to use. He wanted to handle up to 20,000 characters of text, to use a wide screen format of up to 240 characters, with full window scrolling in all directions, and be able to use the screen while printing. He wanted a word processor at a reasonable price. The enthusiast, Simon Tranmer, couldn't find one, so he wrote...

The Ultimate CBM Word Processor

SuperScript does everything he wanted... and much more. It provides a complete document preparation and storage system, making optimum use of memory and disk space. In short, it provides all the advantages of a dedicated professional word processor... And now SUPERSCRIPT II is available for Commodore models 700 and 8096, with a host of new features including arithmetic, selective sort, column move... and the 700 series version even includes a spelling-checker!

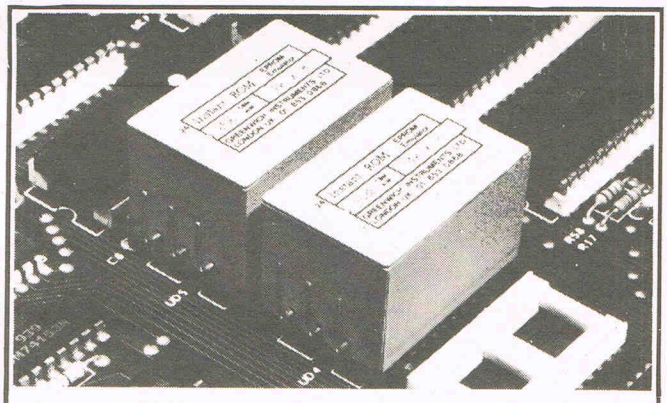
FASTEST SERVICE - LOWEST PRICES!

SUPERSCRIPT II (Commodore 700)	~~£450.00~~	£369.57
SUPERBASE (Commodore 700)	~~£450.00~~	£369.57
DTL COMPILER (Commodore 700)	~~£99.50~~	£94.78
MASTER 700 85 new commands (Commodore 700)		£295.00
COMMODORE 8096		
SUPERSCRIPT II (CBM 8096)	~~£395.00~~	£326.09
SUPERBASE (CBM 8096)	~~£450.00~~	£369.57
MEMORY UPGRADE (converts 8032 to 8096)	~~£300.00~~	£250.00
PM96 Memory Management/Toolkit etc	~~£99.50~~	£86.91
COMMODORE 2000/8000		
SUPERSCRIPT (CBM 2000/3000/4000/8000)	~~£249.00~~	£195.65
SUPERSPELL (CBM 2000/3000/4000/8000)	~~£150.00~~	£117.39
MASTER (CBM 4000/8000/8096)	~~£295.00~~	£195.65
VISICALC (CBM 2000/3000/4000/8000)	~~£175.00~~	£140.00
KRAM keyed disk access (CBM 3000/4000/8000)..	~~£99.50~~	£86.91
DTL COMPILER (CBM 2000/3000/4000/8000)	~~£99.50~~	£94.78
COMMAND-O 39 toolkit commands (CBM 4000/8000)		£50.00
COMMODORE 64		
SUPERBASE 64 database (disk)	~~£86.91~~	£76.52
VIZAWRITE 64 word-processor (disk)	~~£69.52~~	£59.13
VIZAWRITE 64 (cartridge) for tape or disk ...	~~£78.22~~	£65.22
VIZASPELL 64 disk dictionary/spelling checker	~~£59.13~~	£51.30
VIZAWRITE + VIZASPELL combined (disk)	~~£86.91~~	£73.91
MASTER 64 Basic IV + 85 new commands (disk)..	~~£125.00~~	£100.00
DTL COMPILER 64 (disk)	~~£99.50~~	£94.78
DTL COMPILER 64 (tape)	~~£34.75~~	£32.13
TOOL 64 Toolkit/DOS Support etc. (cartridge).	~~£43.43~~	£40.83
PRACTICALC 64 Spreadsheet (disk or tape)		£38.70

PRICES SHOWN EXCLUDE 15% VAT, AND ARE CORRECT ON GOING TO PRESS. ORDER BY POST OR TELEPHONE, USING CHEQUE, ACCESS, BARCLAY CARD OR OFFICIAL ORDER. DESPATCH IS BY RETURN 1ST CLASS POST, AND FREE EXCEPT FOR OVERSEAS AND CREDIT ORDERS. PRODUCT INFORMATION IS AVAILABLE ON REQUEST. [REF A26]

Calco Software

LAKESIDE HOUSE, KINGSTON HILL, SURREY KT2 7QT. TEL 01-546-7256



INSTANT ROM (Commodore Approved)

Greenwich Instruments' ROM/EPROM Emulators are non-volatile memory modules which plug into any ROM/EPROM socket. When the power is switched off, data is retained for up to 10 years. Emulators from 2 Kbytes to 32Kbytes are available.

In the PET, a 4Kbyte Emulator can be fitted in the 9000 or A000 socket, and used for fast program development. Basic or Machine-code programs can be stored permanently.

GR2532 4Kbyte Emulator.....£56.00
Adaptor GA1 (essential for PET users).....£ 6.00

PETCLOCK (Commodore Approved)

PETCLOCK plugs into any Commodore machine with User-Port, and gives time (hour/minute/second) and date (year/month/date/day of week). Battery backup—accuracy is maintained when the power is off.

GCC1 PETCLOCK.....£62.00

G-ROM E

A 4 Kbyte EPROM which runs, at switch-on, any Basic or Machine-code program stored in INSTANT ROM, eliminating the need for tape or disc. Basic programs can be stored with a few key-strokes.

Some powerful utilities are included for program revival. PET's power-up memory test is made non-destructive, and UN-NEW us provided. A program for reading Date and time from PETCLOCK is also included.

G-ROM E (specify type of PET).....£25.00

Postage (£1.00) and VAT are extra. Leaflets are available.

GREENWICH INSTRUMENTS LIMITED
THE CRESCENT, MAIN ROAD, SIDCUP, KENT DA14 6NW
Telephone: 302 4931 – Telex: 896691 Attn. GIL

PET CONVERSIONS & UPGRADES

It's here at a **NEW** low low price!! Don't throw out your old 9" PET. The **MICROPORT 80** column conversion board for the 9" PET/CBM BASIC 4.0, or upgraded 2001/3000 series machines, will upgrade it to a true 8000 series. Simply plugs into the main logic board and with a small keyboard modification turns your PET into an 8032. Compatible with 8032 software and add-on ROM utilities. Supplied complete with full fitting instructions, or fitted free of charge if brought to our workshops.

Full money back guarantee within 14 days if not delighted.	£125.00
Externally mounted switching unit for above (40/80 column switchable)	£15.00
12" VDU (FAT40) 80 column conversion	£82.00
40 to 80 column switchable (two machines in one!)	£98.00

Full keyboard functions:– i.e. TAB, ESC, REPEAT, SCROLL up/down, define WINDOW, lower case, graphics mode & DELETE from/to cursor. All available in direct or program mode. Any MICROPORT converted machine is also upgradable to 8096 specification with our 64K add-on board. £250.00

CBM 64 QUALITY SOFTWARE

If you own a PET system with disks or printer and have added a COMMODORE 64 then why not use your PET as an interface for the 64?

SIPOD is a serial IEEE to parallel IEEE software interface allowing you to use all the PETs disk drives, printers, plotters, modems etc. directly from the 64. No memory space is consumed within the 64 as **SIPOD** loads and executes within the PET. **SIPOD** is supplied complete with interface lead and instructions. £29.00

PRINTLINK 64. Interfaces a 64 directly to any printer with a Centronics input. The printer will respond to all the normal Basic commands for device #4. Supplied complete with instructions and interface cable. £26.00

We only sell one word processor for the 64. We think it is the best!

VIZAWRITE 64. Text formatting word processor. Disk or cartridge	£69.00
VIZASPELL 64. Spelling checker with 30,000 word dictionary	£59.00
VIZAWRITE + VIZASPELL. Combined package. (Disk only)	£99.00
MIKRO ASSEMBLER. Write machine code with the ease of BASIC	£50.00
ARROW. Save & load to tape up to 7 times faster than normal	£39.00
VICTREE. All Toolkit & BASIC 4.0 commands plus a lot more	£49.00
ZOOM. An excellent machine code monitor for the 64	£10.00
GRAPHIX 64. Easy to use Hi-Resolution graphics from BASIC	£10.00
STIX. A most addictive and compelling game (joystick required)	£17.35

Official orders from schools, universities, major companies etc. are welcome. U.K. customers please add 15% VAT. Prepaid orders are POST FREE.

Telephone Mick Bignell for details of any of the above at:–

MICROPORT 7 Clydesdale Close, Borehamwood, Herts. WD6 2SD. Tel: 01-953 8385

```
100 DATA165,43,133,251,165,44,133
110 DATA252,169,189,133,43,141,2
120 DATA3,169,2,133,44,141,3
130 DATA3,165,45,133,253,165,46
140 DATA133,254,169,3,133,46,169
150 DATA4,133,45,160,167,177,55
160 DATA153,88,2,136,192,100,208
170 DATA246,32,209,225,169,3,133
180 DATA185,32,96,225,165,251,133
190 DATA43,165,252,133,44,165,253
200 DATA133,45,165,254,133,46,169
210 DATA131,141,2,3,169,196,141
220 DATA3,3,169,1,170,168,32
230 DATA186,255,169,0,32,189,255
240 DATA76,86,225,169,196,141,3
250 DATA3,169,131,141,2,3,169
260 DATA147,32,210,255,169,126,141
270 DATA40,3,169,0,133,157,32
280 DATA213,255,169,1,170,168,32
290 DATA186,255,169,0,170,168,32
300 DATA189,255,32,213,255,134,45
310 DATA134,47,134,49,132,46,132
320 DATA48,132,50,169,0,32,94
330 DATA198,32,142,198,76,174,199,-1
READY.
```

CURSOR CHARACTERS

```
■ - By pressing the cursor down key
■ - By pressing the cursor down key with the shift key
■ - By pressing the cursor right key
■ - By pressing the cursor right key with the shift key
■ - By pressing the home key
■ - By pressing the home key with the shift key
■ - By pressing the control key and key 1
■ -                                 key 2
■ -                                 key 3
■ -                                 key 4
■ -                                 key 5
■ -                                 key 6
■ -                                 key 7
■ -                                 key 8
■ - By pressing the CBM key with    key 1
■ -                                 key 2
■ -                                 key 3    ■ - By pressing key F1
■ -                                 key 4    ■ - By pressing key F2
■ -                                 key 5    ■ - By pressing key F3
■ -                                 key 6    ■ - By pressing key F4
■ -                                 key 7    ■ - By pressing key F5
■ -                                 key 8    ■ - By pressing key F6
■ - By pressing the control key and key 9    ■ - By pressing key F7
■ -                                 key 0    ■ - By pressing key F8
```

Music maestro

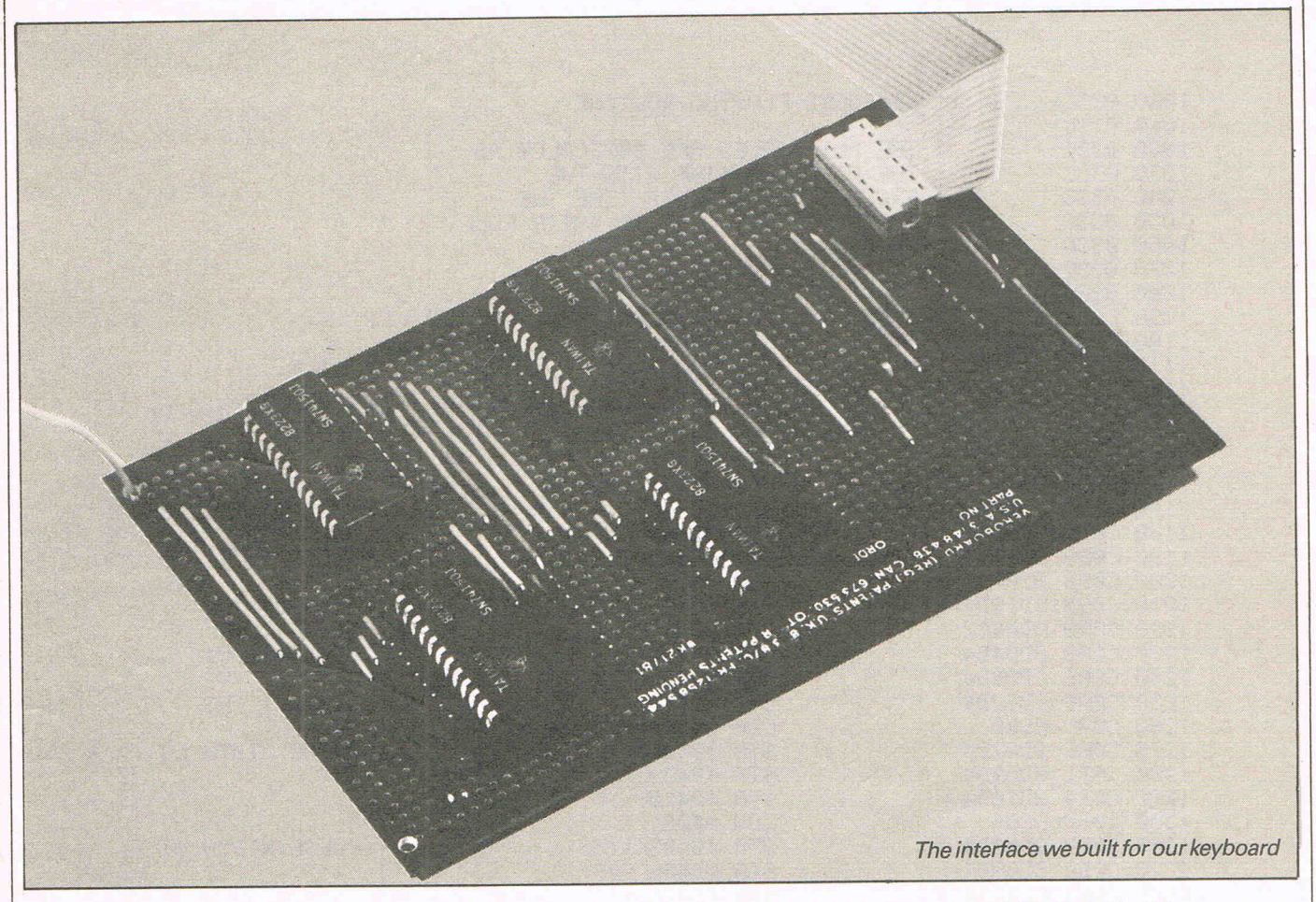
In the December '83 edition of Commodore Computing, we published an article on how to connect a 4-octave piano keyboard to the 64. In that article, we also mentioned that there would be other programs to follow. This program replaces the previous one and allows full use of the SID chip's envelope facility.

The principles behind the playing are as the first program except that instead of just reading the first three keys, all keys are read so that a note already playing will have precedence over other keys. The note is only played if it is not already being played. If it is, it is left alone.

There is one other major difference, that is it has been written so that if you have a 5-octave keyboard, most of the other notes can be played.

To alter the envelopes, direct POKEing to the SID chip is necessary but the wave form can be changed by just one poke to location 49742. The value sent to this location must be with the gate (bit 0) off ie the number must be even.

```
10 I=49152:T=0
20 READA:IFA=-1THEN50
30 POKEI,A:I=I+1
40 T=T+A:GOTO20
50 IFT<>73153THENPRINT"CHECKSUM ERROR":END
60 IFI<>49750THENPRINT"NUMBER OF DATA VELUES ERROR":END
70 PRINT"■■■KEYBOARD NOW ACTIVE"
80 PRINT"■■":SYS49280:END
100 DATA0,0,147,8,21,9,159
110 DATA9,50,10,205,10,113,11
120 DATA32,12,216,12,156,13,107
130 DATA14,71,15,47,16,38,17
140 DATA43,18,63,19,100,20,155
150 DATA21,227,22,64,24,177,25
160 DATA56,27,215,28,142,30,95
170 DATA32,76,34,86,36,127,38
180 DATA201,40,54,43,199,45,128
190 DATA48,99,51,113,54,174,57
200 DATA28,61,190,64,152,68,172
210 DATA72,254,76,146,81,108,86
220 DATA143,91,1,97,198,102,226
230 DATA108,92,115,56,122,124,129
240 DATA48,137,88,145,252,153,36
250 DATA163,215,172,30,183,1,194
260 DATA138,205,194,217,180,230,107
270 DATA244,255,255,0,0,127,255
280 DATA0,0,169,15,141,3,221
290 DATA169,192,141,5,212,141,12
300 DATA212,141,19,212,169,249,141
310 DATA6,212,141,13,212,141,20
320 DATA212,169,15,141,24,212,173
330 DATA78,194,141,4,212,141,11
340 DATA212,141,18,212,169,0,141
350 DATA2,212,141,9,212,141,16
360 DATA212,169,8,141,3,212,141
```



The interface we built for our keyboard

```
370 DATA10,212,141,17,212,120,169
380 DATA207,141,20,3,169,192,141
390 DATA21,3,88,96,160,0,132
400 DATA251,140,1,221,173,1,221
410 DATA133,2,41,32,240,12,24
420 DATA152,105,17,166,251,157,85
430 DATA194,232,134,251,165,2,41
440 DATA64,240,12,24,152,105,33
450 DATA166,251,157,85,194,232,134
460 DATA251,165,2,41,16,240,12
470 DATA24,152,105,1,166,251,157
480 DATA85,194,232,134,251,165,2
490 DATA41,128,240,12,24,152,105
500 DATA49,166,251,157,85,194,232
510 DATA134,251,200,152,41,15,240
520 DATA4,168,76,211,192,166,251
530 DATA224,3,176,8,169,0,157
540 DATA85,194,232,208,244,134,251
550 DATA160,0,185,85,194,240,5
560 DATA205,79,194,240,13,200,196
570 DATA251,208,241,169,0,141,82
580 DATA194,76,94,193,169,1,141
590 DATA82,194,169,0,153,85,194
600 DATA160,0,185,85,194,240,5
610 DATA205,80,194,240,13,200,196
620 DATA251,208,241,169,0,141,83
630 DATA194,76,129,193,169,1,141
640 DATA83,194,169,0,153,85,194
650 DATA160,0,185,85,194,240,5
660 DATA205,81,194,240,13,200,196
670 DATA251,208,241,169,0,141,84
680 DATA194,76,164,193,169,1,141
690 DATA84,194,169,0,153,85,194
700 DATA173,82,194,208,43,32,55
710 DATA194,205,79,194,240,35,141
720 DATA79,194,10,168,173,78,194
730 DATA141,4,212,173,79,194,240
740 DATA19,185,0,192,141,0,212
750 DATA185,1,192,141,1,212,174
760 DATA78,194,232,142,4,212,173
770 DATA83,194,208,43,32,55,194
780 DATA205,80,194,240,35,141,80
790 DATA194,10,168,173,78,194,141
800 DATA11,212,173,80,194,240,19
810 DATA185,0,192,141,7,212,185
820 DATA1,192,141,8,212,174,78
830 DATA194,232,142,11,212,173,84
840 DATA194,208,43,32,55,194,205
850 DATA81,194,240,35,141,81,194
860 DATA10,168,173,78,194,141,18
870 DATA212,173,81,194,240,19,185
880 DATA0,192,141,14,212,185,1
890 DATA192,141,15,212,174,78,194
900 DATA232,142,18,212,76,49,234
910 DATA160,0,185,85,194,240,8
920 DATA72,169,0,153,85,194,104
930 DATA96,200,196,251,208,238,169
940 DATA0,96,16,0,0,0,0
950 DATA0,0,0,-1
READY.
```

```
1000 033C          ! KEYBOARD PLAYING ROUTINE
1010 033C          !
1020 033C          ! THE PRINCIPLES ARE BASICALLY AS
1030 033C          ! THE FIRST ROUTINE WITH THE
1040 033C          ! EXCEPTION THAT THIS TIME THE
1050 033C          ! ENVELOPES ARE USED TO THEIR FULL
1060 033C          ! EXTENT.
1070 033C          !
1080 033C          !
1090 C080          *=$C080 ! START OF CODE
1100 C080 A90F               LDA #$0F
1110 C082 8D03DD             STA $DD03          ! D.D.R.
1120 C085 A909               LDA #$09
1130 C087 8D05D4             STA $D405          ! ATTACK/DECAY V1
1140 C08A 8D0CD4             STA $D40C          !              V2
1150 C08D 8D13D4             STA $D413          !              V3
1160 C090 A900               LDA #$00
1170 C092 8D06D4             STA $D406          ! SUSTAIN/RELEASE V1
1180 C095 8D0DD4             STA $D40D          !                 V2
1190 C098 8D14D4             STA $D414          !                 V3
1200 C09B A90F               LDA #$0F
1210 C09D 8D18D4             STA $D418          ! VOLUME
1220 C0A0 AD4EC2             LDA WAVE
1230 C0A3 8D04D4             STA $D404          ! WAVEFORM V1
1240 C0A6 8D0BD4             STA $D40B          !          V2
1250 C0A9 8D12D4             STA $D412          !          V3
1260 C0AC A900               LDA #$00
1270 C0AE 8D02D4             STA $D402          ! PULSE WIDTH LO V1
1280 C0B1 8D09D4             STA $D409          !                V2
1290 C0B4 8D10D4             STA $D410          !                V3
1300 C0B7 A908               LDA #$08
1310 C0B9 8D03D4             STA $D403          ! PULSE WIDTH HI V1
1320 C0BC 8D0AD4             STA $D40A          !                V2
1330 C0BF 8D11D4             STA $D411          !                V3
1340 C0C2 78                 SEI
1350 C0C3 A9CF               LDA #<TESTER       ! PUT CODE INTO
1360 C0C5 8D1403             STA $0314          ! IRQ
1370 C0C8 A9C0               LDA #>TESTER
1380 C0CA 8D1503             STA $0315
1390 C0CD 58                 CLI
1400 C0CE 60                 RTS
1410 C0CF          !
1420 C0CF          ! START OF KEYBOARD ROUTINE
1430 C0CF          !
1440 C0CF A000     TESTER    LDY #$00           ! INITIALISE LOOP
1450 C0D1 84FB               STY $FB            ! NUMBER OF KEYS READ
1460 C0D3 8C01DD INPUT       STY $DD01          ! SEND TO USER PORT
1470 C0D6 AD01DD             LDA $DD01          ! READ USER PORT
1480 C0D9 8502               STA $02
1490 C0DB 2920               AND #$20           ! TEST CHIP 2
1500 C0DD F00C               BEQ NOT1           ! NOTHING
1510 C0DF 18                 CLC                ! STORE IN TEMPORARY
1520 C0E0 98                 TYA                ! AREA FOR LATER USE
1530 C0E1 6911               ADC #$11
1540 C0E3 A6FB               LDX $FB
1550 C0E5 9D55C2             STA INPUTTED,X
1560 C0E8 E8                 INX
1570 C0E9 86FB               STX $FB
1580 C0EB A502     NOT1      LDA $02
1590 C0ED 2940               AND #$40           ! TEST CHIP 3
1600 C0EF F00C               BEQ NOT2           ! NOTHING
1610 C0F1 18                 CLC                ! STORE IN TEMPORARY
1620 C0F2 98                 TYA                ! AREA FOR LATER USE
```

```
1630 C0F3 6921              ADC #$21
1640 C0F5 A6FB              LDX $FB
1650 C0F7 9D55C2            STA INPUTTED,X
1660 C0FA E8                INX
1670 C0FB 86FB              STX $FB
1680 C0FD A502   NOT2       LDA $02
1690 C0FF 2910              AND #$10                ! TEST CHIP  1
1700 C101 F00C              BEQ NOT3                ! NOTING
1710 C103 18                CLC                     ! STORE IN TEMPORARY
1720 C104 98                TYA                     ! AREA FOR LATER USE
1730 C105 6901              ADC #$01
1740 C107 A6FB              LDX $FB
1750 C109 9D55C2            STA INPUTTED,X
1760 C10C E8                INX
1770 C10D 86FB              STX $FB
1780 C10F A502   NOT3       LDA $02
1790 C111 2980              AND #$80                ! TEST CHIP 4
1800 C113 F00C              BEQ NOT4                ! NOTHING
1810 C115 18                CLC                     ! STORE IN TEMPORARY
1820 C116 98                TYA                     ! AREA FOR LATER USE
1830 C117 6931              ADC #$31
1840 C119 A6FB              LDX $FB
1850 C11B 9D55C2            STA INPUTTED,X
1860 C11E E8                INX
1870 C11F 86FB              STX $FB
1880 C121 C8     NOT4       INY                     ! COMPLETE READING
1890 C122 98                TYA                     ! LOOP
1900 C123 290F              AND #$0F
1910 C125 F004              BEQ COMPLETE
1920 C127 A8                TAY
1930 C128 4CD3C0            JMP INPUT
1940 C12B        !
1950 C12B        ! INPUT COMPLETED. NOW PAD
1960 C12B        ! OUT TO 3 NOTES
1970 C12B        !
1980 C12B A6FB   COMPLETE   LDX $FB
1990 C12D E003   PAD        CPX #$03                ! CHECK FOR 3 KEYS
2000 C12F B008              BCS ENOUGH              ! YES
2010 C131 A900              LDA #$00                ! SET TO ZERO
2020 C133 9D55C2            STA INPUTTED,X
2030 C136 E8                INX
2040 C137 D0F4              BNE PAD                 ! AND AGAIN
2050 C139        !
2060 C139        ! NOW CHECK FOR A KEY THAT
2070 C139        ! WAS BEING PLAYED LAST CHECK
2080 C139        !
2090 C139 86FB   ENOUGH     STX $FB
2100 C13B A000              LDY #$00
2110 C13D B955C2 CHECK1     LDA INPUTTED,Y          ! CHECK V1
2120 C140 F005              BEQ NEXT1               ! NOT THAT ONE
2130 C142 CD4FC2            CMP VOICE1
2140 C145 F00D              BEQ CONT1               ! YES
2150 C147 C8     NEXT1      INY                     ! NEXT INPUTTED KEY
2160 C148 C4FB              CPY $FB
2170 C14A D0F1              BNE CHECK1
2180 C14C A900              LDA #$00                ! NO COMPARISON
2190 C14E 8D52C2            STA V1FLAG
2200 C151 4C5EC1            JMP CHECKV2
2210 C154 A901   CONT1      LDA #$01                ! COMPARISON FOUND
2220 C156 8D52C2            STA V1FLAG
2230 C159 A900              LDA #$00
2240 C15B 9955C2            STA INPUTTED,Y          ! BLANK KEY
2250 C15E A000   CHECKV2    LDY #$00
```

```
2260 C160 B955C2 CHECK2      LDA INPUTTED,Y          ! CHECK V2
2270 C163 F005               BEQ NEXT2               ! NOT THAT ONE
2280 C165 CD50C2             CMP VOICE2
2290 C168 F00D               BEQ CONT2               ! YES
2300 C16A C8     NEXT2       INY                     ! NEXT INPUTTED KEY
2310 C16B C4FB               CPY $FB
2320 C16D D0F1               BNE CHECK2
2330 C16F A900               LDA #$00                ! NO COMPARISON
2340 C171 8D53C2             STA V2FLAG
2350 C174 4C81C1             JMP CHECKV3
2360 C177 A901   CONT2       LDA #$01                ! COMPARISON FOUND
2370 C179 8D53C2             STA V2FLAG
2380 C17C A900               LDA #$00
2390 C17E 9955C2             STA INPUTTED,Y          ! BLANK KEY
2400 C181 A000   CHECKV3     LDY #$00
2410 C183 B955C2 CHECK3      LDA INPUTTED,Y          ! CHECK V3
2420 C186 F005               BEQ NEXT3               ! NOT THAT ONE
2430 C188 CD51C2             CMP VOICE3
2440 C18B F00D               BEQ CONT3               ! YES
2450 C18D C8     NEXT3       INY                     ! NEXT INPUTTED KEY
2460 C18E C4FB               CPY $FB
2470 C190 D0F1               BNE CHECK3
2480 C192 A900               LDA #$00                ! NO COMPARISON
2490 C194 8D54C2             STA V3FLAG
2500 C197 4CA4C1             JMP ALLDONE
2510 C19A A901   CONT3       LDA #$01                ! COMPARISON FOUND
2520 C19C 8D54C2             STA V3FLAG
2530 C19F A900               LDA #$00
2540 C1A1 9955C2             STA INPUTTED,Y          ! BLANK KEY
2550 C1A4        !
2560 C1A4        ! PLAY NOTES
2570 C1A4        !
2580 C1A4 AD52C2 ALLDONE     LDA V1FLAG              ! PLAY V1
2590 C1A7 D02B               BNE DO2                 ! LEAVE TO PLAY
2600 C1A9 2037C2             JSR GETVOICE            ! GET A NEW NOTE
2610 C1AC CD4FC2             CMP VOICE1
2620 C1AF F023               BEQ DO2                 ! ZERO NOTE, IGNORE
2630 C1B1 8D4FC2             STA VOICE1
2640 C1B4 0A                 ASL A
2650 C1B5 A8                 TAY
2660 C1B6 AD4EC2             LDA WAVE                ! GATE OFF
2670 C1B9 8D04D4             STA $D404
2680 C1BC AD4FC2             LDA VOICE1
2690 C1BF F013               BEQ DO2                 ! ZERO NOTE LEAVE GATE
OFF
2700 C1C1 B900C0             LDA $C000,Y
2710 C1C4 8D00D4             STA $D400               ! NEW NOTE VALUES
2720 C1C7 B901C0             LDA $C001,Y
2730 C1CA 8D01D4             STA $D401
2740 C1CD AE4EC2             LDX WAVE                ! GATE ON
2750 C1D0 E8                 INX
2760 C1D1 8E04D4             STX $D404
2770 C1D4 AD53C2 DO2         LDA V2FLAG              ! PLAY V2
2780 C1D7 D02B               BNE DO3                 ! LEAVE TO PLAY
2790 C1D9 2037C2             JSR GETVOICE            ! GET A NEW NOTE
2800 C1DC CD50C2             CMP VOICE2
2810 C1DF F023               BEQ DO3                 ! ZERO NOTE, IGNORE
2820 C1E1 8D50C2             STA VOICE2
2830 C1E4 0A                 ASL A
```

```
 2840 C1E5 A8                   TAY
 2850 C1E6 AD4EC2               LDA WAVE                ! GATE OFF
 2860 C1E9 8D0BD4               STA $D40B
 2870 C1EC AD50C2               LDA VOICE2
 2880 C1EF F013                 BEQ DO3                 ! ZERO NOTE LEAVE GATE
OFF
 2890 C1F1 B900C0               LDA $C000,Y
 2900 C1F4 8D07D4               STA $D407               ! NEW NOTE VALUES
 2910 C1F7 B901C0               LDA $C001,Y
 2920 C1FA 8D08D4               STA $D408
 2930 C1FD AE4EC2               LDX WAVE                ! GATE ON
 2940 C200 E8                   INX
 2950 C201 8E0BD4               STX $D40B
 2960 C204 AD54C2 DO3           LDA V3FLAG              ! PLAY V3
 2970 C207 D02B                 BNE DONEALL             ! LEAVE TO PLAY
 2980 C209 2037C2               JSR GETVOICE            ! GET A NEW NOTE
 2990 C20C CD51C2               CMP VOICE3
 3000 C20F F023                 BEQ DONEALL             ! ZERO NOTE, IGNORE
 3010 C211 8D51C2               STA VOICE3
 3020 C214 0A                   ASL A
 3030 C215 A8                   TAY
 3040 C216 AD4EC2               LDA WAVE                ! GATE OFF
 3050 C219 8D12D4               STA $D412
 3060 C21C AD51C2               LDA VOICE3
 3070 C21F F013                 BEQ DONEALL             ! ZERO NOTE LEAVE GATE
OFF
 3080 C221 B900C0               LDA $C000,Y
 3090 C224 8D0ED4               STA $D40E               ! NEW NOTE VALUES
 3100 C227 B901C0               LDA $C001,Y
 3110 C22A 8D0FD4               STA $D40F
 3120 C22D AE4EC2               LDX WAVE                ! GATE ON
 3130 C230 E8                   INX
 3140 C231 8E12D4               STX $D412
 3150 C234 4C31EA DONEALL       JMP $EA31               ! TESTER COMPLETE
 3160 C237        !
 3170 C237        ! ROUTINE TO PICK OFF NEW VALUE
 3180 C237        !
 3190 C237 A000   GETVOICE      LDY #$00                ! LOOP START
 3200 C239 B955C2 GET1          LDA INPUTTED,Y          ! GET VALUE
 3210 C23C F008                 BEQ GETNEXT             ! ZERO, IGNORE
 3220 C23E 48                   PHA
 3230 C23F A900                 LDA #$00                ! BLANK KEY
 3240 C241 9955C2               STA INPUTTED,Y
 3250 C244 68                   PLA
 3260 C245 60                   RTS                     ! RETURN WITH VALUE IN
A
 3270 C246 C8     GETNEXT       INY                     ! NEXT VALUE
 3280 C247 C4FB                 CPY $FB
 3290 C249 D0EE                 BNE GET1                ! CONTINUE
 3300 C24B A900                 LDA #$00                ! NO MORE VALUES
 3310 C24D 60                   RTS
 3320 C24E 10     WAVE          BYT $10                 ! WAVE FORM
 3330 C24F 00     VOICE1        BYT 0                   ! V1 VALUE
 3340 C250 00     VOICE2        BYT 0                   ! V2
 3350 C251 00     VOICE3        BYT 0                   ! V3
 3360 C252 00     V1FLAG        BYT 0                   ! V1 PLAY FLAG
 3370 C253 00     V2FLAG        BYT 0                   ! V2
 3380 C254 00     V3FLAG        BYT 0                   ! V3
 3390 C255 00     INPUTTED      BYT 0                   ! START OF INPUT TABLE
```

Introducing

for COMMODORE 64 the MST ADMINISTRATOR

A USER-DEFINABLE
INVOICES & STATEMENTS FORMATTER & DOCUMENT GENERATOR

ON **TAPE & DISK** ● **A COMPILED PROGRAM**

THE ADVANTAGES OF WORD PROCESSORS & SPREADSHEETS
COMBINED IN THE **NEW** AND **EXCITING PROGRAM** FROM **MST**

- ★ Format & Print your own documents, or use those provided.
- ★ All VAT, discount, totalling calculations done automatically.
- ★ Use plain English — No programming needed.
- ★ Use plain paper or continuous pre-printed stationery.
- ★ Compiled program for high operating speed.
- ★ User-defined footer messages.
- ★ Double or single size characters.
- ★ Save documents and use when required — SALES & PROFORMA INVOICES, QUOTATIONS, DELIVERY & PACKING NOTES, ADVICE NOTES, STATEMENTS, REMITTANCE ADVICE NOTES, ETC.

PLUS HORACE HELPER ON DISK PROGRAMS
Also available: MAILER/ADDRESS BOOK, and STOCK CONTROL SYSTEM
MORE FACILITIES at **NO EXTRA COST**
Tapes: £19.95 inc. VAT* Disks: £24.95 inc VAT *
DEALER ENQUIRIES WELCOME * UK only

Tick the appropriate box. Prices include postage and VAT.

TAPES £19.95 EACH INC
☐ MAILER ADDRESS BOOK
☐ STOCK CONTROL
☐ ADMINISTRATOR

DISKS £24.95 EACH INC
☐ MAILER/ADDRESS BOOK
☐ STOCK CONTROL
☐ ADMINISTRATOR

Cheques etc. should be made payable to MST CONSULTANTS

NAME: .....
Address: .....
Card Number: ..... Signature: .....
MST Consultants, Newton Road, Bovey Tracey, Devon TQ13 9BB. Telephone (0626) 832617

MST CONSULTANTS

Cost effective business software for home computers

PETX2

doubles the speed...
trebles the memory...
...of your PET computer!

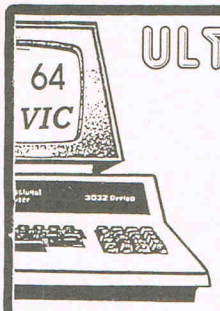
For users of the CBM/PET 3000, 4000 or 8000 series of computers who want to upgrade to new generation standards, computer specialists J.R. & S. Purdue have developed the PETX2 add-in board. Manufactured to the most exacting standards. PETX2 uses the latest microprocessor technology to double the processing speed of your CBM system, whether running BASIC, Silicon Office, Viscalc or any other application. The system comprises one board positioned inside the computer which can be fitted in 10 minutes using only a screwdriver. The board provides 96K of memory, thus upgrading 32K systems to 96K and replacing current 96K versions. This development means that your investment in software and data is protected, for by enhancing your machine speed, it comes into line with the Sirius, Osborne and even some 16-bit machines, as can be seen from the table of Personal Computer World Benchmarks:

Machine	BM1	BM2	BM3	BM4	BM5	BM6	BM7	BM8	Average
CBM with PETX2	0.87	5.1	9.4	10.3	11.2	16.5	26.0	6.0	17.5
IBM PC	1.5	5.2	12.1	12.6	13.6	23.5	37.4	3.5	17.6
Osborne 01	1.4	4.4	11.7	11.6	12.4	21.9	34.9	6.1	19.9
Apple 111	1.7	7.2	13.5	14.5	16.0	27.0	42.5	7.5	24.7
ACT Sirius 1	2.0	7.4	17.0	17.5	19.8	35.4	55.9	4.3	24.8
Apple 2	1.3	8.5	16.0	17.8	19.1	28.6	44.8	10.7	30.4
Commodore CBM 8032	1.7	10.0	18.4	20.3	21.9	32.4	51.0	11.9	34.3

TECHNICAL DATA
6502A processor running at 2mhz
96K of 4164 dynamic memory
Bank switching VDU Peek Thru
I/O Peek Thru

PRICE
£350 plus VAT
enquire for
quantity
discounts

JR&S
Purdue
1 Port Hill, Hertford, Hertfordshire SG14 1PJ.
Telephone Hertford (0992) 57392



ULTRADYNAMIC !
COLOSSAL !!
Fantastic !!!

No. It's just not US....

When we started Simple Software Ltd in 1979, we didn't call it Hypergalactic Megasoftware. Our kind of customer wants value rather than inflated claims, reliability and ease of use rather than hype, helpful advice rather than a fancy pack off the supermarket shelf.
We sell to people who want to USE their computer. We sell games, too, we're not a glum bunch; but it's our DBMS, our Word Processor, our Assembler, etc, that earn us our surprising list of customers. Of course, we don't suppose the ICI use 'Simply File' for all their filing. Possibly the CEGB use something more than a PET to control the national grid. We even understand that the BBC have some other kind of computer. But they, like small businesses, club secretaries, students and teachers, are just as quick to see its merits as Ford, British Telecom and Hong Kong University. Confidentially, even Big Brother is keeping at least one eye on a Commodore with 'Simply File' in it.
SIMPLY FILE DBMS (64, 40/80 PET). "There is nothing better at any price for our use" (Customer above). £60 + VAT (PET £65 + VAT.)
SIMPLY WRITE Word Processor (64, VIC-20, PET 40/80). Good enough for business, cheap enough for home use. We write our manuals with it. Disk £40 + VAT, tape £35 + VAT (PET £5 + VAT extra).
NEW!! SIMPLY ASSEMBLE package for machine code (64, PET). It has never been easier, yet even our experts prefer it. Tape or Disk, £22 + VAT, 64 or PET.
From your dealer or from us. Write or phone for full details and free MicroMail newsletter.

simple software ltd
15 Havelock Road, Brighton,
Sussex (0273) 504879

Access

Keeping up-to-date

Do you forget important dates? Help has arrived in the form of a desk diary and calendar program written by G P Raven, which we are publishing in two parts

This program was written for the user who wants to put behind him the bad old days when he constantly forgot his wife's birthday and his wedding anniversary and when family birthdays and other important annual events regularly slipped his mind – I'm talking about me. It is a program which can be referenced daily to see what's on and to enter in appointments and other matters which must be remembered.

Each year the diary will carry forward all permanent entries such as birthdays, anniversaries, days when returns must be made etc but temporary entries referring to appointments etc which have already become obsolete can be deleted by using the REVISE facility.

Because of the limitations which 32k imposes on the number and size of sequential files that can be held in memory, the diary permits only 100 entries. This is, however, likely to be enough for most users since when the diary is full a prompt will ask you to REVISE and entries which are no longer required can be erased to make room for more. You can revise the diary at any time either for the whole year or for a period between two dates that may be entered in response to the prompts.

There is a facility to print (screen or hard copy) a calendar for any month of any year from 1900 to 2999. The current year is stored on disk and held in memory for reference by the diary. If the calendar for any other year is required then after reference to it is finished the program will automatically reload the calendar for the year of the diary.

The printer I use is a Commodore 4022. No allowance has been made in the program for any other type of printer. However, the experienced programmer will find no particular difficulty in altering the program (lines 157 to 175) to suit his own particular printer.

Since graphics are a problem on the 8000 series machines I have written a simple machine code routine to give the screen headings a touch of class-particularly for the individual pages of the diary. There is also another machine code routine for sorting. The routine I used was direct from Nick Hampshires Library of PET Subroutines which I suitably amended for basic 4.0. Those who don't want to use a machine code sort can insert their own favourite basic routine at line 316 and replace sys32314 where it occurs at lines 78,229,245 and 317 with "gosub 316". The array to sort is zs$(n-1).

The purpose of the sort is to keep all the entries in chronological order. The first three characters of the string that holds the diary entry are the day and month reduced to internal format at lines 295-299. The next four are the time according to the 24-hour clock. The sort therefore ensures that the entries appear in the array zs$() in date and time order.

The machine code routines must be entered via the MLM and saved on the same disk as the main program. The graphics routine is hidden away in page 1 at $0110 to $0131 which is against all the rules but it doesn't seem to interfere with anything there. The sort routing is at top of RAM which is moved to accommodate it at line 8 of the program.

When the desk diary is used for the first time on RUN the screen will inform you that there are NO ENTRIES in the diary and ask for an input of the year for which you want to open the diary. The program then calculates the calendar for that year and saves it on disk as a sequential file called "Diary". This process takes about 35 seconds. Subsequently whenever the diary is referenced the file "Diary" is read into memory straight away and there will be no more long waits unless you wish to see or print a calendar other than the one for which the diary is open.

There is as usual a menu of options:

1. Make an entry
2. Look at an entry
3. Search
4. Print Calendar
5. Revise Entries
6. Start New Diary

To make an entry you simply select 1. and follow the prompts at the bottom of the screen. The date input and validation routine requires the DD/MM/YY format (although it will accept D/M/YY) and the time must be the 24-hour clock. If the entry doesn't have a time such as a birthday just press return. The EVENT should be consistent each time you enter a similar event otherwise when searching you will not find them all. For example if you write "Birthday" sometimes and "birthday" on other occasions, when searching for "Birthdays" the program will not find any that were entered as "birthday". The details of the event should be kept to 30 characters or you will be reminded of that fact. The last prompt is whether or not the entry is permanent or temporary. Permanent entries obviously are those which remain the same each year and temporary ones are appointments/engagements etc which can be deleted at a later stage.

To look at an entry select 2. and the prompt will ask you for the date you wish to look at. Again the date input requires DD/MM/YY. That page of the diary will then be displayed showing all the entries in chronological order. The return to menu option is accomplished by pressing the escape key (chr$(27)). If you haven't got one, or prefer it, line 89 can be changed to read "if a$<>"e" then 95. Similarly elsewhere in the program.

Option 3, allows you to search for all the items recorded in the diary for a similar EVENT such as all the Birthdays or Dinner Engagements etc. Simply enter the Event and all entries which were originally entered for the same event will be displayed in date order on the screen. If there is more than a pageful the program will stop until the option to "continue" is taken. If there is

not then the option to "continue" will return you to the menu as will "escape". The search is made on the EVENT field of the records zs$(0) to zs$(n-1) and on the length of the input search string so that "Birth" will find "Birthday" or "Birthdays" and "App" will find "Appointment" etc.

Option 4, allows you to look at, or print, a calendar for any month or for the entire year. If the entire year option is chosen the calendar will be printed month by month waiting after each printout. There is an option to "escape" at any stage if you wish.

REVISE, option 5, allows you to revise the diary at any stage either for the entire year such as on 31st Dec. or when the diary is full when you may wish to revise only the first few Months. The Revise option deletes all temporary entries between the dates input and makes room for more. Following REVISION the program rewrites the "Entries" files to disk drive #0. At the end of a year the REVISE option can be used to start the diary for the following year. It will automatically calculate the calendar for the next consecutive year and write it to disk. At the same time the diary entries will be revised and rewritten to disk having erased ALL the temporary entries but preserving all the permanent ones for the new year.

Option 6 may be used if you wish to start a completely new diary and erase ALL the entries permanent or temporary. Don't forget that in a leap year you may have a PERMANENT entry on the 29th February. The REVISE procedure will not erase this and it will reappear whenever the calendar in memory is for a leap year. If the page for 29th Feb is selected the DATE INVALID prompt will appear except when yr = int (yr/4), ie a leap year.

The rest is the hard slog of typing in the program and de-bugging. I think you may find it worth while and at least will save you the cost of a new Desk Diary until the year 2999.

```
1 rem**********************************************************
2 rem*                    desk diary and calendar              *
3 rem*          program written by g.p.raven - jan 1984        *
4 rem*                                                         *
5 rem**********************************************************
6 ifathen8
7 a=1:dload"titles"
8 poke52,0:poke53,120:clr:ifpeek(32314)=72then10
9 dload"sort"
10 print"■":dimm$(12),d(12),wk$(7),da$(366):lp=0:nd=366:nc=0:n=0
   :v$=chr$(21):b$=chr$(7):dy=0:cl=0
11 dimzs$(100),ex$(15),ey$(45):nm$="Diary"
12 forx=1to12:readm$(x),d(x):nextx
13 forj=1to7:readwk$(j):nextj:f6=0
14 z1=32300:pokez1,asc("z"):pokez1+1,asc("s"):poke144,88:tp$="    *■■■"
15 bk$="■■■
```

```
40 bm$="For Which Date (DD/MM/YY)"+sp$+bk$+tp$:gosub359:inputdt$
41 ifdt$="*"thenprint"":goto40
42 gosub326:ifp6=1thenbm$="Date Invalid":wt=1:gosub361:goto38
43 f$(6)=dt$
44 gosub295:f$(1)=fi$
45 iflp=0theniffi=60thenbm$="Not a Leap Year":wt=1:gosub361
46 gosub340
47 bm$="c ontinue esc ape":gosub361
48 geta$:ifa$=""then48
49 ifa$="c"then52
50 ifa$=chr$(27)then20
51 ifa$<>"c"anda$<>chr$(27)then47
52 bm$="Time"+sp$+bk$+tp$:gosub359:inputf$(2)
53 iff$(2)="*"thenf$(2)="----"
54 iflen(f$(2))<>4thenbm$="24 Hour Clock":wt=1:gosub361:goto52
55 bm$="Event"+sp$+bk$+tp$:gosub359:inputf$(3)
56 iff$(3)="*"then55
57 iflen(f$(3))>15thenbm$="15 chars only":wt=1:gosub361:goto55
58 f$(3)=left$(f$(3)+"                    ",15)
59 bm$="Details"+sp$+bk$+tp$:gosub359:inputf$(4)
60 iff$(4)="*"then59
61 iflen(f$(4))>30thenbm$="30 chars only":wt=1:gosub361:goto55
62 f$(4)=left$(f$(4)+"                                        ",30)
63 bm$="p ermanent t emporary":gosub359
64 geta$:ifa$=""then64
65 ifa$="t"thenf$(5)="t"
66 ifa$="p"thenf$(5)="p"
67 ifa$<>"t"anda$<>"p"then63
68 bm$="All Correct?   y":gosub359:inputyn$
69 ifleft$(yn$,1)<>"y"then38
70 forj=1to6:zs$(n)=zs$(n)+f$(j):next
71 en=en+1:ex$(en)=zs$(n):n=n+1:print""
72 forq=1toen
73 printmid$(ex$(q),4,4)spc(5)mid$(ex$(q),8,15)spc(10)mid$(ex$(q),23,30)
74 nextq
75 bm$="m ore e scape":gosub359
76 geta$:ifa$=""then76
77 ifa$="m"then52
78 ifa$=chr$(27)thensys32314:f6=1:return
79 ifa$<>"m"anda$<>chr$(27)then76
80 goto52
81 tt$="Diary "+y$+"- Entries":gosub294
82 bm$="For Which Date (DD/MM/YY)"+sp$+bk$+tp$:gosub359:inputdt$
83 ifdt$="*"thenprint"":goto40
84 gosub326:ifp6=1thenbm$="Date Invalid":wt=1:gosub361:goto82
85 f$(6)=dt$
86 gosub295:f$(1)=fi$
87 gosub340
88 bm$="esc ape":gosub359
89 geta$:ifa$<>chr$(27)then89
90 return
91 nn=0:q=1:qq=15:ifsh=1thenforj=1ton-1:ey$(j)="":next
92 tt$="Diary "+y$+" - Search":gosub294
93 bm$="Event":gosub359:inputev$
94 bm$="Searching Diary - wait!":gosub359
```

```
95 forj=1to45:ey$(j)="":next
96 forj=0ton-1
97 ifleft$(mid$(zs$(j),8,15),len(ev$))<>ev$then100
98 nn=nn+1:ey$(nn)=zs$(j)
99 ifnn=45thenj=n-1
100 nextj
101 ifnn=0thenbm$="▓No "+ev$+"'s Recorded in Diary▓":wt=1:gosub361:return
102 print"▓▓▓"
103 print"▓Date▓          ▓Event▓                    ▓Details▓"
104 q5=0:forj=qtoqq
105 ifey$(j)=""theney$(j)=sp$:goto109
106 iflp<>1thenifval(left$(ey$(j),3))=60theney$(j)=sp$:goto109
107 printmid$(ey$(j),54,6);right$(y$,2);spc(5)mid$(ey$(j),8,15)spc(07);
108 printmid$(ey$(j),23,30)
109 nextj
110 ifnn>qqthenq=qq+1:qq=qq+15:q5=1
111 ifqq>45thenqq=45
112 bm$="▓c▓ontinue  ▓esc▓ape":gosub359
113 geta$:ifa$=""then113
114 ifa$="c"thenifq5=1then102
115 ifa$="c"thenifq5=0thensh=1:return
116 ifa$=chr$(27)thensh=1:return
117 ifa$<>"c"anda$<>chr$(27)then112
118 tt$="Print Calendar":gosub294:y3$=""
119 bm$="▓For Which Year▓"+sp$+bk$+tp$:gosub359:inputy3$
120 ify3$="*"then119
121 iflen(y3$)<>4then119
122 ify$=y3$then125
123 ny=1:bm$="▓Calculating Calendar for "+y3$+" - Wait!▓":gosub359
124 y8$=y$:y$=y3$:gosub277
125 bm$="▓e▓ntire year ▓m▓onth only ▓esc▓ape":gosub359
126 geta$:ifa$=""then126
127 ifa$=chr$(27)then206
128 ifa$="e"then145
129 ifa$="m"then131
130 ifa$<>"e"anda$<>"m"anda$<>chr$(27)then126
131 bm$="▓Which Month▓"+sp$+bk$+tp$:gosub359:inputmt$
132 ifmt$="*"then131
133 forj=1to12
134 ifmt$=left$(m$(j),len(mt$))thenmt=d(j):mx=j:goto137
135 nextj
136 goto131
137 gosub197
138 gosub176
139 bm$="▓h▓ard copy ▓esc▓ape":gosub359
140 geta$:ifa$=""then140
141 ifa$=chr$(27)then144
142 ifa$="h"thengosub157:goto144
143 ifa$<>"h"anda$<>chr$(27)then139
144 gosub206:return
145 sb=ss
146 forjk=1to12:mx=jk
147 gosub197:gosub176
148 bm$="▓h▓ard copy  ▓c▓ontinue  ▓esc▓ape":gosub359
149 geta$:ifa$=""then149
```

```
150 ifa$="c"then155
151 ifa$=chr$(27)then156
152 ifa$="h"then154
153 ifa$<>"h"anda$<>"c"anda$<>chr$(27)then149
154 gosub157
155 nextjk
156 gosub206:return
157 fg=0:open3,4,6:print#3,chr$(20)
158 open4,4:cmd4
159 forj=1to42:hh$(j)="**":next
160 printlz$m$(mx);y$:print
161 printlz$l1$:printlz$l4$:printlz$l2$:printlz$l4$:printlz$l5$
162 printlz$l4$
163 fg=d(mx)+sb-1
164 forj=1tosb-1:hh$(j)="**":nextj
165 forj=1tod(mx):hh$(j+sb-1)=mid$(str$(j)+"      ",2,2):next
166 ct=0:printspc(10)
167 forj=1to42
168 bn$=chr$(165)+"    "+hh$(j)+"  ":by$=chr$(165)
169 ifct=7thenct=0:printby$"■":printlz$l3$:printlz$l4$:printlz$;
170 printbn$;
171 ct=ct+1
172 nextj
173 printby$:printlz$l4$:printlz$l5$
174 print#4:close4:close3
175 return
176 print"■■■
```

```
205 return
206 ifval(y3$)<>yrthengosub254
207 return
208 nx=0
209 tt$="Diary "+y$+" - Revise Entries":gosub294
210 bm$="■e■ntire diary   ■p■art of diary  ■esc■ape":gosub359
211 geta$:ifa$=""then211
212 ifa$=chr$(27)then20
213 ifa$="e"then232
214 ifa$="p"then216
215 ifa$<>"p"anda$<>"e"anda$<>chr$(27)then210
216 bm$="■From (DD/MM/YY)■"+sp$+bk$+tp$:gosub359:inputdt$
217 ifdt$="*"then216
218 gosub326:ifp6=1thenbm$="■Date Invalid":wt=1:gosub361:goto216
219 d1$=dt$:gosub295:f1=fi
220 bm$="■To (DD/MM/YY)■"+sp$+bk$+tp$:gosub359:inputdt$
221 ifdt$="*"then221
222 gosub326:ifp6=1thenbm$="■Date Invalid■":wt=1:gosub361:goto220
223 d2$=dt$:gosub295:f2=fi
224 bm$="■Revising Diary for "+y$+" from "+d1$+" to "+d2$+"■":gosub359
225 forj=0ton-1
226 ifval(left$(zs$(j),3))<f1orval(left$(zs$(j),3))>f2then228
227 ifmid$(zs$(j),53,1)="t"thenzs$(j)="":n=n-1
228 nextj
229 sys32314
230 rv$="Revised ":gosub310:dy=1
231 bm$="■Revision Complete■":wt=1:gosub361:return
232 bm$="■c■urrent year ■n■ew year ■esc■ape":gosub359
233 geta$:ifa$=""then233
234 ifa$=chr$(27)then20
235 ifa$="c"then242
236 ifa$="n"thennx=1:gosub384:goto238
237 ifa$<>"n"anda$<>"c"anda$<>chr$(27)then232
238 ifleft$(yn$,1)<>"y"thennx=0:return
239 y1$=str$(val(y$)+1)
240 bm$="■Calculating Calendar for "+y1$+" - Wait!■":gosub359
241 y$=y1$:gosub279
242 forj=0ton-1
243 ifmid$(zs$(j),53,1)="t"thenzs$(j)="":n=n-1
244 nextj
245 sys32314
246 ifnx=1thengosub261
247 rv$="Revised ":gosub310:dy=1
248 bm$="■Revision Complete■":wt=1:gosub361:return
249 gosub384
250 ifleft$(yn$,1)<>"y"thenreturn
251 gosub272:gosub261:cl=1:scratch"Entries"
252 forj=0ton-1:zs$(j)="":next: return
253 ifcl=1thenreturn
254 dopen#8,(nm$):gosub355
255 ifds=62thennc=1:dclose#8:return
256 input#8,ss,nd,lp,y$
257 bm$="■Loading Calendar for "+y$+"■":gosub359
258 forj=1tond:input#8,da$(j):next
259 y=val(y$):ify/4=int(y/4)thend(2)=29
```

```
260 gosub355:dclose#8:cl=1:yr=val(y$):return
261 bm$="■Writing Calendar for "+y$+" to Disk Drive #0■":gosub359
262 dopen#8,(nm$),w:gosub355
263 ifds=63thendclose#8:scratch(nm$):goto262
264 print#8,ss
265 print#8,nd
266 print#8,lp
267 print#8,y$
268 forj=1tond
269 print#8,da$(j)
270 nextj
271 gosub355:dclose#8:cl=0:nc=0:return
272 tt$="Write New Calendar":gosub294:print"■"
273 bm$="■Enter Year of Diary■"+sp$+bk$+tp$:gosub359:inputy$
274 ify$="*"then20
275 iflen(y$)<>4then273
276 bm$="■Calculating Calendar for "+y$+" - Wait!■":gosub359
277 ify$="*"then      print"■■":goto275
278 iflen(y$)<>4thenprint"■■":goto275
279 ifval(y$)>1999theny1=2000
280 y1=1900:lp=0
281 y=val(y$):d=int((y-y1)/4)+(y-y1):s=d-int((d/7))*7
282 ify/4=int(y/4)thend(2)=29:lp=1
283 da=1:ifs=0thens=7:ss=s:goto285
284 s=s+1:ss=s
285 db=1:nm=1:forj=1tond
286 ifdb>d(nm)thennm=nm+1:db=1
287 da$(j)=mid$(str$(s),2,1)+mid$(str$(db)+"    ",2,2)
288 da$(j)=da$(j)+mid$(str$(nm)+"    ",2,2)
289 ifs=7thens=1:goto291
290 s=s+1
291 db=db+1
292 nextj
293 return
294 print"■":sys272:printspc((80-len(tt$))/2)tt$:return
295 fi=0:iflp=1thend(2)=29
296 forj=1topm:fi=fi+d(j-1):next
297 fi=fi+pd
298 fi$=right$("000"+right$(str$(fi),len(str$(fi))-1),3)
299 return
300 bm$="■Reading Diary Entries■":gosub32000
301 ifdy=1thenreturn
302 dopen#11,"Entries":gosub355
303 ifds=62thenbm$="■No Entries in Diary■":wt=1:gosub361
304 ifds=62thendclose#11:dy=1:return
305 input#11,n
306 forj=0ton-1:input#11,zs$(j):next
307 gosub355:dclose#11:dy=1:return
308 ru$=""
309 gosub316
310 scratch"Entries"
311 bm$="■Writing "+ru$+"Diary Entries■":gosub359
312 dopen#11,"Entries",w:gosub355
313 print#11,n
314 forj=0ton-1:print#11,zs$(j):next
```

Scrolling routine

This month we take a look at smooth scrolling on the 64.

There is no problem in scrolling to the eight locations available in the VIC chip register 22 – the problem comes when all of the characters have to be moved over and the register reset. This could not be done in Basic because it is too slow.

Therefore, the routine that follows is done in interrupts, raster interrupts to be precise. This produces a very smooth, flicker-free scroll.

In some games, in particular Killer Watt by Alligata, this smooth scrolling is done to fantastic effect with the smooth scrolling going in both directions and also with three different speeds in both directions, also a zero speed.

The speeds are controlled by the joystick in port 2 and are used in respect to a sprite moving against the flow of the scroll.

Another aspect to note about the routine is that the colour memory is not scrolled. This is due to the speed of the scrolling.

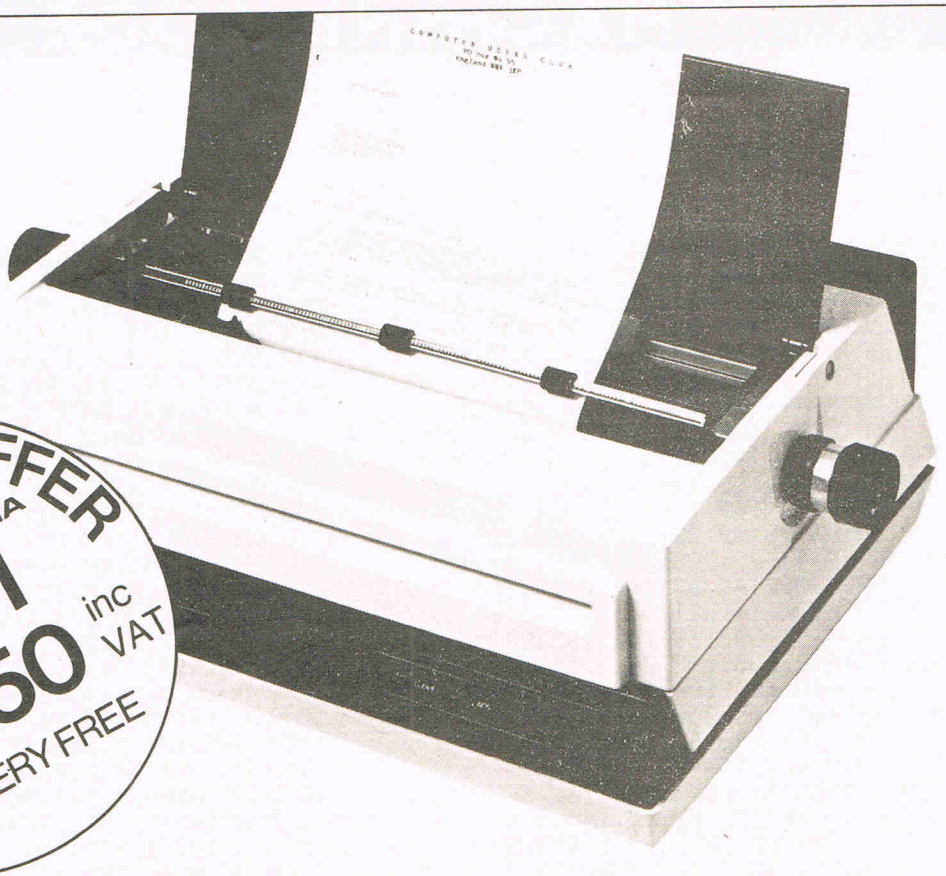
Sixteen lines are scrolled in all leaving the top five lines and the bottom four lines for stationary text, although it would be wise to leave the lines directly above and below the scrolling area blank.

The main difference between Killer Watts scrolling and this routine is that, in this routine, the display is scrolled onto the other side of the screen whereas in Killer Watt the display is brought in from an area of screen data.

The scrolling is initialised by SYS49152 and after that it will run independently of any other program.

```
10 I=49152:T=0
20 READA:IFA=-1THEN50
30 POKEI,A:I=I+1
40 T=T+A:GOTO20
50 IFT<>107175THENPRINT"■■CHECKSUM ERROR":END
60 IFI<>50068THENPRINT"■■DATA ERROR: NO. OF VALUES":END
70 PRINT"■■DATA OK. START SCROLL WITH SYS49152"
80 END
100 DATA120,169,39,141,20,3,169
110 DATA192,141,21,3,173,17,208
120 DATA41,127,141,17,208,169,217
130 DATA141,18,208,173,26,208,9
140 DATA1,141,26,208,169,200,141
150 DATA22,208,88,96,169,1,44
160 DATA25,208,208,3,76,49,234
170 DATA173,145,195,240,65,173,142
180 DATA195,208,91,173,141,195,41
190 DATA7,205,143,195,240,13,173
200 DATA141,195,56,237,145,195,141
210 DATA141,195,76,119,192,173,144
220 DATA195,141,143,195,173,146,195
230 DATA141,145,195,169,1,141,147
240 DATA195,169,200,141,22,208,169
250 DATA199,141,141,195,160,1,32
260 DATA11,193,200,192,40,208,248
270 DATA169,1,141,25,208,169,200
280 DATA141,22,208,169,211,141,20
290 DATA3,169,192,141,21,3,169
```

```
300 DATA90,141,18,208,104,168,104
310 DATA170,104,64,173,141,195,41
320 DATA7,205,143,195,240,13,173
330 DATA141,195,24,109,145,195,141
340 DATA141,195,76,119,192,173,144
350 DATA195,141,143,195,173,146,195
360 DATA141,145,195,169,1,141,147
370 DATA195,169,200,141,22,208,169
380 DATA192,141,141,195,160,38,32
390 DATA108,193,136,16,250,76,119
400 DATA192,169,1,44,25,208,208
410 DATA3,76,49,234,173,141,195
420 DATA141,22,208,169,217,141,18
430 DATA208,169,39,141,20,3,169
440 DATA192,141,21,3,169,1,141
450 DATA25,208,173,142,195,208,6
460 DATA32,205,193,76,5,193,32
470 DATA48,194,104,168,104,170,104
480 DATA64,185,200,4,153,199,4
490 DATA185,240,4,153,239,4,185
500 DATA24,5,153,23,5,185,64
510 DATA5,153,63,5,185,104,5
520 DATA153,103,5,185,144,5,153
530 DATA143,5,185,184,5,153,183
540 DATA5,185,224,5,153,223,5
550 DATA185,8,6,153,7,6,185
560 DATA48,6,153,47,6,185,88
570 DATA6,153,87,6,185,128,6
580 DATA153,127,6,185,168,6,153
590 DATA167,6,185,208,6,153,207
600 DATA6,185,248,6,153,247,6
610 DATA185,32,7,153,31,7,96
620 DATA185,200,4,153,201,4,185
630 DATA240,4,153,241,4,185,24
640 DATA5,153,25,5,185,64,5
650 DATA153,65,5,185,104,5,153
660 DATA105,5,185,144,5,153,145
670 DATA5,185,184,5,153,185,5
680 DATA185,224,5,153,225,5,185
690 DATA8,6,153,9,6,185,48
700 DATA6,153,49,6,185,88,6
710 DATA153,89,6,185,128,6,153
720 DATA129,6,185,168,6,153,169
730 DATA6,185,208,6,153,209,6
740 DATA185,248,6,153,249,6,185
750 DATA32,7,153,33,7,96,173
760 DATA200,4,141,239,4,173,240
770 DATA4,141,23,5,173,24,5
780 DATA141,63,5,173,64,5,141
790 DATA103,5,173,104,5,141,143
800 DATA5,173,144,5,141,183,5
810 DATA173,184,5,141,223,5,173
820 DATA224,5,141,7,6,173,8
830 DATA6,141,47,6,173,48,6
840 DATA141,87,6,173,88,6,141
850 DATA127,6,173,128,6,141,167
860 DATA6,173,168,6,141,207,6
870 DATA173,208,6,141,247,6,173
880 DATA248,6,141,31,7,173,32
890 DATA7,141,71,7,76,147,194
900 DATA173,239,4,141,200,4,173
910 DATA23,5,141,240,4,173,63
920 DATA5,141,24,5,173,103,5
930 DATA141,64,5,173,143,5,141
940 DATA104,5,173,183,5,141,144
950 DATA5,173,223,5,141,184,5
960 DATA173,7,6,141,224,5,173
970 DATA47,6,141,8,6,173,87
980 DATA6,141,48,6,173,127,6
990 DATA141,88,6,173,167,6,141
1000 DATA128,6,173,207,6,141,168
1010 DATA6,173,247,6,141,208,6
1020 DATA173,31,7,141,248,6,173
1030 DATA71,7,141,32,7,76,7
1040 DATA195,173,147,195,208,1,96
1050 DATA173,0,220,41,4,240,13
1060 DATA173,0,220,41,8,240,48
1070 DATA169,1,141,147,195,96,173
1080 DATA145,195,240,24,74,208,6
1090 DATA141,145,195,76,167,194,141
1100 DATA146,195,141,144,195,206,144
1110 DATA195,169,0,141,147,195,96
1120 DATA169,1,141,142,195,169,7
1130 DATA141,143,195,76,167,194,173
1140 DATA145,195,201,4,240,201,201
1150 DATA0,240,12,10,141,146,195
1160 DATA141,144,195,206,144,195,201
1170 DATA0,208,17,169,1,141,145
1180 DATA195,141,146,195,169,0,141
1190 DATA143,195,141,144,195,96,169
1200 DATA0,141,147,195,96,173,147
1210 DATA195,208,1,96,173,0,220
1220 DATA41,8,240,10,173,0,220
1230 DATA41,4,240,62,76,167,194
1240 DATA173,145,195,240,41,74,208
1250 DATA9,141,145,195,169,1,141
1260 DATA147,195,96,141,146,195,201
1270 DATA2,208,8,169,6,141,144
1280 DATA195,76,70,195,141,146,195
1290 DATA169,7,141,144,195,169,0
1300 DATA141,147,195,96,169,0,141
1310 DATA142,195,169,0,141,143,195
1320 DATA76,167,194,173,145,195,201
1330 DATA4,240,42,201,0,240,22
1340 DATA10,141,146,195,201,4,208
1350 DATA6,141,144,195,76,70,195
1360 DATA169,6,141,144,195,76,70
1370 DATA195,169,1,141,145,195,141
1380 DATA146,195,169,7,141,143,195
1390 DATA141,144,195,76,167,194,199
1400 DATA0,0,0,1,1,1,-1
READY.
```



A DATAPLUS OFFER
THE SMITH-CORONA TP-1
ONLY £250 inc VAT
DELIVERY FREE

'Dataplus have made their name supplying computer peripherals at competitive prices. I believe that we have now found the best price/performance daisy wheel alternative to dot matrix. The ideal printer for both data and word processing. Truely, a high quality machine at an affordable price. As Managing Director, I guarantee you won't buy better.'

R. Brotherhood

So make the most of your CBM64 and turn it into a quality printing system for home correspondence, documents, short stories and business use. The special interface kit required is available, see coupon.

Use standard stationery or, for ONLY £79 (if ordered with your TP1) we will supply a tractor feed so you can use continuous or fanfold paper.

This is just one offer you can't miss. To avoid disappointment RING NOW on our 24 hour answering service 0242 527412 to place your order quoting your Access/Barclaycard No., expiry date and full name and address OR complete the coupon below and POST TODAY.

Please allow 28 days delivery. If not completely satisfied return goods in original packing within 10 days of receipt and we will replace or refund your money in full.

For technical queries telephone our Expert Hotline 0242 37373 or visit our showroom at 39-49 Roman Road, Cheltenham.

DATAPLUS

SPECIFICATIONS
Print Speed: 120 wpm
Character set 128 ASCII 88 printable
Character spacing: 12 CPI
Printing: Unidirectional
Paper width: 13" max.
Writing line: 10.5" 126 character line
Line spacing: 6 lines per inch
Paper Feed: Friction, single sheet or fanfold.
240 volts, 50Hz
Dimensions: (H) 6.4" (W) 19.5" (D) 12.4"
Weight: 18.5 lbs

Operator Controls: Power on/off, top of form, impression controls (5 levels)

INTERFACES
Parallel
Centronics compatible, 7 bit parallel data, 3 control lines (data, strobe, busy, acknowledge)

Serial
RS232C compatible, 50-19200 BPS, parity and character bit length all switch selectable.

Dataplus-PSI Ltd 39-49 Roman Road Cheltenham GL51 8QQ. Reg. No. 1715271 England.
Offer open to UK only while stocks last.

To DATAPLUS-PSI Ltd 39-49 Roman Road Cheltenham GL51 8QQ
Please send me:—

Qty	Description	Price	Total
	TP1(s) with RS232 interface	£250	
	TP1 with centronic interface	£250	
	CBM 64 interface and cable kit	£39	
	Tractor Feed	£79	
	*Delete as applicable	Total	

I enclose my cheque for £_____ crossed and made payable to DATAPLUS-PSI Ltd or charge my Access/Barclaycard* Account No.

Expiry date of card_____

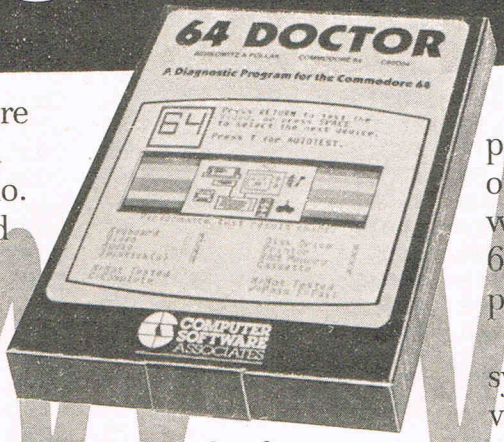
Signature .....

Name.....
Address.....
.....
Postcode.....
Telephone No:.....
Make/Model of my computer.....
.....

CCI 5/84

```
  0  C000  78        SEI
  1  C001  A927      LDA  #$27
  2  C003  8D1403    STA  $0314
  3  C006  A9C0      LDA  #$C0
  4  C008  8D1503    STA  $0315
  5  C00B  AD11D0    LDA  $D011
  6  C00E  297F      AND  #$7F
  7  C010  8D11D0    STA  $D011
  8  C013  A9D9      LDA  #$D9
  9  C015  8D12D0    STA  $D012
 10  C018  AD1AD0    LDA  $D01A
 11  C01B  0901      ORA  #$01
 12  C01D  8D1AD0    STA  $D01A
 13  C020  A9C8      LDA  #$C8
 14  C022  8D16D0    STA  $D016
 15  C025  58        CLI
 16  C026  60        RTS
 17  C027  A901      LDA  #$01
 18  C029  2C19D0    BIT  $D019
 19  C02C  D003      BNE  $C031
 20  C02E  4C31EA    JMP  $EA31
 21  C031  AD91C3    LDA  $C391
 22  C034  F041      BEQ  $C077
 23  C036  AD8EC3    LDA  $C38E
 24  C039  D05B      BNE  $C096
 25  C03B  AD8DC3    LDA  $C38D
 26  C03E  2907      AND  #$07
 27  C040  CD8FC3    CMP  $C38F
 28  C043  F00D      BEQ  $C052
 29  C045  AD8DC3    LDA  $C38D
 30  C048  38        SEC
 31  C049  ED91C3    SBC  $C391
 32  C04C  8D8DC3    STA  $C38D
 33  C04F  4C77C0    JMP  $C077
 34  C052  AD90C3    LDA  $C390
 35  C055  8D8FC3    STA  $C38F
 36  C058  AD92C3    LDA  $C392
 37  C05B  8D91C3    STA  $C391
 38  C05E  A901      LDA  #$01
 39  C060  8D93C3    STA  $C393
 40  C063  A9C8      LDA  #$C8
 41  C065  8D16D0    STA  $D016
 42  C068  A9C7      LDA  #$C7
 43  C06A  8D8DC3    STA  $C38D
 44  C06D  A001      LDY  #$01
 45  C06F  200BC1    JSR  $C10B
 46  C072  C8        INY
 47  C073  C028      CPY  #$28
 48  C075  D0F8      BNE  $C06F
 49  C077  A901      LDA  #$01
 50  C079  8D19D0    STA  $D019
 51  C07C  A9C8      LDA  #$C8
 52  C07E  8D16D0    STA  $D016
 53  C081  A9D3      LDA  #$D3
 54  C083  8D1403    STA  $0314
 55  C086  A9C0      LDA  #$C0
 56  C088  8D1503    STA  $0315
 57  C08B  A95A      LDA  #$5A
 58  C08D  8D12D0    STA  $D012
 59  C090  68        PLA
 60  C091  A8        TAY
 61  C092  68        PLA
 62  C093  AA        TAX
 63  C094  68        PLA
 64  C095  40        RTI
 65  C096  AD8DC3    LDA  $C38D
 66  C099  2907      AND  #$07
 67  C09B  CD8FC3    CMP  $C38F
 68  C09E  F00D      BEQ  $C0AD
 69  C0A0  AD8DC3    LDA  $C38D
 70  C0A3  18        CLC
 71  C0A4  6D91C3    ADC  $C391
 72  C0A7  8D8DC3    STA  $C38D
 73  C0AA  4C77C0    JMP  $C077
 74  C0AD  AD90C3    LDA  $C390
 75  C0B0  8D8FC3    STA  $C38F
 76  C0B3  AD92C3    LDA  $C392
 77  C0B6  8D91C3    STA  $C391
 78  C0B9  A901      LDA  #$01
 79  C0BB  8D93C3    STA  $C393
 80  C0BE  A9C8      LDA  #$C8
 81  C0C0  8D16D0    STA  $D016
 82  C0C3  A9C0      LDA  #$C0
 83  C0C5  8D8DC3    STA  $C38D
 84  C0C8  A026      LDY  #$26
 85  C0CA  206CC1    JSR  $C16C
 86  C0CD  88        DEY
 87  C0CE  10FA      BPL  $C0CA
 88  C0D0  4C77C0    JMP  $C077
 89  C0D3  A901      LDA  #$01
 90  C0D5  2C19D0    BIT  $D019
 91  C0D8  D003      BNE  $C0DD
 92  C0DA  4C31EA    JMP  $EA31
 93  C0DD  AD8DC3    LDA  $C38D
 94  C0E0  8D16D0    STA  $D016
 95  C0E3  A9D9      LDA  #$D9
 96  C0E5  8D12D0    STA  $D012
 97  C0E8  A927      LDA  #$27
 98  C0EA  8D1403    STA  $0314
 99  C0ED  A9C0      LDA  #$C0
100  C0EF  8D1503    STA  $0315
101  C0F2  A901      LDA  #$01
102  C0F4  8D19D0    STA  $D019
103  C0F7  AD8EC3    LDA  $C38E
104  C0FA  D006      BNE  $C102
105  C0FC  20CDC1    JSR  $C1CD
106  C0FF  4C05C1    JMP  $C105
107  C102  2030C2    JSR  $C230
108  C105  68        PLA
109  C106  A8        TAY
110  C107  68        PLA
111  C108  AA        TAX
112  C109  68        PLA
113  C10A  40        RTI
114  C10B  B9C804    LDA  $04C8,Y
115  C10E  99C704    STA  $04C7,Y
116  C111  B9F004    LDA  $04F0,Y
117  C114  99EF04    STA  $04EF,Y
118  C117  B91805    LDA  $0518,Y
```

HEALTHCARE FOR YOUR HARDWARE



When your Commodore 64 seems distinctly unwell it's hard to know what to do.

Which is why you need 64 Doctor.

This special program will find the fault by a series of short diagnostic tests. And tell you exactly where the problem lies.

Included are tests for RAM, keyboard, disc-drive, joysticks, datacassette, printer, audio and video displays.

So as well as saving you pounds in having someone check through the whole system for a fault, 64 Doctor will give you peace of mind.

You can give your system a check-up by visiting any good computer store including selected branches of Laskys, W. H. Smith and Boots.

64 Doctor. Tape £17.95 inc. VAT. Disc £19.95 inc. VAT

PRACTICORP

Practicorp, Goddard Road, Whitehouse Industrial Estate, Ipswich IP1 5NP. Tel: 0473 462721

EPROM PROGRAMMER MK3

This advanced version of our Mk. 2 Programmer will program the popular industry standard 2516, 2716, 2532, 2732, 2564, 2764, and 27128 EPROMS. Disk-based software with all the essential functions for fast and reliable EPROM programming. 14 functions including Check-Empty, Program, Verify, etc; plus 6502 Disk Assembler and Assembler Hex-File loading (CBM or JCL Assemblers). With built in power supply and new custom case, this is the Programmer Commodore use at Slough! Price £299+VAT including 2716 personality card.

IEEE BUS-ADAPTOR FOR VIC 20 AND CBM 64

A superior adaptor at a reasonable price. This brand-new item allows you to use standard CBM/PET IEEE disk drives and printers with your VIC or 64. Many advanced features including:

- ★ MINI-DOS support
- ★ Batch file loading
- ★ Gold-plated edge connector for long term reliability
- ★ Selectable default device number for load/save
- ★ Multi-user bus sharing and simultaneous use of the serial bus.

Supplied with instructions detailing these features plus many more. Price £59+VAT.

JCL 700 WORKSHOP

Superb NEW cartridge for the CBM 700. Your programs will become faster, more reliable, smaller and much easier to write!

- ★ 10 TOOLKIT-type programming aids.
- ★ Bi-directional screen scrolling.
- ★ Enhanced BASIC with 39 new KEYWORDS.
- ★ Comprehensive data input systems with efficient File Interfacing.
- ★ DOS-SUPPORT available all the time.
- ★ ASCII-editor for text and assembler files.
- ★ Elementary word processing facilities.
- ★ BANK-SYS, Kernal in every bank.
- ★ Design and add your own BASIC extensions.
- ★ Extra RAM in system bank.
- ★ Comprehensive manual.

Available now, price £120.00 + VAT.

BUSINESS ROM

The BUSINESS ROM for 4000/8000 Commodore Machines adds 25 additional keywords to BASIC. Super screen management & input systems coupled with efficient easy-to-use relative file handling . . . and more. Includes DOS-support. Used by many major UK companies who require the best! Price £80.00 + VAT.

ROM PAGER

ROM PAGER boards for 3000/4000/8000 machines give 8 extra expansion sockets for ROMs or EPROMS, easy to fit, leaves user port free. Price £45.00 + VAT.

JCL SOFTWARE
47 London Road, Southborough,
Tunbridge Wells, Kent

Phone 0892-27454 for data-sheets or contact your nearest Commodore dealer.

```
119  C11A  991705    STA  $0517,Y
120  C11D  B94005    LDA  $0540,Y
121  C120  993F05    STA  $053F,Y
122  C123  B96805    LDA  $0568,Y
123  C126  996705    STA  $0567,Y
124  C129  B99005    LDA  $0590,Y
125  C12C  998F05    STA  $058F,Y
126  C12F  B9B805    LDA  $05B8,Y
127  C132  99B705    STA  $05B7,Y
128  C135  B9E005    LDA  $05E0,Y
129  C138  99DF05    STA  $05DF,Y
130  C13B  B90806    LDA  $0608,Y
131  C13E  990706    STA  $0607,Y
132  C141  B93006    LDA  $0630,Y
133  C144  992F06    STA  $062F,Y
134  C147  B95806    LDA  $0658,Y
135  C14A  995706    STA  $0657,Y
136  C14D  B98006    LDA  $0680,Y
137  C150  997F06    STA  $067F,Y
138  C153  B9A806    LDA  $06A8,Y
139  C156  99A706    STA  $06A7,Y
140  C159  B9D006    LDA  $06D0,Y
141  C15C  99CF06    STA  $06CF,Y
142  C15F  B9F806    LDA  $06F8,Y
143  C162  99F706    STA  $06F7,Y
144  C165  B92007    LDA  $0720,Y
145  C168  991F07    STA  $071F,Y
146  C16B  60        RTS
147  C16C  B9C804    LDA  $04C8,Y
148  C16F  99C904    STA  $04C9,Y
149  C172  B9F004    LDA  $04F0,Y
150  C175  99F104    STA  $04F1,Y
151  C178  B91805    LDA  $0518,Y
152  C17B  991905    STA  $0519,Y
153  C17E  B94005    LDA  $0540,Y
154  C181  994105    STA  $0541,Y
155  C184  B96805    LDA  $0568,Y
156  C187  996905    STA  $0569,Y
157  C18A  B99005    LDA  $0590,Y
158  C18D  999105    STA  $0591,Y
159  C190  B9B805    LDA  $05B8,Y
160  C193  99B905    STA  $05B9,Y
161  C196  B9E005    LDA  $05E0,Y
162  C199  99E105    STA  $05E1,Y
163  C19C  B90806    LDA  $0608,Y
164  C19F  990906    STA  $0609,Y
165  C1A2  B93006    LDA  $0630,Y
166  C1A5  993106    STA  $0631,Y
167  C1A8  B95806    LDA  $0658,Y
168  C1AB  995906    STA  $0659,Y
169  C1AE  B98006    LDA  $0680,Y
170  C1B1  998106    STA  $0681,Y
171  C1B4  B9A806    LDA  $06A8,Y
172  C1B7  99A906    STA  $06A9,Y
173  C1BA  B9D006    LDA  $06D0,Y
174  C1BD  99D106    STA  $06D1,Y
175  C1C0  B9F806    LDA  $06F8,Y
176  C1C3  99F906    STA  $06F9,Y
177  C1C6  B92007    LDA  $0720,Y
178  C1C9  992107    STA  $0721,Y
179  C1CC  60        RTS
180  C1CD  ADC804    LDA  $04C8
181  C1D0  8DEF04    STA  $04EF
182  C1D3  ADF004    LDA  $04F0
183  C1D6  8D1705    STA  $0517
184  C1D9  AD1805    LDA  $0518
185  C1DC  8D3F05    STA  $053F
186  C1DF  AD4005    LDA  $0540
187  C1E2  8D6705    STA  $0567
188  C1E5  AD6805    LDA  $0568
189  C1E8  8D8F05    STA  $058F
190  C1EB  AD9005    LDA  $0590
191  C1EE  8DB705    STA  $05B7
192  C1F1  ADB805    LDA  $05B8
193  C1F4  8DDF05    STA  $05DF
194  C1F7  ADE005    LDA  $05E0
195  C1FA  8D0706    STA  $0607
196  C1FD  AD0806    LDA  $0608
197  C200  8D2F06    STA  $062F
198  C203  AD3006    LDA  $0630
199  C206  8D5706    STA  $0657
200  C209  AD5806    LDA  $0658
201  C20C  8D7F06    STA  $067F
202  C20F  AD8006    LDA  $0680
203  C212  8DA706    STA  $06A7
204  C215  ADA806    LDA  $06A8
205  C218  8DCF06    STA  $06CF
206  C21B  ADD006    LDA  $06D0
207  C21E  8DF706    STA  $06F7
208  C221  ADF806    LDA  $06F8
209  C224  8D1F07    STA  $071F
210  C227  AD2007    LDA  $0720
211  C22A  8D4707    STA  $0747
212  C22D  4C93C2    JMP  $C293
213  C230  ADEF04    LDA  $04EF
214  C233  8DC804    STA  $04C8
215  C236  AD1705    LDA  $0517
216  C239  8DF004    STA  $04F0
217  C23C  AD3F05    LDA  $053F
218  C23F  8D1805    STA  $0518
219  C242  AD6705    LDA  $0567
220  C245  8D4005    STA  $0540
221  C248  AD8F05    LDA  $058F
222  C24B  8D6805    STA  $0568
223  C24E  ADB705    LDA  $05B7
224  C251  8D9005    STA  $0590
225  C254  ADDF05    LDA  $05DF
226  C257  8DB805    STA  $05B8
227  C25A  AD0706    LDA  $0607
228  C25D  8DE005    STA  $05E0
229  C260  AD2F06    LDA  $062F
230  C263  8D0806    STA  $0608
231  C266  AD5706    LDA  $0657
232  C269  8D3006    STA  $0630
233  C26C  AD7F06    LDA  $067F
234  C26F  8D5806    STA  $0658
235  C272  ADA706    LDA  $06A7
236  C275  8D8006    STA  $0680
```

```
237  C278  ADCF06     LDA  $06CF
238  C27B  8DA806     STA  $06A8
239  C27E  ADF706     LDA  $06F7
240  C281  8DD006     STA  $06D0
241  C284  AD1F07     LDA  $071F
242  C287  8DF806     STA  $06F8
243  C28A  AD4707     LDA  $0747
244  C28D  8D2007     STA  $0720
245  C290  4C07C3     JMP  $C307
246  C293  AD93C3     LDA  $C393
247  C296  D001       BNE  $C299
248  C298  60         RTS
249  C299  AD00DC     LDA  $DC00
250  C29C  2904       AND  #$04
251  C29E  F00D       BEQ  $C2AD
252  C2A0  AD00DC     LDA  $DC00
253  C2A3  2908       AND  #$08
254  C2A5  F030       BEQ  $C2D7
255  C2A7  A901       LDA  #$01
256  C2A9  8D93C3     STA  $C393
257  C2AC  60         RTS
258  C2AD  AD91C3     LDA  $C391
259  C2B0  F018       BEQ  $C2CA
260  C2B2  4A         LSR  A
261  C2B3  D006       BNE  $C2BB
262  C2B5  8D91C3     STA  $C391
263  C2B8  4CA7C2     JMP  $C2A7
264  C2BB  8D92C3     STA  $C392
265  C2BE  8D90C3     STA  $C390
266  C2C1  CE90C3     DEC  $C390
267  C2C4  A900       LDA  #$00
268  C2C6  8D93C3     STA  $C393
269  C2C9  60         RTS
270  C2CA  A901       LDA  #$01
271  C2CC  8D8EC3     STA  $C38E
272  C2CF  A907       LDA  #$07
273  C2D1  8D8FC3     STA  $C38F
274  C2D4  4CA7C2     JMP  $C2A7
275  C2D7  AD91C3     LDA  $C391
276  C2DA  C904       CMP  #$04
277  C2DC  F0C9       BEQ  $C2A7
278  C2DE  C900       CMP  #$00
279  C2E0  F00C       BEQ  $C2EE
280  C2E2  0A         ASL  A
281  C2E3  8D92C3     STA  $C392
282  C2E6  8D90C3     STA  $C390
283  C2E9  CE90C3     DEC  $C390
284  C2EC  C900       CMP  #$00
285  C2EE  D011       BNE  $C301
286  C2F0  A901       LDA  #$01
287  C2F2  8D91C3     STA  $C391
288  C2F5  8D92C3     STA  $C392
289  C2F8  A900       LDA  #$00
290  C2FA  8D8FC3     STA  $C38F
291  C2FD  8D90C3     STA  $C390
292  C300  60         RTS
293  C301  A900       LDA  #$00
294  C303  8D93C3     STA  $C393
295  C306  60         RTS
296  C307  AD93C3     LDA  $C393
297  C30A  D001       BNE  $C30D
298  C30C  60         RTS
299  C30D  AD00DC     LDA  $DC00
300  C310  2908       AND  #$08
301  C312  F00A       BEQ  $C31E
302  C314  AD00DC     LDA  $DC00
303  C317  2904       AND  #$04
304  C319  F03E       BEQ  $C359
305  C31B  4CA7C2     JMP  $C2A7
306  C31E  AD91C3     LDA  $C391
307  C321  F029       BEQ  $C34C
308  C323  4A         LSR  A
309  C324  D009       BNE  $C32F
310  C326  8D91C3     STA  $C391
311  C329  A901       LDA  #$01
312  C32B  8D93C3     STA  $C393
313  C32E  60         RTS
314  C32F  8D92C3     STA  $C392
315  C332  C902       CMP  #$02
316. C334  D008       BNE  $C33E
317  C336  A906       LDA  #$06
318  C338  8D90C3     STA  $C390
319  C33B  4C46C3     JMP  $C346
320  C33E  8D92C3     STA  $C392
321  C341  A907       LDA  #$07
322  C343  8D90C3     STA  $C390
323  C346  A900       LDA  #$00
324  C348  8D93C3     STA  $C393
325  C34B  60         RTS
326  C34C  A900       LDA  #$00
327  C34E  8D8EC3     STA  $C38E
328  C351  A900       LDA  #$00
329  C353  8D8FC3     STA  $C38F
330  C356  4CA7C2     JMP  $C2A7
331  C359  AD91C3     LDA  $C391
332  C35C  C904       CMP  #$04
333  C35E  F02A       BEQ  $C38A
334  C360  C900       CMP  #$00
335  C362  F016       BEQ  $C37A
336  C364  0A         ASL  A
337  C365  8D92C3     STA  $C392
338  C368  C904       CMP  #$04
339  C36A  D006       BNE  $C372
340  C36C  8D90C3     STA  $C390
341  C36F  4C46C3     JMP  $C346
342  C372  A906       LDA  #$06
343  C374  8D90C3     STA  $C390
344  C377  4C46C3     JMP  $C346
345  C37A  A901       LDA  #$01
346  C37C  8D91C3     STA  $C391
347  C37F  8D92C3     STA  $C392
348  C382  A907       LDA  #$07
349  C384  8D8FC3     STA  $C38F
350  C387  8D90C3     STA  $C390
351  C38A  4CA7C2     JMP  $C2A7
352  C38D  C7         BYT  $C7
353  C38E  00         BRK
354  C38F  00         BRK
355  C390  00         BRK
356  C391  0101       ORA  ($01,X)
357  C393  00         BRK
READY.
```

VIZASTAR 64

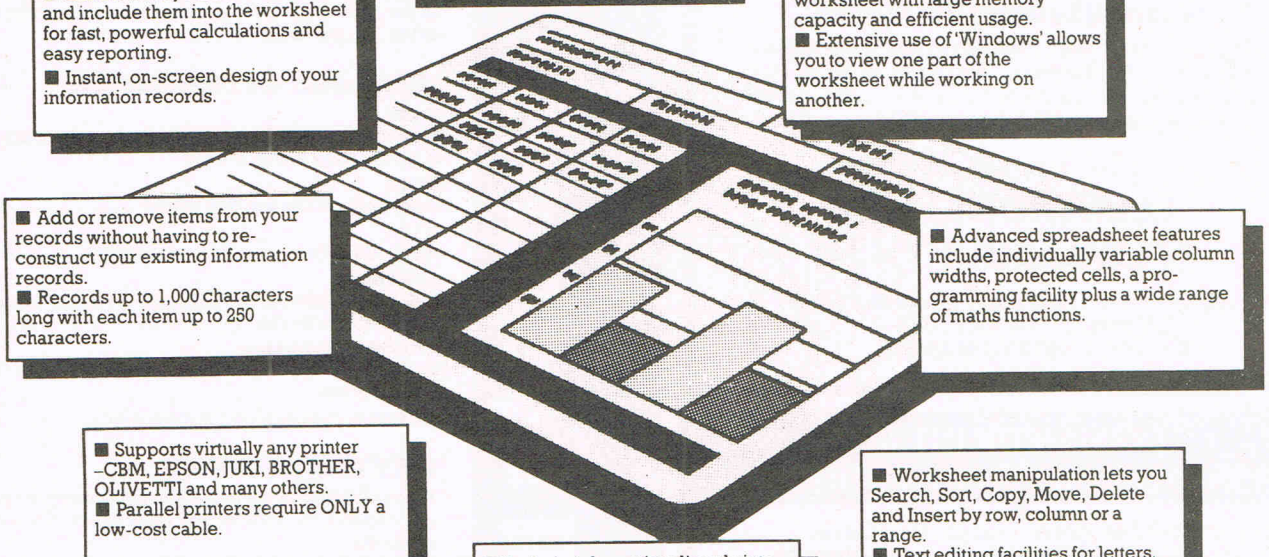
THE INFORMATION PROCESSOR

■ Spreadsheet ■ Database ■ Graphics

■ One word menu lines for easy selection of facilities.
■ The high resolution grid pattern frames the worksheet giving an easy-to read display.

■ Extract from your information files and include them into the worksheet for fast, powerful calculations and easy reporting.
■ Instant, on-screen design of your information records.

■ A 1000 Row by 64 Column wide worksheet with large memory capacity and efficient usage.
■ Extensive use of 'Windows' allows you to view one part of the worksheet while working on another.



■ Add or remove items from your records without having to re-construct your existing information records.
■ Records up to 1,000 characters long with each item up to 250 characters.

■ Advanced spreadsheet features include individually variable column widths, protected cells, a pro-gramming facility plus a wide range of maths functions.

■ Supports virtually any printer –CBM, EPSON, JUKI, BROTHER, OLIVETTI and many others.
■ Parallel printers require ONLY a low-cost cable.

■ Worksheet manipulation lets you Search, Sort, Copy, Move, Delete and Insert by row, column or a range.
■ Text editing facilities for letters, invoices, report headings etc.

■ Include information directly into the Worksheet from VizaWrite and almost any other system.
■ Simultaneous display of work-sheet and line or bar graphs.

VizaStar integrates three important electronic aids to your business or home office.
A fast and easy-to-use package – VizaStar is a comprehensive information processor that includes an electronic worksheet, information filing system and simultaneous on-screen graphics.

VizaStar has been designed to incorporate the very latest in user-friendliness – so now you can handle your all-important information in many new ways and in a quick and effective manner.

The information filing capabilities of VizaStar enable you to store your information onto disk in an ordered and instantly retrievable form. This means that you can quickly pick out individual or entire groups of related information to create lists, statements, labels or reports.

VizaStar is the ONLY program of its kind on the Commodore 64. Completely consistent with the VizaWrite word processor, VizaStar provides a totally comprehensive office system.

VizaStar costs just £99.95 (incl. VAT) from your computer dealer and selected stores. Please write for more details and the name and address of your nearest dealer.

AVAILABLE NOW- VIZASTAR 64

£99.95 (inc VAT)

VIZA SOFTWARE

VIZA SOFTWARE, 9 MANSION ROW, BROMPTON, GILLINGHAM, KENT ME7 5SE
TEL: MEDWAY (0634) 813780
Dealer enquiries welcome.

Low price high quality software for Commodore 32K Pet & 64

Integrated accounting systems, Purchase ledger, Sales ledger, Invoice printing, Statements, Trade and early settlement discounts, Payroll with SSP and seven overtime/piece work rates, Stock control, Cash Book, Nominal ledger, will complete audit trail etc etc.

Purchase & Sales Control £80.00 + VAT

Runs both purchase and sales ledgers with optional circulation of VAT from the gross or nett amount, analysis by accounting period, "Due for payment report," totals for NETT VAT and gross. Print invoices on your own stationery laid out according to your own instructions. Suitable for small businesses only. Any 32K Pet or 64.

Stock Control £60.00 + VAT
Nominal Ledger £60.00 + VAT

Produces trial balance and up to twenty reports in addition to Profit and Loss and Balance sheet. This programme can be used on its own and it can read files set up by our Purchase and Sales control.

Write or phone for further details

ELECTRONIC AIDS (TEWKESBURY) LTD

Mythe Crest, The Mythe, Tewkesbury
Gloucestershire GL20 6EB
Tel: 0386 831020/0684 294003

COMMODORE 64 ASSEMBLER/DISASSEMBLER

Fast and powerful assembler. Lets you program in 6510/6502 mnemonics with **LABELS** and **VARIABLES.**

Six pseudo ops	.ASCII	.BASE	.BIT
	.BYTE	.END	.WORD
Six control commands	.SAVE	.LOAD	.DISPLAY
(executed by function keys)	.STOP	.ERASE	.CONVERT

Disassembler will disassemble any part of memory

TAPE plus MANUAL £9.99

VIC 20 ASSEMBLER

LABELS, VARIABLES, pseudo ops, control commands (min 16k) **TAPE and MANUAL £9.99**

DATABASE 64

Menu driven Database system for CMB 64. Max 30000 records, 255 bytes/records, 15 fields/record. **CREATE** database. **ADD, INSERT, DELETE, AMEND** records. **SEARCH** for record on any field, including wild card matching (?,*). **SCROLL** through database. **LOAD/SAVE** database to tape or disk. On line help screens.

DATABASE TAPE and MANUAL £7.99

64 GAMES. 3D noughts and crosses, othello, hangman, big letters, sprite editor **£3.99**

SAE for details Overseas add £4.00

DYNAMITE SOFTWARE

BCM 8713, LONDON, WC1N 3XX

from small systems.....

IBM 80 CARD

Expand the capability of your IBM PC with our CP/M 80 second processor card.

- True CP/M 80 not an emulation.
- Built in Corvus hard disk interface with multi user capability.
- Drive "M" utility makes RAM behave like a super fast disk drive.
- Files generated under CP/M 80 and 86 are identical in structure and are interchangeable between operating systems.
- File transfer utility between PC DOS and CP/M 6 MHz version £265

PET CP/M £495

The **SOFTBOX** allows the PET to run under the world's most popular operating system CP/M 80.

- Built in RS232 and CORVUS hard disk interfaces.
- Operates with any 2000, 3000, 4000, 8000 system.
- Z80 cpu running at 4 MHz with no wait states.
- 64K RAM, full documentation, free copy of CP/M 80.
- Will run any standard CP/M 80 software.

IEEE-488 INTERFACES

B300
Bidirectional IEEE-488-RS232 interface 40 char input buffer, full handshake, etc etc £186

C100
Unidirectional IEEE-488 to RS232 ..... £120

A100
IEEE-488 to Centronics/Anadex Parallel £106

GPI 1000
Z80 based bidirectional IEEE-488 to RS232 with a choice of input buffering up to 59K £475

TV/VIDEO interface
Reproduces the content of the PET screen on a TV or video monitor £46

RS232 to 20 mA current loop adaptor £25

PET HARD DISKS £495

The **HARDBOX** is the intelligent controller that lets you add a CORVUS hard disk drive to your Commodore computer.

- PET DOS 1 and 2 compatibility.
- Multi-user capability with file and record locking, passwords.
- 16 Mb max file size and up to 65535 records per relative file.
- 2000 files on 6 Mb drive.
- Access to 6, 10, 20 Mb drives with video tape backup.

SIRIUS/VICTOR 9000 CARD

This card now being manufactured under licence by Sirius Systems Technology allows the Sirius/Victor to run any standard CP/M 80 program without modification.

- Specification as per the IBM 80 CARD 6 MHz version £199

DEVELOPMENT TOOLS

8048 family in-circuit emulator £1100
8748 Programming card £130
Cross Assemblers for most popular microprocessors £145
P+T 488 S100 to IEEE-488 controller card £355

Small Systems also carry a comprehensive range of microcomputer software. For detailed information on this or any of the above products ring 01-328 7145.

DEALER ENQUIRIES WELCOME

small systems engineering limited

2-4 Canfield Place, London, NW6 3BT Tel: 328 7145 Telex: 264538

Printer

Hewlett-Packard's model 2934A is a newsletter quality printer. It costs £2,327 and, with the IEEE 488 interface option, it is compatible with the Commodore 8000 series.

Capable of three printing speeds; 40, 60 and 200 cps, it can produce dot addressable graphics. Nine type styles are available with plug-in cartridges and print enhancements include justification, centring and proportional spacing. The normal line length is 136 characters, but this can vary from 68 to 223. Underlining and three character pitches can be used for emphasis. Data receive rates are selectable up to 19,200 buad.

Contact: Rapid Recall Ltd, Rapid House, Denmark Street, High Wycombe. Tel: 0494 26271.

Adcomp

Adcomp (UK), a subsidiary of Adcomp GmbH of Munich, are now responsible for the distribution of Adcomp products in the UK.

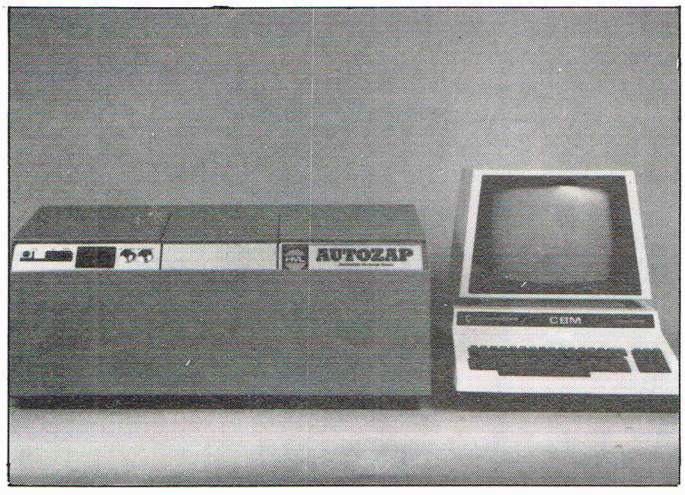
Hard disk systems for Commodore computers and a colour printer/plotter are their main products. The AP18 hard disk was originally distributed by IMI Computing Ltd.

Contact: Adcomp (UK) Ltd, 56 Long Street, Dursley, Glos. Tel: 0453 46496.

Expand

To complement their 160K expansion board for the 8000 series, SM Software will be introducing and negotiating new 160K software. SM-Text 160 with up to 1100 lines free for text plus some other famous name programs will be available in the near future.

Contact: SM Software, Raglan House, 56 Long Street, Dursley, Glos. Tel: 0453 46065.



Test ESD sensitivity

Anyone anxious to test ESD sensitivity in their semi conductors will be interested in the Autozap 200. It is software controlled and runs on the 8032.

The latest model range is the series 326 which can be used as complete DC supplies for medium precision applications or as pre-regulators in high precision DC supplies for transmitters, high power lasers and X-ray systems for example. Safety features such as an external interlock circuit for customers, door and panel interlocks and AC supply interlocks are incorporated. They cost about £13,500 each.

Contact: Hartley Measurements Ltd, Unit 4, Bear Court, Daneshill East, Basingstoke, Hants RG24 0QT. Tel: 0256 56695.

Database

Saxon Computing have released Figaro 64, a numeric database system for the 64, on disk and priced at £86.25.

Data can be maintained and displayed in a wide variety of graphic styles including bar charts, line charts and pie charts. Text and hi-res graphics can be mixed on the screen. Features include built in statistics, calculating routines, seasonal forecasting and data security is provided by back up routines.

Saxon claim that it will be suitable for sales and marketing applications as well as more specialised fields such as biology and meteorology.

Contact: Saxon Computing, 41 Brighton Road, Godalming, Surrey GU7 1NT. Tel: 04868 4599.

On offer

Impex Designs are offering Word Manager, Plan Manager and a mail merge program for the 64 and VIC 20, free with the Video Pak 80 – an 80 column upgrade costing £145.95.

Word Manager is a word processing package and Plan Manager, a spreadsheet program can handle up to 63 columns, 245 rows and calculates to 11 digits of precision. It will perform all the basic mathematical functions and with the print option the full spreadsheet, restricted cells or just the spreadsheet model can be printed. Full use is made of the Commodore function keys in both programs.

Contact: Impex Software, Metro House, Second Way, Wembley, Middx. HA9 0TY. Tel: 01 900 0999.

Solve it

Davidson Richards have set up a service called the Communications Solution. Anyone with problems instituting a viable communications system using their equipment can get advice on what products and interfaces will be needed.

Each client is treated individually and will be advised on a package to suit them. A typical pack includes modems, software, interfaces cables. The Commodore computers can be connected to mainframes as well as mini computers.

Contact: Davidson Richards Ltd, Systems House, 29 Charnwood House, Derby DE1 2GU. Tel: 0332 383231.

Mr Chip range

Mr Chip have now moved into the business software market with the launch of an accountancy package aimed at small to medium-sized businesses. Designed for use with the 64, the seven programs making up the package can be purchased individually or as a package. Available on cassette or disk, the programs cost £25 each. For those interested in purchasing the complete package, Mr Chip are offering a saving of £35 bringing the price of the package down to £115.

The programs making up Mr Chip's accountancy package are the Accounts Package, Purchase Ledger, Sales Ledger, Sales Journal, Purchase Analysis, Sales Analysis, and Final Accounts.

Contact: Mr Chip Software, 9 Caroline Road, Llandudno, Gwynedd, North Wales. Tel: 0492 79026.

CHROMASONIC PERSONAL COMPUTERS

64 PROFESSIONAL SYSTEM

COMMODORE 64 COMPUTER
1541 DISK DRIVE
DAISYWHEEL PRINTER
PHILLIPS GREEN SCREEN MONITOR
ALL CONNECTING CABLES
EASYSCRIPT – WORD PROCESSING PROGRAM
SUPERBASE – DATABASE PROGRAM
(Easyscript & Superbase linked together)
BOX OF PAPER & BOX OF DISKETTES

OUR PRICE £950.00

P&P £20

EXEC. 64 PORTABLE COMPUTER

INCLUDING FREE SOFTWARE
EASYSCRIPT + GAMES +
EASYSTOCK & EASYFINANCE
SPECIAL OFFER PRICE £795.00
P&P £20

commodore 64

Commodore 64	£195.95
1541 disk drive	£195.95
MPS-801 dot matrix printer	£195.95
1526 dot matrix printer	£295.95
1520 printer/plotter	£149.95
1701 colour monitor	£195.95
cassette deck	£39.10
Quickshot joystick II	£10.50
Intro to Basic (part 1)	£14.50
Programmers reference guide	£9.95
Speech Synthesiser	£49.50
Microguide	£5.95
b Superbase 64	£99.95
c Petspeed	£50.00
c Calc Result SX64	£99.00
b Simons Basic by Commodore	£50.00
b Wordcraft 40 on Cartridge	£89.95
b Mon 64	£39.95
b Sales Ledger by Anagram	£75.00
b Purchase Ledger by Anagram	£75.00
b Hobbit 64	£14.95
b Bridge 64	£29.95
b Omnicalc	£50.35
b Multiplan	£69.95
b Zork I, II or II	£28.75
b Deadline	£35.95
b Suspended	£35.95
b Flight Simulator II	£35.95
b Robbers of the Lost Tomb	£17.95

commodore 64 packs

64 STARTER PACK
Commodore 64
cassette deck
Intro to Basic (part 1)
Quickshot joystick
Game of our choice
Only £255.00
P&P £9

64 BEGINNERS PACK
Commodore 64
cassette deck
Only £229.00
P&P £8

64 BUSINESS PACK
Commodore 64
1541 disk drive
MPS-801 printer
Box of disks + box of paper
Only £595.00
P&P £16

64 HOME/BUSINESS PACK
Commodore 64
1541 disk drive
(BOX OF 10 DISKS)
Only £395.00
P&P £12

DIALOG HOME/BUSINESS PROGRAMS

DFM Database is a powerful and versatile database system suitable for name and address files, stock control debtors/creditors £24.00

b DFM Database/Mail Labels	£30.00
b DFM Mail Labels	£10.00
b Journal (financial diary)	£14.95
Datalog (filing system suitable for notebook applications)	£14.95
b Catalog (dedicated filing systems suitable for records & photos etc.)	£14.95
b Invostat (invoice & statement generator)	£30.00
b Transact (book-keeping)	£30.00
b Home accounts	£14.95

BOOKS

c Programmers Reference Guide	£9.95
c The Working Commodore 64	£5.95
c Commodore 64 Computing	£5.95
c Commodore 64 Games Book	£6.95
c Using The 64	£9.95
c Commodore 64 Exposed	£6.95
c Mastering the Commodore 64	£7.95
c Software 64	£5.95
c Easy Programming for 64	£6.95
c Commodore 64 Machine Code Master	£6.95
c Commodore 64 Adventures	£5.95
c Commodore 64 – Getting the most from it (Tim Onosko)	£7.95
c Commodore 64 User's Guide	£11.00
c Computer Playground Commodore 64/Vic 20	£12.70

PRINTERS Price code F

RX80 (Tractor only) Dot matrix	£259.95
RX80FT (Friction & Tractor) Dot matrix	£299.95
FX80 (Friction & pin feed) Dot matrix	£399.95
FX100 (Friction & pin feed) Dot matrix	£545.95
Daisystep 2000 (Daisy Wheel)	£329.95
Juki Daisy Wheel	£415.95
BBC to Centronics cable	£11.95
64/VIC to Centronics cable	£19.95
Software for above	£7.95

MONITORS

(Price code (F) except Turntable (D)

Commodore 1701 Colour and Sound	£195.95
Microvitec 14" Colour	£247.25
BMC 12" Green screen	£113.85
Turntable stand for BMC	£19.55
Phillips Green screen	£79.00
Fidelity RGB, RGBY, Composite and Sound	£228.85

MEDIA SUPPLIES

Diskettes by Verbatim (supplied in boxes of 10)

S.S./D.D. 40Tr	£17.95	D.S./D.D. 80Tr	£32.75
S.S./D.D. 80Tr	£24.75	Plastic library case	£1.35

C15 cassettes 50p each or 10 for £4.50
(Disks & Cassettes. Postage Code A)

Computer paper (supplied in boxes of 2000 sheets)

11×8	£13.80	11×9½	£12.65
11×15⅝	£15.52		

Sorry p&p paper £3.00 a box
(Postage Code A)

Dust Covers:

BBC	£2.95	64/VIC 20	£2.95
C2N	£1.95		
Single disk	£2.95	1541	£1.95
RX/FX80	£3.95		
Dual disk	£3.95	1525/GP100	£2.95
FX100	£4.95		
		1526	£3.95
Dragon	£2.95		

Printer Ribbon

JUKI	£1.85	Daisy Step	£5.52
EPSON	£5.00	FX100	£9.95
1515/25	£6.20		

Postage Codes:
a = £0.65
b = £1.00
c = £2.00
d = £3.00
e = £8.00 (Securicor)
f = £14.00 (Securicor)

We guarantee all our products for 1 year, except 64 and Vic which is 2 years. Payment may be made by Access, Barclaycard, Bankers draft, Building Society cheque or cash. Sorry, cheques need 4 days clearance.

THE BEST WAY TO BUY A COMPUTER

CHROMASONIC IT.

48 Junction Road, Archway, London N19 5RD

TEL: 01-263 9493 and 9495

NOW ALSO AT 238 The Broadway, Muswell Hill, London N10

TEL: 01-883 3705

64 Work-horses

If you're a businessman who's picked up a copy of this magazine to find some guidance about which computer to buy then read this.

Perhaps you've been pondering the advantages of having a computer which would enable you to find out quickly what would happen to your sales if you put up prices by 10 per cent. Perhaps you've been worried about the possible effects of an increase in your labour costs.

You will undoubtedly have had advice about buying computer systems that cost between £1,000 and £5,000. Pause for a while and consider the possibilities of the Commodore 64. OK cynics, you can stop sniggering now. You obviously haven't seen Microsoft's Multiplan.

It's the sort of product that pays an incredible compliment to the 64. As is obvious from the references and the illustrations in the manual, Multiplan was previously written for the Apple and it's a surprisingly big, serious business program.

The point is, of course, that to a huge degree – and especially in business – the computer is only as good as its software. Microsoft and others who have provided good quality business software for the machine have been gradually upgrading the 64 so that it becomes a genuinely inexpensive but viable alternative to bigger machines costing much more. There may be those who believe that Commodore don't really deserve it. But they did produce the 64 in the first place!

It seems to be a huge program, marvellously flexible. This is undoubtedly due to the program's use of the disk drive which seems to be constantly accessed. In spite of the notorious slow speed of the 1541 the program did not seem to be slowed down at all. It's difficult to see how, in most of the tasks, anyone could wish for anything quicker.

It's been made as simple as possible but anything this big is certain to take a while to get used to and I would imagine that one would need to be using it for months to become entirely familiar with it and explore it fully.

£89.91 buys you what is probably the best spreadsheet software for the 64 on the market – you would certainly have problems finding anything similar at a similar price. Presumably if you've read this far you will know what a spreadsheet is but for new business people a spreadsheet is simply a sheet of paper with rows and columns. Accountants will know the format well. They're forever working out figures on huge sheets of squared paper which are the equivalent of Multiplan's worksheet. Where any electronic worksheet wins out over the manual method is that the electronic worksheet has an enormously powerful calculator built in – change one number on the sheet and all the other figures which may be affected will change before your very eyes! Change the figure in the costs column, for instance, and you'll see how your profits will be affected. Such a tool has obvious uses in forecasting and planning.

Multiplan is described as a worksheet but spreadsheet might be a more familiar word for many business users. Imagine a huge sheet of paper 255 rows deep and 64 columns wide. That's the total extent of one Multiplan worksheet. But the screen of your 64 only acts as a window on to part of that at a time – a part that's four columns wide and 18 rows deep. On the original Apple version the window is seven columns wide and 20 rows deep.

Why is Multiplan different from other spreadsheets? It has tremendous flexibility. You can, for instance, connect and disconnect worksheets. You can even view parts of different worksheets on the same screen.

The size of the 64's memory is obviously one of the main reasons why Microsoft felt able to adapt Multiplan for the 64. But Multiplan may still surprise you with its size. It's fine having a marvellously sophisticated program but what if it takes up too much of the computer's memory? Such a business program would leave you no room for work. One of the ways that Microsoft get over this is by accessing the disk – a request for Help, for instance, sets the drive whirring busily. In fact, Multiplan takes up 437 blocks on the disk (leaving 227 free for your own files).

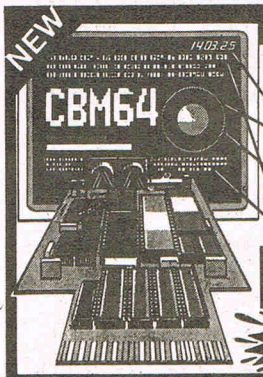
The big test of any software is, of course: Does it work? The first time I used it something went very wrong. A row of !!!!!!!! appeared instead of numbers after I had attempted to give values to all numbers. But I'm quite prepared to admit that it was all my fault since Multiplan worked without a hitch on all other occasions.

Multiplan may seem daunting at first but is very user friendly once you know your way round it. An enormous amount of work has been put into making it as simple as possible. It's not quite idiot proof but one of its great advantages is that you don't necessarily have to be familiar with computers to use it. The documentation is a tremendous help – it is some of the best that we've seen. There are 187 pages of tutorial and 238 pages of reference. It explains clearly and simply what is happening and what you need to do to make something else happen. The 'HELP' file of Multiplan is available all the time and will give you the appropriate advice for the part of the program in which you're stuck so there's no need to go through a whole file before finding the right place.

One of the most impressive aspects of Multiplan is the obvious effort that Microsoft have made to produce something of quality.

Even the perspex case it comes in can be converted into an 'EaselBox' – with the top folded down it's a bookstand to support the manual or the top can be removed to form a separate bookstand while the box can be used for storage. The EaselBox idea shows what thought has been put into the product.

NEW



SPECIAL OFFER for CBM 64

80-COLUMN/GRAFICCARD

- Digital clock
- Mixpossibility of 80-column screen with Hires CBM64-screen (also in colour)
- Grafic pictures; can be switched to background
- Upper line can be locked (for comments etc.)
- Adjustable line spacing for greater clarity on text screens

FREE ADDED! : Sophisticated Wordprocessor with extended manual

£ 59.95

★ Warning: Beware of (inferior) imitations of ZERO-products!

...Surprising Bargains for VIC 20 and CBM 64

EXPANSION UNIT with 2 slots £ 5.95

EPROM CARD two 2k/4 k EPROM sockets. Addresses are changeable. £ 5.95

● 40/80 COLUMN CARD
Turn your VIC 20 into a professional computer.
40 or 80 columns instead of 22, very sharp and stable picture, Try it out without obligation! £ 55.95

● EPROM PROGRAMMER
for 2716, 2732, 2764, 27128, 2532 EPROMS
Can be easily connected to your computer £ 31
Control software in EPROM £ 6.50

● 64 k RAM + 2 k EPROM
With software for RAM-files. Easily connected. £ 55.95

● EPROM-ERASER
erases 4 EPROMS simultaneously £ 26.50

● EXPANSION UNIT
With 5 slots, fully buffered, switches for deselecting slots, and on-board power supply

VIC 20 £ 29.95 ✳ CBM64 £ 36.95

● MACH 3 PRINTER BUFFER

	16 k	32 k	48 k
par. input - par. output	£ 86	£ 98	£ 109
serial input - par. output	£ 94	£ 109	£ 123

for all our products: Dealer inquiries invited.

zero ELECTRONICS

149 KINGSTREET + GT. YARMOUTH NR30 2PA + TEL:(0493) - 2023
(NASH HOUSE)

- All prices exclude VAT. Shipping costs £ 1.50
- Supplier to schools, universities and government departments.
- We have good documentation of all our products, free of charge.
- All equipment can be tried out without obligation; if returned undamaged within 10 days, you only pay postage and packing costs.

Turn your 64 into a real **number cruncher** with the

64-STATSPOWER

professional statistics package.

Ideal for forecasting, business, schools, research workers, hobbyists, marketing, administration, and scientists.

Comprehensive manual with many worked examples guides the user (novice or professional) through the use of the various statistical techniques. Extremely user-friendly programs plus easy-to-follow manual virtually form a self-contained course in statistics!

CONTENTS:

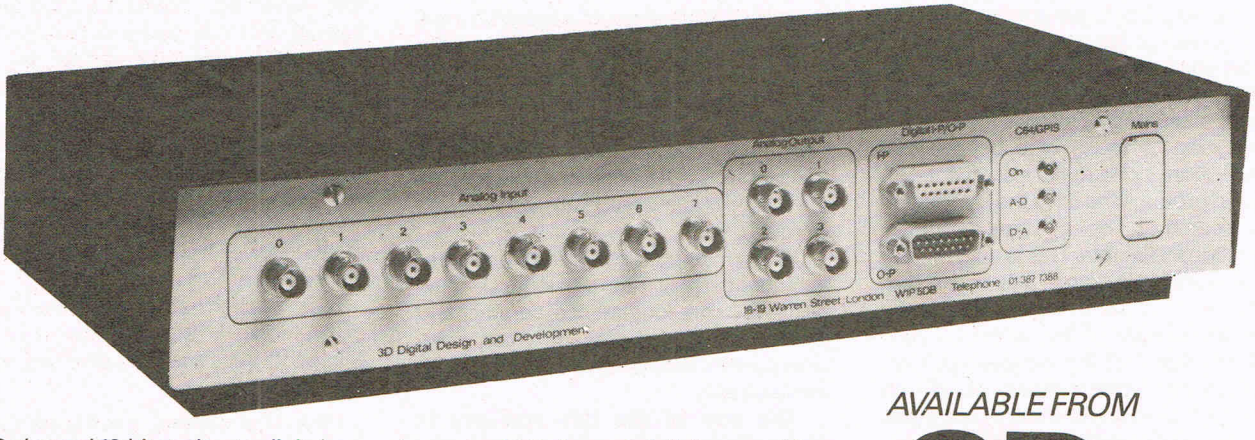
Summary statistics (Means – arithmetic, geometric, harmonic, quadratic), Median, Quartiles, Semi-interquartile range, Variance, Standard Deviations, Skewness and Kurtosis measures. Deseasonalisation (weekly, monthly, quarterly), deseasonalised forecasts. Multiple Regression (options include: dummy variables, user-specified data transformations), R squared, F-statistics, Durbin-Watson, etc. Linear and constant growth-rate trend estimation. T-Tests (including pair-wise t-tests). Analysis of Variance One-way and two-way analysis.

Fantastic value at only £14.95 (Sterling) including P&P.
Available on cassette or disc (£2 extra). Cheques & P.O.'s to

Scientific Software

BALGLASS HOUSE, 39 MAIN STREET,
HOWTH, CO. DUBLIN, EIRE.
Phone 326703. Dealer and distributor enquiries welcome.

GENERAL PURPOSE INTERFACE SYSTEM
ANALOG & DIGITAL INPUT & OUTPUT
FOR CBM 64, APPLE II/IIE, OR BBC MICRO



- *8-channel 12-bit analog-to-digital convertor – dual convertors, 13-bit integrating & fast (25 µs)*
- *8-channel digital power driver – can switch up to 400mA at 50v.*
- *4-channel 12-bit digital-to-analog convertor – output ranges switch selectable ± 2.5v. to ± 10v.*
- *8-channel digital input – TTL or contact-closure sensing*
- *Manual, demo diskette, and cables included*

DEALER INQUIRIES INVITED

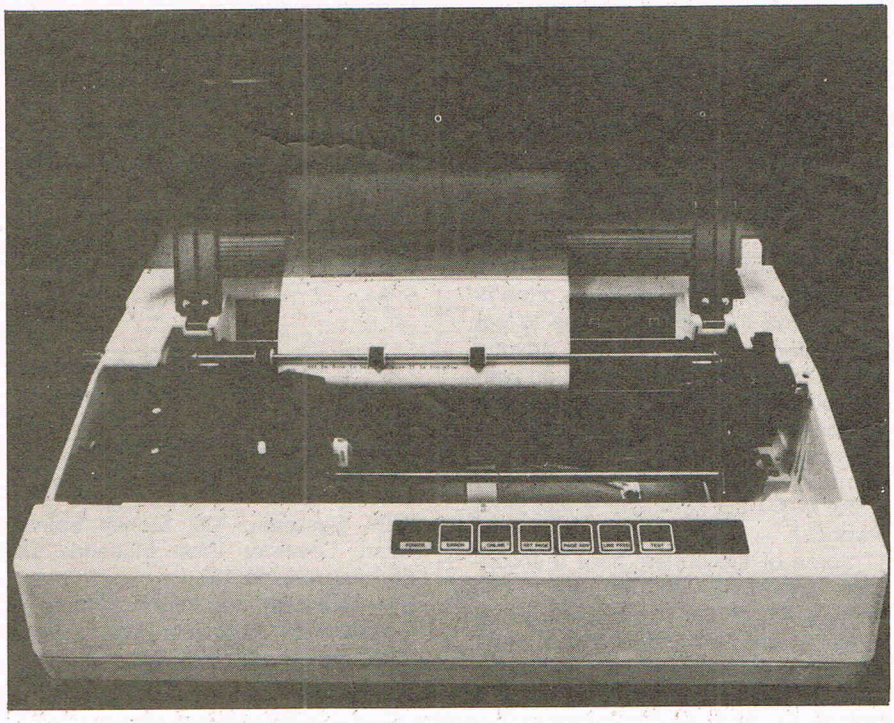
AVAILABLE FROM

3D

Digital Design and Development Ltd.
18/19 Warren Street, London W1P 5DB
Tel: 01-387 7388 Telex: 8953742

Cheap but not nasty

This month we look at Keyaki's daisy wheel printer and find that despite its low cost it retains all necessary features



The Daisy Step 2000 claims to be a fully-featured low cost daisy wheel printer and we could find nothing to contradict that. The only drawback with this version is that an interface will be needed and the additional cost will have to be considered if you are thinking about budgets. It produces very good quality print outs and although it isn't one of the faster daisy wheel printers on the market, 18 cps isn't slow. It is also quiet which is an advantage in a work environment.

The push buttons on the panel at the front of the printer are touch sensitive and the four indicators turn red to indicate if the power is on, if there is an error, if the printer is ready to accept information and also when the test routine is being run. The other three controls clear the line counter, set the top of the form (TOF), feed the next piece of paper to the TOF and advance the paper line by line. The controls needed to select the distance between each line, the length of page, the character size and the strength or print are located in the DIP switch at the back of the printer.

With this printer many of the controls will only work if you are using software that recognises them. For instance the printer can cope with the following features but needs to be programmed: subscripts and superscripts; horizontal and vertical tabs and proportional spacing.

The printer is accompanied by manual, print wheel, ribbon cartridge and a power cable. It proved exceptionally easy to fit the daisy wheel and ribbon cartridge – a bonus if you are used to complicated ribbon loading mechanisms. It can print up to four copies and there is an optical tractor feed mechanism or single sheet feeder available for the printer.

The Daisy Step 2000 is worth considering if you or your business needs good quality print for letters and other word processing applications. It is also comparatively easy to use.

N.B. IBEK Systems are producing a 64 version of this printer and it is due for release at the end of April for about £319. There are a few features especially developed for the 64, for example Commodores normal programmable listing codes will be translated by the printer as readable English codes ([CR] for cursor right)

Contact: IBEK Systems, 437 Stoney Stanton Road, Coventry, West Midlands CV6 5EA. Tel: 0203 661162.

Product Name:
Daisy Step 2000

Product:
Daisy wheel printer

Supplier:
Keyaki Ltd, Enterprise House, 42-44 Terrace Road, Walton-on-Thames KT12 2SD Tel: 0932 242777

Specifications:
Speed: 16 cps

Uses Qume ribbons and daisy wheels
Bidirectonal logic seeking printing

12, 14 and 18 cpi
120, 144 and 180 cpl
13 inch maximum paper width

Software controlled proportional spacing
4 levels of impression control

Copy capacity: original and 4 copies
Friction platen paper feed

Interface options:
8-bit parallel Centronics
RS 232 C
12-bit parallel

Applications:
Word processing

Documentation:
Detailed manual written in English, German, French and Spanish

Price:
£289 = VAT

Buffer them up

In this month's product survey we look at a selection of printer buffers which enable you to continue using your computer while printing out

Anyone with a printer will understand the frustration of standing around staring at the screen while the printer is busy producing hard copy. The computer is effectively redundant while the printer is in use – not such a problem for the home user perhaps, but a real headache for many businesses.

This is where the printer buffer comes in. All the data waiting to be printed is stored in the buffer's RAM in seconds, freeing the computer and other equipment for other tasks. The buffer then feeds the data to the printer so it can print at its own pace.

In the old days people who wanted a fast printer chose dot matrix, but in doing so often sacrificed the letter quality of the slower daisy wheel. The Commodore 1361 dot matrix operates at 150 cps (characters per second) whereas the daisy wheel Commodore 6400 runs at 40 cps. With a printer buffer installed between the printer and any of the Commodore computers, the printer's speed is largely irrelevant.

Printer Buffers are available in two forms: standalone and on a printed circuit board which slots into the back of the printer. Most of the board buffers are designed for the Epson printers. Not all printers are directly compatible with Commodore and a lot of them have Parallel Centronics or RS 232 C interfaces, so if you are thinking of investing, check that the printer buffer has the appropriate specifications. For instance if you have a Pet and a parallel printer you will need an IEEE to Parallel buffer.

Some printers have a buffer of up to 16K built in, but there are some disadvantages with these. Pressing the button on the printer has no effect until the buffer is empty, so if the paper jams, the information still has to be printed out and the text re-run to get a perfect copy. Printer interfaces often have a buffer function attached to them, whereas the printer buffer has a small interfacing capability.

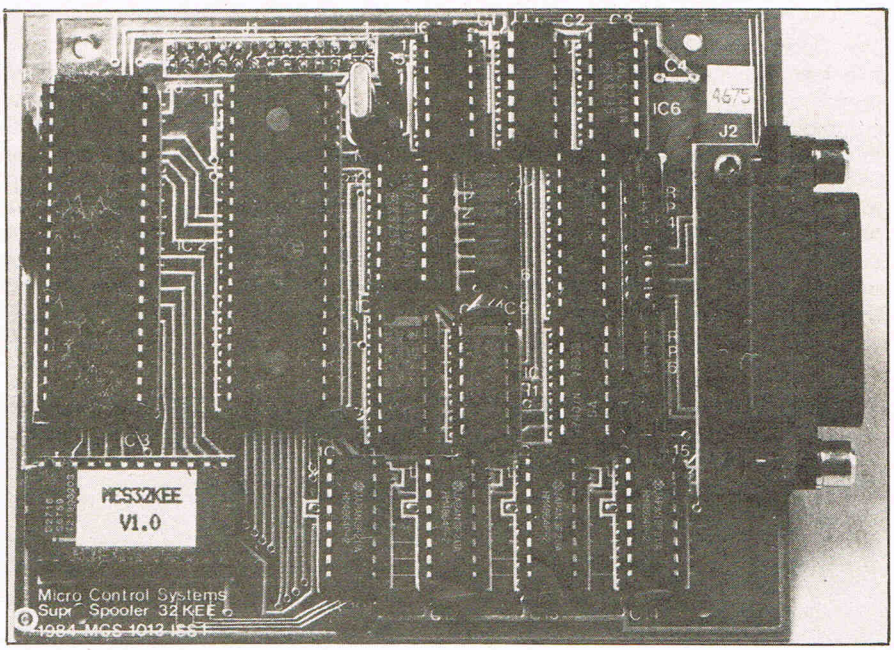
The size of the buffer's memory varies – the larger the memory the more text can be stored before being printed out. A 2K buffer will only store 2,000 characters (400 words if you take the average word length to be five characters long) whereas a 32K buffer can hold up to 32,000 characters (6,400 words). Buffers can usually be expanded by attaching additional memory.

In most business situations, time is money and it is advantageous to get things done quickly. However, anyone with a printer will prefer to get on with the job right away rather than hang around wasting time. Printing out 32,000 characters on a 160 cps printer would normally take about 17 minutes, but with a 32K buffer, the computer is free in 64 seconds!

Some of the buffers have a secondary addressing function and this enables the printer to deal with programs requiring more than 256 different characters on the print out. Most of the ready made business software will not need to use it, but Commodore's own software, educational and scientific software and also programs that people have written themselves will benefit from this facility.

Some of the buffers in the survey will need interfaces as they are not compatible with Commodore machines without one.

A-Line: 1 Church Farm Lane, Willoughby Waterleys, Leicestershire LE8 3UD. Tel: 053 758 48.
Duplex Communications: 52 High Street, Stock, Essex CM4 9BW. Tel: 0277 841011.
IBEK Systems: 437 Stoney Stanton Road, Coventry, West Midlands CV6 5EA. Tel: 0203 661162.
Interface Systems: Interface House, 17 Eversley Road, Bexhill-on-Sea, E. Sussex TN40 1HA. Tel: 0424 225683.

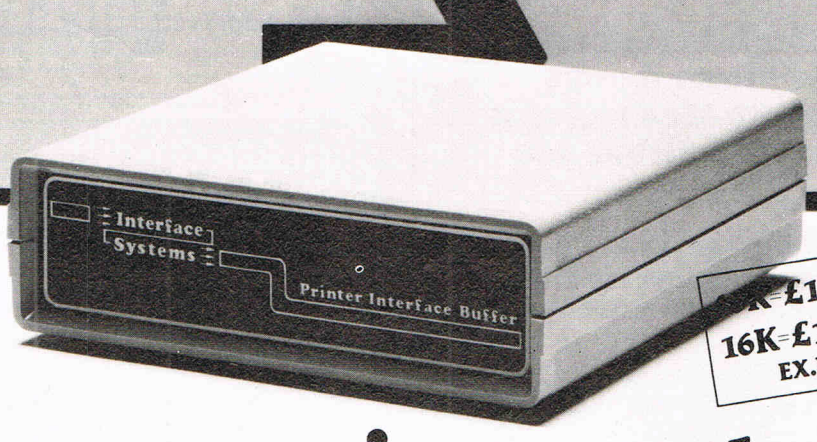


A-Line's Super Spooler

Now available on Commodore IEEE.

NO WAITING

Mon-Fri 9-am 5-30pm



16K=£158·00
16K=£125·56
EX.VAT

Keep your micro motoring with a printer buffer

When you've invested some serious money in a micro system, why keep your system waiting while you print out your hard copy?

If you think about it, you must spend 1-2 hours every working day just waiting around – unless you invest in a printer buffer from Interface Systems.

Whatever micro you're using, our compact buffers simply plug into your system. So you can dump pages of text straight into the buffer, leaving your system free to carry on working for you – within seconds.

Every Interface System printer buffer comes with a full 90 day warranty. Yet they're still better value, bit for bit, than any other comparable buffer on the market.

We've made it simpler to get your hands on our buffer too – and our dealer network is still growing. Simply phone us direct for your nearest supplier, and start saving system time (and money) today.

Interface Systems

Interface House, 17 Eversley Road, Bexhill-on-Sea, Sussex TN40 1HA. Tel: 0424 225 683

Norman House, Heritage Gate, Derby DE1 1DD. Tel: 0332 364303.

Suitable for: Commodore · IBM · Digital Equipment Corp · Apple · Epson · Ricoh Diablo · Anadex · ACT Sirius · TeleVideo · Torch · Superbrain · N.E.C. · Sharp Corona · Morrow Designs · Osborne · Sage · Olivetti · Triumph Adler · Tandy *and many more*

Isn't it time you stopped running your computer at printer speed?

In ten seconds, your computer can output enough print data to keep your printer busy for five minutes, or longer.

With some applications, this simple fact can mean that the computer spends 90% of its working day waiting for the printer, instead of computing. But the solution is cheap, effective, and painless — and its here today.

Concurrent printing saves time and money.

Plug a print buffer into your micro system, and profit from the one really useful feature of concurrent processing: computing while you print.

Next time you are locked out of your computer by invoice printing, graphics dumping, or whatever, remember that installing one of our buffers will get your computer back to computing, fast.

The new E/Buffer, with IEEE-488 input option, allows you to drive your Epson MX or FX printer direct from your CBM Pet with up to 64k of buffering. From £120.75 incl. VAT (16k model).

Available May; Printer interface for the Commodore 64 serial-IEEE port. 2k buffer, or unbuffered. Boxed or printer-mounted. From around £65.

We supply a comprehensive range of print buffers, data buffers, protocol converters, T-switches, etc. Buffer sizes from 2k to 1 megabyte. Ask for our latest product list, or get your local dealer to call us direct for full details and prices.

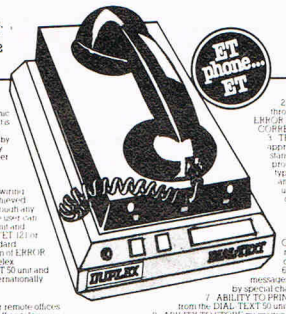
A>Line Computer Systems
MICRO BUFFER DISTRIBUTORS

A>Line Computer Systems
1 Church Farm Lane,
Willoughby Waterleys,
Leicestershire, LE8 3UD.
☎ Peatling Magna (053 758) 486

DIAL-TEXT 50

TYPEWRITER TO TYPEWRITER COMMUNICATION

This is only one of several Duplex interfacing products. Of particular interest to PET owners is our IEEE to RS232 interface.



DIAL TEXT 50 is a simple to use electronic typewriter (ET) to electronic typewriter communications device. It is plug compatible with the OCTET 121 and HERMIT 21 interfaces designed by Duplex and can also be used with any RS232 device such as a microcomputer or printer.

Simple to install

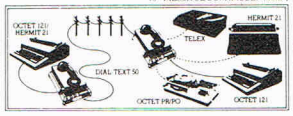
Installation is easy and no special wiring is required. communication is achieved by simple cable connection or through any acoustic coupler. For instance, the user can simply place the DIAL TEXT 50 unit and acoustic coupler between an OCTET 121 or HERMIT 21 typewriter and a standard telephone handset for transmission of ERROR FREE letters and documents (or telex messages) to a remote DIAL TEXT 50 unit and acoustic coupler, nationally or internationally.

Typical application

The DIAL TEXT 50 unit is ideal for remote offices which would like to use the main office telex facilities. Text can be prepared at the remote office and transmitted to the main office to cut telex paper tape for forward transmission. Incoming telexs is for the remote office would receive messages in the reverse manner.

Special Dial-Text 50 features & benefits

1. 16 000 CHARACTER MEMORY. Retains contents when power is off.
2. ERROR free messages through use of automatic ERROR DETECTION and CORRECTION facility.
3. TRANSMISSION SPEED approx. 5 times faster than a standard telex machine providing the FULL range of typewriter characters and symbols upper case and lower case.
4. MENU DRIVEN through a 16 character display.
5. OPERATORS CONTROL PANEL for message viewing and deletion.
6. INCOMING/OUTGOING messages automatically differentiated by special character.
7. ABILITY TO PRINT (retrieve) messages from the DIAL TEXT 50 unit at any time.
8. ABILITY TO STORE messages onto a standard tape cassette unit (As) for the OCTET or HERMIT TI unit.
9. CONVENIENT CONFIDENTIAL MESSAGE HANDLING ie: use own secretary as operator.
10. PORTABLE lightweight stand-alone unit with own 240v power supply which can be shared within the office.
11. DIAL TEXT 50 allows local text processing without the need to transmit messages.
12. COST of transmission limited to normal telephone rates.
13. MESSAGE SCRAMBLER facility (optional).

SUSS  **BOX**

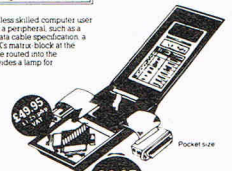
The DUPLEX SUSS-BOX and DUPLEX SUSS-ADAPTOR have been designed to enable the less skilled computer user to have a better understanding of the correct working connection between a computer and a peripheral, such as a printer. That is achieved by using the commonly used signals (wires) of the RS232C serial data cable specification, a matrix block and special connector pins. By inserting the connector pins into the SUSS-BOX's matrix block at the axis of the incoming signals the user can quickly establish a firm connection. The signals are routed into the SUSS-Box by two 25 way D type connectors, 1 × female, 1 × male. The SUSS-BOX also provides a lamp for each signal to show its condition when connected in line, ie High or Low.

SUSS ADAPTOR

When the user has achieved the correct Pin out between a micro computer and a printer the DUPLEX SUSS ADAPTOR should be used as a permanent means of connection. This is done by transposing the correct matrix block pin layout already established with the SUSS BOX onto the matrix block of the SUSS ADAPTOR and then installing the SUSS ADAPTOR in between the computer and printer.

SUSS BOOK (2nd edition)

If the user specifically wishes to connect a microcomputer to the OCTET or HERMIT typewriter/printer than refer to DUPLEX's SUSS BOOK for details on various microcomputer cable Pin outs.



£49.95 + £1.00 p&p + VAT

Pocket size

£29.95 £1.00 p&p VAT

£6.95 10 65 p&p

Full details from *sole suppliers*

DUPLEX Communications
The Interface People

South — 52 High Street, Stock, Essex CM4 9BW. Tel: 0277 841011.
Midlands North — 2 Leire Lane, Dunton Bassett, Nr Lutterworth, Leicestershire LE17 5JP. Tel: 0455 284398.

INCREASE YOUR SYSTEMS SPEED WITH ONE SIMPLE PLUG IN UNIT

INTERNAL SPOOLERS FOR EPSON

8K	**£59.95**
16K	**£69.95**
32K	**£79.95**
64K	**£109.95**

EXTERNAL SPOOLERS MAINS POWERED

PARALLEL TO PARALLEL: 8K £79.95, 16K £89.95, 32K £99.95, 64K £129.95

PARALLEL TO RS232: 8K £99.95, 16K £109.95, 32K £119.95, 64K £149.95

RS232 TO RS232: 8K £99.95, 16K £109.95, 32K £119.95, 64K £149.95

RS232 TO PARALLEL: 8K £99.95, 16K £109.95, 32K £119.95, 64K £149.95

INTERFACES

IEEE TO CENTRONICS	£69.95
IEEE TO RS232	£179.95
PARALLEL TO RS232	£79.95
RS232 TO PARALLEL	£69.95
COMMODORE 64 TO PARALLEL INC. PRINTABLE CURSOR AND COLOUR CONTROLS	£59.95

All prices exclusive of VAT

DEALER ENQUIRIES WELCOME
IBEK SYSTEMS
437 Stoney Stanton Road, Coventry, West Midlands
Tel: 0203-661162

Printer Buffer	II4048	IC5048
Manufacturer/ Supplier	Interface Systems	Interface Systems
Memory	16K, 48K and 96K	16K, 48K and 96K
Specifications	IEEE – IEEE	IEEE – Centronics
Features	Primary addressing Secondary addressing Dimensions: 5x 5.25 x 1.5 inches	Primary addressing Longer cables Dimensions: 5x 5.25 x 1.5 inches
Standalone/ Board	Standalone	Standalone
Interface	–	–
Price	£125, £158 and £243	£125, £158 and £243
Printer Buffer	Dial-Text 50	BIF 1110, 11, 12 and 13
Manufacturer/ Supplier	Duplex Communications	IBEK Systems
Memory	16K	8K, 16K, 48K and 96K
Specifications	RS 232 C – RS 232 C	IEEE – IEEE
Features	Connects to an acoustic coupler and can transmit text over the telephone line to remote printers (via another dial-text unit) Error detection and correction Stores messages on cassette unit Requires a RS 232 C printer	Secondary addressing Scheduled to be ready beginning of May
Standalone/ Board	Standalone	Standalone
Interface	Pet: IEEE converter CBM 64: RS 232 level converter	–
Price	£495	£199, £219, £249 and £289
Printer Buffer	BIF2220,21,22 and 23	BIF2210,11,12 and 13
Manufacturer/ Supplier	IBEK Systems	IBEK Systems
Memory	8K, 16K, 32K and 64K	8K, 16K, 32K and 64K
Specifications	Parallel – Epson Printer	Parallel – parallel
Features	Specifically for the Epson printers and fits into a slot inside	–
Standalone/ Board	Board	Standalone
Interface	Requires CBM64/VIC20 to Parallel interface. IBEC price for IF4210: £59.95	Requires CBM64/VIC20 to parallel interface. IBEC price for IF4210: £59.95
Price	£59.95, £69.95, £79.95 and £109.95	£79.95, £89.95, £99.95 and £129.95

Printer Buffer	Super Spooler E/Buffer	Sprint Buffer
Manufacturer/ Supplier	A-Line Computer Systems	A-Line Computer Systems
Memory	16K, 32K and 64K	65K
Specifications	IEEE – Epson printer	IEEE – IEEE, Parallel and RS 232 C versions
Features	Designed to fit any of the Epson printers: MX, RX and FX Allows use of printer lower case characters	Self Test Dimensions: 11.7 x 8 x 4 inches
Standalone/ Board	Board	Standalone
Interface	–	–
Price	£105, £135 and £185	£350 for IEEE – IEEE £368 for IEEE – RS 232 C and Parallel versions

Printer Buffer	TAII	Spriinter
Manufacturer/ Supplier	A-Line Computer Systems	A-Line Computer Systems
Memory	64K	2K, 16K and 32K
Specification	IEEE-IEEE	IEEE – IEEE, Parallel or RS 232 C.
Features	Unidirectional Reset and pause control	6 ports Compatible with RS 232 C, Parallel or IEEE printers Dimensions: 30cm x 20cm x 9.5cm
Standalone/ Board	Standalone	Standalone
Interface	–	–
Price	£350	£175, 195 and £245

Printer Buffer	TAIRS	TAIP
Manufacturer/ Supplier	A-Line Computer Systems	A-Line Computer Systems
Memory	63K	64K
Specification	IEEE – RS 232 C	IEEE – Parallel Centronic
Features	Unidirectional Pause and reset controls Compatible with RS 232 printer 31K: Storage on input and output	Pause and reset controls
Standalone/ Board	Standalone	Standalone
Interface	–	–
Price	£350	£368

Superbase 64

TRANSFORMS THE COMMODORE 64 INTO A FULL-FEATURED AND PROFESSIONAL DATABASE SYSTEM! WITH UP TO 1000 CHARACTERS PER RECORD ON UP TO 4 SCREENS... AND UP TO 128 ITEMS PER RECORD, DEFINABLE AS KEY, TEXT, NUMERIC, CONSTANT, RESULT OR DATE... IN FILES OF UP TO 164 CHARACTERS! SUPERBASE 64 EVEN HAS SPREADSHEET AND CALCULATOR CAPABILITY, CALENDAR FUNCTIONS, EASY INPUT FROM WORDPROCESSOR/DATA FILES, BOTH MENU-DRIVEN AND PROGRAM OPTIONS, SORTING/SEARCHING, FULLY DEFINABLE OUTPUTS... SUPERBASE 64 IS ESSENTIAL IF YOU WANT THE MOST FROM YOUR 64! SUPPLIED ON CBM 1541 DISK WITH EXCELLENT TUTORIAL/REFERENCE MANUAL. OUR PRICE ~~£99.95~~ £88.00!

VIZAWRITE 64

VIZAWRITE 64 IS A HIGH-PERFORMANCE, LOW-COST WORD PROCESSOR, WITH ON-SCREEN FORMATTING, THAT TAKES FULL ADVANTAGE OF THE 64'S COLOUR, GRAPHICS AND MEMORY FEATURES... AND SUPPORTS VIRTUALLY ANY PRINTER! WITH A COMPREHENSIVE AND EASY-TO-FOLLOW USER MANUAL, VIZAWRITE IS THE ULTIMATE PERSONAL COMPUTER WORD PROCESSOR! AVAILABLE ON CARTRIDGE (~~£89.95~~ £75!), DISK (~~£79.95~~ £68!) OR WITH VIZASPELL (~~£99.95~~ £85!)

Master 64

MASTER 64 IS A TOTALLY NEW CONCEPT... A COMPLETE PROGRAM DEVELOPMENT PACKAGE, THAT'S AVAILABLE NOW FOR THE CBM 64. MASTER HAS 85 NEW COMMANDS... AND BASIC IV TOO! PLUS PROGRAMMER'S TOOLKIT, MACHINE CODE MONITOR, BUSINESS BASIC, KEYED DISK ACCESS, MULTIPLE SCREENS, USER-DEFINABLE INPUT ZONES, REPORT GENERATOR, 22-PLACE ARITHMETIC, DISK DATA COMPRESSION, DATE CONTROL, SCREEN PLOT, SCREEN DUMP, AND MORE... EVERYTHING YOU NEED TO PROGRAM YOUR 64 TO TOP PROFESSIONAL STANDARDS! (~~£149.75~~ £115!)

MORE SOFTWARE FOR COMMODORE 64:

PRACTICALC (DISK/TAPE) ...	~~£44.50~~	£41.50
VIZASPELL (DISK)	~~£50.95~~	£49.95
DTL COMPILER (DISK)	~~£114.65~~	£109.00
DTL COMPILER (TAPE)	~~£39.95~~	£36.95
TOOL 64 (CARTRIDGE)	~~£49.95~~	£46.95

SOFTWARE FOR COMMODORE PET/700:

SUPERBASE (700/8096)	~~£53.50~~	£425.00
SUPERSCRIPT (700)	~~£53.50~~	£425.00
SUPERSCRIPT (8096)	~~£464.85~~	£375.00
SUPERSCRIPT (3000-8000) ..	~~£286.36~~	£225.00
MASTER (4000/8000/8096) ..	~~£339.85~~	£225.00

PRICES SHOWN ABOVE INCLUDE 15% VAT, AND ARE CORRECT AT TIME OF GOING TO PRESS. PLEASE ORDER BY POST OR TELEPHONE, USING CHEQUE, ACCESS, BARCLAY CARD OR OFFICIAL ORDER. DESPATCH IS BY SAME-DAY 1ST CLASS POST, AND FREE (EXCEPT FOR OVERSEAS AND CREDIT ORDERS). FULL PRODUCT INFORMATION IS AVAILABLE ON REQUEST. [REF A27]

Calco Software

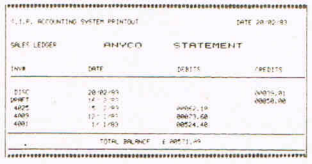
LAKESIDE HOUSE, KINGSTON HILL, SURREY, KT2 7QT. TEL 01-546-7256

NOW AVAILABLE ON DISC

For VIC 20 and CBM 64 Users

SIP ACCOUNTING SYSTEM

Highly comprehensive program designed for 16K, 24K, VIC20 & Printer, 40 col VIC20, CBM 64. Makes an ideal introduction for you and your staff to the world of computer accounts.



Features include:

- Menu driven – simplicity to use!
- Up to 250 accounts per tape
- Day book
- Sales and purchase ledger (or just 1 type)
- Invoice print module available as extra.
- Statements print (for all or just one company)
- Overdue account statements (as above)
- End period carry on to next data tape
- Cash summary – debitors and creditors
- VAT entry (net or gross)
- PLUS many, many more features – all in ONE program.

SIP/AC20 – VIC20 16/24K Tape Based
SIP/DC20 – VIC20 16/24K Disc Based
SIP/AC40 – VIC20 16/24K +40 column card
SIP/AC64 – CBM64 Tape Based
SIP/DC64 – CBM64 Disc Based

Tape Version £24.95 + VAT
Disc Version £29.95 + VAT

Price includes comprehensive manual (+ data tape for tape versions).

1515/1525/1526/GP 100 VC printer required for all programs.

Printer plinths

– designed to save space, improve paper flow, and tidy stray cables, has anti-vibration mounting, superb design in high impact smoked Perspex.

NEW LOW PRICE

SIP/P1515 for VC 1515 and GP 80 ~~£17.95~~ £12.95 + VAT
SIP/P1525 for VC 1525 and GP 100 ~~£18.95~~ £13.95 + VAT

INVOICE PRINT MODULE

Allows your own formating of invoices, remittance advices and credit notes can stand alone or work with SIP Accounting System, updating data files.

SIP/CPM20 – VIC20 Tape Based
SIP/DPM20 – VIC20 Disc Based
SIP/CPM64 – CBM64 Tape Based
SIP/DPM64 – CBM64 Disc Based

Tape Version £24.95 + VAT
Disc Version £29.95 + VAT

Please specify machine size when ordering

Available direct or from leading Software dealers. Send your orders or for further information please write or telephone:

Shore Industrial Plastics Ltd. dept c c
1-13 Corsham Street, London N1 6DP.
Telephone: 01-250 1978.
Telex: 943763 Ref. SHM

ADVERTISERS DIRECTORY MAY 1984

Adman Electronics	S12	Galactic Software	S18	JR&S Purdue	32
A&F Software	S2	Greenwich Instruments	24		
A-Line Computers	56			Quickcount	18
Allrian Group	S31	Handic	2		
Anger Productions	S20			Ram Electronics	S14
Anirog	S48	Ibek Systems	56	Richard Shepherd	9
AR Software	S20	Impex Designs	18	Romik	64
Audiogenic	16, 63	Incentive Software	S43	Rotronics	10
		Interface Systems	55		
Bargain Software	S31			Saxon Computing	18
Bytewell	S31	JCL Software	44	Scientific Software	52
				Simple Software	32
		Level 9 Computing	S12	64 Software Centre	S26, 27
Calco	24, 59			64 Supplies	6
Chromasonic	50	Marketing Micro Software	14, 15	SIP	59
Computerama	S7	Microport	24	Small Systems	20
		Microsoft	S16	Small Systems	48
		Mr Chip	S8, 9	Softchoice	S20
DACC Ltd	S43	MST Consultants	32	Softex Computers	S33
Dataplus	42			Subscriptions	S43
Digital Design & Development	52	Nationwide Discount Software	S44	Supersoft	S41
Duckworth	S4				
Duplex Communications	56	Oxford Computer Systems	S33	Terminal Software	S39
Durell	2				
Dynamite Software	48	Paramount Software	S47	Viza Software	47
		Peaksoft	S33		
Electronic Aids	48	Precision Software	8	Zero Electronics	52

CLASSIFIED

MULTI Q ANALYSIS

A utility for the Commodore 64

IDEAL: Home Accounts/small trader

ANALYSIS: total and 40 accounts – up to 400 items with own narrative.

MONITOR: bank/building society accounts, cash, or home budget by using this cash/ledger analysis.

FEATURES: password; disciplined data files with carry forward; dedicated transaction numbering; multiple analysis of transactions if required (eg for VAT); simple input (not debits/credits) therefore easy to use.

PRICE: cassette £14.70

s.a.e. details

QUIPUS COMPUTING

PO Box 428 London SE19 3XT

MICROCOMPUTER

REPAIRS SERVICES

VERY FAST

VIC 20, CBM 64, PETS, SPECTRUMS – COMMODORE COMPUTERS, PRINTERS, FLOPPY DISKS

Phone SLOUGH **(0753) 48785**

MONDAY TO SATURDAY

FIELD SERVICE 25 MILE RADIUS OF SLOUGH

MICROCOMPUTER SERVICES (MARYPORT)

2 Borriskill Ellenborough Maryport Cumbria CA15 7RF

Commodore 64	£199.95
1541 Disk Drive	£199.95
Ribbons	
Epson MX80/RX80	£5.00 each
Commodore 1525	£4.50 each
Commodore 8023	£5.00 each
Epson FX100	£8.50 each
Programs	
The Hobbit (Melbourne)	£11.50
Chinese Juggler (Ocean)	£6.15
Manic Miner (Software)	£6.95
Colosus Chess (CDS)	£9.95

PRINTER OWNERS!! Single part listing paper 11 x 9½ per 2000 sheets box **£14.90** or 11x14½ m/ruled per box **£17.25.** Continuous labels 102x36 mm 1 Wide Pin Feed S/Adhesive 5000/Box **£46.00.** 10,000 **£69.50.** All include VAT and delivery.

Galaxy Industrial Services Dept C1M2, 52 Rectory Grove, Leigh-on-Sea, Essex.

HOME SECURITY

Use your VIC 20 or Commodore 64 to guard your home or premises. SENTINEL, our complete DIY kit includes program, interface power supply and high quality security components. – £139.95

Security program and interface also available at £44.95.

Write for further details to:

MICRO-SECURITY
PO BOX 18
HAVANT
HANTS, PO9 3LB

All prices include VAT, P&P.

COMMODORE 64 SOFTWARE

DATAFILE: A database with very powerful options. Includes:– print all/selective records, delete, amend, save, load, copy, alphanumeric sort, user defined fields, memory check, total numeric fields, multi field interrelational, wildcard and search between limits. Multiple file option, and many more. Fully menu driven with complete instructions. Disk and cassette fully compiled. Outstanding value.

CBM 64 (compiled) cassette **£7.45**
CBM 64 (compiled) disk **£10.25**

TEXTFILE: Powerful word processor. Facilities include:– Large text buffer, auto centre text, variable tab, insert, amend, delete, copy, move text, word count, right justify, pageing, join files, multiple file handling, print all/part text, etc. Fully menu driven with comprehensive easy to use instructions. Great value.

CBM (compiled) cassette **£8.25**
CBM 64 (compiled) disk **£10.75**

All programs complete with full documentation and guarantee and can be used with all direct connect CBM 64 printers including 1520 printer/plotter. Prices include VAT. Packing and fast delivery by 1st class mail.

Cheque/PO to:–
A & C SOFTWARE
51, Ashtree Rd., Tividale,
West Midlands B69 2HD.

SOPHISTICATED GAMES FOR VIC 20

VIC CRICKET Realistic game of skill and luck with all the major rules of cricket correctly interpreted. Ball by ball commentary, full scorecard, printer and game save facilities. Needs 16K expansion. £5.99*

LEAGUE SOCCER League championship game for 2-22 players/teams. Automatic fixtures, full action commentaries, match facts. League tables, results check, postponed games etc. Non league matches also playable – the VIC will even make the cup draw. Printer and game save. Needs 16K expansion. £5.99*

WHODUNNIT? Twelve guests have gathered for drinks at Murder Manor. However, one of them has more than drinks on his mind. Thrilling detective game for 1-6 players, with genuinely different murder every time. You can even rename the suspects! Needs 8K expansion. £4.99*

ELECTION NIGHT SPECIAL For 1 to 3 players: and you are the leader of a political party and your task is to win the election and become Prime Minister. Features constituency visits, opinion polls, holds, gains, etc. Printer and game save. Needs 8K expansion. £4.99*

TOP OF THE POPS Money making game about the music business. Make your own records and see them climb the chart. Printer and game save facilities. Needs 8K expansion. £4.99*

VIC PARTY 4 Contains MASTERWORD, A DAY AT THE RACES, GAME (Strip Poker), and CONSEQUENCES. Four games ranging from the serious to the ridiculous. All good fun – nothing offensive. Needs at least 3K expansion. £5.99*

Available from:
SOPHISTICATED GAMES, Dept CCI, 27 Queens Road, Keynsham, Avon, BS18 2NQ. Tel 02756 3427 or write for further details of our complete range.

*P&P free (UK only). All games sold subject to our conditions of sale, which are available on request.

available soon for CBM 64

VETS FOR PETS

Anita Electronic Services (London) Ltd. are specialists in the repair and service of Commodore Pets, Commodore 64s and Vic 20s, and associated printers including Commodore, Centronic, Anadex, NEC, QUME, Rioch and Epson. We offer a fast on-site service or alternatively repairs can be carried out at our workshops should you wish to bring in your machine.

Maintenance contracts are available at very competitive prices. Trade enquiries welcome.

For further information telephone or write to:

MR. D. WILKINSON
Anita Electronic Services Ltd.,
15 Clerkenwell Close,
London EC1
01-253 2444

CLASSIFIED

SOFTWARE for the 64

INFODISK – the ideal data-base system for first-time users that doesn't skimp on specifications: variable length records up to 9 screen pages, 2,400 characters and 180 fields. Multiple files per disk and full 19 function calculator for spreadsheet capability. All report formats can be produced and stored on disk. Use it for address lists, clubs, libraries, invoicing, accounts or stock control. No programming skill required and amazing value at £75.

INFOTAPE – a versatile data-base system for the tape user. Stores up to 3,000 data items in variable format records; use it to produce reports or use the batch processor linked to the 19 function calculator. Only £16.95 (records can be retrieved by INFODISK).

TOP SECRET – takes your tape program and makes it AUTO-RUN when you LOAD but also makes it uncopyable. Bet you can't find the secret! £7.95.

MICROSTATS – an easy to use statistics package suitable for "A" level and college students – too many features to list here; £17.95 tape, £19.95 disk.

Coming soon! **BRAIN MASTER** – a game of skill and intellect – pit your wits against the 64! £7.95.

Send for further details or cheque/P.O. to:

BEAVER SOFTWARE SYSTEMS

Stathern, Melton Mowbray, Leics LE14 4HJ
0949-61318
(for availability and prices USA phone 301-229-4082)

THE 64 EXCHANGE LIBRARY

We currently have most titles available for the 64 on an exchange basis.

£5.00 life membership (less than the cost of a single game) brings you the Exchange Library membership kit, including catalogue and news letter.

Send cheques/P.O. for £5.00 to:

THE 64 EXCHANGE LIBRARY, P.O. Box No. 3, Castleford, W. Yorks WS10 1UX, stating name and address and receive your documentation by return.

We also have a section for VIC 20 owners.

Overseas members very welcome.

Ideal for HOME or BUSINESS!
COMPUTER STAND

Approved by Commodore, BBC, Dragon

- 3'×2' Teak finished melamine working surface
- Modesty Panel
- Mobility with double roller castors
- 18"×15¾" Monitor Shelf with 5½" clearance
- Despatched flat pack, colour coded assembly (no tools required)
- Other sizes available – ask for leaflets

For combination as above (without computer) send cheque for £59.00 (includes Carr. & VAT) Despatch 1 week

Selmor (Eng.) Industries Ltd.
24 Mulberry Street,
London E1 1EH
Tel: 01-247 3344

!C.64 ADVENTURES!

The Witness (Infocom) Disk Makes Mike Hammer an amateur! Critically acclaimed in P.C.N.	**£34.95**
Planetfall (Infocom) Disk The best text adventure game ever.	**£34.95**
The Hobbit (Melbourne) Cassette & Book	**£12.00**
Colossal Adventure (Level 9)	**£9.00**
Snowball (Level 9) both highly acclaimed.	**£9.00**

Prices inc. Post and Packing, Cheques and P.O.s to
LA MER SOFTWARE, 22 WEST ST., WESTON-S-MARE, AVON BS23 1JW

For Commodore 64 users:

KILLER CRABS

An exciting game that tests new and subtle skills
plus a Synthesiser program
Excellent value at only **£6.50** (V.A.T. p.&p. inclusive)

Please send P.O./Cheque to:
NO-IK SOFTWARE
Hillcrest House, Cherhill, Calne, Wiltshire SN11 8XP, England

DEALERS

Caltec

specialises only in
Commodore 64 software

Over 200 programs in stock
(and expanding all the time).

1045 WIMBORNE ROAD, MOORDOWN, BOURNEMOUTH

Everyman Computers

YOUR FRIENDLY COMPUTER SHOP IN WILTSHIRE

VIC PRINTERS
DISC DRIVES
SOFTWARE -
DUST COVERS
BOOKS, CARTRIDGES

14 Edward Street,
Westbury, Wilts
BA13 3BD
(0373) 864644

Commodore 64 - THE BEST VALUE ON THE MARKET

Home Accounts. Put your house in order! Probably home computing's best use! Comprehensive coverage of bank accounts, credit cards, H.P. Inbuilt accuracy check. Records all transactions. Projects cashflow for any period ahead. Available for CBM 64 or VIC 20. £7.50 or FREE details from R.B. Computer Services, 2 Hazelwood, Windmill Hill, Brixham, Devon. Tel: 080 45-55532.

Toddlers! Play with your parents' CBM64. Animated, musical flashcard and spelling program from Toddlersoft, developed in consultation with school and educational psychologist. Suitable 1½-7 years. Cassette £4.50, disk £7.00 from: Toddlersoft, 1 Cat Lane Cottage, Ewelme, Oxon OX9 6HX.

Easyscript = 6 Games on disk, unwanted gift for CBM 64, brand new, still wrapped. Worth £105, will sell for £60 or best offer (inc. post & packing). Lee Gibson – 0533 783367.

COMMODORE REPAIRS
BY COMMODORE APPROVED ENGINEERS

VIC 20 modulators £6.50, VIC 20 from £14.50, CBM 64 from £18.00, C2N from £7.00, Printers, Disk unit etc., for more details, write or telephone

G. C. BUNCE AND SON
36 BURLINGTON ROAD, BURNHAM, BUCKS SL1 7BQ
Telephone: (06286) 61696

CLASSIFIED

Brand New Quickshot II joystick (£9.95) and Vixen 16K switchable RAM pack for VIC 20 (£20) – never been used. Also Spectrum 16K to 48K upgrade (£15). N. Stokell, 4 Beachville St., Eden Vale, Sunderland, SR4 7NA. Tel (0783) 44356 between 4pm & 5pm.

Help Disk for Commodore Pet. Contains: Draw, Petsong, Datamaker, Minimail, Back-up, Bar Graph and much more. Only £8.75, c.w.o. to Roger Bradshaw, 9 Fairhead Road, Colchester CO4 4BH, Essex.

VIC 20 Morse Tutor cassette for the unexpanded machine, features: variable speed random morse, letters, numbers, or mixture. Displays correct answers together with your answers and marks as a percentage. Cheques/P.O.s payable to: G. K. P. Software, 1 Antony House, Fore Street, Stratton, Bude, Cornwall EX23 9BZ.

Commodore 64 Programmers. Experienced machine code programmers required for S.W. London based educational games software house. Creativity, graphics ability and willingness to work with a team essential. Good salaries. Tel: Peter Lever 01-874 6046.

Listings for '64'. Send tape and £1.60 to Chaparall 12 Hollybank Gdns. Hastings – Evenings 436522 about disks and printouts.

Astrological, Biorhythms and any other similar programs wanted by private individual for own use. Telephone 0908-670391 with details.

PET games at amazing prices. Arcade games 50p – £1.50. Send s.a.e. for literature to Stephen Gray, 20 High Chase Rise, Little Haywood, Nr. Stafford ST18 0TY.

Commodore 1520 printer plotter, pens, paper, manual, £80. (0932) 241242.

Wanted – good original programs in 'Basic' and M/C for the CBM 64. We are interested in games, adventure, utilities, home management and business. Please send your examples to Pickle Software, 59 Forge Lane, Higham, Kent ME3 YAH.

Wanted – complete Commodore 3000 series system: 3032 computer, 3001 double disk drive, 3022 tractor printer. Contact: Mr. B. Horsler, SFK (UK) Ltd. Tel: 0582 55977.

Commodore 64 looks for other CBM 64s to exchange tips and programs (already 350 excellent softwares). Alain, P.O. Box No. 116, Liegex, Belgium.

VIC 20 Computer, super expander, Vicmon, Eprom programmer, 24K RAM pack, tape deck, screen cartridge, RS232 interface, Rtty unit, books and lots more. Ring 01-855 3894, £220 o.n.o.

Speech Synthesiser for the 64. Unlimited vocabulary, unbeatable value. Send s.a.e. for full details to P.O. Box 28, Portsmouth PO4 9SH.

Commodore 64 Home Finances Program interactive budget and current accounts. Full instructions included. S.A.E. for full details. Send cheque or P.O. for £7.50 to D. Watts, 17 Brockridge Lane, Frampton Cotterall, Bristol BS17 2HU.

Educational Software. Tape 1 – unexpanded VIC 20 for 8-14 years: addition, subtraction, multiplication, division, tables, spelling, English/French, general knowledge. Tape 2– 16K: Adventures, Time Slip and Treasure Island. Each tape £6 or £10 both. G. Saunders, 22 Front Street, Guide Post, Northumberland NE62 5LT.

HERE'S MY CLASSIFIED AD

_____

_____

_____

_____

Please continue on a separate sheet of paper

I make this _____ words, at _____ per word so I owe you £ _____

Name _____

Address _____

_____ **Telephone** _____

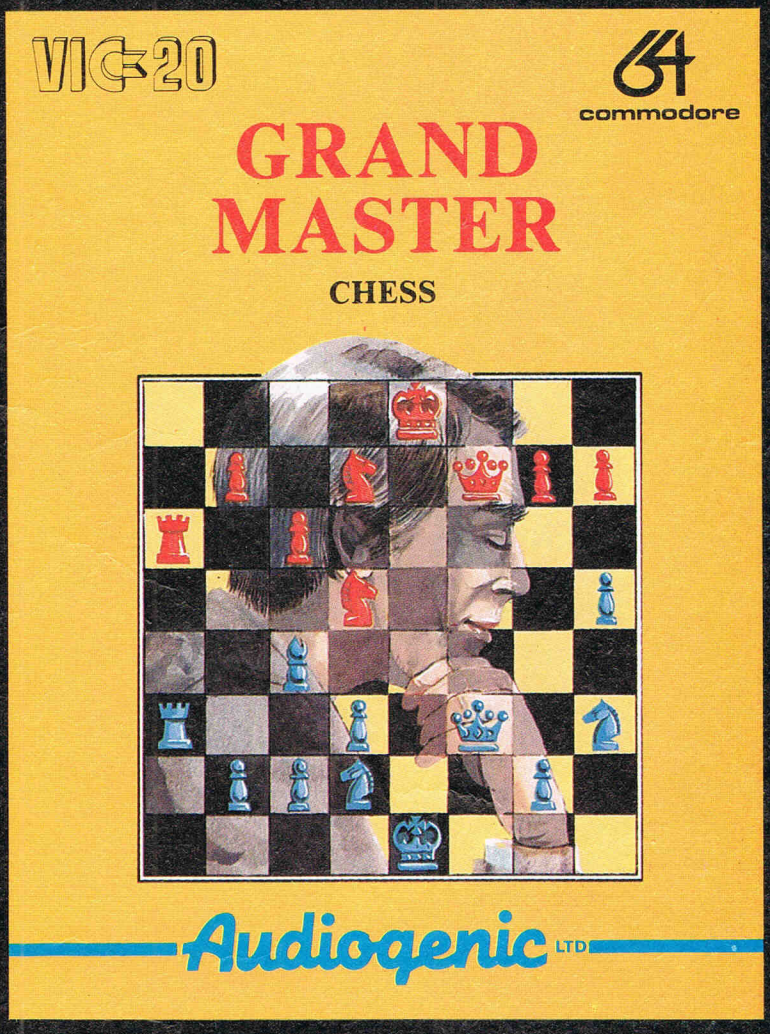
Send your classified entries to:

Classified Department,
Commodore Computing International Magazine,
167-169 Great Portland Street,
London W1N 5FD.
Tel: 01-636 6615

Private readers – FREE
Trade advertisements – cost 40p a word
Semi-display – why not make your advertisements more substantial by choosing the semi-display rate. It is only £8 a single column centimetre.
Please ensure that **all** classified advertisements are prepaid.

IN THE WORLD OF COMPUTER CHESS THERE IS ONLY ONE

GRANDMASTER



AND THIS IS IT !

GRANDMASTER IS NOT JUST A SUPREMELY POWERFUL CHESS OPPONENT. GRANDMASTER ALSO INCLUDES THESE FEATURES TO HELP YOU TO ANALYSE AND IMPROVE YOUR GAME!

- ★ 10 LEVELS OF PLAY
- ★ HINT FUNCTION
- ★ TAKE BACK MOVES
- ★ 'HURRY UP' FUNCTION
- ★ AUTOMATIC SELF PLAY
- ★ CHANGE LEVEL
- ★ SQUARE PLAYING BOARD
- ★ CHOICE OF COLOUR SCHEME
- ★ AUTOMATIC QUEENING, CASTLING, EN PASSANT

AVAILABLE ON CASSETTE FOR THE VIC 20 AND ON CASSETTE OR DISK FOR THE 64

ALL VERSIONS £17.95 EACH (INC. VAT)

Audiogenic LTD

PLEASE SEND ME YOUR FULL COLOUR CATALOGUES

NAME .....

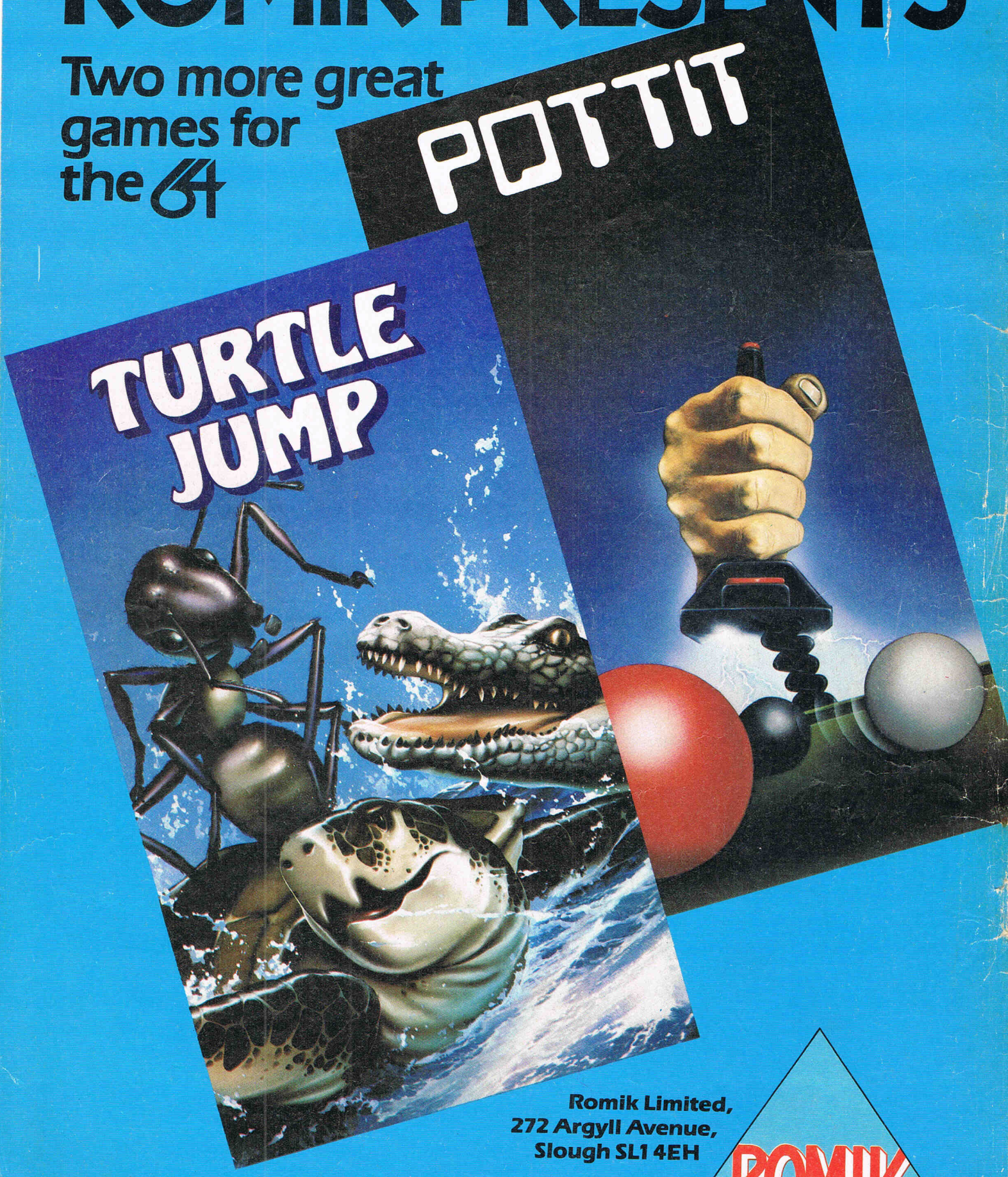
ADDRESS .....

CCT. 5/84.

AUDIOGENIC LTD
P.O. BOX 88
READING
BERKS.

ROMIK PRESENTS

Two more great games for the 64



Romik Limited,
272 Argyll Avenue,
Slough SL1 4EH

ROMIK

Available from selected branches of: Dixons, John Menzies, W.H. Smith, Boots, and all good computer stores.

COMMODORE Games

MAY 1984 issue

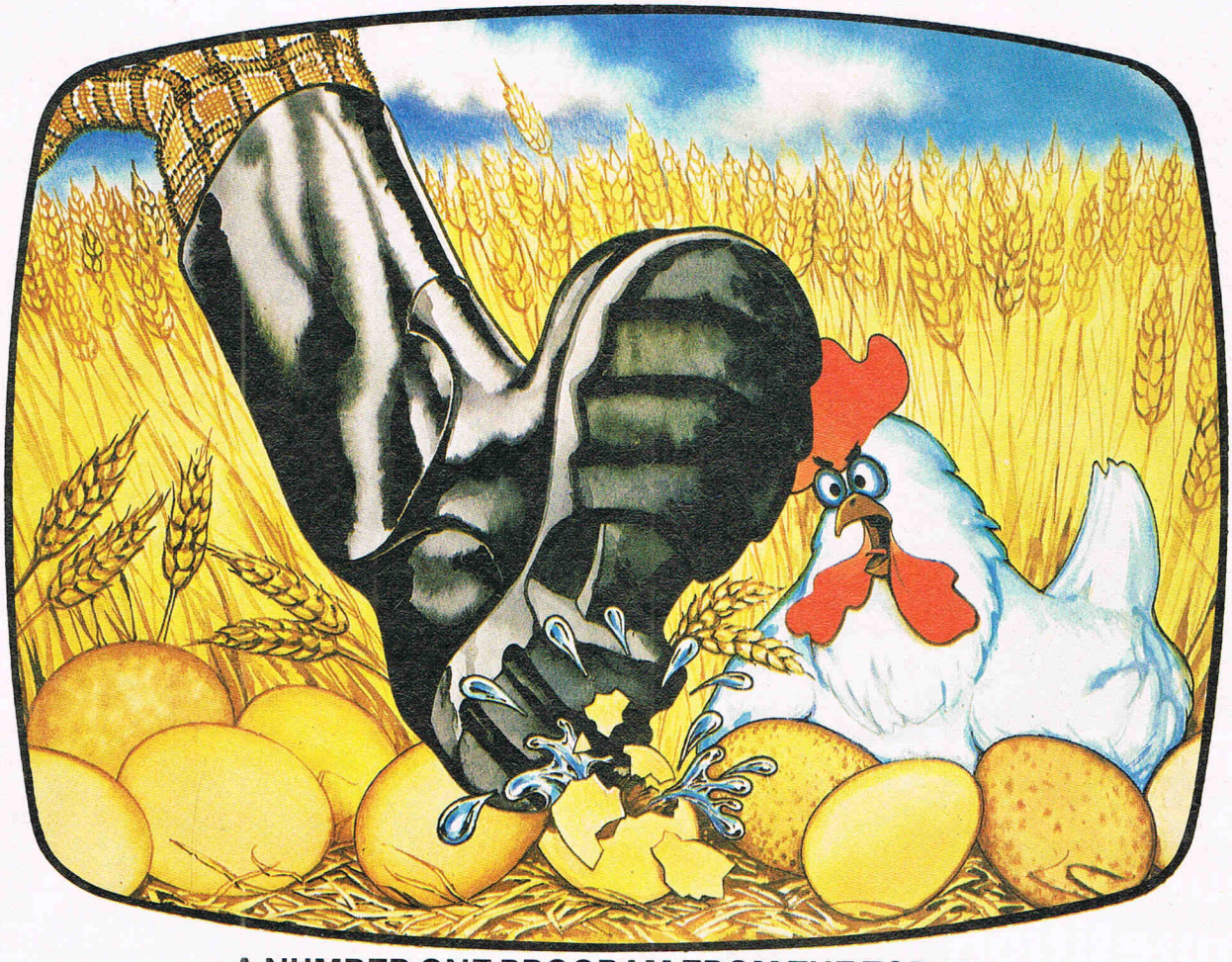
Cult of the Programmer

50 FREE copies of The Hobbit in our easy competition

Reviews

Inside a Game

THERE'S TROUBLE AT T'FARM!



A NUMBER ONE PROGRAM FROM THE TOP 10!
NOW AVAILABLE ON COMMODORE CM64

DEADLY Chuckie egg!™

A FARMYARD ARCADE STYLE GAME!

You have to collect 12 eggs and corn to finish the screen—but there are up to 4 nasty ducklings chasing you as you try to escape up the ladders. You can jump onto the moving lifts but make sure you get off before you smash your head against the roof.

The ducklings are on a fixed path but if you're good enough to reach frame 9, mother duck escapes from her golden cage and can move anywhere on the screen.

GSH

A&F Software

Sold subject to A & F Software Ltd. Full terms and conditions available on request

AVAILABLE FROM ALL GOOD COMPUTER SHOPS

John Menzies Boots Selected Stores

NAME _____

ADDRESS _____

_____

_____

A&F software

Unit 8, Canalside Industrial Estate, Woodbine Street East, Rochdale, Lancs. OL16 5LB. Tel: 0706 341111

Creative Sparks

Thorn EMI Computer Games have released a number of new titles with the creation of their new label, Creative Sparks.

There are two new games for the 64, both requiring joysticks. Slurpy is a cave-dwelling creature with an enormous appetite, and Black Hawk is an action game with a strategic element. Both cost £7.75.

For the unexpanded VIC there are two cartridge games costing £9.95. In Mine Madness you have to retrieve the treasure and in Mutant Herd your task is to protect the powerhouse from crazy mutants.

Three new games for the VIC require 8K RAM expansion. Available on cassette at £5.95, they are the action games Tower Of Evil, Tank Commander and Computer War – which is based on Thorn EMI's recent film War Games.

Finally there is Submarine Commander, an action game spread over three screens with scrolling in periscope mode. Costing £5.95, Submarine Commander is available on cassette and requires 16K RAM.

Contact: Creative Sparks, Thomson House, 296 Farnborough Road, Farnborough, Hants. Tel: 0252 543333.

On the run

CRL's Omega Run is now available for the 64. Written by Richard Brisbourne, the aim of the game is to guide your plane through enemy territory and destroy a base containing a doomsday device which has been captured by terrorists.

Available through traditional retail outlets and mail order, Omega Run costs £7.95.

Contact: CRL, CRL House, 9 Kings Yard, Carpenter's Road, London E15 2HD. Tel: 01-533 2918.

In-house team for Virgin

Virgin Games are taking a step further from being just a software publisher with the creation of a small team of in-house programmers to develop 'unique creative' software. This expansion of operations does not mean the end of Virgin's publishing activities: the company are still offering their international sales and marketing network to other software houses who don't have the financial resources to do so themselves.

In the 12 months since the formation of Virgin Games, the company have released 40 computer game titles, securing four per cent of the software market. Ambush is the latest Virgin title for the 64. Costing £7.95, it's an arcade action game featuring a spaceship and attacking mutant aliens.

Contact: Virgin Games, 61/63 Portobello Road, London W11 3DD. Tel: 01-221 7535.

Campaign

Boots are joining with Visions Software Factory to promote Demolator, a 64 compatible arcade game. It costs £6.95 and the promotion campaign which started in mid-April will run for six week.

Contact: Visions (Software Factory) Ltd, 1 Felgate Mews, Studland Street, London W6 9JT. Tel: 01-748 7478.

New software from Commodore

Commodore have launched a new batch of software.

Tony Hart – Art Master, for the 64, costs £9.99 (cassette or disk) and enables you to draw, colour and save your pictures in high resolution.

New Commodore disk games for the 64 are Rail Boss and two adventure games – Zork I and Zork II. All three cost £11.99.

And finally for the 64 is Wizard of Wor. Available on cartridge at £9.99, this two-player game talks and simulates all the features of the arcade game.

For the unexpanded VIC, Commodore have launched two cassette games, both at £4.99. They are Sir Hero and Rapier Punch.

Music Writer is for the expanded VIC and allows you to create, edit and save music in conventional notation. It costs £4.99 and is available on cassette.

Also on cassette for the expanded VIC at £4.99 are Nursery Rhymes and Stop Thief which uses the computer's identikit to create the burglar's face.

Contact: Commodore, 675 Ajax Avenue, Slough, Berks. Tel: 0753 79292.

Hobbit guide

In response to the phenomenal success of Melbourne House's The Hobbit, the company have published "A Guide to Playing the Hobbit".

It helps to improve the understanding of the game and anyone from a complete beginner to an advanced adventurer will benefit. The book is divided into three sections: section one gives broad outlines on the general strategies and tactics in the game, and sections two and three offer more guidance together with detailed solutions to problems that may be encountered. It retails at £3.95 and is available in most bookshops.

Contact: Melbourne House (Publishers) Ltd, Castle Yard House, Castle Yard, Richmond TW10 6TF. Tel: 01-940 6064.

Infidel

Infidel, the first game in the Infocom Tales of Adventure Series, is now available from Softsel for the 64. It comes on cassette for £35.95.

Set in the Egyptian desert, the player has to find the buried entrance to a pyramid and seize the treasures inside. A number of additional games pieces are included such as a manual of sorts, a map of the Nile river Valley and a hieroglyphics dictionary.

The creator of this epic adventure is Michael Berlyn and the game also features Interlogic so that players can use sentence commands with the aid of a 600-word vocabulary.

Contact: Softsel Computer Products, Softsel House, Central Way, Feltham TW14 0XQ, Middx. Tel: 01-844 2040.

Welcome to this, the first issue of Commodore Games. This is planned to be a regular monthly supplement to Commodore Computing International, concentrating solely on games for Commodore machines. We'll be looking at all aspects of all sorts of games – publishing new ideas, reviewing games, answering your queries and bringing you all the latest games news. So if you feel you have anything to contribute or have any queries – whether about routines for arcade games or a bit of help in an adventure game – write to us at Commodore Games, 167-169 Great Portland Street, London W1. By the way, we pay for contributions.

CONTENTS

News 3
Reviews 5
Programmers 17
Competition 21
Programming 22
Listings 28

DUCKWORTH HOME COMPUTING

CBM-64 PROGRAMS 1
edited by Nick Hampshire

This book provides the reader with useful and interesting programs for the 64. Topics covered include: Hi Res Graphics – Music – Games – Utilities – Sprites and User Defined Characters – Functional Programs, etc. There is a detailed explanation of Hi Res Graphics and the necessary machine code routines to implement them, along with demonstration programs. An exciting version of Star Trek is included as well as a full length adventure game. Among the functional programs is a Personal Information Retrieval package which enables you to create and manipulate up to 365 records.

Nick Hampshire is the publisher of *Commodore Computing International.*

£6.95

SPRITES & SOUND ON THE COMMODORE 64
by Peter Gerrard

A comprehensive guide to using the extraordinary features of the Commodore 64, together with a full working explanation of the chips that make it possible: the 6581 Sound Interface Device and the 6566 Video Interface Chip, together with the processor that makes it all tick, the 6510.

Sections on programming your own musical instruments, producing sprite and programmable character animation, make this *the* guide for users of the Commodore 64 who want to get the most from the special features of their computer.

Peter Gerrard, former editor of *Commodore Computing International,* is a regular contributor to *Personal Computer News, Which Micro? and Software Review,* and *Commodore Horizons.*

£6.95

EXPLORING ADVENTURES ON THE COMMODORE 64
by Peter Gerrard

A complete look at the fabulous world of Adventure Games for your computer. Starting with an introduction to adventures, and their early history, it takes you gently through the basic programming necessary before you can start writing your own games.

Inputting information, room mapping, movement, vocabulary, and everything required to write an adventure game are explored in detail. There follow a number of scenarios, just to get you started, and finally three complete listings written especially for the 64, which will send you off into wonderful worlds where almost anything can happen. The three games listed in the book are available on one cassette at £7.95. The complete guide to adventure games: playing, writing and solving them. Peter Gerrard is the author of Romik's two top-selling adventure games — Fools Gold and Tomb of Xeiops.

£6.95

EXPLORING ADVENTURES ON THE VIC
by Peter Gerrard

As above but for the VIC. Two of the games require 16K expansion and the third 32K. A cassette containing all three games is also available at £7.95

£6.95

THE COMPLETE 64 ROM DISASSEMBLY
by Peter Gerrard and Kevin Bergin

This book is for anyone who has ever wondered how the Commodore 64 really works. Intended for the serious programmer, it includes fundamental memory maps, memory architecture maps, the disassembly itself and (for reference) the complete 6510 machine code instruction set.

Kevin Bergin is a regular contributor to *Personal Computer News, Commodore Horizons, Which Micro* and *Popular Computing Weekly.*

£5.95

THE COMPLETE VIC ROM DISASSEMBLY
by Peter Gerrard and Kevin Bergin

As above but for the VIC.

£5.95

A POCKET HANDBOOK FOR THE COMMODORE 64
by Peter Gerrard and Danny Doyle

This book contains all the vital information you will need when using your 64. There are sections on: ASCII tables – Basic keywords – Basic error messages – Colour memory – Conversion tables – Disk commands – Disk error mesages – Disk formats – Extramon listing – Flow charting – Hex/Dec convertor – Hyperbolic functions – Memory maps – Memory architecture – M/C instruction set – M/C mnemonics – Powers tables – Cartridge standards – Other output – Screen memory – Sound chip registers – Musical notes values – Sprite memory diagram. In short, everything you need to know about your machine.

£2.95

A POCKET HANDBOOK FOR THE VIC
by Peter Gerrard and Danny Doyle

As above but for the VIC.

£2.95

Write for a descriptive leaflet (with details of cassettes).

DUCKWORTH

The Old Piano Factory, 43 Gloucester Crescent, London NW1 7DY Tel: 01-485 3484

Slinky vs Slurpy

A selection of recently-released arcade games for the VIC and the 64 designed to test your reflexes

FLYING FEATHERS

In Flying Feathers a fisherman must shoot eagles as they swoop down and try to carry his fish away.

A panel at the bottom of the screen records the number of fish left (the player gets five to start with) and the score. There are two methods of shooting the birds. With the easiest one, the hunter places a cross near the bird using the joystick or keyboard and presses the fire button to shoot. The second involves more judgement, the fire button has to be kept pressed until the shot is over the target and then released. There are four skill levels for each shooting method – eight in total.

The graphics are realistic and a duck tells you when you are awarded a bonus fish. A high score table has space for nine people. It's enjoyable to play and should appeal to the young.

Title: Flying Feathers
Programmer: Terry Owen
Company: Bubble Bus Software, 87 High Street, Tonbridge, Kent. Tel: 0732 355962.
Hardware: CBM 64, cassette player, joystick optional
Type of game: Arcade
Graphics: ****
Sound: ***
Playability: ***
Description: Shoot the eagles using two types of firing
Price: £6.99
CCI Rating: ***

CHARIOT RACE

To make the most of this game two players are needed, but it can still be enjoyed by an individual. Sinister and Dexter are the two charioteers and the aim is too reach the finishing line and push all the other chariots into the side.

Points are scored by destroying other chariots, the other player's chariot and going as fast as possible. The highest speed a chariot can go is 250 and if the chariot goes too slow, spectators throw destructive fireballs onto the track. There are twenty laps to complete and in each lap more chariots appear and start to fight back. On either side of the screen the current score and the chariots pushing power are shown, The number of laps completed, the speed and the highest score are depicted on top.

It's an exciting game and very good value.

Title: Chariots Race
Programmer: Paul Hope
Company: Micro-Antics, Little Home, Hawthorn Lane, Codsall, Wolverhampton. Tel: 0907 45147.
Type of game: Arcade
Graphics: ****
Sound: ***
Playability: ****
Description: Race chariots round twenty laps and knock rivals in to the side.
Price: £6.95
CCI Rating: ****

NURSERY NIGHTMARE

This game bears an uncanny resemblance to Egbert by Games Machine, the only difference being that this one involves a maid, a baby and a milk bottle rather then Egbert and an egg.

The screen is divided into three. In the middle lane the player manipulates the maid who has to catch the baby, drop him to cross into the outer lane, collect the bottle and dash back to catch the baby before it falls. If it does fall angry Agnes eliminates the maid. There are three lives to each game. Nursery objects present a hazard and must be avoided. There are five levels and a player can only pass into one when the first one has been successfully completed.

The joystick control is smooth and the game is quite amusing to play.

Title: Nursery Nightmare
Programmer: Alan Osborne
Company: Cable Software, 52 Limbury Road, Luton, Bedfordshire LU3 2PL. Tel: 0582 591 493
Hardware: CBM 64, cassette recorder and joystick.
Type of game: Arcade
Graphics: **
Sound: **
Playability: ***
Description: Catch the baby, pick up milk bottle and feed it.
Price: £7.50
CCI Rating: **

ARE YOU OUR MASTER GAMER?

At the Commodore Show, to be held at London's Novotel (previously the Cunard) from 7 June to 9 June, Commodore Computing International will be looking for the CCI Master Gamer – giving you a chance to prove just how good you are at playing computer games.

We will have a selection of games which have been chosen to test your skills as a games player to the full. There will be lots of prizes and an overall grand prize which will be announced in the June issue. (We want to encourage women in computing so there will be some special prizes). Entry forms will be available in the June issue of Commodore Computing International – we will be giving priority to those with entry forms so make sure you get your June issue of Commodore Computing International by placing an order with your newsagent now.

MANIC MINER

Miner Willy has stumbled on a fortune, but to get to it he has to travel down through twenty underground caverns. The game follows the infamous Kong arcade game format with disintegrating platforms, innumerable obstacles and nasties like poisonous pansies, slime and manic mining robots. Each player gets three lives.

Each cavern has a theme – Menagerie, Abandoned Vitamin Works, Attack of the Mutant Telephones, Amoebatrons Revenge until finally the Final Barrier is reached. The screen on which the game takes place is small in comparison to the screen surface and it seems that the game is a straight conversion from the Spectrum version – a pity. The collision detection of sprites was intensive and it was almost impossible to get past the first cavern because miner Willy kept exploding.

We were slightly disappointed by this game and although it contained some nice ideas and interesting sound effects, the 64 conversion was not quite good enough.

Title: Manic Miner
Programmer: Matthew Smith (conversion by Chris Lancaster)
Contact: Software Projects, Bear Brand Complex, Allerton Road, Woolton, Liverpool. Tel: 051 428 7990.
Hardware: CBM 64, cassette recorder and optional joystick
Type of game: Arcade
Graphics: ***
Sound: ***
Playability: ***
Description: Miner Willy must travel through 20 caverns avoiding nasties to reach the fortune.
Price: £7.95
CCI Rating: ***

CHINESE JUGGLER

The graphics in this game are clever and give the game much of its appeal. Using a joystick, the player manipulates the oriental man to collect plates and place them on poles.

The graphics are so accurate that the juggler must move around obstacles and has to be in exactly the right position before picking a plate up. The plates have to be respun regularly and in each level the frequency at which they stop spinning increases. There are five colours and each one has a numeric value, for instance white is worth more points than purple. Extra points are also awarded for juggling tricks.

Once all the plates are spinning on the eight poles, a jolly musical fanfare announces the juggler's success and he is ready for the next level. The music is excellent and adds to the game's attractions. Play is against the clock and bonus points are awarded for completing each level within the time frame. There are ten levels to complete.

The game is amusing and it is not difficult to attain a reasonable standard quickly. In fact it is perhaps too easy. We managed to get a score which almost outgrew the available space!

Title: Chinese Juggler.
Programmer: Hungarian author.
Company: Ocean Software Ltd, Ralli Building, Stanley Street, Manchester. Tel: 061 832 9143.
Hardware: CBM 64, cassette player and joystick.
Type of game: Arcade.
Graphics: *****
Sound: ****
Playability: *****
Description: Simultaneously balance eight spinning plates within a time limit.
Price: £6.90
CCI rating: ****

MR WIMPY

Mr Wimpy is based on the unlikely theme of making good hamburgers and is divided into two parts.

In the first part Mr Wimpy has to assemble the burger ingredients and to do so he has to cross the screen with a tray and collect the bread, ham and cheese. Manholes and burger thiefs have to be avoided. Once they have all been successfully collected, the burgers have to be made. In the kitchen, Mr Wimpy has to make four burgers by freeing the ingredients – two bun halves, cheese, lettuce and ham in order from the four levels so that they fall into a pan at the bottom.

Kitchen rebels – eggs, pickles, sausages chase him, but he can throw pepper to defend himself, but there are only three chances unless he picks up the bonus gems. ice-cream or coffee which give him an extra chance to shoot. The screen shows the current score, highest score, number of lives left (there are three per game) and the number of peppers left.

Joystick control is sensitive, the graphics are colourful and fun and the screen scrolling is smooth. A very good game.

Title: Mr Wimpy
Programmer: David Selwood
Company: Ocean Software Ltd, Ralli Building, Stanley Street, Manchester M3 5FD
Hardware: CBM 64, cassette recorder, joystick optional
Type of game: Arcade
Graphics: ****
Sound: **
Playability: ****
Description: Guide Mr Wimpy in his task to make the best hamburgers in town
Price: £6.90
CCI Rating: ****

BLACK HAWK

Conceived during the Falklands, the idea of this game is to guide the Black Hawk (the world's deadliest aircraft) across enemy territory to liberate a small group of islands. To get the most from this game you are advised to read the instruction leaflet very carefully. In theory, it is fairly complicated game with different weapons being made available to you as your score progresses. Unfortunately Black Hawk does not live up to expectations in practise.

Your plane is fitted with an on-board computer, with dual attack and defence screens. All this means is that the sprite changes.

The game suffers from an apparent lack of thought concerning the graphics. It's hard to take things seriously when tanks appear from out of the sea and when the scenes change so much that at one moment you are on the edge of water, but in the next instance it has gone. It is also irritating in the early stages of the game when each attack is broken up by the appearance of the introductory screen.

Title: Black Hawk
Programmer: Dean Lock
Company: Creative Sparks, Thomson House, 296 Farnborough Road, Farnborough, Hants. Tel: 0252 543333
Hardware required: 64, cassette recorder, joystick
Type: Action/strategy
Graphics: **
Sound: **
Playability: **
Description: Aircraft mission to liberate small group of islands
Price: £7.95
CCI rating: **

Computerama 64

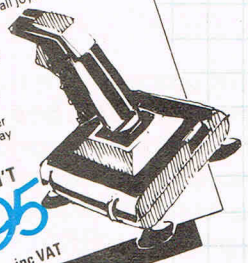
the source

QUICKSHOT II
Deluxe Joystick Controller

- NOW WITH RAPID FIRE FEATURE
- The latest version of this most popular of all joysticks
- Robust, Accurate & Responsive
- BETTER MADE For longer life
- Long cord & TOUGH moulded plug
- Self-centring Joystick at an unbeatable price
- TWIN Fire buttons – for maximum control & comfort
- PISTOL GRIP – comfortable over many exciting hours of game play

REACHES THE SCORES OTHER JOYSTICKS CAN'T

ONLY £10.95 inc VAT

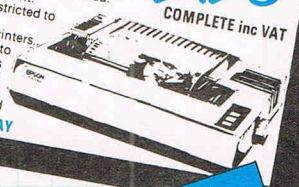


EPSON FX80
FOR THE COMMODORE 64

This most popular of HIGH PERFORMANCE dot-matrix printers can now be connected to your COMMODORE 64. SUPPLIED COMPLETE with the Audiogenic Monitor Cartridge and Centronics lead. Ready to plug in and print. No longer are you restricted to the performance of Commodore's own printers. Print at 160 cps in up to 16 different print styles and sizes, or download your own character set. Enjoy Epson quality and speed.

ONLY £425 COMPLETE inc VAT

ORDER TODAY



COMMODORE 1541
DISC DRIVE

6 games + Easy Script Word Processor AND Future Finance An Unbeatable Combination!! Speed up your Business today

We can supply the largest range of COMMODORE 64 software. Order with Confidence today. We specialise in being first with the best.

FREE software

ONLY £229 inc VAT

WE STOCK A VAST RANGE OF BOOKS. PLEASE RING, OVER 50 IN STOCK.

THE COMPUTERAMA 64 PRICE PROMISE

Our prices are the BEST. If you find that you could have bought an identical product, currently advertised and in stock at a lower price, we will CREDIT the difference.

COMPUTERAMA 64 are planning many exciting deals for 1984. Drop us a line, we'll put you on our mailout list and keep you in touch with the exciting world of Computerama 64. Do it today. It costs nothing and the benefits are enormous.

THE COMPUTERAMA 64 GUARANTEE OF SERVICE

So sure are we that we have the BIGGEST & BEST catalogue of software and accessories – over 600 items – that WE CHALLENGE YOU to order an item we can't supply. Give us 7 days, if we can't despatch we will send you a FREE GIFT – And return your cheque.

SAME DAY DESPATCH ON STOCK ITEMS

RING FOR LATEST PRICES

MANY REDUCTIONS EXPECTED

FREE with every order, five pounds worth of moneysaving vouchers

ALLIGATA		INC VAT
Aztec Tomb Adventure	C	7.95
Bat Attack	C	7.95
Blagger	C	7.95
Damsel in Distress	C	7.95
ANIROG		
Galaxy	C	7.95
Krazy Kong	C	7.95
Moon-Buggy	C	7.95
Skramble	C	7.95
3-D Time Trek	C	7.95
AUDIOGENIC		
Motor Mania	C	8.95
Grand Master Chess	C	17.95
Road Toad	C	7.95
R-Nest	C	7.95
Word Hunt	C	7.95
BUBBLE BUS		
Hustler	C	6.99
Kick-Off	C	6.99
Widows Revenge	C	6.99
GAMES MACHINE		
The Fabulous Wanda	C	7.95
LLAMASOFT		
Hover Bover	C	7.50
Lazer Zone	C	7.50
Matrix	C	7.50
Mutant Camels	C	7.50
Mutant Camels Revenge	C	7.50
LIVEWIRE		
Grid Trap 64	C	7.95
Jumping Jack 64	C	7.95
MERLIN		
Crazy Caveman	C	7.95
Blue Moon	C	7.95
Pixie Pete	C	7.95
MELBOURNE HOUSE		
Hobbit	C+B	14.50
MONDATA		
Super Copter	C	7.95
Tax-Man	C	7.95
OCEAN		
Hunchback	C	6.90
Mr Wimpy	C	6.90
QUICKSILVA		
Aquaplane	C	6.95
Purple Turtles	C	7.95
Quintic Warrior	C	6.95
Ring of Power	C	6.95
ROMIK 1		
Dickies Diamond	C	7.95
Stellar Triumph	C	7.95
TERMINAL		
Super Dogfight	C	7.95
Super Gridder	C	7.95
VIRGIN		
Falcon Patrol	C	6.95

PRINTERS FOR 64	INC VAT
Commodore MPS 801	229.00
Commodore 1520 4 Colour Printer Plotter	99.95
Epson RX80	279.00
Epson RX80 FT	299.00
Epson FX80 Package	425.00
Juki 6100 Daisywheel 18cps	448.00
Centronics – Monitor Interface	29.95
Centronics – Cassette Driver	7.95
Centronics – Cable	14.95
MONITORS	
Commodore 1701 Colour	219.00
Fidelity 14" Colour	229.00
Sanyo 12" Green	89.00
Phoenix 12" Amber H Res	129.00
ACCESSORIES	
1541 Disk Drive + Easy Script + Future Finance + 6 free Games	229.00
C2N Cassette Recorder	44.90
Cassette Interface	14.90
Deluxe Dust Cover	5.95
Tac II Joystick	18.95
Quickshot II Joystick	10.95
Stack Light Pen	27.95
IEEE Interface	87.00
Interpod	114.95
KoalaPad Touch Tablet	83.95
Video Cable	10.95
Z80 Video Pak	(Rom)249.95
COMMODORE EDUCATIONAL SOFTWARE	
Biology	C 9.95
Chemistry	C 9.95
English Language	C 9.95
Geography	C 9.95
History	C 9.95
Mathematics I	C 9.95
Mathematics II	C 9.95

COMMODORE BUSINESS SOFTWARE		
Easy Script	D	74.95
Easy Spell	D	49.95
Future Finance	D	74.95
Easy Stock	D	74.95
COMMODORE UTILITIES		
Intro to Basic pt I	C D + B	14.95
Intro to Basic pt II	C D + B	14.95
Gortec & Microchip	C	14.95
Assembler Tutor	C D	29.95
Assembler Development	D	24.95
Programmers Utilities	D	14.95
Petspeed 64	D	49.95
Simons Basic	R	49.95
COMMODORE GAMES SOFTWARE		
International Soccer	R	9.99
Lazarian	R	9.99
3rd PARTY BUSINESS SOFTWARE		
Micro Simplex	D	172.50
Multiplan	D	79.95
Practicalc	D	39.95
Superbase	D	99.95
Wordcraft 40	R	89.95
Magpie	R	99.95
Templates for Magpie	D	29.95
ANAGRAM		
Sales Ledger	D	75.00
Purchase Ledger	D	75.00

DIALOG		
Transact	D C	30.00
Invostat	D C	30.00
Database + Labels	D C	34.00
DFM Database	D C	24.00
KOBRA		
Sales Accounting	D	113.85
Purchase Accounting	D	113.85
Stock Control	D	113.85
Diary 64	D	44.85
Calc Result	D R	125.35
Easy Calc Result	D	78.85
Paper Clip	D	98.90
LIVEWIRE		
Grid Trap 64	C	7.95
Jumping Jack 64	C	7.95
MERLIN		
Crazy Caveman	C	7.95
Blue Moon	C	7.95
Pixie Pete	C	7.95
MELBOURNE HOUSE		
Hobbit	C+B	14.50
MONDATA		
Super Copter	C	7.95
Tax-Man	C	7.95
OCEAN		
Hunchback	C	6.90
Mr Wimpy	C	6.90
QUICKSILVA		
Aquaplane	C	6.95
Purple Turtles	C	7.95
Quintic Warrior	C	6.95
Ring of Power	C	6.95
ROMIK 1		
Dickies Diamond	C	7.95
Stellar Triumph	C	7.95
TERMINAL		
Super Dogfight	C	7.95
Super Gridder	C	7.95

FROM THE U.S.A

ADVENTURE INTERNATIONAL		
Arex	C D	28.95
Airline	C D	20.50
Diskey	D	36.00
ARTWORX		
Spare Change	D	24.95
Strip Poker (over 18's)	D	26.50
ATARISOFT		
Centipede	R	39.95
Defender	R	39.95
Donkey Kong	R	39.95
Pacman	R	39.95
BRODERBUND		
Davids Midnight Magic	D	24.95
Choplifter	R	26.95
Serpentine	R	28.95
Seafox	R	28.95
Lode Runner	D R	24.95 29.95
DATAMOST		
Aztec	D	28.95
Swashbuckler	D	24.95
Roundabout	D	21.50
Bilestoad	D	21.50
Mating Zone	D	21.50
Paint Wizard	D	35.95
Wiz 'n' Roo	D	24.95
Monster Smash	D	24.95
Paint Wizard	C	35.95
Topsee-Turvee	C	24.95
DATASOFT		
O'Riley's Mine	C D	21.95
Moon Shuttle	C D	21.95
Pooyan	C D	21.95
ELECTRONIC ARTS		
Hard Hat Mack	D	29.95
Worms	D	29.95
Mule	D	29.95
Pinball Construction Set	D	29.95
Archon	D	29.95
Murder on the Zinderneuf	D	29.95
The Tesserat Strategy	D	29.95
EPYX		
Crush Crumble Chomp	C D	20.45
Curse of Ra	C	13.45
Jump Man	C D	27.50
Jump Man Junior	R	28.95
Pitstop	R	33.15
Sword of Fargoal	C D	20.50
Temple of Apshai	C D	24.95
Upper Reaches of Apshai	C D	13.50
FIRST STAR		
Bristles	T	24.95
Flip & Flop	T	24.95

FUNSOFT		
Snookie	C D	24.95
HAYDEN		
Sargon Chess II	C D	28.95
INFOCOM		
Deadline	D	34.95
Starcross	D	28.95
Zork I, II & III	D	28.95 each
Suspended	D	35.95
Witness	D	35.95
Planetfall	D	35.95
Enchanter	D	35.95
Infidel	D	35.95
MMG		
Final Flight	D	25.95
MUSE SOFTWARE		
Castle Wolfenstein	D	24.95
SCREENPLAY		
Pogo Joe	C D	25.95
SEGA CONSUMER PRODUCTS		
Star Trek	R	28.95
Buck Rogers	R	28.95
Congo Bongo	R	28.95
SIERRA ON LINE		
N Crossfire	D	21.95
Frogger	D C	24.95
Threshold	R	27.95
Jawbreaker	D R	27.95
Mr Cool	R	27.95
SIRIUS SOFTWARE		
Snake Byte	D	24.95
Bandits	D	29.95
Way Out	D	29.95
Blade of Blackpoole	D	22.50
Fast Eddie	D	24.95
Turmoil	D	24.95
Repton	D	29.95
Squish 'em	D	24.95
Gruds in Space	D	27.50
Wavy Navy	D	29.95
STRATEGIC SIMULATIONS		
Knights of the Desert	D	29.00
Combat Leader	D	29.00
Eagles	D	29.00
SUBLOGIC		
Flight Simulator II	D	29.95
Night Mission Pinball	C D	21.95
SYNAPSE		
Ft Apocalypse	C D	23.00
Drelbs	C D R	24.95
Sentinel	C D	24.95
Protector II	C D	24.95
Shamus	C D	24.95
Survivor	C D	24.95
Blue Max	D	24.95
Zaxxon	D	24.95

ORDER BY MAIL
No Stamp Required
Post your order today to
COMPUTERAMA
DEPT. CBM 2
FREEPOST
STAFFORD ST16 2BR

ORDER BY TELEPHONE
For ACCESS or VISA 24 hour ORDER HOT-LINE
Dial 0785 44222

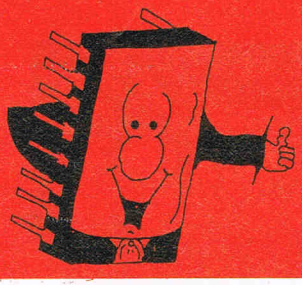
CARRIAGE
50p postage on all orders under £25
Securicor delivery on high value items £8 eg printers + monitors disc drives

Computerama 64

STAFFORD
59 Foregate Street

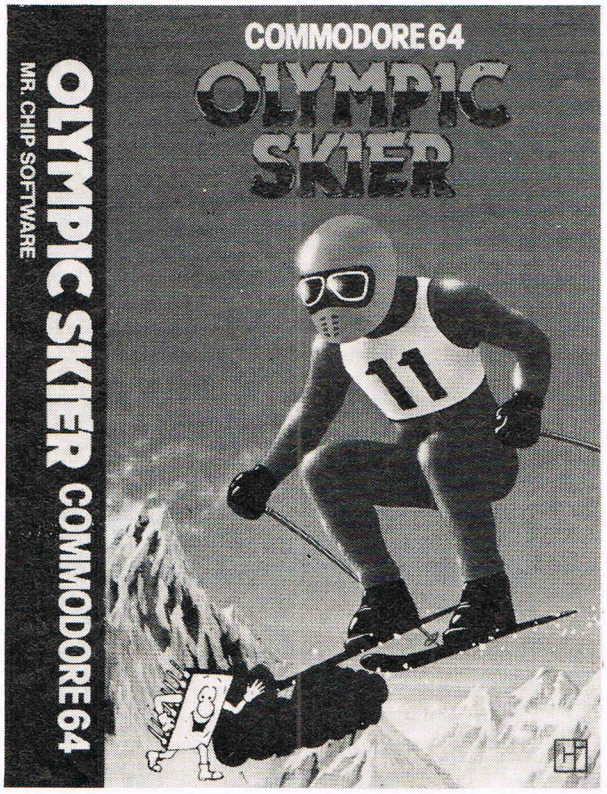
STOKE-ON-TRENT
11 Market Square Arcade, Hanley

SHREWSBURY
13 Castle Gates



Mr. Chip SOFTWARE

NEW For the Commodore 64



OLYMPIC SKIER

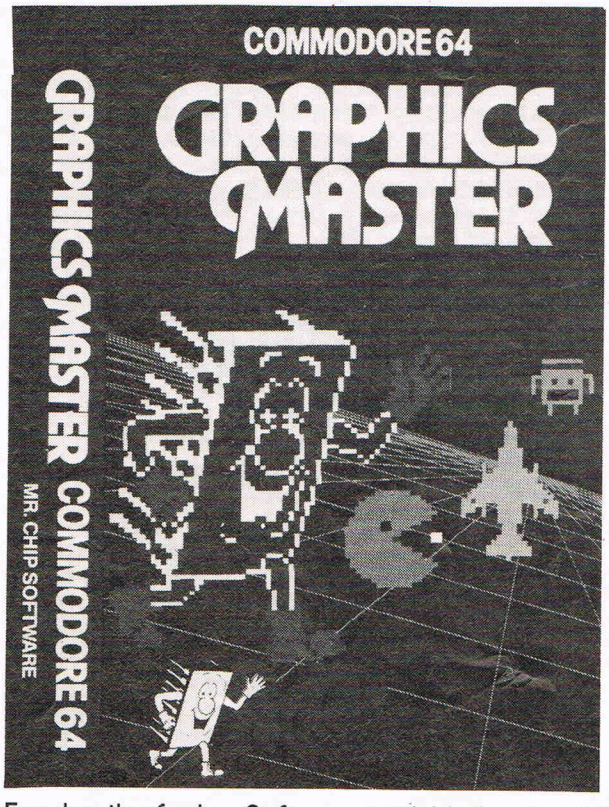
Thrill to the excitement of your own winter olympics with this great new game from the author of JACKPOT. Infact this program contains not one game but three. Manoeuvre through the gates on the SLALOM. Press your man to the limit on the SKI-JUMP and speed down the DOWNHILL course jumping and avoiding the obstacles in your way. 100% machine code, joystick or keyboard control. **£5.99.**

All our CBM 64 programs are available on disk. Please allow £2.00 extra.

NEW For the Commodore 64

GRAPHICS MASTER

Allows the user to define multi-colour graphics on the Commodore 64. The program allows both user defined characters and sprites to be made simultaneously and then saved to tape or disk. As well as offering the usual edit commands, common to many programs. GRAPHICS MASTER contains many unique commands including character scrolling, inverting and even the ability to rotate characters. Full user instructions provided. **£7.50**

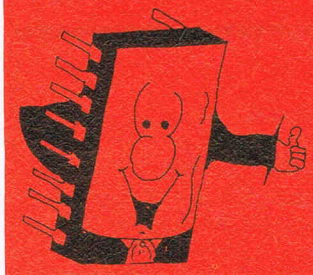


For details of other Software available for the VIC and CBM 64 send large s.a.e. for free brochure.

Send cheques/P.O.'s to
MR CHIP SOFTWARE,
DEPT CC, 9 CAROLINE ROAD, LLANDUDNO,
GWYNEDD LL30 2TY.
Tel: 0492 79026
DEALER ENQUIRIES WELCOME

Access

PROGRAMMERS – TOP ROYALTIES FOR QUALITY SOFTWARE



Mr. Chip

BUSINESS SOFTWARE

ACCOUNTS PACKAGE

This series of programs is intended to provide the small to medium size business with a total accountancy package for use with the Commodore 64.

PURCHASE LEDGER

Up to three hundred purchase invoices may be recorded at a time, the data being stored on disk or cassette. The data can then be transferred to the PURCHASE ANALYSIS program for breakdown into months and years. Features include up to 100 supplier accounts and 50 nominal accounts, VAT inputs and printout facility **£25.00**

SALES LEDGER

Records up to three hundred invoices at a time, these can be transferred to the SALES ANALYSIS program for analysis. Features include printouts of your invoices, Current List, VAT outputs and customer accounts, up to 100 customer accounts may be used. **£25.00**

SALES JOURNAL

Designed specifically for use with a till for recording takings. Enter daily or weekly cash sales, cheque sales, other takings (non-sales) and returns. Printout facility with totals of cash takings to date, total cheques, total Gross sales and takings, total nett sales and takings, VAT output accounts. **£25.00**

PURCHASE ANALYSIS

This enables any number of invoices to be processed into monthly and annual breakdowns. Up to five years accounts at a time may be stored. The program allows storage of data and processing from any given month of that financial year. Nominal accounts are stored annually and a current creditor total recorded for use in the FINAL ACCOUNTS program. **£25.00**

SALES ANALYSIS

This program processes a data in the same way as the PURCHASE ANALYSIS, but there are no nominal accounts. **£25.00**

FINAL ACCOUNTS

The data from the SALES LEDGER and PURCHASE LEDGER can now be converted into actual final accounts, after being processed through the PURCHASE and SALES ANALYSIS progams. **£25.00**

All available on cassette or disk.
Please state requirements when ordering.

Special Offer SAVE £35.00

THE COMPLETE PACKAGE FOR £115.00

Send cheques/P.O.'s to

MR CHIP SOFTWARE,

DEPT CC, 9 CAROLINE ROAD, LLANDUDNO,
GWYNEDD LL30 2TY.
Tel: 0492 79026

DEALER ENQUIRIES WELCOME

Access

AZTEC CHALLENGE

A test of endurance – an Aztec warrior must prove himself by running and jumping through a series of levels beset with danger. Using the joystick, the player guides the warrior through each of the seven levels – the gauntlet, stairs, temple, vermin, tiles, piranha and finally the bridge.

Dangers include falling spears, cracks in the floor, spiked tiles and piranhas. The graphics, colour and sound are excellent and the warriors hair rises every time he jumps. On each level the music changes and the size of the buildings indicates how advanced the warrior is in completing the level.

Once the player has successfully completed all seven levels he automatically goes onto the next phase of difficulty where the action is much faster. There are four phases in total. Two players can play and each level offers five lives, once the next level is achieved the game restarts at the same level. Aztec Challenge is as its title suggests an excellently challenging game.

Title: Aztec Challenge
Programmer: Paul Norman
Contact: Audiogenic Ltd, PO Box 88, Reading, Berks. Tel: 01-290 6044 or 0734 586334
Hardware: CBM 64, disk drive and joystick.
Type of game: Arcade.
Graphics: ****
Sound: *****
Playability: *****
Description: Aztec Warrior has to run and jump through seven levels avoiding traps and obstacles.
Price: On disk £12.95 and on cassette £8.95
CCI Rating: *****

BOOGA-BOO (The Flea)

"Booga-Boo we love you" is the title to the games introduction and it's true! This game just oozes with cuteness – with its little hopping flea and the strange world it inhabits.

The scene is set in a cavern containing weird, vegetation clad rocks. The graphics are bright and excitingly different – a demo at the beginning shows them off. The sprites are so exact that when Booga-boo falls over, his legs go all crooked looking very realistic.

The object of the game is to move the flea from the bottom of the cavern to the top. Using the joystick and the strength meter running along the bottom of the screen, the player manipulates the flea so that it hops from toadstool to ledge up to the top avoiding the dragon and Venus flea trap. The screen scrolls left and right so that the best route to the top can be ascertained.

This game takes a bit of getting used to, but after a few tries, signs of improvement are obvious. The player only gets one life per game and every time the flea is eaten, the demo is shown. After the twentieth time it gets extremely tedious.

The graphics are vivid, the sounds very effective and the idea original, we loved the game and think most other people will too.

Title: Booga-Boo (the flea)
Programmer: Indescomp
Contact: Quicksilva Ltd, 13 Palmerstone Road, Southampton, SO1 1L1. Tel: 0703 20169.
Hardware: CBM 64, cassette recorder and joystick
Type of game: Arcade
Graphics: *****
Sound: ***
Playability: ****
Description: Manoeuvre Booga-boo from the bottom of the cavern to top avoiding the dragon and flea traps.
Price: £7.95
CCI Rating: *****

SLINKY

Slinky is a coiled metal spring and the player uses a joystick to move over the 54 cubes making up the playfield, changing the colour of each one as he steps onto them.

Friends of the wizard: Rusty rust cloud, Ralph raindrop, Marge magnet and Charlie the oilcan pass across the screen and can damage him. For example if the rust cloud pass over Slinky he turns brown.

The player gets five lives and 25,000 points to start with. These points can be gained or lost, for instance Slinky loses 100 points every time he moves, but if he becomes rusty the same move costs him 500 points.

There are 99 levels and a comprehensive manual explains the scoring system. The program makes good use of multi-coloured sprites and some of the demos are very amusing. Sound has also been utilised effectively and when Slinky completes one level, a musical fanfare announces the fact together with a waving flag. We don't know what happens when you complete the 99th level, but I don't think the game creators do either!

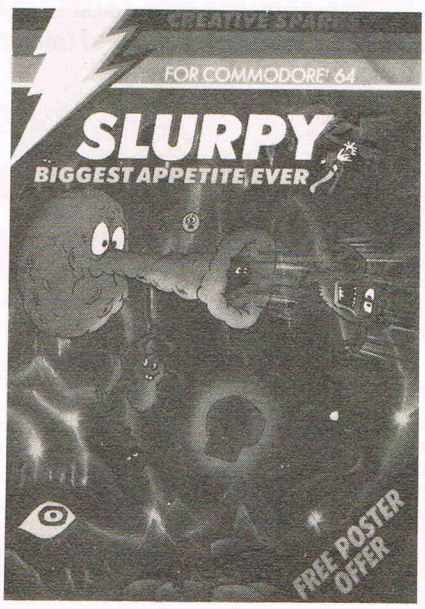
It is compulsive playing and there are a lot of little extras which give the game its overall attraction.

Title: Slinky
Programmer: Paul Norman
Company: Audiogenic Ltd, PO Box 88, Reading, Berks. Tel: 290 6044 or 0734 586334.
Hardware: CBM 64 or SX-64, disk drive or cassette recorder and joystick.
Type of game: Arcade
Graphics: ****
Sound: ***
Playability: ****
Description: Slinky the spring has to change the colour of the playfield and evade nasty creatures.
Price: On disk £12.95 and on cassette £8.95
CCI Rating: ****

SLURPY

Slurpy is a lovable little cave-dwelling creature, born with a large snout-like mouth and an insatiable appetite. He is constantly under attack from various enemies and your task is to help him out-manoeuvre them, using the joystick, and gobble them up. Once the little fiends are in line with the vortex in front of Slurpy's mouth they are automatically sucked in, but watch out if they turn red – that means they are poisonous and will kill Slurpy unless he spits them out quickly. Another danger to look out for is the earthquakes which happen if you take too long in slurping up all the glowbugs. These cause the cave roof to collapse onto Slurpy.

The graphics are simple, but effective and there's probably a lot more to them



than meets the eye. The sounds incorporated are also amusingly realistic – you can see (or hear) why they call him Slurpy!

Although it's a relatively simple game, for one or two players, Slurpy brings a definite smile to your face and is mildly addictive.

Title: Slurpy
Programmer:
Company: Creative Sparks, Thomson House, 296 Farnborough Road, Farnborough, Hants. Tel: 0252 543333
Hardware required: 64, cassette recorder, joystick
Type: Arcade
Graphics: ***
Sound: ****
Playability: ****
Description: Help Slurpy outmanoeuvre his enemies and eat them
Price: £7.95
CCI rating: ****

METAGALACTIC LLAMA BATTLE AT THE EDGE OF TIME

Based as the title suggests on the edge of time, an observation outpost is being attacked by Zzyaxian cyborg arachnid mutants. The only means of defence are metallamas endowed with a phenomenal spitting ability.

By using a joystick, the player controls the camels movements and can aim the spit at the spiders as they descend, from threads on a force field which crosses the screen and drop to the ground. On the ground they change into Weeviloids and destroy the camel on contact.

Strategy must be used – by aiming the spit at the force field and moving it up and down it can be directed onto the weeviloids, spiders and web threads. Points are awarded for shooting the creatures and a quota meter tells the player how far away the wave is. There are up to 99 levels of difficulty and 3 camels per game. The player's score and the highest score are displayed on the screen.

Good use is made of colour, graphics and sound and the game will appeal to most arcade game enthusiasts.

Title: Metagalactic llamas battle at the edge of time
Programmer: Jeff Minter
Company: Llamasoft, 49 Mount Pleasant, Tadley, Hants. Tel: 07356 4478
Hardware: Unexpanded VIC 20, cassette recorder, joystick
Type of game: Arcade
Graphics: ****
Sound: ****
Playability: ****
Description: Metallamas shoot spit at invading spiders and weeviloids
Price: £5.50
CCI Rating: ****

COSMONAUT

A spaceship has crashed and the Cosmonaut must free it from the tractor beam by negotiating four successive levels, switching the beam off and returning to the ship.

Lifts take the cosmonaut down to each level, but patrolling stormtroopers fire arrows and must be avoided or killed. The game ends when the player loses all of his five lives or reaches the spaceship after completing his mission.

The colour scheme in the game is rather dull, but if the graphics were more brightly coloured it would be more appealing. The joystick control was not always as sensitive as it could have been and one annoying feature of the game is that if the cosmonaut is killed on the first level with a trooper nearby the next life is lost immediately as it justs walks into him.

Points are awarded for events such as jumping on a stormtrooper or switching off a tractor beam and the players score is displayed alongside the highest score. The game is quite compelling and because there is a positive goal to be reached it would while away a few hours quite happily.

Title: Cosmonaut
Programmer: Clifford Ramshaw
Company: Melbourne House, Castle Yard House, Castle Yard, Richmond TW10 6TF. Tel: 01-940 6064.
Hardware: Unexpanded VIC 20, keyboard or joystick
Type of game: Arcade
Graphics: **
Sound: **
Playability: ***
Description: Negotiate four levels by killing or avoiding troopers and arrows to free the spaceship from a tractor beam.
Price: £5.95
CCI Rating: ***

DICKYS DIAMONDS

One of the most original games we have seen and the author is featured in this months Cult of the programmers.

In Dickys Diamonds a spider builds a web between two trees and attaches a jewel in the centre. An owl then appears and his aim is to go over every part of the web turning it black, end up above the diamond and catch it as it falls. Strategy is necessary because the spider also moves around the web turning it white again and will kill the owl if it catches up with him.

To vary the games levels there are a number of game options – nine speeds, seven types of starting web and a yes/no choice of whether to have an unlimited number of flights for the owl and a second spider. If the player chooses to have a limited number of flights the owl can only pass over part of the web he has already been over thirteen times.

The screen displays the jewel score, number of flights left, the current score and the highest score. The graphics are often complemented by sound, for instance when the owl flies he beats his wings and there is a flapping sound. Dickys Diamonds would make a good addition to a games collection because it is so different.

Title: Dickys Diamonds
Programmer: Brian O'Shaughnessy
Company: Romik Software Ltd, 272 Argyll Avenue, Slough, Berks. Tel: 75 71535.
Hardware: CBM 64, cassette recorder, joystick
Type of game: Arcade
Graphics: ***
Sound: ****
Playability: ****
Description: Guide the owl round the spiders web and collect the diamonds.
Price: £6.99
CCI Rating: ****

DETAILS

Level 9 Computing specialise in hugh, pure-text puzzle adventures with detailed scenery and a wealth of puzzles. All games have over 200 locations and a save game feature, and cost £9.90 inclusive.

MIDDLE EARTH ADVENTURES

1: COLOSSAL ADVENTURE. A complete, full size version of the classic mainframe game "Adventure" with 70 bonus locations added.

2: ADVENTURE QUEST. Centuries have passed since the time of Colossal Adventure and evil armies roam The Land. With cunning, you must overcome the many obstacles on the road to the Black Tower, source of their demonic power, and destroy it.

3: DUNGEON ADVENTURE. The trilogy is completed by this massive adventure, set in the rich caves below the shattered Black Tower. A sense of humour is essential!

THE FIRST SILICON DREAM ADVENTURE

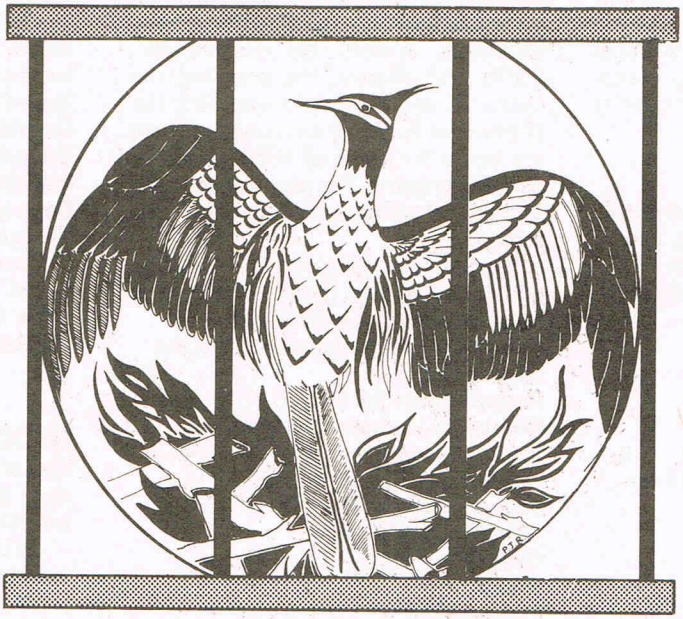
4: SNOWBALL. The first of Pete Austin's second trilogy. The giant colony starship, Snowball 9, has been sabotaged and is heading for the sun in this giant game with 7000 locations.

THE LORDS OF TIME SAGA

7: LORDS OF TIME. Our congratulations to Sue Gazzard for her super design of this new time travel adventure through the ages of world history. Chill to the Ice-age, go romin' with Caesars legions, shed light on the Dark Ages. etc. etc.

LEVEL 9 ADVENTURES

BBC 32K ***COMMODORE 64*** ***SPECTRUM*** 48K
LYNX 48K ***NASCOM*** 32K ***ORIC*** 48K ***ATARI*** 32K



Level 9 adventures are available at £9.90 from good computer shops, or mail order from us at no extra charge. Send order, or SAE for catalogue, to the address below – and please describe your micro.

LEVEL 9 COMPUTING

Dept i, 229 Hughenden Road, High Wycombe, Bucks HP13 5PG

REVIEWS

"Adventures which have a fast response time, are spectacular in the amount of detail and number of locations, and are available to cassette owners . . Simply smashing!" – *Soft, Sept 83*

"**Colossal Adventure** is included in Practical Computing's top ten games choice for 1983: "Poetic and tough as hell." – *PC, Dec 83*

"To sum up, **Adventure Quest** is a wonderful program, fast, exciting and challenging. If you like adventures then this one is for you" – *NILUG issue 1.3*

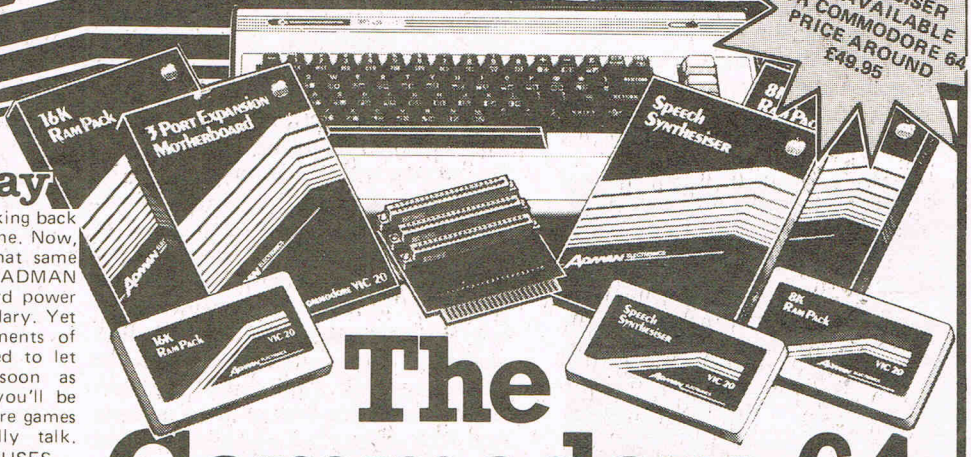
"**Dungeon Adventure** is recommended. With more than 200 locations, 700 messages and 100 objects it will tease and delight!" – *Educational Computing, Nov 83*

"**Snowball** . . As in all Level 9's adventures, the real pleasure comes not from scoring points but in exploring the world in which the game is set and learning about its denziens . . this program goes to prove that the mental pictures conjured up by a good textual adventure can be far more vivid than the graphics available on home computers." – *Which Micro?, Feb 84*

"**Lords of Time.** This program, writen by newcomer Sue Gazzard, joins my favourite series and is an extremely good addition to Level 9's consistently good catalogue . . As we have come to expect from Level 9, the program is executed with wonderful style – none of those boring "You can't do that" messages! Highly recommended." – *PCW, 1st Feb 84*

ADMAN ELECTRONICS

SPEECH SYNTHESISER NOW AVAILABLE FOR COMMODORE 64 PRICE AROUND £49.95



Add on the Adman way

Vic 20 computers have been talking back to their owners for quite some time. Now, Commodore 64 users can have that same pleasure too—by getting an ADMAN SPEECH SYNTHESISER! It's word power is endless as there is no set vocabulary. Yet operation is simple. The 64 elements of English speech are pre-programmed to let you put your words together as soon as you switch on. Just imagine.....you'll be able to program your own adventure games with characters that can actually talk. MANY LEADING SOFTWARE HOUSES ARE NOW DEVELOPING PROGRAMS THAT ARE COMPATIBLE WITH THE ADMAN 64 SPEECH SYNTHESISER. FIRST RELEASES ARE:
Twin Kingdom Valley (Bug—Byte)
Attack—Attack (Voyager)

For Vic 20 users there are also 8k and 16k RAM PACKS and a 3 PORT EXPANSION MOTHERBOARD.

Prices around:

8k Ram Pack £29.95
16k Ram Pack. £39.95
Motherboard. £19.95
Speech Synthesiser . . £49.95

The Commodore 64 finds its voice!

Adman computer accessories are available from all good computer shops. For futher information, why not take a lead from our speech synthesiser.....ask for it! See you local dealer or simply post the coupon.

Dept. C, Adman Electronics Ltd., Ripon Way, Harrogate, N.Yorks, HG1 2AU. Tel. 0621 740972

Adman Electronics Ltd. is a member of the Adam Leisure Group PLC

Please send me information on Adman Vic 20 Accessories

Name _____

Address _____

_____

5/84 64/Commodore Comp Int.

THE WIZARD AND THE PRINCESS

A cross between an adventure and an arcade game, the story is that the wicked wizard has the princess captive in his castle. The game is divided into five parts and the player – the would be rescuer, must use arcade skills to negotiate each level and take the fair damsel away.

The keyboard is used for controlling the knight and in the first part he must find the castle. On completion of each level, pressing shift run/stop loads the next part and if one level proves too much for anyone it is possible to go straight onto the next one. At the end, the only way to get back to the beginning is to reload the whole game.

Once in the castle, a dragon has to be killed, a way through the labyrinth found and monsters slain. In the final part of the adventure, the player must do battle with a troll on a bridge while holding the princess.

The controls are sometimes annoyingly slow, but the idea of having a multi-part adventure game is a good one and this game will probably appeal to the younger generation.

Name: The Wizard and the Princess
Programmer: Clifford Ramshaw
Company: Melbourne House, Castle Yard House, Castle Yard, Richmond TW10 6TF. Tel: 940 6064.
Hardware: Unexpanded VIC 20, joystick, cassette recorder
Type of game: Arcade/adventure
Graphics: ****
Playability: ****
Description: Rescue the princess from the castle by negotiating five different game situations.
Price: £5.95
CCI Rating: ****

NEOCLYPS

The planet Neoclyps has been invaded by baddies. Radar towers have been set up and the aliens fly around in the sky terrorising the populace.

The player guides a spaceship with the joystick and must zap both aliens and the towers. The joystick control could be more sensitive. There are four levels to choose from and each game has a supply of 12 spaceships. The best way to destroy a radar is to shoot an alien first as this gives the ship a striped shield and enables the ship to pass through buildings for four seconds.

The graphics are good, but rather dull – the landscape would be more interesting if it was brightly coloured. The radar smokes when it has exploded – a nice touch. There are four quarks and the status board at the end of each game indicates the score, the region the player was in and the number of radars and aliens left. If you manage to clear the planet the player returns to even more aliens and towers.

Neoclyps is the sort of game that would fill a few spare hours very nicely.

Title: Neoclyps
Company: Personal Software Services, 452 Stoney Stanton Road, Coventry.
Tel: 0203 667556
Hardware: CBM 64, cassette recorder, joystick
Type of game: Arcade
Graphics ***
Sound: **
Playability: ***
Description: Destroy the alien spaceships and towers on the planet Neoclyps.
Price: £7.95
CCI Rating: ***

FORBIDDEN FOREST

The hunter armed with a bow and arrow is in the forest and must defend himself against a series of attacks. Spiders, bumble bees, frogs, dragons, skeletons and finally the demogorgon assail him. The fire button on the joystick controls the arrows, but it takes such a long time for the arrows to reload, that the hunter spends most of the time running away.

There are four levels ranging from innocent to crazy and the complicated scoring system is explained in the manual. The graphics are three-dimensional and quite effective, but occasionally ragged round the edges. There are four forest areas for the hunter to move into and the moon passing across the sky, representing time is a nice effect.

There are some useful controls, for instance the player can start the game from where he left off rather than going to the beginning again. Quite a good game for those who enjoy fighting off different types of attack to reach a goal.

Title: Forbidden Forest
Programmer: Paul Norman
Contact: Audiogenic Ltd, PO Box 88, Reading, Berks. Tel: 01-290 6044 or 0734 586334
Hardware: CBM 64, disk drive and joystick
Type of game: Arcade
Graphics: ***
Sound: ***
Playability: ****
Description: Hunter fights off the forest creatures by shooting them with his bow and arrow.
Price: On disk £12.95 and on cassette £8.95.
CCI Rating: ***

MULTITRON

Multitron is an exciting game which inspires compulsive playing. The player is in command of a starfighter ship and must defend it from successive waves of space creatures by controlling the joystick or keyboard.

There are several levels, each one having to be completed before the player can move onto the next. There are seven types of creatures and each one has a slightly different way of approaching the attack, but they all drop bombs. The Meanies are the first assailants and worth ten points each, whereas the more aggressive Cosmic Phoenix is worth 75 points. An energy indicator on the screen shows the player how much power there is left in the laser cannon.

The final task in any level is steering the ship through a space corridor and if that is successful a bonus life is awarded. There are four to start with. There is no goal except to get onto the next level successfully. Good use is made of the graphics and the sound suits the game. A good game for the VIC if you like attack and evade tactics.

Title: Multitron
Programmer: T. Flanders
Contact: Sumlock Microware, Royal London House, 198 Deansgate, Manchester
M3 3NE. Tel: 061-834 4233.
Hardware: Unexpanded VIC 20, cassette recorder, keyboard or joystick
Type of game: Arcade
Graphics: ***
Sound: **
Playability: ****
Description: Defend a starship from seven types of space creature and steer a way through the space corridor.
Price: £7.95
CCI Rating: ****

All games reviews appearing in this magazine are personal opinions and serve only as a guide to new games on the market. Our star ratings for graphics, sound, playability and the CCI rating are as follows:

*** = Poor**
**** = Average**
***** = Good**
****** = Very good**
******* = Excellent**

NDS BIG NAME DISCOUNTS

COMMODORE 64

		R.R.P.	N.D.S. PRICE
BUSINESS			
Bank Street Writer	Disk	56.30	43.95
Household Finance	Cass	24.10	18.84
Heswriter 64	Cart	36.86	28.78
Check Ease	Cass	24.78	19.36
Multiplan	Disk	80.44	68.00
Home Accountant	Disk	60.32	47.10
EDUCATIONAL			
Early Games for Young Children	Cass	24.10	18.84
Early Games Fraction Factory	Cass	24.10	18.84
Story Machine	Cart	32.15	25.12
Facemaker	Cart	28.52	21.90
Kindercomp	Cart	24.10	18.76
Alphabet Zoo	Cart	28.52	21.90
Micro Addition/Division/ Multiplication/Subtraction	Cass	each 24.10	18.84
ENTERTAINMENT			
Choplifter	Cart	33.06	25.79
Lode Runner	Cart	33.35	25.79
Jumpman	Cass	33.06	25.79
Sargon II	Cass	28.92	22.50
Deadline	Disk	41.34	32.29
Frogger	Cass	28.92	22.57
Fort Apocolypse	Cass	28.92	22.57

Plus 5% Further Discount and monthly bargains for club members only! Membership Fee £5 per year

nds Nationwide Discount Software

To Nationwide Discount Software, P.O. Box No 28, Tunbridge Wells, Kent TN1 2YU. Tel: 0892 36832/3.
Please send me the following items:

DESCRIPTION	MACHINE	PRICE
MEMBERSHIP FEE OF £5 A YEAR		
POSTAGE AND PACKING		0.80
	TOTAL	

I ENCLOSE CHEQUE/POSTAL ORDER MADE PAYABLE TO NATIONWIDE DISCOUNT SOFTWARE READERS ACCOUNT. REMITTANCES SHALL BE HELD ON YOUR BEHALF UNTIL GOODS ARE DESPATCHED. ALL ITEMS SUBJECT TO AVAILABILITY, DELIVERY 21/28 DAYS.

NAME _____ MEM No. _____
ADDRESS _____
_____ TEL. _____

ALL PRICES INCLUSIVE OF VAT

☎ Full catalogue available upon request. Phone 0892 36832/3.

CBM 64 & VIC 20 CENTRONICS PRINTER INTERFACE VICSPRINT 2064

*** A smart cartridge which plugs into the user port of either the CBM 64 or VIC 20, with a cable connecting the serial IEEE port on disc drive or computer plus a ribbon cable with 36 way centronics plug to plug into your printer.
*** Looks like 'standard' CBM 64 or VIC 20 printer (without graphics).
*** Leaves cartridge port free for cartridge based software.
*** Totally 'system software transparent' (try using a ribbon cable adaptor with 'Vicwriter').
*** Works with 'Easyscript', 'Practicalc' etc. and a large range of printers including Juki 6100, CP80, Gemini 10X etc., etc.
*** TWO YEAR GUARANTEE As manufacturers of this product we can offer a guarantee of two years with the utmost confidence.
*** Please confirm your requirements and suitability with us before purchasing.
*** Ribbon cable version available price £17.50 inc. VAT (£1 P&P) works with several packages but requires software adaptor tape to do listings etc., (£7.95).
*** Overseas price (£43.43) add £3 P/P, or £1 for B.F.P.O. orders.
*** AVAILABLE FROM THE MANUFACTURERS:

£49.95
INC. VAT **(£1 P&P)**

SMITH CORONA TP1 PLUS VICSPRINT 2064
ONLY
£299.00
INC. VAT **(CARRIAGE £7.50)**

RAM ELECTRONICS (FLEET) LTD., (CCI)
106 FLEET ROAD, FLEET, HAMPSHIRE GU13 8PA
Telephone: (02514) 25252.
Callers welcome Monday to Saturday (closed Wednesday)
Send cheque or postal orders or pay by VISA or ACCESS.

IDEAL FOR WORD PRO PRINTING, ETC.

Games graphics

A preview of Romik's Graphics Editor and a look at Adman's speech synthesiser for the 64

All good games need graphics and in the early days a prospective programmer would have had to spend hours with graph paper and a calculator to get a picture. To make life easier, Romik are bringing out the Graphics Editor which is due for release in the next couple of months. The program is divided into three parts – the character editor, the sprite editor and the screen editor. Although each one is a separate program, they can be combined. For example a picture can be created by using the screen editor with programmable characters from the character editor.

The manual is detailed and explains in a clear and precise style exactly what command facilities there are in each system. All the commands are single characters except for the screen editor, so that the controls are kept to a minimum. In each section, the letter controls are clearly listed alongside the appropriate function in the program. The program had been kept as simple as possible and is extremely user friendly – anyone familiar with the 64 would have very little trouble with it.

One of the advantages of having everything done for you by Romik's graphics editor is that the time saved can be used for other things – experimenting with different characters and sprites for example. Display screens in each section are used for the creation of pictures. The graphics can be moved around, inverted, scrolled, their size altered and the border and background colours changed.

There are two screens in the character editor, one changes the characters and the other is a block display of all the characters edited in the other screen. Similarly the sprite editor has a blank screen on which to build the sprites and the side several different dimensional views show what they look like from all angles. The screen editor is used with the character editor and enables the user to experiment with a whole screenful of characters.

All three sections present a complete list of commands necessary to create some good professional looking pictures. These can be used in games and other programs. We found this program effective and simple to use. It will be invaluable to a 64 programmer.

Product:
Graphics Editor
Company:
Romik, 272 Argyll Avenue, Slough, Berks. Tel: 75 71535
Features:
Character Editor
Sprite Editor
Screen Editor
Applications:
Designing graphics for use in programs
Documentation:
Clear and detailed manual
Hardware:
CBM 64, monitor or television and cassette recorder
Price:
To be confirmed

Adman's speech synthesiser is one of the first to be released with the backing of several software companies and Voyager, Crystal and Bug-byte have already released compatible software. The package contains a motherboard which slots into the cartridge port and a cartridge which fits onto the back of that.

Attached to the cartridge is a lead which fits into the video port. It is built round a SP0256-AL2 speech processor chip which is preprogrammed to understand 64 allophones. (See our review of the VIC 20 version in March '84 issue for further information).

Product: Speech Synthesiser
Company:
Adman Electronics, Ripon Way, Ripon Road, Harrogate, North Yorkshire HG1 2AU. Tel: 0423 62642
Features:
Utilises Allophones in voice construction
Applications:
Used in educational programs
Adds speech to a number of games
Documentation:
Adequate manual with coded allophone tables
Hardware:
CBM 64 and a television or monitor
Price:
£49.95

More than fun and games!

CAESAR THE CAT

by Andromeda Software

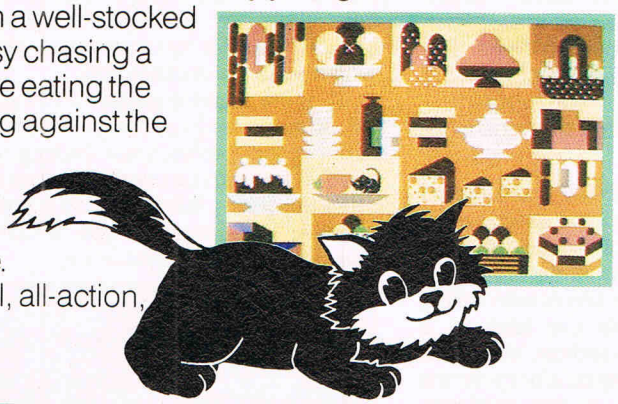
You will have more than fun and games when you meet Caesar, a cheeky young cat on duty in a well-stocked larder. He's kept busy chasing a gang of hungry mice eating the family's food. Playing against the clock, you guide Caesar along crowded shelves to pounce on the mice.

A fast, colourful, all-action, arcade-style game which is winning praise from reviewers.

'A marvellous, truly addictive game which also manages to be original, it has few peers.' ***Popular Computing Weekly***

'It's not possible to compare this game with anything I've seen before . . . Excellent.' ***Soft***

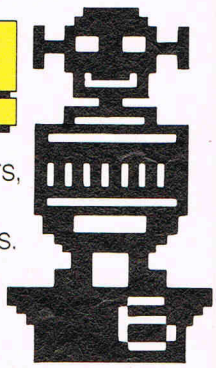
'Lovely graphics, and a fine entry into the market from Mirrorsoft.' ***Which Micro***



There's catchy music and a best-score record. Caesar the Cat is a challenge for high-scoring arcade addicts (has anyone reached a score of 10,000 yet?) as well as great fun for the novice.

Available on Cassette for the Commodore 64.

QUICK THINKING!



by Widgit Software

Two mind-stretching, space-age games to test mental arithmetic and nimble fingers.

In **Sum Vaders** alien robots invade the earth. Only quick thinking and fast reactions can prevent them. Several levels of difficulty and a two-player game with a handicap option make Sum Vaders equally testing for all family members, from 8 years to adult.

Robot Tables challenges the young player to make a series of perfect robots. With a learning mode and a testing mode this game is a fun way for early learners, and more advanced children, to master their multiplication tables.

Available now on cassette for the Commodore 64 (and also the Spectrum 48K, BBC B and Electron).

MIRRORSOFT programs are available from selected branches of W.H. Smith and Boots, and other leading software stockists. Trade enquiries welcome: phone 01-822 3580.

MIRRORSOFT

SOFTWARE FOR ALL THE FAMILY

To MIRRORSOFT, PO Box 50, Bromley, Kent BR2 9TT

Please send me the following (enter number required of each item in the space provided):

	Price	Spectrum 48K (01)	BBC B (03)	Electron (04)	CBM 64 (05)
Quick Thinking (QT01)	£6.95				
Caesar the Cat (CC01)	£8.95				

Prices include VAT and post and packaging.

I enclose a cheque/PO for £.....made payable to "Readers' Account: Mirror Group Newspapers Ltd".

I understand that my remittance will be held on my behalf in the bank account named above until the goods are despatched.

Or please debit my ACCESS/BARCLAYCARD for the sum of £.....

card no

CC1 5/84

Signature.....

Name.....

Address.....

.....Postcode.....

Offer applies to Great Britain and Eire only. Please allow up to 28 days for delivery in the UK. MIRRORSOFT is a registered trade mark of Mirror Group Newspapers Ltd., Co. Reg. No: 168660. Reg. Office: Holborn Circus, London EC1.

The cult continues

A further look at the people behind the games

Trevor Hall – Bug-Byte

Programmer Trevor Hall compares the computer game market with the music industry. He says: "The games market is tending towards the pop industry. There's a market for good rock records and also one for kids rubbish. Kids are getting more discerning in their choice of games, but they are still accepting rubbish."

Trevor, now 24, is the author of Bug-Byte's Twin Kingdom Valley, a new version of which has just been released to tie in with the new Adman speech synthesizer for the 64. All words which appear on the screen during the game are now voiced.

Two years passed from the original conception of Twin Valley Kingdom to its completion.

"It was written in stages like a book," says Trevor. "I tend to shelve one thing and get on with writing something else. Usually I'm working on about two games at a time, and a game can take between six weeks to six months to write." Trevor then allows about two months for testing his games, usually letting his friends loose on them and improving them wherever possible.

Ideas come from experience and from keeping an eye on other games on the market. "I see what other people have done and then set out to do it ten times better and ten times faster," says Trevor. His experience in the world of computers began about five years ago with a degree in computer science. Trevor explains: "I got into computers because I was good at maths. At the time the only computer you could get was a PET. I became interested in micros because I could see a market there."

From there Trevor approached Bug-Byte who accepted and published his material.

Programming is now a full time job for Trevor, but he now sticks to 'normal' working hours. "A few years ago I was working until two in the morning, but there's no point in killing yourself," he says.

Trevor is looking towards more realism in computer games and is keen on the idea of more 3D games. "We need to get past the stage of these half-baked flying saucers," he comments.

At present Trevor is putting the finishing touches to his next release. It is to be a trading game with the player as the last trader in a planetary system, each planet having its own economy. It's a mixture of adventure and arcade action, but space warfare can be avoided by those who don't enjoy 'zap, pow' games by bribing the marauding pirates.

Philip Mitchell – Melbourne House

Philip Mitchell is the man responsible for Melbourne House's The Hobbit, probably one of the most sophisticated adventure games on the market. Philip and some friends from Melbourne University originally got together with the intention of producing a better adventure system. The Hobbit story line came later.

Philip recalls: "The initial design of the system took six to eight months and then another ten months was spent in writing the story line. It took a long time to get the story working on the computer as there were a few things we weren't sure about. We had days when we did little but talk about ideas which wasted some time."

At 23, Philip has been programming for nine years, going back to his school days. His initial experience with computers came from building his own micros as a hobby, despite the fact that he has had no technical education. Studying for a degree in computer science, programming became a natural extension of Philip's interest in the world of computers.

"It's been my experience that people who have a background of work on the machines are more at home programming in Assembly language," says Philip. "It gives you a feeling of what is going on inside the computer."

When faced with deadlines, it is not unusual for Philip to be working 14 or 15 hours a day, six days a week, but as a rule he prefers to work an average of 35 to 40 hours a week. "I find that if I'm tired I don't work too well," says Philip. "At times it is better to take the whole day off."

Philip Mitchell – Melbourne House

Philip's next big project is the follow up to The Hobbit, another adventure story, but "bigger and better". This time the story is to be based on the Sherlock Holmes characters. Philip explains: "It's not based on any particular Holmes story, but the characters within the stories. The player is Holmes and the game has got all the atmosphere of Conan Doyle's books."

Philip predicts that in the next few years the personal computer as we now know it will become extremely powerful and cheap enough for everyone to afford, offering potential for some really sophisticated games. "There are so many things I want to do in the games area that my time is booked up for the next ten years," says Philip, at the same time admitting that the computer market changes very quickly. He adds: "I take things as they come. In this industry ten years is a long time – it's impossible to predict the next six months."

NEW UNEXPANDED VIC 20 GAMES DESIGNER

MAKE GREAT GAMES....

Create your own amazing games with Galactics unique GAMES DESIGNER cassette for the unexpanded VIC 20, only £9.50 including post and packing

ONLY £9.50 inc. p.p.

★No Programming experience Needed ★

With the GAMES DESIGNER you make your own machine code games. You can design all the Graphics, Screen layouts, Theme tunes, Explosions, Sound effects, Player speed, Alien speed, Skill level, Personalised game credits, Scoring values, Keys used, Number of lives, Intelligence of aliens, — whats more no programming experience needed.
Also includes 3 sample games:-
KANGA, ZYON and KRAZY MAZE.

☐ PLEASE SEND ME A GAMES DESIGNER CASSETTE FOR THE UNEXPANDED VIC 20 AT £9.50 inc. P.P.
MONEY BACK GUARANTEE

NAME _____

ADDRESS _____

☐ My Access No. is:

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

☐ I enclose a cheque/P.O. for £9.50

Send to GALACTIC SOFTWARE
Unit 7, Larchfield Estate,
Dowlish Ford, Ilminster
Somerset TA19 0PF

Galactic Software

UNIT 7, LARCHFIELD ESTATE,
DOWLISH FORD, ILMINSTER

SOMERSET TA19 0PF
TEL: (04605) 5161

Brian O'Shaughnessy – Romik

After studying electronics, unemployment forced 26-year-old Brian O'Shaughnessy to move down to London in search of work. He became an engineer and learnt about micros inside and out, repairing them during working hours and playing with them at lunchtimes and after work. Brian began programming his own material in the evenings, first on the almost forgotten UK101 computer, followed by a PET, the VIC and then the 64. "In fact as a new computer appears I have to buy it," jokes Brian.

Romik's Dickys Diamonds was written by Brian and therein lies a tale. Dicky, the little owl character, was not originally intended to be an owl. Brian explains: "My original idea was to have a dragonfly in the game but the wings are too long! Once I had decided on the owl, I spent hours looking through animal encyclopaedias in search of the perfect shape."

Dicky is now Brian's trade mark and will probably appear somewhere in all his future games. Dicky even makes a brief appearance in Brian's Graphics Editor, designed to enable people to create their own graphics and save them for use in their own games. (The Graphics Editor will shortly be released by Romik and is reviewed elsewhere in this issue.)

Brian has set himself a target of writing six games a year. He feels his background knowledge of computers is invaluable in programming.

"I've never been on any programming courses, but I do know how a computer works. When working on a game, I decide what I want to do and then use the computer to its full capabilities," says Brian. He writes each section of the program separately and tests each part as he goes along. "A lot of people write games in a hurry," comments Brian. "It takes five times as long to sort it out and you have a program full of bugs that is no good to anybody. It's best to work out everything in your head before typing anything into the computer."

For many programmers, the excitement of playing computer games is lost once they know how they work. The same is true for Brian. "I play my games so much in testing them that by the time I'm half way through I'm sick of the sight of it. Three-quarters of the way through I start thinking about what I want to work on next."

Programming takes up a fair amount of Brian's time. For six days a week he works from 9am – 6.30pm and then from 8-11pm on three evenings. But Wednesdays are a day off and computers are then a forbidden subject. In addition to all this programming, Brian is still finding the time to build his own disk drive. It is far too expensive to consider marketing, but it is a great programming aid to Brian allowing him to assemble programs at a far greater speed.

Dean Lock – Creative Sparks

Dean Lock had never seen a micro before his temporary employment with Thorn EMI as a student preparing the story boards for games. "At college we had a main frame computer with punch cards," says Dean. "That's what I thought all computers were like."

Now Dean is in charge of all 64 games for Thorn EMI's new computer games label, Creative Sparks. After initially playing computer/video games in his lunch hour and after work, Dean now gets sick of the sight of his games by the time they are finished.

Thorn EMI give their programmers six to eight months for each game, which sounds quite a long time when you're working full time on it. Dean explains that the first three to four months are taken up with the nuts and bolts of programming the game and the rest of the time is taken in tuning the game to meet everybody's tastes – "you have to ferment a game like wine", says Dean. "A good game should be like a record. You can happily play it 30 times when you first buy it and then play it again at a later date."

The idea for Dean's latest game to be released on the Creative Sparks label, Black Hawk, germinated in the midst of the Falklands.

Dean's method of writing games sounds a bit long-winded – he uses three different machines – but it works for him. "I start off using the Atari for its editor/assembler," says Dean. "Then I download onto the VIC which I use as an RS232, and then from the VIC to the 64 for its excellent graphics."

Many programmers seem to spend their entire existence at the keyboards of their computers – not Dean. "Two years ago I was trying to prove myself as a programmer working for 12 hours a day," he says. "At 25 I'm a bit too long in the tooth for that. I've got to stay sane, so now I work as many hours as anyone else – about 37 hours a week."

Games are now played during work hours only.

Although, like most programmers, Dean does not claim to have made his fortune just yet he does receive a basic salary in addition to various bonuses – bonuses for the number of months in service in the company and bonuses for the number of his games sold. So it isn't an unlikely occurence to receive a £7000 bonus for the month. I wouldn't complain!

Looking to the future Dean says: "I'd like to become involved with video disc games. You can use real life footage with superimposed computer animation. That could lead to some really interesting adventure games."

NEW ORIGINAL GAMES FOR THE COMMODORE 64

- **NIGHTMARE PARK** is in fact a compendium of 14 games. The task of the user is to gain as many points as possible travelling through a maze beset by obstacles at every turn. These infuriating obstacles are overcome by a combination of skill, sharp reflexes or by sheer good luck making Nightmare Park a suitable game for all ages.

PRICE £7.99

- **DOTS & BOXES** is an intelligent game where the user and the computer take turns in completing boxes by drawing a line between two dots. The aim of the game is to win the most boxes whilst skilfully minimising the number of boxes given away to the computer.

PRICE £6.95

- **CHOPPER LAND** Your chopper is chartered to transfer goods from your base and land SAFELY. An exciting new game full of surprises.

£7.99

1 VOUCHER

- **HEXAPAWN** For strategic and persistent play. The opponent (computer) has no initial strategy but is programmed to learn from the user's wins to improve its own strategy.

£5.95

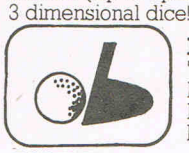
Order any of these games and send 2 vouchers to receive your free copy of Hexapawn.

SEND CHEQUES/PO: A.R. SOFTWARE
86, Avonbrae Crescent Hamilton Scotland
Tel: 0698 282036
DEALER ENQUIRIES WELCOME

Anger Productions — CBM 64 Software

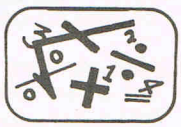
FLIGHT SIMULATOR
Pilot your aircraft to the airport of your choice in U.K. Recall your position on the map at any time during your flight and experience the thrill of take off, flight and landing. Joystick preferable. **Cassette game £9.95p**

YANTZEE
Play this very skilful old Chinese dice game, either by yourself or with your family and friends. (Up to 4 players). This chinaman uses 3 dimensional dice! **Cassette game £7.50p**



PLAY GOLF
Take up the challenge to play Golf on this 18 hole par 72 course. Play to full PGA Rules and learn the game or improve your handicap at home. **Cassette game £7.50p**

ASSEMBLER
Help yourself to learn how to write, read and copy your own machine code programs. Some knowledge of machine code is preferable to maximise the use of this tape. **Cassette £6.95p**



LIFETIME REPLACEMENT GUARANTEE
To order just complete the coupon and mail it to us with your remittance.

Name.....	Flight	£9.95 ☐
Address.....	Golf	£7.50 ☐
.....	Yantzee	£7.50 ☐
.....	Assembler	£6.95 ☐
Any combination of programs available on Disk £2 extra		☐

ANGER PRODUCTIONS 14 The Oval Broxbourne Herts. EN10 6DQ

A great line up of 17 NEW titles... direct from CANADA

FOR ZX81, SPECTRUM, VIC 20, C64, ATARI!

Just run your eyes over these new titles now available through "SOFTCHOICE LTD" the U.K. subsidiary of the well-known Canadian Software House INTERNATIONAL PUBLISHING & SOFTWARE INC. Purchase with confidence superb EDUCATIONAL, UTILITY and GAMES SOFTWARE!

EXCITING NEW GAMES FOR FAMILY FUN AND LEARNING FOR ZX81 and SPECTRUM

ADDING MACHINE
Additional facts for ages 5-9 yrs.
For Spectrum.
Cassette £6.95

TAKE AWAY ZOO
Subtraction facts for ages 5-9 yrs.
For Spectrum.
Cassette £6.95

TINY LOGO
The key to understanding and learning real computer programming!
For ZX81.
Cassette £5.95

SIGNALS & CODE
See and hear the letters and numbers in order! On demand, randomly, in messages, in score tests! For ZX81.
Cassette £4.95

WRATH OF KONG
Only great agility and cunning will outwit Kong - Climb quickly or Jane will perish!
For ZX81 & Spectrum.
Cassette £5.95

SPEED SNAKE
Slither around mazes. 10 different mazes to challenge your skill! Deadly!
For ZX81.
Cassette £4.95

MR MUNCHEE
Race through 3 mazes, avoid the Trolls! Exciting action with graphics!
For ZX81.
Cassette £4.95

SOFTCHOICE LTD.
52 PLATTS LANE, LONDON NW3 7NT.
TEL: (01) 431 2494. TELEX: 923753

CHILDRENS' & HOME EDUCATIONAL GAMES for the COMMODORE 64, ATARI 400/800 DISKS Only, at £14.95 each incl.

THE ALPHABET FACTORY
Two arcade-style games that teach children the alphabet!
C64 + Atari.
Ages 3-8 years.

MATCH UP
These high interest games make learning to read fun!
C64 only
Ages 3-8 years.

THE WORD BIRD
Three different games each designed to increase a child's reading vocabulary!
C64 only
Ages 6-12 years.

TIME ZONE
Two activity games that develop the needed language skills for successful reading!
C64 only
Ages 6-12 years.

BRIDGE
For all the family. Sharpen your skills with the computer's bidding!
VIC 20, C64, & ZX81.
Cassette £9.50

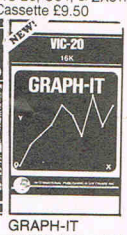
GREAT UTILITY AND BUSINESS SOFTWARE for ZX81, SPECTRUM, VIC 20, COMMODORE 64, ATARI

FASTWORD
Fast, versatile and complete word processing package by Dr Pearson.
For ZX81.
Cassette £7.50

FASTLOAD
any programme up to 6 times faster than normal! By Dr G. Pearson.
For ZX81.
Cassette £7.50

DIET
Gain control over your eating patterns. By Dr M. Minsky.
For ZX81 & Spectrum.
Cassette £5.95

CALC-PRO
A great tool for home or business! complete financial spreadsheet & runs statistics programs
VIC 20 Cassette £9.50
C64 Disk £14.95



GRAPH-IT
An easy to use tool to produce graphical displays.
For VIC 20,
Cassette £9.50

HOW TO ORDER. BY TELEPHONE (01) 431 2494
If you are a Access holder, please telephone and give your Card No., Name, Address and item required for immediate despatch.

BY POST. To purchase any of the items listed above, simply fill in the coupon below, write your Name, Address, enclose your cheque or P.O. made payable to: SOFTCHOICE LTD and post to us.

Post to: SOFTCHOICE LTD.
52 PLATTS LANE, LONDON NW3 7NT

Please send me the following items:
(Use separate sheet if space allocated not sufficient)

NO. REQ.	TITLE	TOTAL COST
		£
		£
		£
		£

I enclose my cheque/P.O. for £ .....

I prefer to pay by ACCESS/

Card No. .....
Signature .....
Name .....
Address .....

Please allow 7 to 14 days for delivery.
Card holders' address must be the same as coupon.

CC5-84

Hobbit revealed

Bilbo Baggins is really up against it. After three months he's conquered 40 per cent of the game on his 64, then some guy by the name of Elkan (a Tolkien invention, if ever there was one – and there were, as we all know, a few!) comes up with a book that spoils all the fun.

At least that's what it looks like at first. A Guide to Playing The Hobbit. What could be better designed for spoiling the fun? Every time you get stuck you can turn to the book. Even worse, it might be possible to play your way all through the game with this book.

Fortunately Bilbo has nothing to worry about. The book isn't quite like that. For one thing you have to be pretty familiar with the game to understand the book. It doesn't give away everything – at least not all at once. David Elkan has given clues and hints here and there without spelling everything out. But if you're one of those who can't resist looking at the answers to the crossword before you've worked them out for yourself he's provided an obstacle.

In The Hobbit Help section of the book David Elkan has expanded on the Help given in the game. In case you're tempted to look too far ahead he's used a code that's very simple but which involves just enough work to stop you from going too far too soon.

The Hobbit Help section is the middle chapter of the book. The first is an introduction to the game, more or less an expansion of the mini-manual that comes with the game. The third and final chapter is A Tourist's Guide to Wilderland. It's a guide to most of the game's locations and solutions to the problems encountered in each location. This is the part of the book that might have really bugged Bilbo. It gives you the answers and could make the thing too easy.

Luckily for Bilbo the game comes to it's own rescue. Part of the magic of The Hobbit is its unpredictability. Eventually, of course, you'll get the whole thing sussed out. After all, it is finite! But there are enough alternatives and enough changes from game to game to make it fun even with a book like A Guide to Playing The Hobbit.

Since Melbourne House publish the book and also publish the game you can rest assured that it doesn't spoil the game. Otherwise their sales of both the book and game would dwindle. But wait! Perhaps there those who know not The Hobbit – neither the original book by JRR Tolkien or the computer game.

Tolkien was a master of his art and The Hobbit is an excellent tale. It serves as a wonderful introduction to The Lord of the Rings – a trilogy that some thought was one of the best pieces of fiction written in English.

It's one of those classic tales of good versus evil, a fantasy in which strange creatures such as dwarves and elves inhabit Middle Earth.

It's a marvellous book and The Hobbit is a superb game. Probably the best adventure game in the UK. How you feel about A Guide to Playing The Hobbit depends very much on how you feel about the game. If you have enjoyed the game and feel you have got everything out of it that there is to get out of it then you'll probably find the book very interesting. A couple of Hobbit addicts in the office who have been playing the game on and off for a couple of months were astounded to find screens they'd never seen. If you've become completely frustrated by the game and can't get out of the Elvenkings' dungeons then this book will be just like a golden key –

One final word about the price of this paperback (£3.95). OUCH!

FREE! 50 COPIES OF THE HOBBIT.

L	T	B	M	T	I	B	B	O	H
O	O	J	R	O	O	B	L	I	B
A	L	R	M	L	B	I	B	L	O
D	K	E	I	K	B	T	O	K	L
W	I	L	D	E	R	L	A	N	D
A	E	K	D	I	L	O	R	D	E
R	N	A	L	N	A	R	T	H	L
V	V	P	E	A	R	T	H	W	V
E	L	V	E	N	K	I	N	G	E
S	G	N	I	R	I	N	N	G	S

We're giving away a copy of The Hobbit to the first 50 correct entries to a simple competition. You won't need to have played the game before but some familiarity with the book might do you some good.

Failing that, use the review on this page as a reference. In the wordsquare below there are 10 words relating to The Hobbit. They all appear in the review on this page. All you have to do is to send us a list of the ten words on the form on this page. Please remember to fill in your name and address. And remember, the words relate to The Hobbit and appear in the review. It's also worth remembering that you can only play The Hobbit on the 64.

The ten words in the wordsquare are:

Name:

Address:

I bought my copy of Commodore Computing International at:

What's in a name?

In the first issue of Commodore Games we define the many and varied games categories

Amusement arcades have been with us for many years now, their contents changing from the one-armed bandits and mechanical 'shove-halfpenny' games to the more recent Space Invaders and suchlike. The cost of playing these games has also changed dramatically from the old one-penny to the new 20 pence, but that has never affected their popularity.

Just a few years ago, people had the opportunity to play electronic games in the comfort of their own home with the appearance of TV games – a relatively cheap little 'box' which was attached to the television. Many were content to while away the hours knocking a small square from one end of the screen to the other with a rectangular shape – this was TV tennis.

Technology moves fast and now, with the emergence of sophisticated computer games, it is hard to believe that anyone could have found enjoyment in those slow repetitive games.

The earliest computer games available were computer versions of the popular arcade games – the obligatory Space Invaders and Pac-Man. Now games players are spoilt for choice with a growing list of games falling into numerous categories: arcade, adventure, arcade/adventure, simulation, sport, action/strategy, educational and even semi-educational!

The list is steadily expanding as software houses come up with ideas for original categories to boost sales of their games. How do you define which category a game belongs to? Is there any real difference between simulation and sport, or arcade and action/strategy? In this first issue of Commodore Games we will try to define these categories.

Arcade

Arcade games have been around for the longest period of time and still account for the largest share of the software market. Most people define arcade games as a 'zap! pow!' game, something like Space Invaders – basically to shoot anything on the screen before it kills you. However the arcade category is rather more general than that, covering any game where the player has to move an object around the screen, such as in maze games like Pac-Man.

Arcade games test your reflexes.

Action/strategy

A new breed of game is apparently emerging under the category action/strategy. However we can see no difference between this new category and arcade games. Being marketed under this category is Creative Sparks' Black Hawk, in which your task is to guide your fighter-plane across enemy territory to liberate a small group of islands.

Adventure

Adventure games vary from the simple adventure to a really sophisticated game. This category can be further divided into three smaller categories: text adventures, graphics adventures, and a cross between the two.

Text adventures, as the name implies, consist purely of screen text as in Romik's Sword of Hrakel adventure. The computer describes your surroundings and asks you what you want to do. Whether you want to move north, east or west, or even up and down. Also what to do when confronted with an object, be it a golden key or a rabid wolf.

Graphics adventures are those where you are dependent on the graphics to play the game. For example Krystals of Zong from PSS, where you have to guide your man around the maze picking up the keys that will enable him to get to the treasure. However some may define this game as an arcade adventure! Confused? Read on.

Then, of course, there are adventure games which combine both text and graphics. Melbourne House's The Hobbit is a good example of this, illustrating your every move.

On the whole, adventure games are designed to test your powers of logic rather than your reflexes.

Arcade/adventures

This category includes those games which combine adventure with an element of arcade action. These require both logic and good reflexes.

Unfortunately if you are not very good at adventures you may never reach the arcade stage. Likewise, if adventures are your speciality, you may be killed before you can continue your adventure.

Bug-Byte will soon be launching a trading game where you are the last trader in a planetary system. Arcade action comes in the form of marauding pirates, but this can be avoided by bribery!

Sports

It is sometimes hard to differentiate between the sports and the simulation category. Falling into the sports category are games such as the computerised table football game from Bubble Bus. Using the joystick and fire button you determine which handle you wish to move and in which direction. A more sophisticated football game comes from Commodore themselves, with the player controlling an eleven-strong team complete with cheering crowds and even the presentation of a cup.

Football is just one of the sports with a computerised equivalent.

Simulation

The only difference between this category and sports programs is that in a simulation program you take on a role. The best example is probably found in flight simulation programs where you become a pilot taking off and landing your plane.

Anger Productions have released what they are terming business simulation programs. In their flight simulator you are required not only to pilot the plane, but also to plan a route taking into account factors such as fuel. A simulation/adventure?!

Education

Educational programs are fairly self-explanatory, basically they teach you how to do something. Usually aimed at the very young, there are numerous educational programs on the market which teach the player how to read, write, spell and count, combining learning with a games element.

What's in a game?

In this section, we are going to take a look at how a game is made up. To demonstrate this we have a game called MOONLANDER for the VIC-20 (any expansion). We will look at this program very carefully and explain what the separate routines do.

Description

The first thing to look at is what the game is supposed to do. In this example, it is a simple simulation game where you control the thrust from your ship's engines in an effort to make a successful landing. The thrust values are from 0 (no thrust) to 9 (maximum thrust) where a value of 5 will keep constant speed.

You must land with a speed of 15 or less km/h (units).

Display

The display must then be worked out.

In Moonlander, the ship is displayed in the middle of the screen and on the left is a box containing all of the values (parameters) required to land.

The parameters are for fuel left, height from ground, speed, and time.

The Program

Now for a routine by routine explanation of the game. A less detailed description appears in the REMs that do not need to be typed in.

```
10 REM MOONLANDER
20 REM ***********************************
30 REM
39 REM
40 REM RED SCREEN AND INSTRUCTIONS
41 REM
50 POKE36879,42:GOSUB1090
59 REM
60 REM WHITE SCREEN FOR GAME
61 REM
70 POKE36879,25:POKE36869,240
80 PRINT"■";
90 I4=I5
100 GOSUB730
110 PRINT"■"
119 REM
120 REM SET UP PARAMETERS
121 REM
130 TH=0:T=0
140 X0=52800
150 V0=-176:F=1:S=1
160 GOSUB450
170 GOSUB1010
180 AT=TI:AG=TI
189 REM
190 REM INPUT FUEL USAGE
191 REM
200 GETRR$:IFRR$<>""THENR=VAL(RR$)
210 IF(TI-AT)>30THENAT=TI:GOTO240
220 GOTO210
```

50		Set the screen colour and gosub to display instructions.
70	-180	Produce display and set up initial parameters.
200	-220	Main loop for input and also a time lag.

```
229 REM
230 REM CALCULATE NEW VALUES
231 REM
240 T=T+R
250 TH=TH+1
260 A=5.4*(1-0.2*R)
270 X=V0+0.5*A:X0=X0+X
280 IFX0>0THEN300
290 V=X-X0:F=0:X0=0
300 D=V0*V0-2*X*A
310 IFD>0THEN330
320 D=-D:S=-1
330 V0=SQR(D)*S*SGN(X)
340 S=1
350 IFV0>0THENPRINT"@";
359 REM
360 REM DISPLAY LANDING PARAMETERS
361 REM
370 PRINT"■■■■■";MID$(STR$(V0),2,5)"■";
380 PRINTLEFT$(STR$(X0)+9$(0),7)
390 PRINT"■■"
400 PRINT"■";2500-T"■■   ■■"TAB(8);TH
410 GOSUB660:IFF=0THENGOSUB790:GOTO800
420 IFT>2500THENR=0:GOTO250
430 GOTO200
439 REM
440 REM INITIALISE STRINGS FOR SHIP
441 REM
450 9$="■■■■■■■"
460 A$(0)="      "
470 9$(1)="■  ■  "
480 9$(2)="■ ■■ ■■ "
490 9$(3)="■ ■ ■ ■ "
500 9$(4)="■■USA■■"
510 9$(5)="■/■■■\"
520 A$(6)=A$(0)
530 PRINT"■■■"TAB(15);
540 FORI=0TO6
550 PRINTA$(I)+A$;
560 NEXT
569 REM
570 REM PRINT DISPLAY AROUND PARAMETERS
571 REM
580 PRINT"■■ ____________"
590 PRINT" ■SPEED HEIGHT■ ":GOSUB620
600 PRINT" ■FUEL   TIME ■ ":GOSUB620
610 RETURN
620 FORI=1TO2:PRINT" ■"TAB(13)"■ ":NEXT
630 PRINT" ■___________■ ":RETURN
640 REM IF KEY GREATER THAN 0 PRESSED,
650 REM DISPLAY 'BURN'
660 PRINTTAB(15);:IFR=0THENPOKE36878,0:RETURN
670 POKE36877,150:POKE36874,200:POKE36878,R
680 FORI=1TOR:PRINT"■/■■■■■";:NEXT
690 FORI=RTO10:PRINT"  ■■■■";:NEXT
700 PRINT"■■■■■■■■■■■";:FORI=1TO10
710 PRINT"   ■■■■";:NEXT:RETURN
719 REM
720 REM PRINT 14 RANDOM '.' ON SCREEN
721 REM
730 PRINT"■"
```

240 -350 Calculate new parameters for landing.

370 -430 Rest of main program loop. Display Landing parameters and thrust if needed.

450 -560 Initialise strings used to display ship and display it.

580 -630 Display box around area for landing parameters.

660 -710 Display thrust from bottom of ship.

730 -770 Display random stars.

```
740 FORI1=1TO14
750 PRINTTAB(20*RND(1));"."
760 NEXTI1
770 RETURN
779 REM
780 REM DISPLAY SURFACE
781 REM
790 H=4.5:H$(1)="_":H$(2)="_":H$(3)="_"
800 H$(4)="_":H$(5)="_":H$(6)="_"
810 H$(7)="_":H$(8)="_"
820 PRINT"■■■
```

THE 64 SOFTW

26 Red Lion Square, London WC

Games for the Commodore 64:

Adamsoft

Cribbage 64	5.99
Pool 64	5.99
Skier 64	5.99

Alligata

Balloon Rescue	7.95
Aztec Tomb	7.95
Bat Attack	7.95
Haunted House	7.95
Blagger	7.95
Killer Watt	7.95

Anger Productions

Flight Simulator	9.95
Golf	7.50

Anirog

Kong 64	7.95
Skramble 64	7.95
Hexpert 64	7.95
Moon Buggy 64	7.95
Galaxy 64	7.95
3D Time Trek	5.95
Zodiac 64	7.95
Space Pilot	7.95
Jungle Drums	7.95
Bongo	7.95
The Dungeons	6.95
Dark Dungeons	6.95
Cybotron	7.95

Audiogenic

Motor Mania	8.95
Renaissance	8.95
Grand Master	17.95
Road Toad	5.95
Cataclysm	5.95
R. Nest	6.95

Bridgemaster

Bridgemaster	24.95

Commodore

Radar Rat Race	9.99
Clowns	9.99

DK Tronics

Alien Rescue	5.95
Who Dares Wins	5.95
Millie Bug	5.95
Dictator	5.95

Galactic

Bug Diver	5.50
Froggie	5.50
Orbitron	6.95
Power Crisis	6.95
Sub Hunt	6.95
Evil Orville	7.45
Skel	5.99

Mogul

Kay's Kooks	7.95
Mushroom Valley	7.95
Labyrinth of the C	7.95
Sea Wolf	7.95
Chomperman	7.95

Peaksoft

The Boss	8.95

Postern

Siege	6.95
Shadowfax	6.95
Snakepit	6.95
3D Deed Space	7.95

PSS

Krystals of Zong	7.95
Neoclyps	7.95
Cosmic Split	7.95
Metroblitz	7.95

Rabbit

Escape	5.99
Paratroopers	5.99
Cyclons	5.99
Pakacuda	5.99
Centropods	5.99
Lancer Lords	5.99
Potty Painter	5.99
Murder	5.99

Romik

Dicky's Diamonds	6.99
Zappy Zooks	6.99
Stellar Triumph	6.99
Tombs of Xeiops	6.99
Fool's Gold	6.99
Pottit	6.99

Supersoft

Styx	8.95
Crazy Kong	8.95
Tank Atak	8.95
Mangrove	8.95
Kaktus	8.95
Goblins Towers	9.95
Forestland	9.95
Streets of London	9.95
Cosmic Capers	7.95
Cracks of Fire	7.95
Lord of Balrogs	6.95
Halls of Death	8.95

Terminal

Super Skramble	7.95
Super Dogfight	7.95
Super Gridder	7.95
Hunter	7.95
Stella Dodger	7.95

Voyager

Quasar	5.99
Altair 4	7.50

Games Machine

The Fabulous Wanda	7.95
Egbert	7.95
Aagh Condor	7.95

Imagine

Arcadia	5.50
Pedro	5.50

Interceptor

Crazy Kong	7.00
Frogger 64	7.00
Panic 64	7.00
Scramble 64	7.00
Spriteman	7.00
Star Trek	7.00
Cuddly Cubert	7.00
Siren City	7.00
Vortex Raider	7.00
Token of Ghall	7.00
Defender	7.00
Heroes of Karn	7.00
Missile Command	7.00
China Miner	7.00
Assembler	7.00

WARE CENTRE

1R 4RL. Telephone: 01-242 7158

Llamasoft	
Revenge of the Mutant Camels	8.00
Attack of the Mutant Camels	8.00
Hover Bovver	8.00
Gridrunner 64	5.50
Matrix 64	8.00
Lazer Zone	8.00
Melbourne House	
Supercassette A	6.95
Supercassette B	6.95
Hungry Horace	5.95
Horace Goes Skiing	5.95
The Hobbit	14.95
Mr. Chip	
Jackpot 64	5.50
Westminster	5.50
Red Alert	5.50
Lunar Rescue	5.50
Mogul	
Metamorphosis	6.95
Kongo Kong	6.95
Zeus	6.95
Earthquake	6.95
Creator's Revenge	6.95
Super Trek	6.95
Annihilator	5.99
Annihilator 2	7.95
Pyramid	6.95
Great Adventure Pack	6.95
Fireant	7.95

Business applications for the 64:

Business Accounts	
Sales Ledger (Anagram) d	75.00
Purchase Ledger (Anagram) d	75.00
Sales Ledger (Ramtop) t	14.50
Purchase Ledger (Ramtop) t	14.50
Cashbook (Microsimplex) d	172.50
Inventory 64 (MMS) d	29.95
Home Accounts	
Bank Manager (Mr. Chip) t	7.50
Budgeteer 64 (Adamsoft) t	8.95
Checkbook Manager (Adamsoft)	14.95
Home Office (Audiogenic) t	14.95

Database Systems	
Diary 64 (Handic) c	29.95
Magpie 64 (Handric) d	99.95
Mailpro 64 (Kobra) d	79.35
Oracle 64 (Kobra) d	113.85
Practifile 64 (MMS) d	44.50
Superbase (Precision) d	99.95
Vizastar 64 (Viza) d	99.95
Simply File 64 (Simple) d	60.00
Vizastar printer cable	20.70
Spreadsheets	
Busicalc (Supersoft) d	47.15
Busicalc (Supersoft) t	44.85
Busicalc 2 (Supersoft) d	81.65
Calcresult (Handic) d	99.00
Easy Calcresult (Handic) c	49.95
Multiplan 64 (Kobra) d	99.95
Practicalc 64 (MMS) d	44.50
Pracitcalc 64 (MMS) t	39.95
Programmer's Aids & Utilities	
Arrow (Supersoft) c	44.85
Assembler (Interceptor) t	7.00
Chartpak 64 (Adamsoft) d	24.95
Forth 64 (Audiogenic) c	29.95
Graphics Designer (Adamsoft) d	19.95
Graphix 64 (Supersoft) t	11.50
Master 64 (Supersoft) d	71.30
Mikro Assembler (Supersoft) d	59.80
Monitor (Audiogenic) c	29.95
Pal 64 (Kobra) d	79.35
Printlink 64 (Supersoft) c	32.20
Quickchart 64 (Adamsoft) t	6.95
Screen Graphics (Adamsoft) d	14.95
Sprite Aid (Adamsoft) t	6.95
Stat 64 (Handic) c	29.95
Superdisk Utility (Adamsoft) d	12.50
Synthy 64 (Adamsoft) d	14.95
The Tool (Audiogenic) c	49.95
Ultrabasic 64 (Adamsoft) d	24.95
Victree 64 (Supersoft) c	56.35
Victree cable	23.00
64 Doctor (MMS) d	19.95
Word Processors	
Paperclip 64 (Kobra) d	98.90
Simply Write 64 (Simple) d	40.00
Simply Write 64 (Simple) t	35.00
Vizawrite 64 (Viza) d	79.95
Vizawrite 64 (Viza) c	89.95
Vizaspell 64 (Viza) d	59.95
Educational	
Mathematics 1 (Commodore) t	9.99
Mathematics 2 (Commodore) t	9.99
Biology (Commodore) t	9.99
Chemistry (Commodore) t	9.99
English (Commodore) t	9.99
Geography (Commodore) t	9.99
History (Commodore) t	9.99
Physics (Commodore) t	9.99

d=disk t=tape c=cartridge

ALL IN STOCK NOW –
Prices include VAT – Callers welcome

THE 64 CLUB
Membership of the 64 Club entitles you to a discount of 10% on all purchases. Annual membership fee £25.

MAIL ORDER
The 64 Software Centre,
26 Red Lion Square, London
WC1R 4RL

Please supply the following items:

1 @£
2 @£
3 @£
4 @£_____

Total £_____

Cheque/P.P. enclosed for £

Name_____

Address_____

_____ Post code_____

_____

Access Card No._____

expires on_____

Visa Card No._____

expires on_____

Games for the 64

This month we have two programs for the 64. The first is a short game called Q*BERT written by N Cooper. The other game is a maze game which creates a random maze and then allows you to move through the maze using the keys 'F' for forward, 'R' to turn right, 'L' to turn left.

Q*BERT

Written by N Cooper, this game is a 64 version of the arcade game of the same name. The movement is obtained by the keys:
'T' up & left
'V' down & left
'U' up & right
'N' down & right

Or by the joystick in port 2 using the diagonals.

The object of the game is to jump onto the non-coloured squares. When all the squares have been coloured, the pyramid will be re-drawn and your task will re-start.

Beware of the white ball which will cause loss of a life if it hits you, and don't jump off the edge of the pyramid unless onto one of the floating disks which will lift you up and drop you safely onto the top square.

Start the game by pressing any key.

```
10 REM ***** Q*BERT BY N.R.C. *****
20 DIMP(72):HI=0:C=1
30 SC=0:LI=5:POKE53280,6:POKE53281,14
40 PRINT"■■■■■■■■■■■■":PRINT"■■■■■■■■■■■■■■■■■■Q*BERT!!":PRINT"■■■"
50 PRINT"■■■■■■■■■■■■■■BY ■N.COOPER":WAIT198,1:PRINT"■"
60 V=53248:RESTORE:T=0:POKEV+21,15
70 FORI=1TO72:READP(I):NEXT
80 DATA2,2,2,2,2,2,2,2,2,2,0,2,2,2,2,2,2,2
90 DATA0,0,2,2,2,2,3,0,0,0,3,2,2,2,2,0,0,0
100 DATA0,2,2,2,0,0,0,0,0,2,2,2,0,0,0,0,0,0,2,0,0,0,0,0,0,0,2,2,2,2,2,2,2,2
110 PRINT"■■■■■■■■■■■■■■■■■■
```

```
290 POKE2041,14:POKEV+40,3:POKE2042,14:POKEV+41,3
300 POKE2043,15:POKEV+42,15
310 X=164:Y=140:X1=0:Y1=0:A=44:UL=0:UR=0:DL=0:DR=0:BX=164:BY=86
320 POKEV+2,127:POKEV+3,115:POKEV+4,200:POKEV+5,115
330 X=X+X1:Y=Y+Y1:POKEV,X:POKEV+1,Y:X1=0:Y1=0:PRINT"■SCORE"SC"          HI"HI
340 ONP(A)+1GOSUB530,460,600,640
350 H=PEEK(V+30):POKEV+6,BX:POKEV+7,BY:BX=BX+9*SGN(RND(1)-.5):BY=BY+15
360 IFBY>194THENBX=164:BY=86:POKEV+6,BX:POKEV+7,BY
370 IFH=9THENGOSUB600
380 GOSUB750:IFK=64THENFORI=0TO200:NEXT:GOTO350
390 X1=8*(K=22ORK=31)-8*(K=30ORK=39):Y1=16*(K=22ORK=30)-16*(K=31ORK=39)
400 GOSUB410:GOTO330
410 S=(INT(A/8))/2:IFS=INT(S)THENUL=-9:UR=-8:DL=7:DR=8:GOTO430
420 UL=-8:UR=-7:DL=8:DR=9
430 J=(K=30)+2*(K=39)+3*(K=31)+4*(K=22):J=ABS(J)
440 ONJGOTO450,470,490,510
450 A=A+UR:SC=SC+100
460 RETURN
470 A=A+DR:SC=SC+100
480 RETURN
490 A=A+DL:SC=SC+100
500 RETURN
510 A=A+UL:SC=SC+100
520 RETURN
530 N=INT(X/8)+40*INT(Y/8):POKE55134+N,C
540 POKE55135+N,C:POKE55174+N,C:POKE55175+N,C
550 P(A)=1:T=T+1:SC=SC+100
560 IFT=28THENFORI=0TO16STEP.1:POKE53280,I:NEXT:POKE53280,6:GOTO580
570 RETURN
580 POKEV+21,0:SC=SC+1000:C=C+1:GOTO60
590 RETURN
600 FORI=YTO250:POKEV+1,I:NEXT:X=164:Y=140:X1=0:Y1=0:A=44:K=0
610 POKEV,X:POKEV+1,Y:BX=X:BY=86:POKEV+6,BX:POKEV+7,BY:H=PEEK(V+30)
620 LI=LI-1:IFLI<1THENGOTO700
630 RETURN
640 IFA=30THENPOKEV+21,PEEK(V+21)AND251:GOTO660
650 POKEV+21,PEEK(V+21)AND253
660 P(A)=2:0=1:J=0:IF164-X<0THENQ=-1
670 FORI=XTO164STEPQ:J=J-1.5:POKEV,I:POKEV+1,Y+J:NEXTI
680 POKEV,164:POKEV+1,76:A=12:X=164:Y=76:X1=0:Y1=0
690 RETURN
700 POKEV+21,0:PRINT"■■■■■■■■■■■■":PRINT"          YOUR SCORE WAS";SC
710 IFSC>HITHENPRINT"■■■■■■■■YOU HAVE THE HIGH SCORE!":HI=SC
720 POKE198,0:PRINT"■■■HI-SCORE :";HI
730 PRINT"■■■■■■■■■■■■■■■■■■ANOTHER GO":INPUTAN$:IFLEFT$(AN$,1)="Y"THENZ=0:GOTO30
740 PRINT"■":END
750 K=PEEK(197):IFK<>64THENRETURN
760 ZZ=PEEK(56320)
770 IF(ZZAND5)=0THENK=22:RETURN
780 IF(ZZAND9)=0THENK=30:RETURN
790 IF(ZZAND6)=0THENK=31:RETURN
800 IF(ZZAND10)=0THENK=39:RETURN
810 K=64:RETURN
READY.
```

MAZE

In this game, the object is to move from one side of the maze to the other. It is fully REMed so that it could be used in your own games. The movement is obtained by using the keys:

'F' forward one location
'R' rotate 90% to the right
'L' rotate 90% to the left

The maze is totally random and the view of the maze is given using the 64s characters to produce a 3D view.

You start on one side of the maze and move to the other. You are facing in the correct direction to start, but will need to remember which direction you are facing otherwise you will get lost.

```
10 POKE53280,3:POKE53281,3
20 PRINT"■   ____________________________ "
30 PRINT"   |                          ◢| "
40 PRINT"   | 3 DIMENSIONAL MAZE      ◢ | "
50 PRINT"   |                        ◢  | "
60 PRINT"   |____     DISPLAY      ◢   | "
70 PRINT"   |   ◣                ◢     | "
80 PRINT"   |   | \  ROUTINE    ◢      | "
90 PRINT"   |   | \            ◢       | "
100 PRINT"   |   |  | WITH    |        | "
110 PRINT"   |   |  |__      __|        | "
120 PRINT"   |   |  | ◣    ◢ |        | "
130 PRINT"   |   |  | DEMO | |        | "
140 PRINT"   |   |  | |    | |        | "
150 PRINT"   |   |  | MAZE | |        | "
160 PRINT"   |   |  | ◣    ◢ |        | "
170 PRINT"   |   |  ┌──      ──┐        | "
180 PRINT"   |   |  | USE KEYS|        | "
190 PRINT"   |   |  ◢          \        | "
200 PRINT"   |   | ◢ F=FORWARD \       | "
210 PRINT"   |   ◣              \      | "
220 PRINT"   ┌────     R=RIGHT     \    | "
230 PRINT"   |                      \  | "
240 PRINT"   |        L=LEFT        \ | "
250 PRINT"   |                       ◣| "
260 PRINT"   ____________________________ ■";
270 WI=10
280 HE=10
290 REM
300 REM
310 REM CREATE RANDOM MAZE
320 REM
330 REM
340 DIMV%(HE,WI),W%(HE,WI),L%(2),P1%(2,5),P2%(2,3)
350 A=RND(0)
360 REM
370 REM PUT A SOLID WALL AROUND MAZE
380 REM
390 FORI=0TOWI
400 W%(0,I)=1:W%(HE,I)=1
410 NEXT
420 FORI=0TOHE
430 W%(I,0)=1:W%(I,WI)=1
440 NEXT
450 X=INT(RND(1)*(HE-1)+1):SX=X
460 Y=1
470 C=1
480 REM
490 REM FIND POSSIBLE DIRECTIONS
500 REM
510 W%(X,Y)=1:J=0
520 IFW%(X-1,Y)<>0THEN540
530 J=J+1:JU(J)=1
540 IFW%(X+1,Y)<>0THEN560
550 J=J+1:JU(J)=2
```

CHEAPEST SOFTWARE LOOK AT THESE PRICES

COMMODORE 64

	RRP	Our Price		RRP	Our Price
Falcon Patrol	7.95	**5.51**	Twin Kingdom Valley	9.50	**6.80**
Horace & The Spiders	5.95	**4.26**	Neo Clyps	7.95	**5.25**
Horace Goes Ski-ing	5.95	**4.26**	Rev. Mutant Camels	7.50	**5.36**
Hungary Horace	5.95	**4.26**	Hovver Bovver	7.50	**5.36**
Hustler	6.99	**5.00**	Moon Buggy	7.95	**4.42**
Purple Turtles	7.95	**6.13**	Matrix 64	7.50	**5.36**
Quest of Merravid	7.95	**5.25**	Kickoff	6.99	**4.99**
Siren City	7.00	**5.39**	Hobbit	14.95	**10.69**
Snooker	8.95	**5.91**	Frogger 64	7.50	**5.39**
Sprite Man	7.00	**5.39**	Translyvian Tower	6.50	**4.29**
Token of Ghall	7.00	**5.39**	Star Trek	7.00	**5.39**
Vortex Raider	7.00	**5.39**	3 Deep Space	7.95	**5.25**
Zepplin Rescue	19.95	**14.26**	Crazy Kong 64	7.00	**5.39**
Manic Minor	5.95	**4.25**	Armageddon	7.95	**5.24**
Grid Runner 64	7.50	**5.36**	Arcador	5.50	**3.64**

All tapes guaranteed genuine

P.&P. U.K. add 50p per order; Europe add 75p per game; Elsewhere add £1 per game.
Send large s.a.e. for full list (sent with all orders)

When ordering send cheque/P.O. to:

BARGAIN SOFTWARE
10 Melody Court, Stonehill Rd. Estate,
London W4 3AW
Tel: (01) 995 2763

DON'T LAUGH. FIVE MINUTES OF ALLEY-OOPS AND YOU WON'T BE ABLE TO TAKE YOUR EYES OFF IT.

Oh sure—it might look silly now. But wait'll it's hurtling toward you, threatening to destroy your perfect game. You'll take it seriously then.

And bowling shoes won't be your only worry. You'll also have to watch for diabolical beer bottles, evil pin sweeps and vicious gum spots.

Sound strange?

Sure. But battling such weird objects is exactly what makes Alley-Oops so original. And so incredibly fun to play.

Alley-Oops is real arcade stuff. In fact, it's a challenge just to get to the next level of play. And there are 8 levels, the last one being the nearly impossible Challenge Round.

There are all kinds of ways to play Alley-Oops—try to mount up points, score a perfect game or reach that highest level. Whichever way you choose, you'll have endless fun playing Alley-Oops.

Just remember—don't take the bowling shoes lightly. After years of being kicked around bowling alleys, they're out to get even.

To survive Alley-Oops, you'll have to contend with diabolical beer bottles, evil pin sets, and vicious gum spots.

BY ALLREAD

FOR CBM64

1000a UXBRIDGE ROAD, HAYES, MIDDLESEX.

RRP. £7.99 FROM DEALERS OR DIRECT FROM US P&P FREE.

NOW AVAILABLE FOR YOUR CBM 64

HIT AND RUN

For all cricket fans, Sunday league cricket for your 64.

One or Two player games allows you to captain and select your team in a **40** overs innings match.
30 players available for selection which offers literally million of premutations. Conditions vary from match to match. Includes **run-outs, wides, no-balls, byes and leg-byes.** Man of the match decision at end of each match. Captain of batting side has the opportunity to adjust his tactics at intervals of 7 overs or at the fall of a wicket. The captain of the fielding side can adjust his tactics at the end of each over. As in Sunday league cricket bowlers are limited to 8 overs and may not bowl two successive overs. Batsmen improve as their innings grows whereas fatigue can make bowlers and fielders less effective.

*A very addictive game, excellently written by **David T. Coates**. A must for all cricket fans.*

On cassette only **£7.95**
On disc only **£9.50**
Please include 50p postage and packing.
A large selection of software as available for your 64 including:

China Miner – **£7.00** Metamorphasis – **£7.95** Mission on – **£7.95** Mothership – **£6.96** Zyborian Terror (adventure) **£7.50**

Please include 50p postage and packing when ordering these titles.
SAE for complete list.

BYTEWELL
203 Court Road, Barry
South Glamorgan CF6 7EW.
0446-742491.

```
560 IFW%(X,Y-1)<>0THEN580
570 J=J+1:JU(J)=3
580 IFW%(X,Y+1)<>0THEN600
590 J=J+1:JU(J)=4
600 IFJ=0THEN730
610 REM
620 REM CHOOSE ONE DIRECTION AT RANDOM
630 REM
640 ONJU(INT(RND(1)*J)+1)GOSUB2550,2570,2590,2610
650 REM
660 REM DO ANOTHER
670 REM
680 C=C+1:GOTO510
690 REM
700 REM THERE WAS NO EXIT, CHECK FOR
710 REM MAZE NEARLY FULL (95%)
720 REM
730 IFC>.90*((HE-1)*(WI-1))THEN840
740 REM
750 REM FIND START POINT FOR NEW BRANCH
760 REM
770 X=INT(RND(1)*(HE-1))+1
780 Y=INT(RND(1)*(WI-1))+1
790 IFW%(X,Y)<>0THEN510
800 GOTO770
810 REM
820 REM.FIND EXIT POINT
830 REM
840 X=INT(RND(1)*(HE-1))+1:FX=X
850 IFW%(X,WI-1)=0THEN840
860 V%(X,WI)=2:V%(X,WI-1)=V%(X,WI-1)+8
870 X=SX:Y=1:CD=54272
880 FORI=2TO0STEP-1:READL%(I):NEXT
890 FORI=2TO0STEP-1:FORJ=0TO5:READP1%(I,J):NEXT:NEXT
900 FORI=2TO0STEP-1:FORJ=0TO3:READP2%(I,J):NEXT:NEXT
910 REM
920 REM
930 REM START MOVING THROUGH
940 REM
950 REM
960 DIR=3
970 PRINT"□":GOSUB1080:  REM DISPLAY VIEW
980 GETA$:IFA$=""THEN980
990 IFA$="R"THENDIR=(DIR+1)AND3:GOTO970
1000 IFA$="L"THENDIR=(DIR-1)AND3:GOTO970
1010 IFA$<>"F"THEN980
1020 IFX+X1=0ORX+X1>HETHEN980
1030 IFY+Y1=0ORY+Y1>WITHEN980
1040 IF(V%(X,Y)AND(2↑DIR))=0THEN980
1050 X=X+X1:Y=Y+Y1:IFX=FXANDY=WITHENEND
1060 GOTO970
1070 REM
1080 REM DISPLAY VIEW
1090 REM
1100 FORI=1TO23
1110 POKE1026+I*40,103:POKE55298+I*40,0
1120 POKE1026+I*40+24,101:POKE55298+I*40+24,0
1130 NEXT
1140 X2=0:Y2=0:FORZ=2TO0STEP-1
1150 D=DIR:GOSUB1830:X2=X2+X1:Y2=Y2+Y1
1160 IFX+X2=0ORX+X2>HETHENRETURN
1170 IFY+Y2=0ORY+Y2>WITHENRETURN
1180 IF(V%(X,Y)AND(2↑D))=0THENRETURN
1190 REM
1200 REM CHECK RIGHT
1210 REM
1220 D=(DIR+1)AND3
1230 IF(V%(X+X2,Y+Y2)AND(2↑D))=0THEN1300
1240 REM
```

THE BOSS

Commodore 64

BRITAIN'S GREATEST FOOTBALL MANAGEMENT GAME

*4 divisions *FA Cup *European Cup *European Cup-Winners' Cup *Replays *Promotion/Relegation *Transfers *Suspensions *Injuries *Substitutes *9 Skill levels *Name team *Team selection *Name players *Choose/change team formation *Weekly league tables *Fixtures/Results table *Reserve squad *Spy on other clubs *Minute-by-minute goal facts *Free save game tape *7 page tactics booklet *1 year written guarantee.

Check with your usual retailer, or send a cheque/PO for £8.95 to: Peaksoft, FREEPOST (no stamp needed), Burton-on-Trent, DE15 9BR, for return-of-post service. Telephone 0283 44904

CBM 64 — VICPRINTER

for only £79.90 fully inc!

"Very good – and good value too" *Commodore User Review* Dec. 1983 PROBABLY THE WORLD'S CHEAPEST VIC/64 PRINTER, but better print quality than printers three times the price! Put the superb ALPHACOM-32 Printer on your VIC/64 using the

SOFTEX PRINTERFACE

Printerface alone only ... £20.95 fully inc!
Alphacom system complete only ... £79.90 fully inc!
VIC Word processor package only ... £9.95 fully inc! (64 version T.B.A.)

- Alphacom-32 printer already established in W. H. Smiths, John Menzies: RRP £59.95.
- Not a plotter, but a fast dot matrix printer!
- Prints in blue or black on economical white paper (costs 1·3p per foot).
- Very robust and hardwearing! Gives consistent, high quality print.
- Silent but fast: up to 90 characters per second.
- Full VIC/64 graphics as well as user defined characters.
- 64 column printer with superb formatting facilities.
- Excellent high resolution graphics.
- Operating commands same as Commodore VIC/64 printer.
- Works on Sinclairs ZX-Printer (needs ZX-Power supply: £5.95 fully inc.).
- FAST DELIVERY – FRIENDLY BACK-UP – SIMPLE TO USE!

Send orders/enquiries to:

SOFTEX COMPUTERS

37 Wheaton Road, Bournemouth BH7 6LH, Tel: 0202 422028.

COMMODORE 64

OXFORD PASCAL

YOUR FUTURE WITH COMPUTERS DEPENDS ON PASCAL

BECAUSE

- PASCAL is the world's most popular programming language after BASIC
- PASCAL is FAST ... up to 20 times the speed of BASIC

WHAT IS OXFORD PASCAL?

OXFORD PASCAL is a COMPLETE implementation of the popular programming language PASCAL running on the Commodore 64

GRAPHICS & SOUND

With the OXFORD extensions to PASCAL you can programme dazzling graphics and astounding sound

WHAT DO I GET?

With the cassette version of OXFORD PASCAL you get:

- A powerful text editor for preparing PASCAL programs
- A resident compiler giving 14k of user RAM
- A powerful set of colour graphics and sound extensions to standard PASCAL

With the disk version of OXFORD PASCAL you get:

- All the above, PLUS
- A full disk to disk compiler exploiting the entire memory of the 64 for PASCAL programs.

HOW MUCH DOES OXFORD PASCAL COST?

Cassette version (resident compiler only £14.95
Full disk compiler (1541, 4040, 8050, 8250 drives) £49.95
Prices are exclusive of VAT. There is also a small charge for post and packing.

Oxford Computer Systems (Software) Ltd
Hensington Road,
Woodstock,
Oxford OX7 1JR, England
Telephone (0993) 812700
Telex 83147 Ref. OCSL

```
1250 REM EXIT TO RIGHT
1260 REM
1270 L=Z+1:P1=P1%(Z,0):P2=P2%(Z,0):GOSUB1910
1280 GOTO1370
1290 REM
1300 REM NO EXIT TO RIGHT
1310 REM
1320 IFRI=1ORZ=2THEN1340
1330 L=L%(Z+1):P1=P1%(Z+1,3):GOSUB2380
1340 L=Z+1:P1=P1%(Z,0):P2=P2%(Z,0):GOSUB1980
1350 L=L%(Z):P1=P1%(Z,3):GOSUB2190
1360 REM
1370 REM CHECK LEFT
1380 REM
1390 D=(DIR-1)AND3
1400 IF(V%(X+X2,Y+Y2)AND(2↑D))=0THEN1470
1410 REM
1420 REM EXIT TO LEFT
1430 REM
1440 L=Z+1:P1=P1%(Z,1):P2=P2%(Z,1):GOSUB2050
1450 GOTO1540
1460 REM
1470 REM NO EXIT TO LEFT
1480 REM
1490 IFLE=1ORZ=2THEN1510
1500 L=L%(Z+1):P1=P1%(Z+1,4):GOSUB2380
1510 L=Z+1:P1=P1%(Z,2):P2=P2%(Z,2):GOSUB2120
1520 L=L%(Z):P1=P1%(Z,4):GOSUB2250
1530 REM
1540 REM CHECK IN FRONT
1550 REM
1560 D=DIR
1570 IF(V%(X+X2,Y+Y2)AND(2↑D))=0THEN1630
1580 IFRI=0THEN1600
1590 L=L%(Z):P1=P1%(Z,3):GOSUB2190
1600 IFLE=0THEN1690
1610 L=L%(Z):P1=P1%(Z,4):GOSUB2250
1620 GOTO1690
1630 L=L%(Z):P1=P1%(Z,5):P2=P2%(Z,3):GOSUB2310
1640 IFRI=1THEN1660
1650 L=L%(Z):P1=P1%(Z,3):GOSUB2190
1660 IFLE=1THEN1680
1670 L=L%(Z):P1=P1%(Z,4):GOSUB2250
1680 Z=-10
1690 NEXTZ
1700 IFZ=-11THENRETURN
1710 IFLE=0THENL=L%(0):P1=P1%(0,4):GOSUB2380
1720 IFRI=0THENL=L%(0):P1=P1%(0,3):GOSUB2380
1730 POKE1436,77:POKECD+1436,6
1740 POKE1440,78:POKECD+1440,6
1750 POKE1596,78:POKECD+1596,6
1760 POKE1600,77:POKECD+1600,6
1770 RETURN
1780 REM
1790 REM DETERMINE X AND Y INCREMENTS
1800 REM TO MAZE DEPENDANT UPON
1810 REM DIRECTION D
1820 REM
1830 IFD=0THENX1=1:Y1=0
1840 IFD=1THENX1=0:Y1=-1
1850 IFD=2THENX1=-1:Y1=0
1860 IFD=3THENX1=0:Y1=1
1870 RETURN
1880 REM
1890 REM PLOT EXIT TO RIGHT
1900 REM
1910 FORI=0TOL
1920 POKEI+P1,100:POKECD+I+P1,6
1930 POKEI+P2,99:POKECD+I+P2,6
```

```
1940 NEXT:RI=1:RETURN
1950 REM
1960 REM PLOT NO EXIT TO RIGHT
1970 REM
1980 FORI=0TOL
1990 POKEP1-39*I,78:POKECD+P1-39*I,6
2000 POKEP2+41*I,77:POKECD+P2+I*41,6
2010 NEXT:RI=0:RETURN
2020 REM
2030 REM PLOT EXIT TO LEFT
2040 REM
2050 FORI=LTO0STEP-1
2060 POKEI+P1,100:POKECD+I+P1,6
2070 POKEI+P2,99:POKECD+I+P2,6
2080 NEXT:LE=1:RETURN
2090 REM
2100 REM PLOT NO EXIT TO LEFT
2110 REM
2120 FORI=0TOL
2130 POKEP2-39*I,78:POKECD+P2-39*I,6
2140 POKEP1+41*I,77:POKECD+P1+I*41,6
2150 NEXT:LE=0:RETURN
2160 REM
2170 REM PLOT RIGHT HAND UPRIGHT
2180 REM
2190 FORI=0TOL
2200 POKEI*40+P1,101:POKECD+I*40+P1,6
2210 NEXT:RETURN
2220 REM
2230 REM PLOT LEFT HAND UPRIGHT
2240 REM
2250 FORI=0TOL
2260 POKEI*40+P1,103:POKECD+I*40+P1,6
2270 NEXT:RETURN
2280 REM
2290 REM PLOT BLANK WALL HORIZONTALS
2300 REM
2310 FORI=0TOL
2320 POKEI+P1,100:POKECD+I+P1,6
2330 POKEI+P2,99:POKECD+I+P2,6
2340 NEXT:RETURN
2350 REM
2360 REM BLANK UPRIGHT
2370 REM
2380 FORI=0TOL
2390 POKEI*40+P1,32
2400 NEXT:RETURN
2410 REM
2420 REM DATA FOR UPRIGHT AND HORIZONTAL
2430 REM LENGTHS
2440 REM
2450 DATA14,8,4
2460 REM
2470 REM DATA FOR START POSITIONS
2480 REM
2490 DATA1206,1187,1067,1246,1230,1191
2500 DATA1323,1311,1231,1363,1353,1314
2510 DATA1401,1394,1354,1441,1435,1396
2520 DATA1846,1827,1947,1831
2530 DATA1723,1711,1791,1714
2540 DATA1641,1634,1674,1636
2550 V%(X,Y)=V%(X,Y)+4:X=X-1:V%(X,Y)=V%(X,Y)+1
2560 RETURN
2570 V%(X,Y)=V%(X,Y)+1:X=X+1:V%(X,Y)=V%(X,Y)+4
2580 RETURN
2590 V%(X,Y)=V%(X,Y)+2:Y=Y-1:V%(X,Y)=V%(X,Y)+8
2600 RETURN
2610 V%(X,Y)=V%(X,Y)+8:Y=Y+1:V%(X,Y)=V%(X,Y)+2
2620 RETURN
```

64 adventures

This is a game by Toby Hughes, 13 years old from Reigate. It's a sort of adventure game which involves the Transmat – a machine similar to the one used by Captain Kirk and his crew on the Starship Enterprise. Remember Kirk's phrase "Beat me up, Scottie,"?

```
0 B%(7)=-1
1 DATA25,6,24,5,3,3,3,4,5,6,25,6,24,5,3,3,3,64,3,3,5,4,4,5,3,3,5,4,5,6
2 DATA15,6,24,5,3,3,3,4,5,6,25,6,24,5,3,3,3,94,0
3 POKE 53280,1:POKE 53281,1:PRINT"■":GOSUB 10299
5 PRINT"■"
10 PRINTTAB(16)"■TRANSMAT"
11 PRINTTAB(16)"━━━━━━━":PRINT"■"
15 PRINT"YOU MUST RESCUE YOUR THREE "
20 PRINT"FRIENDS BY TRANSMATTING    "
25 PRINT"FROM PLANET TO PLANET AND  "
30 PRINT"FIND YOUR SPACESHIP..... "
40 PRINT"'T'=TRANSMAT"
45 PRINT"'H'=HELP"
50 PRINT"'I'=INVENTORY"
55 PRINT"'N','S','E','W'=DIRECTIONS"
56 GOSUB 20000
60 PRINT"GOOD LUCK"
100 REM SET POSITION
110 P=100:N=0:S=0:E=0:W=0
120 DIM OB%(9),OB$(9),SI$(9)
130 FOR I=1 TO 9 :READ OB%(I),OB$(I),SI$(I)
135 NEXT
140 DATA 99,LAZER,A PHOTON LAZER IS ON THE GROUND
145 DATA 80,EXPLOSIVES,THERE ARE EXPLOSIVES LYING HERE
150 DATA 87,GOLD,THERE IS SOME GOLD NEAR YOUR FEET
155 DATA 78,SCARF,A SCARF IS NEARBY
160 DATA 65,ZORA,ZORA IS STANDING NEARBY
165 DATA 43,SCREWDRIVER,YOUR SONIC SCREWDRIVER IS HERE
170 DATA 60,VENAN,VENAN IS HERE
180 DATA 7,JEWEL,A LARGE SHINY JEWEL IS ON THE GROUND
190 DATA 4,BERIX,BERIX IS SITTING HERE
200 DA%(1)=0:DA%(2)=0
210 FOR K=1 TO 3:CY%(K)=0:NEXT
220 SD%=0:FOR I=1 TO 3:YE%(I)=0:NEXT
230 MO%=0:SW%=0:MA%=0:P2=100
240 P=P2:IF P>90 THEN ON P-90 GOSUB 0,0,0,0,0,0,6186,6189,6192,6195:GOTO 340
250 IF P>80 THEN ON P-80 GOSUB 0,0,0,0,0,0,6174,6177,6180,6183:GOTO 340
260 IF P>70 THEN ON P-70 GOSUB 0,0,0,0,0,0,6162,6165,6168,6171:GOTO 340
270 IF P>60 THEN ON P-60 GOSUB 6147,6150,6153,6156,6159,0,0,0,0,0:GOTO 340
280 IFP>50THENONP-50GOSUB6120,6123,6126,6129,6132,0,6135,6138,6141,6144:GOTO 340
290 IFP>40THENONP-40GOSUB6093,6096,6099,6102,6105,0,6108,6111,6114,6117:GOTO340
300 IFP>30THENONP-30GOSUB0,0,0,0,0,0,6081,6084,6087,6090:GOTO340
310 IFP>20THENONP-20GOSUB6054,6057,6060,6063,6066,0,6069,6072,6075,6078:GOTO340
320 IFP>10THENONP-10GOSUB6028,6031,6034,6037,6040,0,6042,6045,6048,6051:GOTO340
330 IFP>0THENONPGOSUB6001,6004,6007,6010,6013,0,6016,6019,6022,6025
340 IF P=88 AND DA%(1)<>1THEN 6500
350 IF P=77 AND DA%(2)<>1THEN 6500
360 IF P=62 AND CY%(1)<>1THEN 7000
```

```
370 IF P=41 AND CY%(2)<>1THEN 7000
380 IF P=45 AND CY%(3)<>1THEN 7000
390 IF P=48 AND SD%<>1THEN 7500
400 IF P=27 AND YE%(1)<>1THEN 8000
410 IF P=29 AND YE%(2)<>1THEN 8000
420 IF P=9  AND YE%(3)<>1THEN 8000
430 IF P=14 AND MO%<>1THEN 8500
440 IF P=11 AND SW%<>1THEN 9000
450 IF P=1  AND MA%<>1THEN 9500
460 FOR I=1 TO 9:IF OB%(I)=P THEN PRINT SI$(I)
465 NEXT
470 PRINT"YOU CAN GO :";
480 IF N>0 THEN PRINT" NORTH";
490 IF E>0 THEN PRINT" EAST";
500 IF S>0 THEN PRINT" SOUTH";
510 IF W>0 THEN PRINT" WEST";
520 IF P=77 OR P=45 OR P=57 THEN PRINT" TRANSMAT":PRINT"■"
530 PRINT CHR$(13)
540 INPUT"■WHAT SHALL I DO NOW ■";I$
545 PRINT"■"
550 REM CHECK COMMAND
560 IF I$="N" OR I$="E" OR I$="S" OR I$="W" THEN 10100
570 IF I$="I" THEN 2000
580 IF I$="H" THEN 2100
590 IF I$="T" THEN 850
600 FOR I=1 TO LEN(I$)
610 IF MID$(I$,I,1)=" "THEN 640
620 NEXT
630 PRINT"PLEASE CAN YOU USE TWO WORDS":GOTO 540
640 FOR SP=1 TO LEN(I$)
650 IF MID$(I$,SP,1)=" " THEN 670
660 NEXT
670 VE$=LEFT$(I$,SP-1)
680 NO$=RIGHT$(I$,(LEN(I$)-SP))
690 IF VE$="GET"OR VE$="GRAB"OR VE$="TAKE"OR VE$="CARRY"THEN 3000
700 IF VE$="DROP"OR VE$="LOSE"OR VE$="LEAVE" THEN 3100
720 IF VE$="KILL" THEN 900
730 IF VE$="SWIM"OR VE$="FLOAT" THEN 1000
790 PRINT"I DON'T KNOW HOW TO :";VE$:GOTO 540
795 IFP=45ORP=57ORP=77THENPRINT"I CANNOT GO THAT WAY":GOTO 240
800 IF I$="N" AND N>0 THEN P2=P-10:GOTO 240
810 IF I$="E" AND E>0 THEN P2=P+1:GOTO 240
820 IF I$="S" AND S>0 THEN P2=P+10:GOTO 240
830 IF I$="W" AND W>0 THENP2=P-1:GOTO 240
840 PRINT"SORRY -YOU CAN'T GO THAT WAY!":GOTO 540
850 IF P=77 OR P=45 OR P=57 THEN 860
855 PRINT"THERE IS NO TRANSMAT CAPSULE HERE":GOTO 540
860 PRINT"YOU STEP INTO THE CAPSULE"
870 PRINT"AND DE-MATERIALISE"
880 IF P=77 THEN P2=61:GOTO 240
890 IF P=45 THEN P2=10:GOTO 240
895 IF P=57 THEN P2=25:GOTO 240
900 GOTO 1060
1000 IF P=11 THEN 1610
1010 IF VE$="SWIM"AND P=39ORP=40ORP=48ORP=49ORP=50 THEN 1020
1015 PRINT"I CANNOT SEE ANY WATER!":GOTO 540
1020 IF NO$= "NORTH"ORNO$= "SOUTH"ORNO$= "EAST"OR NO$= "WEST"THEN 1050
1025 PRINT"PLEASE STATE DIRECTION - IN A FULL WORD":GOTO 540
1050 GOTO 800
1060 IF NO$="ROBOT" THEN 1068
1061 IF NO$="FOREX" THEN 1072
1062 IF NO$="DRAGON" THEN 1076
```

```
1063 IF NO$="BEAST" THEN 1080
1064 IF NO$="MONSTER" THEN 1084
1065 IF NO$="SHADOW" THEN 1090
1066 IFNO$="ZORA"ORNO$="VENAN"ORNO$="BERIX"THENPRINT"NO I WON'T":GOTO 240
1067 PRINT"I CANNOT DO THAT":GOTO 240
1068 IFP<>88ANDP<>77THEN PRINT"I CAN'T SEE A ROBOT HERE":GOTO 240
1069 IF OB%(2)=-1 THEN 1071
1070 PRINT"YOU CAN'T YOU ARE DEAD!":END
1071 PRINT"OK-YOU BLEW IT UP":GOTO 1500
1072 IFP<>62ANDP<>41ANDP<>45THENPRINT"I CAN'T SEE A FOREX HERE":GOTO 240
1073 IF OB%(3)=-1 THEN 1075
1074 PRINT"YOU CAN'T.YOU ARE DEAD!":END
1075 PRINT"OK.THE GOLD STOPPED HIS BREATHING":GOTO 1500
1076 IF P<>48 THEN PRINT"I CAN'T SEE A DRAGON HERE":GOTO240
1077 IF OB%(1)=-1 THEN 1079
1078 PRINT"YOU CAN'T.YOU ARE DEAD!":END
1079 PRINT"OK.YOU BLASTED IT WITH THE PHOTON LAZER.":GOTO 1500
1080 IFP<>27ANDP<>29ANDP<>9 THENPRINT"I CAN'T SEE A BEAST HERE.":GOTO 240
1081 IF OB%(6)=-1 THEN 1083
1082 PRINT"YOU CAN'T.YOU ARE DEAD.":END
1083 PRINT"OK.YOU BLOCKED THE SIGNALS TO IT WITH THE SONIC SCREWDRIVER":GOTO 150
0
1084 IFP<>14 THENPRINT"I CAN'T SEE THE MONSTER HERE!":GOTO 240
1085 IF OB%(1)=-1 THEN 1087
1086 PRINT"YOU CAN'T.YOU ARE DEAD!":END
1087 PRINT"OK.YOU BLASTED IT TO BITS WITH THE LAZER":GOTO 1500
1088 IFP=1 THEN 1090
1089 PRINT"THE SHADOW IS NOT HERE!":GOTO 240
1090 IFOB%(9)=-1THENPRINT"BERIX KNOCKS HIM OUT.":X=0:MA%=1 :GOTO 1092
1091 PRINT"SORRY-YOU ARE DEAD!":END
1092 PRINT"YOU HAVE YOUR SPACESHIP BACK!"
1093 PRINT"YOU HAVE:"
1094 IF OB%(9)=-1 THEN PRINTOB$(9):X=X+1
1095 IF OB%(7)=-1 THEN PRINTOB$(7):X=X+1
1096 IF OB%(5)=-1 THEN PRINTOB$(5):X=X+1
1097 IF X=3 THEN 1110
1098 IF OB%(9)<>-1 THEN PRINT"YOU DON'T HAVE THE BERIX"
1099 IF OB%(7)<>-1 THEN PRINT"YOU DON'T HAVE VENAN."
1100 IF OB%(5)<>-1 THEN PRINT"YOU DON'T HAVE ZORA"
1101 PRINT"YOU HAVE FAILED!":END
1110 PRINT"YOU HAVE WON! CONGRATULATIONS!"
1111 END
1500 IF P=88 THEN DA%(1)=1
1510 IF P=77 THEN DA%(2)=1
1520 IF P=62 THEN CY%(1)=1
1530 IF P=41 THEN CY%(2)=1
1540 IF P=45 THEN CY%(3)=1
1550 IF P=48 THEN SD%   =1
1560 IF P=27 THEN YE%(1)=1
1570 IF P=29 THEN YE%(2)=1
1580 IF P= 9 THEN YE%(3)=1
1590 IF P=14 THEN MO%   =1
1600 GOTO 240
1610 IF OB%(8)=-1 THEN PRINT"OK THE ANTIGRAVITY JEWEL KEPT YOU AFLOAT":GOTO1620
1615 PRINT"SORRY-YOU ARE DEAD!!!":END
1620 SW%=1:GOTO 240
2000 PRINT"YOUR INVENTORY IS:":IV=0
2010 FOR I=1TO 4
2020 IF OB%(I)=-1 THEN PRINTOB$(I):IV=IV+1
2030 NEXT
2040 IF OB%(6)=-1 THEN PRINTOB$(6):IV=IV+1
2050 IF OB%(8)=-1 THEN PRINTOB$(8):IV=IV+1
```

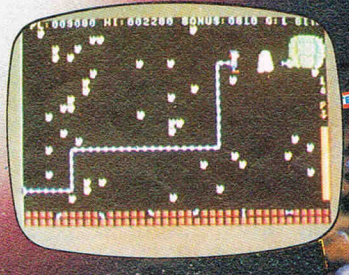
TERMINAL SOFTWARE

from the producers of

STAR COMMANDO

Earn your Star-badge by clearing the Galaxy of hostile forces like Cosmic Kamikazes, Galactic Pirates and hazards like Space Minefields and Meteor Storms.

Fantastic 3-D perspective on the Commodore 64 for **£7.95**



PLUMB CRAZY!

Stop the tank exploding by plumbing-in a relief pipe using your skill and ingenuity. Avoid the rocks and beware the ghost!

Fun-action game for Commodore 64 **£7.95**

TERMINAL

TERMINAL SOFTWARE
28 CHURCH LANE, PRESTWICH,
MANCHESTER M25 5AJ.
Telephone: 061-797 3635 or 061-773 9313

INTERNATIONAL
WICOSOFT-DÜSSELDORF, TIAL-ÄLMHULT,
AASHIMA-ROTTERDAM, CARAT-KØBENHAVN,
ZX AFRICA-SOUTH AFRICA, OZISOFT-AUSTRALIA,

Available from leading computer shops and distributors, including:-

Dixons SOFTWARE EXPRESS

Selected Lewis's and Co-op Stores

PCS BLACKBURN.

CentreSoft

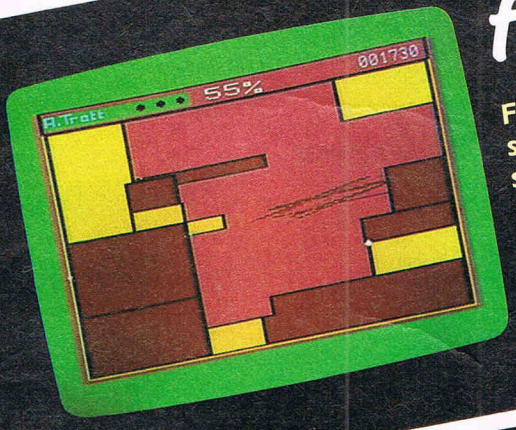
SoftShop International

F&D FERRANTI AND DAVENPORT LTD.

```
2060 IF IV=0 THEN PRINT"NOTHING"
2070 PRINT"COMPANIONS:":IX=0
2080 IF OB%(5)=-1 THEN PRINTOB$(5):IX=IX+1
2090 IF OB%(7)=-1 THEN PRINTOB$(7):IX=IX+1
2091 IF OB%(9)=-1 THEN PRINTOB$(9):IX=IX+1
2092 IF IX=0 THEN PRINT"NOBODY"
2093 GOTO 540
2100 IFP=100THENPRINT"TRY GOING NORTH-PRESS 'N'!":GOTO 240
2110 IFP=88ANDDA%(1)<>1THENPRINT"TRY KILLING IT.":GOTO 240
2115 IFP=77ANDDA%(2)<>1THENPRINT"TRY KILLING IT.":GOTO 240
2120 IFP=62ANDCY%(1)<>1THENPRINT"KILL IT .":GOTO 240
2125 IFP=41ANDCY%(2)<>1THENPRINT"KILL IT .":GOTO 240
2126 IFP=45ANDCY%(3)<>1THENPRINT"KILL IT .":GOTO 240
2130 IFP=48ANDSD%<>1THENPRINT"WATCH-OUT FOR HIS BREATH":GOTO 240
2135 IFP=27ANDYE%(1)<>1THENPRINT"ISN'T HE BEASTLY.":GOTO 240
2136 IFP=29ANDYE%(2)<>1THENPRINT"ISN'T HE BEASTLY.":GOTO 240
2137 IFP= 9ANDYE%(3)<>1THENPRINT"ISN'T HE BEASTLY.":GOTO 240
2140 IFP=14ANDMO%<>1THENPRINT"KILL IT.":GOTO240
2150 IFP=11ANDSW%<>1THENPRINT"TRY NOT TO SINK BUT SWIM!":GOTO 240
2160 IFP=1ANDMA%<>1THENPRINT"TURN ON THE LIGHT.":GOTO 240
2180 PRINT"YOU'RE DOING FINE":GOTO 240
3000 K=0:FOR I=1 TO 9
3010 IF OB$(I)=NO$ THEN 3020
3015 K=K+1:NEXT
3016 IF K=9 THEN PRINT"I DON'T UNDERSTAND ";NO$:GOTO 240
3020 IF OB%(I)=-1 THEN PRINT"YOU HAVE GOT IT.":GOTO 540
3030 IF OB%(I)<>P THEN PRINT"IT ISN'T HERE.":GOTO 540
3040 PRINT"OK":OB%(I)=-1
3050 GOTO 540
3100 K=0:FOR I=1 TO 9
3110 IF OB$(I)=NO$ THEN 3120
3115 K=K+1:NEXT
3116 IF K=9THENPRINT"I DON'T UNDERSTAND ";NO$:GOTO 240
3120 IF OB%(I)<>-1 THEN PRINT"YOU HAVEN'T GOT IT.":GOTO 540
3130 PRINT"OK":OB%(I)=P
3140 GOTO 540
6000 REM LOCATIONS
6001 REM LOCATION 1
6002 PRINT"YOU HAVE FOUND YOUR SPACESHIP"
6003 N=0:S=0:E=0:W=0:RETURN
6004 REM LOCATION 2
6005 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6006 N=0:S=12:E=3:W=0:RETURN
6007 REM LOCATION 3
6008 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6009 N=0:S=13:E=4:W=2:RETURN
6010 REM LOCATION 4
6011 PRINT"YOU ARE INSIDE A SMALL WOODEN HUT"
6012 N=0:S=14:E=0:W=3:RETURN
6013 REM LOCATION 5
6014 PRINT"YOU ARE IN THE REMAINS OF A CITY"
6015 N=0:S=15:E=0:W=4:RETURN
6016 REM LOCATION 7
6017 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6018 N=0:S=17:E=0:W=0:RETURN
6019 REM LOCATION 8
6020 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6021 N=0:S=0:E=0:W=7:RETURN
6022 REM LOCATION 9
6023 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6024 N=0:S=0:E=0:W=8:RETURN
6025 REM LOCATION 10
```

SUPERSOFT

the name to remember

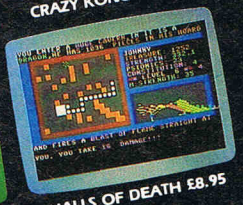


for games

For only £8.95 you can buy a game that's exciting, soothing, and frustratingly addictive – all at the same time! STIX looks so different and sounds so different from all those other games that it will seem like being in another dimension when you sit down to play.

CRAZY KONG £8.95

WILDFIRE £6.95

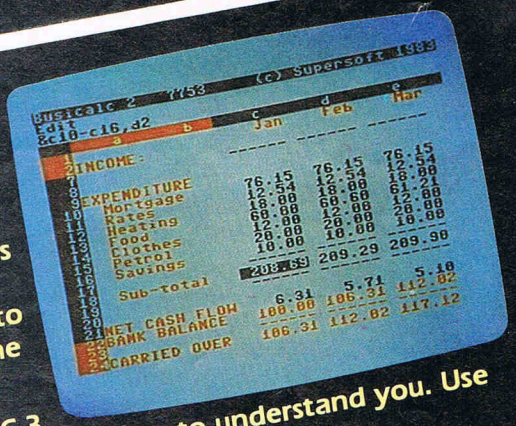


HALLS OF DEATH £8.95

for business

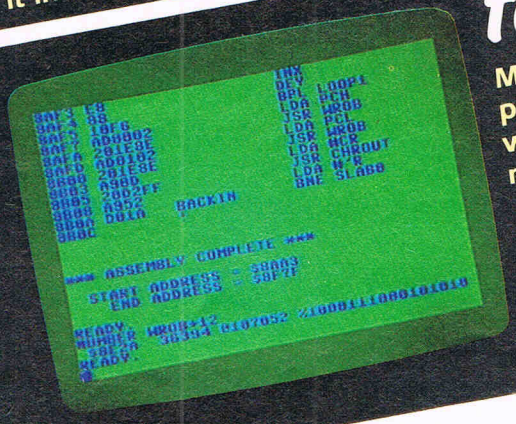
Show your computer who's master with BUSICALC!

Spreadsheet programs are used by large and small businesses to juggle with figures, prepare reports and so on. Some are very powerful indeed. The problem is that they're difficult to learn, and tricky to use – which is why we came up with the BUSICALC series.



Whether you choose BUSICALC 1, BUSICALC 2, or BUSICALC 3 you'll get a program you can understand – and one that almost seems to understand you. Use it in the home, use it for teaching, use it at work – it'll save you time and money.

for programmers



MIKRO is a full 6502/6510 ASSEMBLER with the power that professional programmers need, yet so simple to use that we recommend it to beginners! The MIKRO cartridge has many other facilities including editing commands and a machine language monitor, all for £57.50.

There's much more for the 64 in the SUPERSOFT catalogue. Ask your computer dealer for a copy, or phone 01-861 1166.

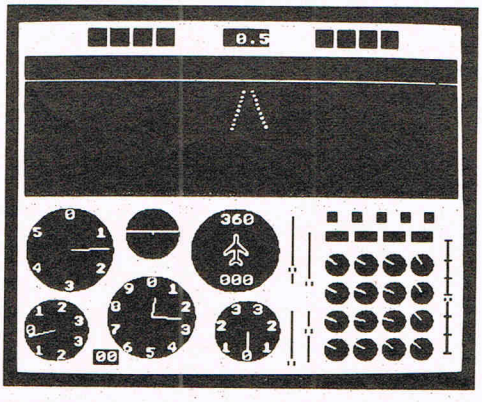
The Best 64 Software

SUPERSOFT, Winchester House, Canning Road, Wealdstone, Harrow, Middlesex, HA3 7SJ Telephone: 01-861 1166

```
6026 PRINT"YOU HAVE TRANSMATTED TO A FLAT PLAIN"
6027 N=0:S=20:E=0:W=9:RETURN
6028 REM LOCATION 11
6029 PRINT"YOU ARE ON A PLAIN"
6030 N=1:S=21:E=12:W=0:RETURN
6031 REM LOCATION 12
6032 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6033 N=2:S=22:E=13:W=12:RETURN
6034 REM LOCATION 13
6035 PRINT"YOU ARE IN THE REMAINS OF A CITY"
6036 N=3:S=23:E=0:W=0:RETURN
6037 REM LOCATION 14
6038 PRINT"YOU ARE IN A MASS OF DENSE UNDERGROWTH"
6039 N=4:S=24:E=15:W=0  :RETURN
6040 REM LOCATION 15
6041 PRINT"YOU ARE IN THE REMAINS OF A CITY":N=5:S=0:E=0:W=14:RETURN
6042 REM LOCATION 17
6043 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6044 N=0:S=27:E=18:W=0:RETURN
6045 REM LOCATION 18
6046 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6047 N=0:S=28:E=0:W=17:RETURN
6048 REM LOCATION 19
6049 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6050 N=9:S=29:E=20:W=18:RETURN
6051 REM LOCATION 20
6052 PRINT"YOU ARE ON A LARGE PLAIN"
6053 N=0:S=30:W=19:E=0:RETURN
6054 REM LOCATION 21
6055 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6056 N=11:S=0:E=22:W=0:RETURN
6057 REM LOCATION 22
6058 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6059 N=12:S=0:E=0:W=21:RETURN
6060 REM LOCATION 23
6061 PRINT"YOU ARE IN THE REMAINS OF A CITY"
6062 N=13:S=0:E=24:W=0:RETURN
6063 REM LOCATION 24
6064 PRINT"YOU ARE IN THE REMAINS OF A CITY"
6065 N=14:S=0:E=0:W=23:RETURN
6066 REM LOCATION 25
6067 PRINT"YOU HAVE TRANSMATTED TO A FOREST"
6068 N=15:S=0:E=0:W=24:RETURN
6069 REM LOCATION 27
6070 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6071 N=0:S=37:E=28:W=0:RETURN
6072 REM LOCATION 28
6073 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6074 N=18:S=38:E=0:W=27:RETURN
6075 REM LOCATION 29
6076 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6077 N=0:S=39:E=30:W=0:RETURN
6078 REM LOCATION 30
6079 PRINT"YOU ARE ON A WIDE OPEN PLAIN"
6080 N=20:S=40:E=0:W=29:RETURN
6081 REM LOCATION 37
6082 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6083 N=0:S=47:E=38:W=0:RETURN
6084 REM LOCATION 38
6085 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6086 N=28:S=0:E=39:W=37:RETURN
6087 REM LOCATION 39
```

Now Available on the Commodore-64

747 Flight Simulator



Much-praised for its accuracy and realism, the DACC 747 Flight Simulator is unrivalled and unbeatable. Professional Jumbo-jet pilots say the flight-deck layout is instantly recognisable as that of the 747, the world's most impressive airliner. With attention given to every detail DACC have combined 17 years computer experience with an in-depth knowledge of aircraft to produce the ultimate simulation on a home-computer. There are 21 real dials including full four-engine instrumentation. Many other indicators and warning lights are provided together with sound and the precise 3-D view of the runway seen through the cockpit window. Machine-code and high resolution graphics make the 747 Flight Simulator a thrilling experience not to be missed.
Can be used with or without joysticks.
Also available on BBC/B, Electron, Dragon, Tandy C/C and Atari (48K).
Dealer Enquiries – Phone (0942) 57872.
Cassette £9.95 Post-free (Despatch within 48 hours) **IN USA $27.95** Post-free

Order direct from:
DACC Ltd. (Dept. CI)
23 Waverley Road
Hindley, Nr. Wigan
Lancs. WN2 3BN.

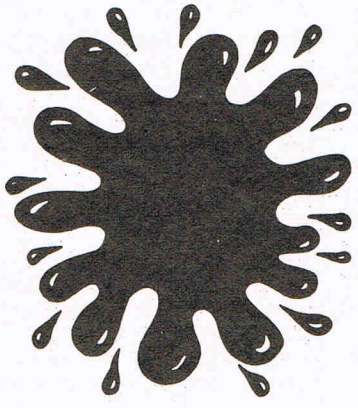
In USA order from:
F. Ashton (Dept. CI)
PO Box 7037
Chula Vista CA 92012 7037
(California residents add 6% sales tax)

NEW
FOR THE **CBM64**

INCENTIVE

THE SPLAT CHALLENGE

SPLAT!



NEW FOR THE CBM64

THE SPLAT CHALLENGE FOR THE COMMODORE 64
£6.50

INCENTIVE

INCENTIVE SOFTWARE, 54 LONDON ST.
READING RG1 4SQ (0734) 591678

COMMODORE
COMPUTING INTERNATIONAL

SUBSCRIPTION ORDER FORM

Please send me 12 issues of *Commodore Computing*

CHEQUE ENCLOSED ☐

PLEASE DEBIT MY ACCESS ☐

AMERICAN EXPRESS ☐

BARCLAYCARD ☐

CHARGE NO. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Expiry date:

Cheques should be made payable to:
Commodore Computing

TO AVOID FUTURE LAPSE IN MY SUBSCRIPTION PLEASE DEBIT MY RENEWAL FEE TO MY CREDIT CARD ANNUALLY UNTIL I CANCEL IN WRITING.

Name.....

Address.....

.....

County ..... Post Code .....

Telephone (home).....

(Business) .....

Signed.....

Date (Sub to commence) .....

☐ Subscription rate U.K. £15.00
☐ Europe £20.00
☐ Outside Europe £28.50

Return form to:
Subscriptions Manager,
Commodore Computing International
167-169 Great Portland Street,
London, W1

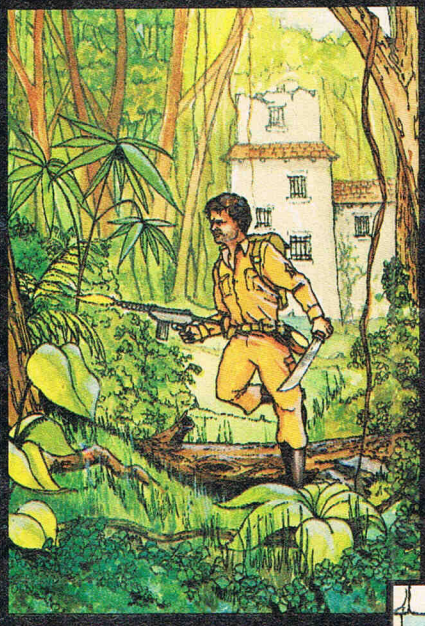
```
6088 PRINT"YOU HAVE FALLEN INTO A LAKE"
6089 N=29:S=49:E=40:W=38:RETURN
6090 REM LOCATION 40
6091 PRINT"YOU HAVE FALLEN INTO A LAKE"
6092 N=0:S=50:E=0:W=0:RETURN
6093 REM LOCATION 41
6094 PRINT"YOU ARE IN A METALLIC ROOM"
6095 N=0:S=51:E=0:W=0:RETURN
6096 REM LOCATION 42
6097 PRINT"YOU ARE IN A LONG PASSAGE"
6098 N=0:S=0:E=43:W=41:RETURN
6099 REM LOCATION 43
6100 PRINT"YOU ARE IN A LONG PASSAGE"
6101 N=0:S=53:E=42:W=44:RETURN
6102 REM LOCATION 44
6103 PRINT"YOU ARE IN A METALLIC ROOM"
6104 N=0:S=0:E=0:W=43:RETURN
6105 REM LOCATION 45
6106 PRINT"YOU ARE IN THE TRANSMAT ROOM"
6107 N=0:S=0:E=0:W=0:RETURN
6108 REM LOCATION 47
6109 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6110 N=0:S=0:E=48:W=0:RETURN
6111 REM LOCATION 48
6112 PRINT"YOU HAVE FALLEN INTO A LAKE"
6113 N=0:S=58:E=49:W=0:RETURN
6114 REM LOCATION 49
6115 PRINT"YOU HAVE FALLEN INTO A LAKE"
6116 N=39:S=59:E=50:W=0:RETURN
6117 REM LOCATION 50
6118 PRINT"YOU HAVE FALLEN INTO A LAKE"
6119 N=0:S=0:E=0:W=49:RETURN
6120 REM LOCATION 51
6121 PRINT"YOU ARE IN A METALIC ROOM"
6122 N=41:S=0:E=52:W=0:RETURN
6123 REM LOCATION 52
6124 PRINT"YOU ARE IN A LONG PASSAGE"
6125 N=0:S=62:E=53:W=0:RETURN
6126 REM LOCATION 53
6127 PRINT"YOU ARE IN A METALIC ROOM"
6128 N=43:S=0:E=54:W=52:RETURN
6129 REM LOCATION 54
6130 PRINT"YOU ARE IN A LONG PASSAGE"
6131 N=44:S=0:E=55:W=53:RETURN
6132 REM LOCATION 55
6133 PRINT"YOU ARE IN A LONG PASSAGE"
6134 N=45:S=0:E=0 :W=0:RETURN
6135 REM LOCATION 57
6136 PRINT"YOU HAVE FOUND THE TRANSMAT ROOM"
6137 N=0:S=0:E=0:W=0:RETURN
6138 REM LOCATION 58
6139 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6140 N=48:S=0:E=0:W=57:RETURN
6141 REM LOCATION 59
6142 PRINT"YOU ARE IN A DARK GLOOMY FOREST"
6143 N=49:S=0:E=60:W=0:RETURN
6144 REM LOCATION 60
6145 PRINT"YOU ARE IN A DARK GLOOMY CAVE"
6146 N=0:S=0:E=0:W=59:RETURN
6147 REM LOCATION 61
```

```
6148 PRINT"YOU HAVE TRANSMATTED TO A METALIC ROOM"
6149 N=51:S=0:E=62:W=0:RETURN
6150 REM LOCATION 62
6151 PRINT"YOU ARE IN A LONG PASSAGE"
6152 N=52:S=0:E=63:W=0:RETURN
6153 REM LOCATION 63
6154 PRINT"YOU ARE IN A LONG PASSAGE"
6155 N=53:S=0:E=64:W=0:RETURN
6156 REM LOCATION 64
6157 PRINT"YOU ARE IN A METALIC ROOM"
6158 N=0:S=0:E=65:W=63:RETURN
6159 REM LOCATION 65
6160 PRINT"YOU ARE IN THE JAIL"
6161 N=55:S=0:E=0:W=0:RETURN
6162 REM LOCATION 77
6163 PRINT"YOU HAVE FOUND THE TRANSMAT ROOM"
6164 N=0:S=0:E=0:W=0:RETURN
6165 REM LOCATION 78
6166 PRINT"YOU ARE IN A METALIC ROOM"
6167 N=0:S=0:E=79:W=0:RETURN
6168 REM LOCATION 79
6169 PRINT"YOU ARE IN A LONG PASSAGE"
6170 N=0:S=89:E=80:W=78:RETURN
6171 REM LOCATION 80
6172 PRINT"YOU ARE IN A METALIC ROOM"
6173 N=0:S=0:E=0:W=79:RETURN
6174 REM LOCATION 87
6175 PRINT"YOU ARE IN A LONG PASSAGE"
6176 N=77:S=97:E=0:W=0:RETURN
6177 REM LOCATION 88
6178 PRINT"YOU ARE IN THE CONTROL ROOM"
6179 N=0:S=98:E=89:W=87:RETURN
6180 REM LOCATION 89
6181 PRINT"YOU ARE IN A METALIC ROOM"
6182 N=79:S=99:E=0:W=88:RETURN
6183 REM LOCATION 90
6184 PRINT"YOU ARE IN A LONG PASSAGE"
6185 N=80:S=0:E=0:W=89:RETURN
6186 REM LOCATION 97
6187 PRINT"YOU ARE IN A METALIC ROOM"
6188 N=87:S=0:E=98:W=0:RETURN
6189 REM LOCATION 98
6190 PRINT"YOU ARE IN A LONG PASSAGE"
6191 N=88:S=0:E=99:W=97:RETURN
6192 REM LOCATION 99
6193 PRINT"YOU ARE IN A LONG PASSAGE"
6194 N=0:S=0:E=0:W=98:RETURN
6195 REM LOCATION 100
6196 PRINT"YOU ARE IN A METALIC ROOM"
6197 N=90:S=0:E=0:W=0:RETURN
6500 PRINT"A ROBOT IS COMING TOWARDS YOU"
6510 PRINT"IT SCREAMS'INTRUDER'"
6520 PRINT"EXTERMINATE! EXTERMINATE!'"
6530 GOTO 10000
7000 PRINT"A HUGE METAL FIGURE IS BEARING DOWN ON YOU."
7010 PRINT"IT IS A FOREX!"
7020 PRINT"IT RAISES ITS WEAPON!"
7030 GOTO 10000
7500 PRINT"A DRAGON COMES OUT OF THE LAKE."
7510 PRINT"IT BREATHES FIRE AT YOU"
7520 PRINT"BUT MISSES!"
```

```
7530 GOTO 10000
8000 PRINT"A GREAT LUMBERING SHAPE JUMPS OUT ON YOU."
8010 PRINT"IT IS A ENORMOUS BEAST!"
8020 PRINT"ITS CLAWS REACH FOR YOUR THROAT."
8030 GOTO 10000
8500 PRINT"AN ENORMOUS MONSTER IS IN FRONT OF YOU."
8510 PRINT"IT HAS SEEN YOU!"
8520 GOTO 10000
9000 PRINT"YOU ARE SINKING INTO THE GROUND!"
9010 PRINT"YOU ARE IN A SWAMP!"
9020 PRINT"YOU ARE UP TO YOUR KNEES,YOUR SHOULDERS."
9030 GOTO 10000
9500 PRINT"YOU HEAR A SNEER AND THE SHADOW APPEARS."
9510 PRINT"HE RAISES HIS WEAPON "
9520 PRINT"AND WARNS YOU NOT TO TAKE ANOTHER STEP."
9530 GOTO 10000
10000 PRINT
10010 PRINT"YOU CANNOT MOVE UNTIL YOU HAVE DEFEATED IT......."
10020 PRINT"OR BEEN DEFEATED!!"
10030 GOTO 540
10100 IF P=88 AND DA%(1)=0 THEN 10200
10101 IF P=77 AND DA%(2)=0 THEN 10200
10102 IF P=62 AND CY%(1)=0 THEN 10200
10103 IF P=41 AND CY%(2)=0 THEN 10200
10104 IF P=45 AND CY%(3)=0 THEN 10200
10105 IF P=48 AND SD%   =0 THEN 10200
10106 IF P=27 AND YE%(1)=0 THEN 10200
10107 IF P=29 AND YE%(2)=0 THEN 10200
10108 IF P= 9 AND YE%(3)=0 THEN 10200
10109 IF P=14 AND MO%   =0 THEN 10200
10110 IF P=1  AND MA%   =0 THEN 10200
10111 GOTO 795
10200 IF I$="N"ORI$="S"ORI$="E"ORI$="W"THEN PRINT"YOU CAN'T DO THAT...YET!!"
10210 GOTO 540
10299 PRINTTAB(8)"PLEASE TURN UP THE VOLUME":FOR K=1TO1000:NEXTK
10300 PRINT"■":PRINTTAB(16)"TRANSMAT"
10365 PRINTTAB(12)"BY TOBY HUGHES"
10366 PRINTTAB(12)"DECEMBER  1983"
10367 POKE54295,0:POKE54296,15
10370 RESTORE
10380 W=54272
10390 POKEW+6,0:POKEW+5,45
10400 POKEW+3,99:PP=2500
10410 READWW:IFWW=0THENPOKE54276,0:RETURN
10420 RR=INT(WW/10):OO=(WW-10*RR)*PP
10430 POKE54273,OO/256:POKE54272,OOAND255
10440 POKE54276,0:POKE54276,65:FORNN=1TO70*(RR+1):NEXTNN
10450 GOTO 10410
20000 PRINT"OTHER THAN THESE YOU MUST USE TWO WORDS."
20010 PRINT"THE NAMES OF YOUR COMPANIONS ARE:" .
20020 PRINT"ZORA,VENAN,BERIX."
20030 PRINT"TREAT THEM AS OBJECTS-GET ZORA"
20040 PRINT"TO KILL AN ENEMY JUST TYPE KILL....."
20050 PRINT"AND IF YOU HAVE THE CORRECT OBJECT THEN"
20060 PRINT"YOU WILL KILL IT."
20070 PRINT"PRESS'FUNCTION 1' TO CONTINUE."
20080 GET A$:IF A$="" THEN 20080
20090 IF A$="■" THEN RETURN
20100 GOTO 20080
READY.
```

PARAMOUNT SOFTWARE

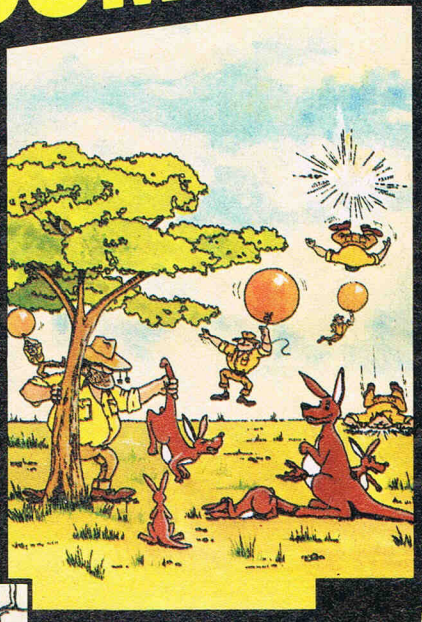
for Connoisseurs with COMMODORES



COUNTDOWN

Time is important.
Accuracy essential.
Courage mandatory.
But, above all, Nerve is the prime attribute needed for your mission as an agent in the crack S.M.U.
A Superb Arcade / Graphical Adventure.
VIC 20 8K or 16K Expansion. Keyboard or Joystick.

£5.50



OUTBACK

"....an addictive game...the Graphics are very good indeed ...there's also a lot of very good programming." Personal Computer News. Dec22-Jan 4 1984.

Can you use the very sophistocated defence set-up to beat off the cunning Swagmen ?

Pure Machine Code Action. Fully Featured.
Superb colour and Graphics.
A game with a difference.

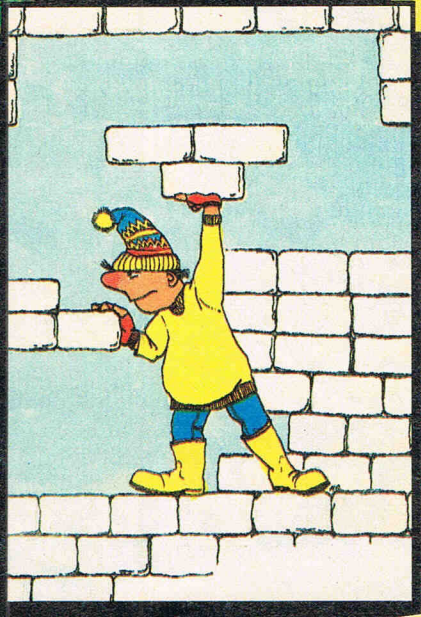
Any VIC20 Joystick.
COMMODORE 64 Keyboard or Joystick.

£5.50 & £7.50

CHOCABLOC

A fast moving, pure Machine Code action game, with Chocabloc our hero trying to sort out some Real Cool Choc Bars – until everything goes crazy and the action is on!
Arcade standard.
Fully Featured.
Excellent sound and graphics.
VIC 20 8K or 16K expansion.
Keyboard or Joystick.

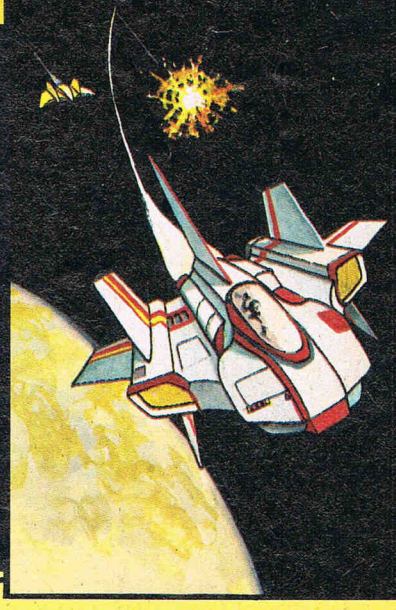
£6.50



MEGAWARZ

Where does your fantasy go when your mind leaves your body ?
Megawarz will take you there you can be sure.
High resolution, multi-colour graphics.
Sprite graphics.
Synthysound.
Pure Machine Code action.
Arcade Standard.
A magical planetary trip.
COMMODORE 64
Keyboard or Joystick.

£7.50



JOGGER

Truly a jogger amongst joggers. If you have trotted with the rest, now run with the best.
Machine Code action.
Superlative sound.
Creative Colour.
A quality programme from Paramount.
Any VIC 20. Joystick.

£5.50

Authorised distributors:
Softshop Int – Tel: 01-377 8034
Pilonmist Ltd – Tel: 0924 264412
Centresoft Ltd – Tel: 021 520 7591
Tiger Distribution – Tel: 051 420 8888
Websters Ltd – Tel: 0483 62222
P.C.S. – Tel: 0254 691211
Ferranti & Craige – Tel: 0722 330222

Dealer, export and distribution enquiries to Bob Horsham.
Tel: 0642 604 470 (day)
Tel: 0642 316 211 (night)

Selected titles are available at BOOTS, JOHN MENZIES, at major stores and computer stores.

Mail order – despatched by return, post-paid. Please make cheques/POs payable to:

PARAMOUNT SOFTWARE

67 Bishopton Lane, Stockton, Cleveland, TS18 1PU.

CHOCABLOC	£6.50	[ ]	Name.....
OUTBACK	£5.50	[ ]	Address.....
OUTBACK 64	£7.50	[ ]	.....
COUNTDOWN	£5.50	[ ]	.....
MEGAWARZ	£7.50	[ ]	.....
JOGGER	£5.50	[ ]	.....

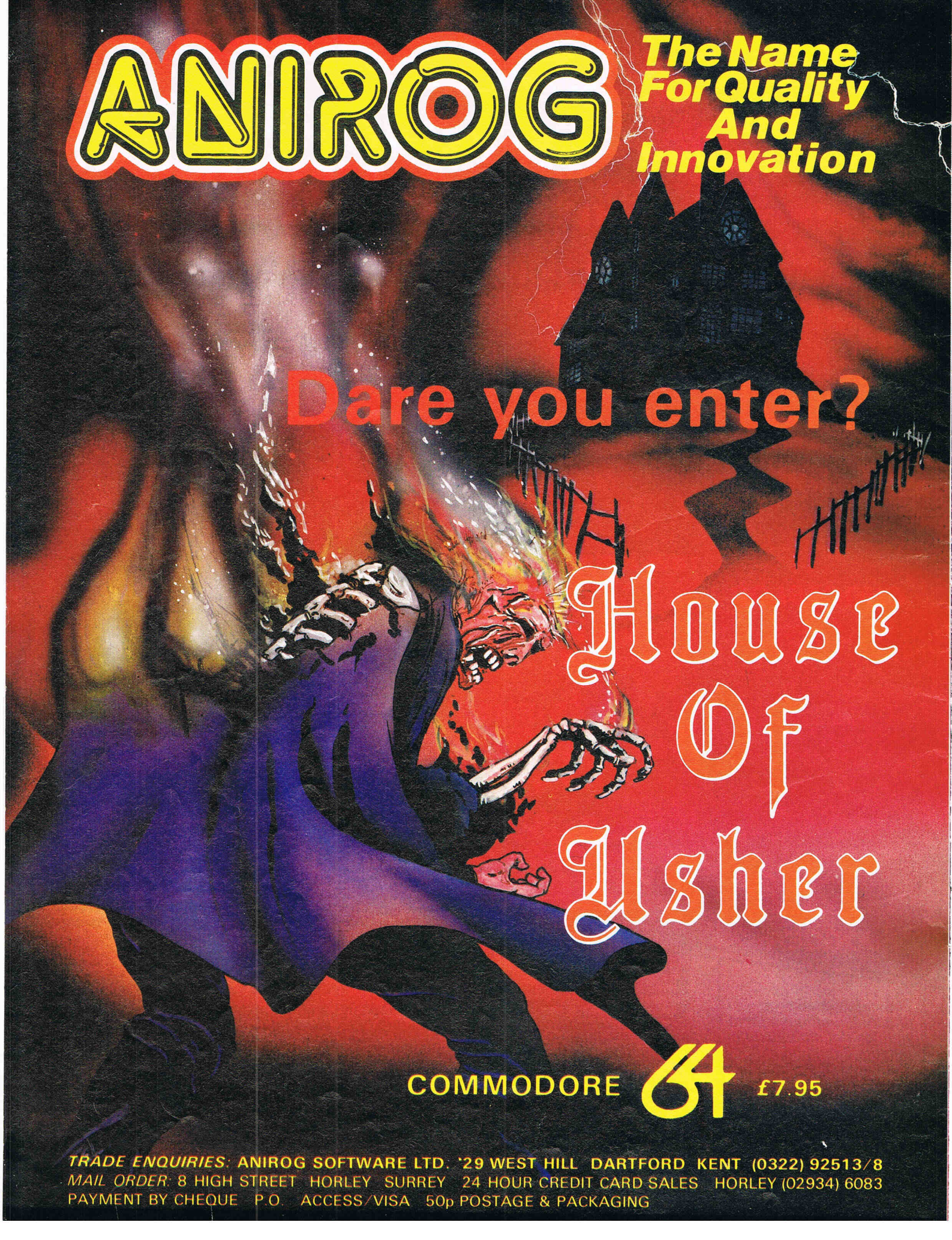
I enclose cash/cheque/P.O. for £.....

Overseas orders please add £0.50 per item

CCi MAY

ANIROG

The Name For Quality And Innovation



Dare you enter?

House Of Usher

COMMODORE 64 £7.95

TRADE ENQUIRIES: ANIROG SOFTWARE LTD. 29 WEST HILL DARTFORD KENT (0322) 92513/8
MAIL ORDER: 8 HIGH STREET HORLEY SURREY 24 HOUR CREDIT CARD SALES HORLEY (02934) 6083
PAYMENT BY CHEQUE P.O. ACCESS/VISA 50p POSTAGE & PACKAGING