NEWS... REVIEWS... LISTINGS...

Games from TV, films and books

PLUS

FREE!

32 page Games magazine

and...

Win a sea of free software

COMMODORE BUSINESS MAGAZINE — All you need to know on packages, peripherals and communications
Braingames bring you the most entertaining and fulfilling adventure and strategy games.

Our adventures combine strong story lines, high quality graphics and sound, to produce games you will want to play time after time.

Strategy games ranging from the White House to King Arthur's Court, from the oil business to a used car lot, will test your skills and imagination.

**FLAME ISLAND**
Throughout the seaports of the old world a rumour has spread — the monks of Flame Island have found the fabled Emerald of Power.

The origin of the Emerald is lost in the mists of time, however the stories suggest that it has esoteric powers of a mystical nature. It is suggested that the monks have placed the Emerald on a dias deep within their temple and have laid many devious traps to protect it.

Landing at the harbour of Flame Island, you must find the temple and retrieve the Emerald of Power. In order to escape safely, you must signal your ship to return to port and safely embark for home.

**CASTLE FEAR**
Many centuries ago, the evil wizard stole the Golden Crown and the seven Diamonds of the Ancient Kings.

He has hidden them deep within his stronghold, Castle Fear, where there are many mystical creatures to guard them. It is rumoured that the wizard himself keeps the Golden Crown, and that he has given the Seven Diamonds to his servants of evil. Over the years, certain brave adventurers have penetrated the Castle, but none have ever returned.

To win the hand in marriage of the Princess, you must dare the evils of Castle Fear and return with the Golden Crown and the Seven Diamonds of the Ancient Kings.

A sophisticated adventure with full graphics and sound.

For more information on the tough nuts Phone us on Brighton (0273) 608331 NOW
COMMODORE
COMPUTING INTERNATIONAL
NOVEMBER 1984

COVER STORY

TV, film and book games

Editor . . . . . . . . . . . . . . . . . . Susan Pearce
Staff writer . . . . . . . . . . . . .. Viola Gienger
Technical adviser . . . . . . . . . . . . . Richard Franklin
Advertisement Manager . . . . . . . Peter Chandler
Advertisement Executive . . . . . . . Paul Fenton
Subscriptions Executive . . . . . . . Alison Stevens

Publisher . . . . . . . . . . . . Antony Jacobson

Cover photography . . . . . . . . . . . . . John Evans
Telephone 01-2780333
Editorial . . . . . . . . . . . . . . . . . . . . ext. 274
Advertising . . . . . . . . . . . . . . . . . . . . . . ext. 278
Subscriptions . . . . . . . . . . . . . . . . . . . . . . . . ext. 274

Published by Croftward Limited.
Finsbury Business Centre,
40 Bowling Green Lane, London EC1
© Croftward Limited 1984
Distribution by Magnum Distribution Ltd,
Clerks Court, 18-20 Farringdon Lane,
London EC1R 3AU.
Printed by Chase Printers Group, London and St. Austell.
ISSN 0265-475X

Commodore Computing International - an independent magazine for Commodore computer users is not connected in any way with Commodore Business Machines UK Ltd. It is published 12 times per year by Croftward Limited. The publishers do not accept liability for any incorrect statement or errors contained in material from independent sources or authors which may be reproduced from time to time.

COMMODORE COMPUTING INTERNATIONAL

News
Divons battle for Currys; Labour joins Micronet

Appearances
Keep your Commodore clean and healthy

Readers Write
The express yourself column

Book Reviews
Peter Arnott-Job steers your course through a sea of words

Product Update
The latest in "serious toys" for Commodore users

Basic
Take the agony out of sorts

MACHINE CODE
Keep your secrets secret

Hints and Tips
Ch... Ch... Ch... Changes for your disk drive

Review
Mirrorsoft's Games Creator faces the test

Strictly Business
For those Commodore users on the business side of life

Connections
Interfaces provide those valued connections

Next Month
CCI gets the Christmas spirit with an extra special look at the games market and George the Robot!!

Dear CCI Reader,

We have all come a long way in the few years since this publication was started by Commodore as a club newsletter for its then small number of computer users. Commodore Computing International Magazine now has an estimated 250,000 readers each month. While its major sales are in the U.K., it travels across the world to many countries, from Iceland to Australia. It has a multitude of faithful and vocal readers, for CCI is acknowledged internationally, not only as the foremost publication in its field but also its vocal readers tell us, as the most respected and discussed magazine bought by the serious, Commodore user.

Nevertheless, even if we have pleased our growing readership, we still want to be even more interesting and attractive. So, as you have probably noticed, in very recent issues, we have made a number of positive changes. Among them are more in-depth features, there is more use of colour and creative layout; the covers have been redesigned and there is a 32 page games supplement. This month sees two other major changes - an increase in size - to A4 - to give more space for text and illustrations and the inclusion of the first ever issue of a free Commodore Business Magazine. This separate magazine will be a regular addition to CCI, in keeping with the growth strength of Commodore in the business micro world.

Over the coming months you will see other exciting improvements in CCI - don’t miss our special year-old issue next month. We are confident you will like what you find in the magazine. If you do, tell any of your fellow Commodore users who are unlucky enough not yet to be CCI readers. If you don’t like something in the magazine, tell us. We’ll listen carefully. Just as much as when it was a club newsletter, it’s your magazine and it’s your interests we aim to satisfy.

What we really want is for Commodore Computing International Magazine to please, interest and excite you even more in the future than it has in the past.

Sincerely yours,

Antony H. Jacobson.
PUBLISHER
**COMMODORE 64**

**PROFESSIONAL COMPUTER SYSTEM**

**COMMODORE 64**
1541 DISK DRIVE
MP5-B01 PRINTER
EASY-SCRIPT (Word processor)
SXL FILE (Database)

**INTRODUCTION TO BASIC (Part 1)**

**ONLY £599.00**
P&P £14.00

---

**PRINTERS**

- NEW Daisywheel Printer £79.90
- RX80 (Tractor only) £259.95
- RX80R (Frictron/Tractor) £299.95
- FX90 (Frictron & pin feed) £299.95
- FX100 (Frictron & pin feed) £459.95
- Daisy Typist 2000 £239.95
- Juki Daisy Wheel £11.95
- BBC to Comtronics cable £19.95
- GAVC to Comtronics cable £19.95
- Software for above £7.95

P&P on above unless stated (F)

---

**MEDIA SUPPLIES**

- Diskettes by Versobin (supplied in boxes of 10)
  - 80S.75/ D.75. £110.95
  - 40S.75. £44.75
- K 15 Cassette £5.99
- K 10 for £4.99

- Computer paper (supplied in boxes of 2500 sheets)
  - 11 x 17. £10.95
- Every piece £0.06

- Pallets (1 pair) £5.95
- Microguide £24.95
- PS22 (Check for availability) £50.00
- 250 Cartridge £6.99
- Commodore Joystick £10.95
- Quickshot II Joystick £13.95
- Pedals £19.95
- Microscope £5.95
- Plotter for 64 system £94.95
- Supersaver 64 cassette deck £195.95
- MPS-96Q Quality matll x plntr £149.95
- MPS-971 Dot matrix printer £295.95
- MPS-982 Quality matrix printer £399.95
- 1520 Printer - Plotter £349.95
- C2N cassette deck £195.95
- 525I525 II £6.25
- 525I525 III £6.99
- 526B £1.99
- 541541B £6.99
- 54T £2.99
- 54£ £2.95
- 54A £2.95

---

**64 packs**

- **64 BEGINNERS PACK**
  - Commodore 64 C2N cassette deck
  - Only £295.00
  - P&P £6.00

- **64 STARTER PACK**
  - Commodore 64 C2N cassette deck
  - Intro to Basic (part1)
  - A game of our choice
  - Only £255.00
  - P&P £9.00

- **64 HOME/BUSINESS PACK**
  - Commodore 64 1541 disk drive
  - Only £395.00
  - P&P £12.00

---

**COMMODORE 64 SOFTWARE**

- **BUSINESS**
  - Easy Script D £69.00
  - Easy Spell D £50.00
  - Easy Stock D £75.00
  - Easy File D £50.00
  - Superbase 64 D £88.00
  - Sales Ledger D £75.00
  - Purchase Ledger D £75.00
  - Visa Writer D £88.95
  - Calc Result CA £49.95
  - Wordcraft 40 D £89.95
  - PractiCalc C D **£39.95 - 44.50**
  - PractiFile C D **£39.95 - 44.50**

- **PROGRAMMING**
  - Intra to Basic Part 1 or Part 2 C D **£14.50**
  - Simons Basic C £45.00
  - Easy Tuto C D **£29.99**
  - Advanced Development Package D £72.99
  - CalcSpeed £50.00
  - Programmers Utilities D £14.99
  - LOGO D £34.95
  - M3N 64 Ac £39.95
  - ACOSC £8.95
  - Forth 64 £34.95

- **ADVENTURE STRATEGY**
  - Zork I, II, III £11.99
  - Flight Simulator II D £35.95
  - Hulc C D £9.95 - 13.95
  - Beach Head C £9.99
  - Valhalla £14.95
  - Bald Fight C D £14.95
  - Tales of the Arabian Nights C D £7.99 - 12.95
  - Colossus Chess C D £8.95 - 12.95
  - Artic Challenge £8.95
  - Caverns of Katz £8.95

---

**GAMES**

- **100 Available**
  - Loco C £7.95
  - Flight Path £7.95
  - Bon's Night Out £6.90 - 8.99
  - Pinball Wizard £6.95
  - International Soccer £6.99
  - Revelation C £7.95
  - Forbidden Forest £8.95
  - Trasher C £7.95
  - Bongo £6.99
  - Space Pilot C D £7.95 - 9.99
  - Zodic C D £7.95 - 9.99
  - Bumping Buggies £6.99
  - Encounter C £6.99
  - Gorgon £6.99
  - Mane Miner £6.99
  - Hunchback £6.99
  - Boggler C £7.95
  - Shop in Space £6.99
  - Asuranat £7.00
  - Son of Boggler C £7.95

---

**EDUCATIONAL (by Suti)**

- Bee Gees £9.99
- Wordpower C £9.99
- Time Traveller £6.99
- Open sesame £6.99
- Just a Mot C £9.99

---

**BOOKS**

- Programmers Reference Guide £6.95
- 64 Getting the Most from it £7.95
- The Complete 64 Rom Disassembly £15.95
- Using the 64 £9.95
- Commodore 64 Adventures £9.95
- Elementary Commmode 64 £13.95

---

**SX64**

**PORTABLE COMPUTER**

Includes the following FREE software: Easy-script, Easy-file, Easy-finance and six games. Includes the following FREE software: Easy-script, Easy-file, Easy-finance and six games.

£120.00 + £20.00 p&p

**MONITORS**

- **COMMODORE 1701**
  - Colour and Sound £195.95
  - Micronta 1431 £228.85
  - Micronta 1431 AP £258.75
  - Phillips 12" Green £79.00
  - Monitor Plug (c) £11.50
  - Postage on Monitors £14.00

---

**TERMS**

Phone or send for our latest details of our range of products which is far too large to publish this advert. Besides the complete range of Commodore and BBC we also guarantee all our products for 1 year (on 64, 2 years). Payment may be made by need 4 days' clearance. Postage and packing: see codes. ALL PRICES ARE INCLUSIVE OF VAT.

WE RESERVE THE RIGHT TO ALTER PRICES WITHOUT PRIOR NOTICE

Postage codes (c) £0.65, (b) £1.00, (a) £2.00, (d) £3.00, (e) £8.00 (Securicor), (f) £14.00 (Securicor)
**Dixons bid for Currys**

The 280 store public limited company Dixons have made a bid for the remainder of Currys ordinary stock it does not already own.

Dixons, which increased total sales in 1984 by 31 percent to £350.8 million, announced the offer in October, and Dixons Chairman Stanley Kalms says Currys are likely to mount a "spirited defence" including a profits forecast and an asset revaluation.

"What really matters is trading profits and the rate at which they can be made to grow," Kalms told shareholders at a recent general meeting. "I am confident that, with Dixons' expertise, such growth within Currys can be enhanced.

Terry Curry, great grandson of Currys' founder, says the company will decide very soon what tactic to take and intend to consider not just earnings but also long term forecasts and benefits to the established business.

"I think the offer as it stands just doesn't begin to take into account those things," says Curry, who is joint managing director. "That really is our position."

Currys major business is the retailing of washing machines, refrigerators, freezers and other domestic electrical appliances as well as televisions, hi-fi and audio equipment — similar to the retail line of Dixons. Dixons also are one of the UK's leading retailers of personal computers.

In addition Currys deal in after sales repair and servicing, credit financing and shop fitting.

Dixons are offering £4.75 in cash and one new ordinary share of 10p in Dixons for every two ordinary shares of 25p each in Currys. Dixons currently own about 3.2 percent of the issued ordinary share capital.

"The value of our offer is in hard cash and shares, which in turn are backed by hard cash, and the offer exceeds even the gross net asset value of Currys before taxes and closure costs," Kalms says.

**German sales top British**

Recent research shows the West Germans have surpassed the British in sales of packaged business software for microcomputers.

EIU Informatics, and information technology consultant, says the market value of all microcomputer software, including home and business packages, was DM 371 million (£97.6 million) for 1983, a jump of 120 percent, with 71 percent of that value being in the business software sector.

The home computer software sector grew to five times its 1982 value during 1983. EIU say the top selling package in Germany was Multiplant, registering sales worth DM 9 million (£2.37 million) in 1983.

EIU predicts the total market will grow to more than four times its present value by 1988, when it will be worth DM 1.927 billion (£507 million), with business software sales comprising DM 1.300 million of that.

**MicroMarket**

The first London MicroMarket features more than 100 companies who show and sell educational, games and small business software, microcomputer hardware and peripherals.

Conference organiser ECU Publications Ltd have required each exhibitor to sell at reduced prices at MicroMarket. First time buyers have access to a "panel of experts" who will offer advice, and all attendees can enter competitions to win more than £1000 worth of computer equipment. Finally, a "Bring and Buy/Swapshop" area allows equipment owners to exchange anything of value with other micro enthusiasts.

Entrance to MicroMarket, which is being held in the Wembley Exhibition Centre on Saturday 10th and 11th November, is £1.50 for adults and 75p for children under 14, including a free catalogue. Hours are 10 am to 6 pm Saturday and 10 am to 4 pm Sunday.

**Electronic Jungle**

More than 120 Stands are booked at the 8th International On Line Information Meeting and Information Technology and Electronic Publishing Exhibition. Scheduled for 4-6 December at the Novotel in Hammersmith, the exhibition hosts 80 exhibitors dealing in the area of communications software, information retrieval and various databases. Learned Information (Europe) Ltd are the organisers.

The meeting will include more than 70 papers on topics such as the growth of on line use, the emerging medical market and artificial intelligence. Delegates, which numbered more than 2,800 last year, will also hear product reviews of new databases, search and bureau services and other items.

In conjunction with the exhibition and meeting, a two-day seminar on information technology is being hosted by Videotex Industry Association Ltd and LIL.

Scheduled for 3rd and 4th December at Novotel, the seminar is designed for anyone needing guidance on available technology and what to use in gathering and distributing information electronically. It is aimed at various types of organisations that might need such facilities — banking, finance, publishing, retailing, wholesaling, universities, travel and many others.

Among the subject are channels for transmitting information, e.g. PSS, Transpac, Telesat: cable and satellite transmissions: videotex and the networks: storing information; choosing the appropriate technology and legal complications concerning some of the newer technology. Attendees will be able to visit free of charge the Videotex Industry Technology and Electronic Publishing exhibition in the same building.

The fee for the two-day event is £175 plus VAT and members of the Videotex Industry Association are admitted for £140 plus VAT.

**Security precautions have been said to isolate MPs from their constituents. The Labour Party may find a solution to the problem in Micronet 800.**

The Labour party occupies about 100 pages of space on the 30,000 page network and hopes are that it will help improve communications between MPs, party headquarters, constituents and party members.

"Our communications are extremely slow at present," says Roger Ward, a member of the Labour Party Computer Advisory Group. "Most local Party groups, for example, only meet once a month; if you send a circular to branch secretaries, it might not reach the members for weeks."

Already about five Labour MPs are Micronet members and Ward hopes for more wide-spread use of the system in the House of Commons. He says the most extensive use of Micronet, however, is likely to be on a nationwide scale. "MP's always have problems with rapid communications to their constituents," he says.

Ward has been appointed to establish a pilot scheme and manage the 100 page area on Micronet 800, an electronic magazine database containing information, news, telesoftware and communication facilities.

100 pages for Labour Party
First, a question. Who do you think are the world’s most avid consumers of microcomputers? The ingenious Japanese? The fashionable French? The acquisitive Americans? Believe it or not, it’s we British who own more micros per person than any other nation on earth.

Yet, despite its amazing impact, the microcomputer has only just begun to scratch at the surface of our lives. Without doubt, the best is yet to come.

Use and Abuse. In several recent surveys, some astonishing facts about micro use and abuse were revealed.

It was discovered that the micro is hopelessly under-utilised. If you’re already a micro owner, your own experience may well confirm this unhappy state of affairs.

Brainpower. A source of knowledge. For thousands of years, the key to self improvement has been in the hands of the written word. Now, thanks to the Brainpower range, it’s very much in the hands of the micro.

As the Brainpower range demonstrates, this does not require prior knowledge of micros, or how they work. The Brainpower concept has been devised as integrated applications and educational software. And its aim is to stretch both your mind and your imagination.

It offers a unique way to realise your own full potential and that of your micro. In a way you could never hope to achieve from the printed word alone. In this respect, the Brainpower range stands on its own.

A unique concept. All the Brainpower titles share one thing in common, apart from their stimulating subject matter, that makes them unique.

You will find each title comprises three distinctive elements: A teaching program that helps you to get to grips...
STAR WATCHER
The secrets of the heavens are yours. Isolate all the constellations as well as main stars for easy identification. Even turn stars and constellations on and off at will. Screen by screen, you will see exactly how the 1,500 brightest stars move through time and space. And all from any point on the Earth’s surface at any time of the year.

Star Watcher is without doubt the definitive home observatory.

DECISION MAKER
Should you buy a new house? Change jobs? Have children? Start your own business? Such decisions should not be taken lightly. Armed with Decision Maker, you can be quite sure of examining every avenue, and arriving at a rational, structured answer.

If you value the way you run your life, you need Decision Maker.

NUMBERS AT WORK
Tackle all the number problems you’re likely to face in daily and business life. From straightforward multiplication and division of fractions, through decimals, percentages, ratios, mark-ups and margins to compound interest, depreciation, VAT and PAYE.

Numbers at Work gives you a distinct edge, since you will be able to both understand and manipulate numbers at will.

PROJECT PLANNER
Project Planner teaches you how to divide even the most complex project down into meaningful components. Learn how to determine the length and importance of every single task, and those elements critical to the fulfilment of your plan. Even anticipate problems you hadn’t envisaged.

You have the measure of any situation because you have the fullest possible grasp of all the factors which affect it.

FORECASTER
Forecast takes the guesswork out of forecasting, by accepting that tomorrow’s events will be best predicted on the basis of today’s facts. Armed with Forecast, you’ll have a clear picture of what to expect, and be able to plan accordingly.

Invaluable to you in both your private and business life.

ENTREPRENEUR
Entrepreneur teaches you all the steps required to plan and start your own business. It will forecast your first 18 months’ cash flows, generate your Profit and Loss Account and Balance Sheet. Help you in discussions with your bank manager and partners. Explain the notions of assets, liabilities, overheads, working capital, cash flow and break even point.

Invaluable to anyone who is planning a business venture.

NAME
ADDRESS
TELEPHONE
POSTCODE
SIGNATURE

Send to Triptych Publishing Ltd. (TBL Book Service Ltd) FREEPOST, CAMBERLEY, SURREY GU15 3BR. All goods fully tested and returnable if in any way defective. Allow 28 days for delivery. "Delete as applicable."
Look after your computer and it will look after you

During the last few years the rapid growth of home computers has resulted in the development of smaller, more sensitive floppy disk drives and magnetic media with higher storage capabilities. Computers such as the 64 are used not only in the home, but increasingly by small businesses. Therefore the question of maintenance is of great importance.

Traditionally it has been the hardware manufacturer who provides after-sales service, but with home computers maintenance contracts are often optional and third party maintenance companies are used increasingly to replace faulty parts on site. However, many malfunctions can be avoided if you spare some time to keeping your equipment clean and static free and invest in inexpensive products designed for this purpose.

The laws of economics indicate that wherever there is demand it will be met by supply. The same law applies to computer maintenance, with the availability of various computer care products.

A contaminated environment

Unfortunately we now live in a polluted world and homes and offices are not free from this pollution. Just think of all the contaminants in a normal office environment—dust, ash and tar deposits from cigarettes.

A major area of static build-up is on the VDU screen. Take a look at your TV or monitor. Is the display hard to read because of dust, grease and finger marks?

If it is, you may be submitting yourself to undue eye strain and input errors.

This build-up can be quickly and easily removed with a range of products such as cleaning fluid and cleaning cloths, cleaning tissues and anti-static cloths.

Those long hours spent at your keyboard also inevitably lead to a dust and grease problem. Run your fingers across your keyboard and pat yourself on the back if you didn’t say ‘Ugh!’. Products available to combat this sticky situation include aerosol spary foams or air dusters, with cleaning cloths and cotton buds to reach every nook and cranny.

The same products can be used to clean your printer. An aerosol of pure compressed air, being ideal for removing dust and paper chaff from the inaccessible areas of a printer. Cleaning wipes remove ink from the platens of printers to prevent marks on envelopes or letters.
Everyone understands the necessity of regular maintenance for cars, hi-fi and other electrical equipment, but when is the last time — if ever — that you gave your computer equipment a spring clean? Sue Pearce reveals the need for computers to be kept clean and static free in order to function faultlessly.

**Prevention is better than cure**

There is nothing as frustrating and time wasting as losing data. Research has shown that no less than 85% of read/write malfunctions are caused by contaminated heads in the disk drive. Flexible disk drives rely upon clean read/write heads for the transfer of data to and from the oxide coated media or diskette. The close contact between head and disk produces a deposit of oxide on the head. This is in addition to other contaminants mentioned earlier, namely dust ash and tar deposits from cigarettes. Therefore if you want to reduce data loss, errors and poor performance, look after your heads.

Floppiclene which are moistened with Safeclene, an internationally approved safety cleaning solvent, giving a non-abrasive wet/dry cleaning action. The cleaning disks in a special jacket are loaded into the disk drive in exactly the same way as a standard floppy disk. A new disk is used for every cleaning operation and thrown away after use, removing any possibility of recontamination.

Believe it or not, the immediate surroundings of your computer can also cause problems. Dust and static collect on the furniture around the computer. Synthetic carpets and floor coverings can also create considerable static problems.

Computer care products are not expensive. Don't think you can save money by using domestic cleaning products designed for kitchens, bathrooms, and highly polished furniture surfaces - they are not suitable for computers. You are likely to do more harm than good as they usually contain ingredients such as abrasives, ammonia, heavy waxes and silicone, which attack the basic material of computers and leave residues. Silicones 'migrate' and will form silica carbide on the mating surfaces of electrical contacts, causing malfunction.

The following is a selection of computer care products currently available.

**Computer care kits**

Automation Facilities' Floppiclene disk head cleaner is available for 8 inch, 5.25 and 3.5 inch disk drives and is included in the company's Microkit. Also included are Safeclene's anti-static screen wipes with lint-free Microwipes or Safewipes to polish screens dry; Safeclene fluid and Safebuds; Sprayduster, an aerosol of compressed air; Foamlene; Astropol anti-static polish for the area immediately around a computer; and Ascat anti-static carpet treatment supplied in a specially designed pressure spray with pump, flexible hose and adjustable spraygun which allows large areas to be treated and time-consuming faults caused by static to be prevented.

Automation Facilities also produce a selection of products for mainframe and mini computers and an illustrated guide to computer cleaning, together with details of local suppliers.

Bib, well-known for their audio/video maintenance kits, has now produced the Bib Computer Care Kit. Retailing for £8.74, the kit comprises an audio cassette head cleaner; with cleaning fluid, air duster for cleaning dust and dirt away from keyboard and printer, together with anti-static screen cleaning fluid, with cleaning cloth.

Developed specifically for the home computer enthusiast and the semi-professional user, a range of computer care products from Memorex consists of: VDU and TV screen cleaning kit, comprising 20 foil sealed sachets of cleaning tissues and two anti-static cloths, for £4.95; a case and keyboard cleaning kit also priced at £4.95 and comprising aerosol spray foam, cleaning cloth and cotton buds; and a disk drive and head cleaning kit with 10 disposable head cleaners and aerosol spray cleaner for wet and dry action, costing £9.95. Each kit comes complete with a set of instructions.

Associated Computer Supplies also has a range of computer care products to suit the small and domestic user. The range includes disk drive and maintenance kits; cleaner and fluid kits for cassettes and disk drives; keyboard cleaning fluid with cleaning wands; blower brushes; and TV/VDU cleaning fluid with cleaning cloths.
To only play games on a Commodore computer is like asking Albert Einstein to work out the square root of four.
The computer's brain barely ticks over.
To really stretch it, you need more interesting software programs. For example, record keeping, interactive education, stimulating adventure games or word processing.

And for those you need peripherals. Like a Commodore disk drive, a really fast storage and retrieval system with a vast memory. Or a Commodore cassette unit, the inexpensive way of loading and storing programs. For those who like the idea of text and graphics being more alive and having greater clarity than on a TV, there's the Commodore colour monitor.
And for hard copy, there are our four printers and a printer plotter. These will preserve on paper— in colour, black and white, chart form, graphs or text, the fruits of all your labour.

Finally, for more exciting games, there are joysticks and paddles.

So use your brain. And make sure you use all of your computer's brain.
COMPUTER CARE CONTACTS
Automation Facilities: Blakes Road, Wargrave, Berkshire. Tel: 073-522-3012.
Bib: Kelsey House, Wood Lane End, Hemel Hempstead, Herts. Tel: 0442-61291.
Memorex: Memorex House, 96-104 Church Street, Staines, Middx. Tel: 0784-51488.
Associated Computer Supplies: Bowmaker House, Etruria Road, Hanley, Stoke-on-Trent, Staffs. Tel: 0782-287121.
International Data Automation: 13 Station Parade, Virginia Water, Surrey. Tel: 09904-4944.
Inmac: Davy Road, Astmoor, Runcorn, Cheshire. Tel: 09285-67551.
ISA: 8084 Thornton Road, Bradford, W. Yorkshire. Tel: 0274-306787.
Stralfors Data Products: Unit 11, Techno Trading Estate, Bramble Road, Swindon. Tel: 0793-37837.

What if things still go wrong?

No matter how well you take care of your computer, things do occasionally go wrong and when they do the repair bills can be agonizing.

Although experts estimate computers break down less than once a year, the cost of one repair can range from £25 to £35, depending on what type of machine you own. That cost includes parts and labour, regardless of the fault, unless the repair costs exceed those minimum charges. Commodore's Kim Shafi says that it is unlikely, barring something drastic (if every tube on the circuit board blows, for example).

Most computers come with warranties at purchase time but generally cover only one year. Commodore is now offering two to five years of coverage to future buyers through Domestic & General Insurance Co Ltd. Prices, which include the automatic first year of coverage, range from £12 for two years on the VIC 20 to £49 for the same period on the SX64. For five years, the VIC 20 coverage costs £25 and the Plus/4 is £45.

Five years insurance is not available for the SX64 or the peripherals, which range in coverage cost from £21 for the 1520 and MPS801 printers to £35 for the MPS802 and DPS1101 printers. Monitors are covered at a cost of £12, once again for two years, and disk drives are £25 for the same length.

Read the fine print

When shopping for cover plans, be sure to read the fine print. Most companies do not insure cosmetic damage or major items that would be better replaced than repaired.

Also make certain you know who will do the actual repairs. In the case of Domestic and General, Commodore itself does the repairs.

Postage costs also are a consideration. Commodore's repair costs include postage, packing and VAT, but some warranties may not.

Also note the deadline for applying for the insurance. Under the above plan, you are required to file the application within 30 days of purchase.

If you don't like the idea of paying for the one year you'll be getting anyway, you can opt for a plan that begins after your standard warranty runs out.

One such plan comes from the newly-formed Micro Repair Club. The club offers options ranging from one to four years coverage after the expiry of the manufacturer's warranty.

Since the club covers most major home computers, they have contracted with Computeraid Services, part of Thorn EMI Information Technology Division, to do the repair work. Members send faulty computers directly to Computeraid Services, who say users should have their console back within 14 days.

The newly-formed club, however, does not include peripherals but may include them later. Computers used strictly for business also are not covered.

"As long as they're using it for personal use, too, that will be all right," says Simon Jamison, the club's general manager.

"Personal use could include using it for a small business."

Repairs free of charge

The one year package for the console is £24.95 for the first year and renewal is £14.95. If you sign for all four years initially, the total cost is £57.95. Upon membership, all repairs covered are done free of charge. Jamison says plans for the future include newsletters, special offers and extending coverage to theft and accidental damage. "We do not believe there is anything like it on the market," he says.

You should be able to obtain membership from major computer retailers in the near future.

Domestic & General are underwriting this insurance scheme as well. Furthermore, schools will get a special deal on club membership.

Contact: Micro Repair Club, Swan Court, Mansel Road, Wimbledon, London SW19 4AA. Tel: 01-946 7777.

Daisywheel Cleaner Solution

The Complete Printer Cleaning System

Clean Printer Kit

CLEAN PRINTER KIT

FOR BETTER QUALITY PRINTING ENSURE YOUR PRINTERS ARE CLEANED REGULARLY

CLEAN PRINTER KIT

12 Commodore Computing November 1984
MULTIPLAN  
£95  
(Microsoft/Havewear) - disk

Easy to use but very powerful spreadsheet. You can draw graphs and charts by word labels rather than coordinates. Sorts columns numerically or alphabetically. Very highly recommended. Serial printer output.

CALCRESULT  
£95  
(Handic) - disk

Has true 3D (multipaging) facility, and histogram features. Versions for Commodore and Epson printers. This is a very powerful tool and much liked spreadsheet. Very highly recommended. Single page version £47.50 (cartridge).

MICRO SIMPLEX  
£173  
(Micro Simples) - disk

If you're in business and need to maintain an accurate record of account and VAT record, this is the program for you! Will save you literally hours of work. Fully recognised by the authorities. Suitable for schemes A to F. This is a specialist, very well developed product from a software house who offer an excellent after-sale service to registered users. Demo available on deposit.

Amongst the more obscure items we can supply are:

- A parallel bus interface for the 1541 floppy drive! This speeds up data transfer by over 5 times! Includes cable, interface and relocatable software - price £75.00.
- IEEE interfaces JICL (£60) or DAMS (£62) - to connect your 64 to CBM printers and drives. Fancy a megabyte or two of disk storage - that's how we use some of 64.
- Printer interfaces which range from user port parallel to RS232 including software! - to a cartide - port conversion interface (printer C.D. £100) which enables most dot matrix printers to print the special characters of ROM graphics symbols, thus allowing non-CBM printers to be used with software written for only CBM printers in mind. Let us help you choose properly.

SUPERBASE 64  
£88.00  
(Precision) - disk

Really excellent database generator, still at our special price. All things considered, we think this one's the best of its type and a must for all serious Commodore 64 users. Can be used for anything from mailing lists to internal memory, GET source text files, PUT output source files to disk. USE produces first line, LIST source file, RENUMBER lines, JOIN program files, SCROLL multiple viewing facility, CBM code selection, ASCII code selection, RBAS reset, SIZE of file and start/end load address, SETBRK and CLRBRK to insert and remove break points from program being tested in RAM, HD and DH to give number system conversion. ROM for a complete cold start.

KOALAPAD  
£80  
(Koala Tech Corp) - inc cartridge

Comes complete with KoalaPaint cartridge which permits all those fantastic graphics facilities. Some commands include zoom, copy, colour swap, draw, line, erase. Some structures on disk and call these up from BASIC to use in your own program. User's Guide (disk £13) is useful. Logo Design Master (disk £30), Spellit (disk £30), Colouring Series 1 - Geometric Designs (£25) are some of the other support programs available but it's easy to write your own.

THE LAST ONE  
£57.50  
(DJ 'A1' Systems) - disk

Special Offer Price!

Programming aid that frees you from the drudgery if you're thinking of writing specific applications. Creates stand-alone error-free coding in standard BASIC. Input is in the form of one-line descriptions defining, in plain English, just what you want the program to do. Output is phonetic input, in direct or program modes. Full control over pick, placement, erase. There really isn't anything like it, even on hardware.

BOOKS

There are some 60 or so books specifically about the Commodore 64. We have a full list (50p) with a description of each. Included in the list are many other books of interest to Commodore 64 users. We can supply any book at cost price plus 50p each towards P&P.

ANATOMY OF THE 1541  
£14.95  
Really excellent book for those keen to get inside the 1541 disk unit. Absolutely everything you need to know - includes ROM listings, descriptions of 1541 use, use of programs such as COPYALL.

FLIGHT SIMULATOR II  
£40 / £33  
(Sublogic) - disk/tape

This is so good the authors think you can learn 'the ropes' as far as instrument control and flying are concerned. Accepting the limitations on the graphics side - nevertheless outstanding in terms of personal computers - the simulation is quite excellent. Exceptional but it's the best one for the 64 by far...
STACK XMAS OFFER

Light Pen
CBM 64 or Vic 20*
Absolutely the best...see opposite-100% fast machine code Featuring:- Freehand draw, Nib size, Circle, Box, Fill, Line, Text, Zoom, Animation, Put, Get, Save, Load, Print, Lock X, Lock Y and 10 Games.
*needs 16k
Supplied on tape - transferable to disk.
£28.00

Stack Light Rifle
A unique game system for Vic 20 or CBM 64. Load one of the three games included and shoot the cowboys, rats, convicts etc on your T.V. from up to 10ft away. Complete full colour and sound effects.
£19.95

CBM 64 Compiler
Turns your normal basic programs into very fast machine language like code.
Disk Based £9.95

CENTRONICS INTERFACE VIC 20/CBM 64
A very high quality strengthened cable (not flimsy ribbon) together with easy to use driver software on cassette (disk £5 extra) compatible with Easyscript, Vizawrite, Simplywrite, Wordcraft and many others (but not all).
£24.00

RS 232 C INTERFACE
CBM 64/VIC 20
A full Bi-directional interface for Printer, Plotter or modem connection. Provides standard D-type male connector compatible with any software which uses the serial port. Special cable service available if required. Full documentation.
£33.00

IEEE-488 VIC 20/ CBM 64
This cartridge provides the standard CBM connector and enables all 3000, 4000 and 8000 series' disk drives and printers to work with the Vic 20 or CBM 64. Supports normal CBM 64 commands
£30.00

ARROW C64
A Cartridge Giving:-
• 7 times normal cassette speed for loading and saving
• High Speed Tape positioning
• Machine Language Monitor
• Hexadecimal Calculator
£16.00

ARROW PLUS C64
All of the features of Arrow with the addition of Assembler and Disassembler facilities
£24.00

HELP C64
This Cartridge is absolutely packed with terrific routines and facilities:- 20 Additional Basic Commands, Printing, Disassembler, Monitor, Disk Operating System Support, all for £15.00

SUPER HELP C64
This Cartridge features all of the commands of Help with the addition of a Full Symbolic 2 Pass Assembler
at only £25.00

STACK 100
CUSTOMER INFORMATION CENTRE
290 - 298 Derby Road,
Bootle, Liverpool L20 8LN
Trade enquiries: 051 933 5511
ask for Trade Sales

COMPUTER PRODUCTS
Dear Editor

I have for you a cautionary tale about what can happen to people who send money to seemingly reputable American Software Companies. I would be grateful if you would print this letter as a public service to your readers.

Having purchased a copy of ZORK II, by INFOCOM, I decided to order the printed map, poster and ‘InvisiClues’ which were advertised in the packaging as being available from the ZORK Users Group, based at INFOCOM’s headquarters in Massachusetts.

Unfortunately, because of problems with sending international money orders for relatively small sums of money through the post, I decided to send cash. Having bought my American dollars at the bank, I posted them, with the order form, on 15th April 1984, and sat back to await delivery.

By the 5th June, nothing had happened and so I wrote to the Zork Users Group again, and asked them to find out why there had been a two month delay in filling my order.

By the 15th of July I had lost patience. I wrote again, by Registered Post, demanding either the goods I ordered or my money back, by return of post. At the same time I also wrote to INFOCOM direct (at the same address) and asked them to sort the matter out for me.

Both these letters were received in INFOCOM’s Massachusetts office on 23rd July by someone whose signature is distinctive, but unreadable — although their middle initial seems to be ‘E’ and their surname looks like it starts with ‘X’.

On the 4th August, I got an undated reply. It was a standard letter addressed to “interested customers” explaining that the Zork Users Group “closed on July 31, 1983”, and that INFOCOM had taken over their mail order items. No mention was made of my letters, my money, my goods, my name or why mail addressed to the Zork Users Group was not being answered even though it was addressed to the same office as INFOCOM’s headquarters. To add insult to injury, also enclosed was an order form for, amongst other things, the goods I had ordered — by now repackaged at a lower price.

I wrote again to INFOCOM by return of post, again by Registered Post, addressing my letter to Jennifer L Fine (INFOCOM’s contact for Product Support). My letter was received in Massachusetts on the 17th August and was signed for by D Krasnitz (?). I pointed out that neither my complaint nor my order for goods had as yet been answered, let alone dealt with. I complained that I had now spent $23.85 which had been set as cash to INFOCOM’s address in April, plus $8.50 in postage — a total of $32.35 for

products now priced at $7.95 including shipping. I asked them for my goods, plus a $15.10 cash refund, and I asked them what they proposed to do about the trouble and additional postal expenses I had been put to.

It is now very close to the end of September. I have had no reply from INFOCOM. I have had no goods, nor the promise of goods. No apology. Not even another copy of their standard reply to “Interested Customers”.

Were INFOCOM based in the UK I would, I assure you, take legal action. And I would win. But as INFOCOM are based in the United States I can only hope that through your columns I might advise other potential customers not to make the mistake I made, and ask them to learn from my experience. It is in the interests of us all that such Companies are publicly identified for what they are.

I do not know what they call INFOCOM’s sort of sharp business practice in the USA. In the United Kingdom I know that we call it disreputable, or we are blunt about it and call it theft.

Stewart Martin
Mansfield
Nottinghamshire

A frustrating tale indeed. We are looking into the matter and will publish a reply from INFOCOM if forthcoming.

---

Dear Editor

In the March 1984 issue of your magazine, on page 60-61, there appeared a program listing for a short utility to “catalog” the directory at a disk to screen. I carefully typed in the basic-data statement program, ran it, and SYS’ed 49946, and got a “Ready” on the screen. I then checked the machine code utilising a monitor program and found the code to check with the listing on page 61.

The problem is that it (“Catalog” program) will not list the disk directory.

Is there a problem with the program listing (both)? I found this copy of your magazine while on vacation and have not been able to find another subsequent issue to see if you printed a correction. If there was a mistake and a program correction is available, please could you send it to me. Thank you very much.

John Stahl
New York
USA

Catalog requires that the disk command routine be in memory as well (published in same issue) as a subroutine in Disk to find a free tile number is used.

Dear Editor

It has come to our attention that “Interceptor” have just launched a software package called “Super Basic.”

I would like to inform your readers that this Super Basic has nothing to do with our own “Super Basic.”

I have already contacted Interceptor without protest and advised them to take greater care in future.

I know nothing of the quality of this pseudo “Super Basic” but if it comes close to our own standard then the buying public will be lucky indeed.

Gala-Soft
Canvey Island
Essex

Dear Editor

I am slowly going round the twist! I have a VIC 20 with a Stack RS232C Interface attached to the back. I also have a Brother C600 daisy wheel printer which connects to the VIC 20 via a Brother cable and its interface. The printer accepts both RS232C and Centronics parallel, but the whole shooting match fails to come alive! The Stack interface has a 25 pin male plug on the back of it and so, unfortunately does the Brother cable.

However by VERY careful soldering I have paralleled off the pins so that the cable will accept a 25 pin socket. It still fails to operate. I know not why.

Can you please throw some light on the subject. I should hate to think that Commodore have led me up the garden path.

A A A Clack
Cirencester
Glos

We have reprinted this letter, which was previously published in the September issue, as we have now heard that the answer can be obtained from:

Bernie Ratcliffe,
Whitby Community Projects,
The Mount School,
Khyber Pass,
Whitby,
N. Yorks. TEL: Whitby 604148

Dear Editor

Could you please help me with the Synth Sounds program by Bo Svensson. I keep getting illegal quantity error in line 780 and Syntax error in line 1940 when printing. I have checked the list three times.

Thomas Sloane
Newry
Co Down

Check it again.

There are no errors in this program. Illegal quantity and the Syntax error suggest a mistake when entering the data at the end of the program. Check the data for missing commas etc.

THE ADDRESS TO WRITE TO IS:
QUERIES, Commodore Computing International, Finsbury Business Centre, 40 Bowling Green Lane, London EC1
THE TELEPHONE NUMBER TO CALL IS: 01-278 0333 (remember — Thursday afternoons, 2 pm till 5 pm)
"Commodore owners will find it the most important computer book they own..."  
The Best of Torpet — a major book and diskette production is arousing great interest in North America.  
Bruce Beach, of Canada's Torpet user group recounts the crises and triumphs of Commodoreland's own user club and its publication.

The fates willing, The TORPET will reach its fourth anniversary in December 1984. From small beginnings; there were only 75 subscribers for the first issue, the TORPET has now grown to a six thousand reader mailing list.

The TORPET gets its name from the words TORonto, the city where it began, and PET the name of a computer that is no longer made by Commodore. The first readers of what was initially a four page newsletter were the 75 owners of PET computers who had formed the Toronto PET Users Group.

The Toronto club grew very quickly, largely because it had an outstanding guru in Jim Butterfield, who, through both the TORPET and other Commodore magazines, became famous to PET users throughout the world.

Mainly because of the TORPET, the contributions of Jim Butterfield, and the efforts of David Hook in building a large public domain library of PET computer programs, the club grew to a point where most of its members were outside Toronto. Indeed, it had actually become an international club with members in over thirty different countries.

In many ways the history of the TORPET is the history of the Toronto PET Users Group and vice versa. The TORPET was sent to the club members until the readership was over twelve thousand at which time The TORPET became a separate publication and the club began to publish its own magazine.

For a while the TORPET became a controlled publication going to Commodore dealers for distribution to their customers. It was at this time that its circulation grew to over thirty thousand.

The TORPET has now become a requested circulation publication going to high school students in Canada. At one time over fifty percent of The TORPET's circulation was outside of Canada but now once again over ninety-five percent is inside Canada. All a part of its identity crises.

Initially, the only subject discussed in the TORPET was PET computers. As Commodore phased out the PET and brought in the VIC, the subject matter of the TORPET also changed. Now Commodore has discontinued the VIC and other models have gained a prominence. Changes such as these have often been to the chagrin of older readers of The TORPET who have not bought the new computer models as they became available.

The initial readers were more or less rabid computer buffs but this rapidly changed as more and more of the general public began to buy computers and the TORPET. Consequently the editorial content of the TORPET made a similar transition.

The first cumulative volume of The TORPET was called The Whole PET Catalog and it dealt with only the PET and the VIC. The most recent cumulative volume deals almost exclusively with the Commodore 64 although much of what it has to say is relevant to VIC computers and many of the articles are, of course, applicable to computers in general.

Most new Commodore computer owners, and many older ones, will find THE BEST OF THE TORPET the most important computer book that they own. If a user bought his/her Commodore 64 computer after the model transition took place and therefore missed out on all the discussion by the original first users then THE BEST OF THE TORPET is the book that gives them the chance to catch up.

Even older users find the volume extremely useful because everything is gathered together in one place, and in an orderly manner. In addition to well over one hundred articles on every conceivable related subject there are numerous programs listings and descriptions and one of the best and most convenient compilation of computer maps to be found anywhere.

There are descriptions and sources given for what the editor thinks are the 1000 best free public domain programs available anywhere. Many of the articles are extremely entertaining, and the book is even liberally sprinkled with cartoons, as are most issues of The TORPET.

What are the current trends for The TORPET? Well, its readers are becoming younger, more sophisticated, and more cosmopolitan in their computer interests. Today the interest in robotics is probably at the same level as was the interest in personal computers five years ago.

The TORPET will be watching the trend. It could be that in a few years it will be almost entirely devoted to robotics and that there will be a PET robot named TOR. Life is strange that way, and the computer revolution is even stranger.

SPECIAL OFFER

Commodore Computing International is able to offer its readers, exclusively, at a considerably reduced price, 'The Best of Torpet' Book & Diskette. 320 pages long, the book contains a mass of important material and programs previously unobtainable outside Canada, Commodore's home country.

Contributors, including Jim Butterfield who provides a substantial amount of valuable information and guidance. CCl readers can purchase this exciting volume and diskette for only £13.99 — more than 25% reduction on the retail price of £18.95!

This outstanding production is only obtainable at this price through Commodore Computing International. As Bruce Beach says... 'Commodore owners will find it the most important computer book they own...'. Supplies are limited. Order your copy today!

Please send:
☐ Copies of 'The Best of Torpet, Book and Diskette, at £13.99 each
☐ Copies of the 1985 Commodore Reference Diary at £2.95 each
☐ Cheque enclosed
☐ Please debit Access

Charge No: ____________

Cheques should be made payable to Croftward Limited

NAME

ADDRESS

Allow 21 days for delivery
TWO NEW DIMENSIONS

Here are two exciting, new ways to adore your Commodore. Whether you're a master or just learning, the Commodore Reference Diary and The Best of the Torpet will provide hardware, software programming and information to satisfy even the hungriest Commodore appetite.

Commodore Reference Diary 1985
is both a computer reference book and date book — the perfect combination for any computer enthusiast. In a handy, pocket-sized format, the diary features a whole week per page spread with plenty of room for those important daily notations. The reference section, written by computer expert Jim Butterfield, features programming for the Commodore 64, Vic 20, PET/CBM Series, B-Series, new Commodore Plus/4, and much more! A compact counter top display bin is included with orders of 12 or more Diaries. Height: 7-1/4" 18.4 cm. Width: 4-5/8" 11.8 cm. Length: 4-1/2" 11.4 cm (displays 12 Diaries) 152 pages

The Best of the Torpet
is the authoritative book about the Commodore 64 and Vic 20. It's an exciting collection of some of the best new and most recent articles written for The Torpet — articles, memory maps, reviews and descriptions of products available for the Commodore 64 and Vic 20, user documentation of the 200 best games, activities, and other programs in the public domain, plus much more! And if you want to get the most out of your Commodore 64 and Vic 20, don't miss The Best of the Torpet Diskette! Its an invaluable source that contains all the programs listed in The Best of the Torpet. 320 pages Book & Diskette
THE COMPLETE GUIDE FOR THE COMMODORE 64

First a question addressed to publishers about current production standards in computer book publishing. Why do most of you put so little thought into typefaces, binding, printing, design and all those other little 'extras' that publishers of other books seem to spend so much time on. Your books are no cheaper than books in other categories — in many cases they're more expensive.

Take the Complete Guide for the Commodore 64, for instance. The cover design is interesting but that seems to be where any serious thought about design ended. The typeface is flat and boring and the layout doesn't help to make things clear. Trivial complaints, you may say. And if you're as cynical as most journalists you'll be thinking that this reviewer couldn't be bothered to read the book and the only thing he could find to write about was how the book was made.

Not guilty. The Complete Guide for the 64, published by Phoenix Publishing Associates, written by Spencer Bateson and priced £9.95, is actually a good book in terms of content. Advanced programmers might not find it all that useful but anyone who's keen to learn enough about Commodore 64 Basic to write amateur games programs using what everyone calls 'the excellent sound and graphics capabilities of the 64' (as if no-one wants to do anything with the 64 except draw pictures and make noises) should find this book a great help.

The writing has a chummy sort of feel to it which chummy people undoubtedly enjoy. Still, everything is explained clearly and it is easy to understand. Starting with a look at the best way of setting up of the computer and a tour around the keyboard, the author runs through Basic as amended by Commodore for the 64. He explains the language keyword by keyword which makes it a good reference book for those feeling their way. But it isn't a programming tutorial. It tells you a lot about Basic but not a great deal about programming. Around a third of the book is devoted to the sound and graphics capabilities of the 64 and there are several useful appendices. All in all, it's food as far as it goes but I would hesitate to call it a 'complete' guide.

So why criticise the production if the contents are good? Well, the general public might not know a great deal about the principles and practicalities of book production, but if the book doesn't look good then why should we believe the contents are any better? The Complete Guide isn't really all that bad but it seems a shame that these little things spoil what is otherwise a good book, if a little on the expensive side.

Contact: Phoenix Publishing Associates, 14 Vernon Road, Bushy, Herts WD2 2JL.

THE COMMODORE 64 PAYROLL BOOK

'The Commodore 64 Payroll Book is unlike any other computer book you have seen before.' That's the claim of the introduction and for once, it's true!

In fact, it's not, strictly speaking, a book at all. It is a couple of pieces of software in book form. (No quibbles about definitions of books and software, please — you know what I mean). There's a program called Payroll and a program called Personnel Records which you're meant to key in yourself. That's why the price of the book is so high — £19.95. You're actually paying for the software. If you don't fancy keying in the programs, admittedly a boring and time-consuming task, you're invited to write off for a disk or cassette containing the programs. This will cost you an extra fiver.

The idea is an interesting one. Since this is a book review and not a software review we'll leave the testing of the software to another time. Whatever the quality of the software the documentation is excellent. One very impressive thing about the book is the fact that if you do choose to type in the programs yourself you're almost certain to learn a great deal about programming in general. Roger Valentine provides a good, comprehensive commentary on what the program is doing. This means that you're far less likely to make mistakes. It may take a time to type in the whole lot but after that will be time well spent and at the end of the day you'll not only have a couple of useful programs, you'll also have a better understanding of programming.

Sorry to have to round off with a couple of complaints. I'm afraid it's slapped wrists for lack of thought in production again. Now this is a book containing programs which you're meant to copy. But the binding is the sort of binding where each section of 16 pages is stitched and then the sections are bundled together and glued into the cover with some indestructable super-tough plastic substance which makes it absolutely impossible to open the book flat. To do the job properly you have to break the spine of the book, otherwise it will keep springing shut. The typeface is a 'typewriter' typeface and it looks cheap. A lot of documentation uses similar typefaces because it's actually printed using a typewritten original. It's cheap and it looks it.

The argument would be, of course, that print runs aren't big enough to generate the sort of revenue that justifies expensive production or lower prices. It's a tough market, of course. The competition is fierce. But the public seems to have been so greedy for anything to do with computers that they've bought anything — no matter how trashy. Let's hope that the public (and that means YOU) is becoming more discriminating and that the con men of computer publishing are on their way out of business. What is needed is fewer books of better quality.

Judging by this month's crop of books things are looking up. None of them fall into the trashy category and all the publishers have tried to provide something useful for the readers — as well as (hopefully) profitable for themselves!

Contact: V & H Computer Services, Mayfield House, Spencer Street, Bognor Regis, West Sussex PO21 1AP.

BASIC AND FORTH IN PARALLEL

These little books published by Bernard Babani are interesting. There's a whole series of them and you may have seen them when you've been browsing in the bookshops. Books in the Radio, Electronics and Computer Books series are usually relatively inexpensive given the outrageous prices often charged for computer books. This one is £1.95. They are usually fairly small books, this one is 95 pages, and therefore cannot make too many concessions to the absolute beginner — unless, of course, the title says so.

The series is full of good ideas and Basic and Forth in Parallel is one of them. As might well be obvious from the title, the author, SJ Wainwright attempts to explain Forth by comparing it to Basic. It is, of course, a very different language with, as Wainwright points out: 'A different philosophy of program development.' Forth is mainly used to control and monitor laboratory experiments, hardly surprising since it was originally developed by Charles H Moor to control radio telescopes.

Unfortunately the Forth-Stack Simulator contained in the book has been written for the 16k or 48k Spectrum (stop sniggering at the back!). As the Stack is so important in Forth the simulator is a good idea which should be a considerable help and is intended to be used in conjunction with the text. Don't be put off, however, because the book can be used as a study aid without the simulator.

Contact: Bernard Babani (Publishing) Ltd., The Crampians, Shepherds Bush Road, London W6 7NF.
Let's be practical!

A weight watcher program, personality test, psychic ability tester, quiz games and an astronomy package - all under one roof and all the effort of Mirrorsoft software publishers to enter the home software market.

The five portions of the package are available individually for £9.95 on cassette and £12.95 on disk, where available.

The Joffe Plan is a no-diet weight control system for slimming without dieting. Devised by Professor Justin Joffe of Vermont University, the plan places emphasis on better eating habits and on increasing the metabolic rate with more daily activity.

First, the program defines specific eating problems. Then it produces a personal plan tailored to fit individual, realistic weight loss needs and lifestyle taking into account current weight, height and age. A credit and penalty system and close monitoring give encouragement, while a booklet by Joffe explains the system further.

Know Your Own Psi-Q is based on research by Professor Hans Eysenck and Carl Sargent, authors of the recently-published book of the same name. It features a series of tests and games to assess one's psychic ability in clairvoyance and precognition. A relaxation routine generated by the computer produces a set of results which can be analysed to determine whether psychic powers are present.

Master Mind and Quizmaster allow up to four competitors to answer two minutes worth of specialist subject questions and two minutes of general knowledge. For the 64, only the cassette version is available and includes two sets each of specialist and general questions/answers. The cassette can be supplemented later with further question/answer cassettes.

The Quizmaster portion is a question generator program which creates data files for use with Master Mind. Cassettes cost £9.95 and £5.95 for the Editor.

Star Seeker and Solar System make up a pair of programs written by Dr Paul Phillips and published in association with the London Planetarium.

Star Seeker plots the most prominent stars seen in the night sky from any position on earth at any time in this and the next century. Solar System does the same for the planets and plots the course of Halley's Comet.

Know Your Own Personality, a series of three tests of emotional stability and other character traits, is not yet available for Commodore.

Contact: Mirrorsoft, Holborn Circus, London EC1P 1DQ, Tel: 01-353 0246.

Steady as she goes

Fluctuations in power supply to microcomputers can be frustrating at best and at worst, cause data or program corruption, system crashes, even permanent hardware damage. Chloride Power Electronics have developed a low cost range of power conditioners for microcomputers designed to smooth out power fluctuations that might cause system failures. Called Transireg, it is not a micro, and software on disk or standby power facility but provides a clean, regulated AC supply. With cost starting at £180, Transireg plugs into the mains supply and connects to the computer via a 13A socket on the conditioner.

Contact: Chloride Power Electronics, Barton Park Industrial Estate, Eastleigh, Hampshire SO5 5RZ. Tel: 0703 610311.

Elephant never forget

An American diskette manufacturer has entered the UK market with the slogan "Elephant never forgets". The "100 percent error-free disks", made by Dennison and marketed under the Elephant Memory Systems trademark, are said to withstand at least 12 million passes. They are available single or double sided and in single, double and 96 TP1 densities and are made in both hard and soft format.

Other Elephant products to be marketed are ribbon and cleaning and maintenance kits for screens, printers and disk drives.

Contact: Dennison Manufacturing Co Ltd, Colonial Way, Watford, Herts WD2 4JY. Tel: 0923 41244.

Get it together

Two products from Inmac will help you supplement your RS232 and Centronics equipment with cable connections and gender changes.

Cable Matcher is plugged in between the two cables that are to be linked together. Jump leads then mix and match the pin configurations as required.

Cable Matcher is available in two versions: the first has one male and one female connection and costs £45; the second costs £75 and has two fly cables both of which have dual gender connectors.

Inmac also stock gender changers for connecting like-gendered Centronics (parallel) 36 pin cables together. Fully guaranteed for three years, they are available in either male-male or female-female form and each is shielded with strain reliefs. Cost is £35.

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

Binding contract

For major software suppliers and those with lots of software to store, Associated Computer Supplies Ltd has set up a customised software binder service.

The binder service is for software manuals and similar documentation in a linen-look fabric with other materials available as options. Buyers also can get pockets to hold floppy disks or cassettes, and printing can be done on slip cases as well as binders.

ACS also are offering a new fully adjustable computer work station for £59.80. Said to be suitable for home, school and office use, it comprises two fully adjustable shelves large enough to take most VDU's and television sets measuring up to 14 inches. The work station is finished in dark brown with simulated teak work tops and fitted castors.

Extra shelves for disk drives, tape cassettes and printers cost £13.80 each or £15 including under-shelf paper rack.

Contact: Associate Computer Supplies Ltd, Bowmaker House, Etruna Road, Hanley, Stoke-on-Trent, Staffs ST1 SNH. Tel: 0782 287121 or 01-953 5001.
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.

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

64 speaks Arabic

With the help of a new language kit consisting of a cartridge and software, the Commodore 64 is speaking Arabic.

Alphacrete Electronics Ltd has developed the kit aimed initially at Commodore users in Arabic speaking countries such as Saudi Arabia, Bahrain and Kuwait. The product may be of most use to language teaching centres where the English/Arabic combination is used. Full Basic commands as well as operating system commands, diagnostic and error messages are available, all in either English or Arabic.

Alphacrete's Janet Hasso says the keyboard is adapted to Arabic using labels that stick onto the keys. The user has the option to use English or Arabic on the screen at any time. Since Arabic is written from right to left, the cursor automatically goes to the right side of the screen for Arabic and back to the left for English.

The machine loading cartridge which plugs into the back of the cassette come with a user manual, all for £70 and no hardware modifications are required. Mrs Hasso says Alphacrete intends to design further software in Arabic such as a word processor and educational packages.

Commodore say they are looking at the kit to determine possibilities for future cooperation with Alphacrete.

Contact: Alphacrete Electronics Ltd., 32 Eveline Road, Mitcham CR4 3LE. Tel: 01-640 5515

Old arguments

An artificial intelligence researcher and a leading writer have joined to shoot down the old argument that computers cannot create knowledge.

In their new book, The Creative Computer: Machine Intelligence and Human Knowledge, Donal Michie and Rory Johnston base their argument on the new technology of "expert systems", computer programs that give the computer the ability to explain reasoning behind various expert pronouncements in fields such as medicine, geology and engineering.

Publishers Penguin Books say, "Instead of presenting technical developments as "black boxes" the authors explain, in an appropriate amount of detail for the intelligent lay reader, how they work, so he can judge the book's claims for himself".

The Creative Computer includes an Appendix to introduce and define various computing concepts for the lay reader, intended to be read before the rest of the book. The book is described as having an "urbane, literate style", addressing issues on philosophy, religion, ethics, psychology, the arts and politics. Michie is director of the laboratory at Edinburgh University where much research has been done on artificial intelligence over the years. Johnson is a science writer who contributes to national newspapers, television and radio.

Contact: Viking Press, Penguin Books Ltd., 536 King's Road, London SW10 0UH. Tel: 01-351 2393

Easy access to chip shop

Broadcasting Support Services say they have upgraded their Basicode 2 translation kits for the Commodore 64, Pet 3000, 4000 and 8000 series and the expanded VIC20.

The Basicode 2 plus kit allows you to record and run the free software that is broadcast weekly on BBC Radio 1's Chip Sho. Costing £4.95, it also lets the user write and save his own programs in Basicode and gives him to other users who have the Basicode 2 plus kit.

Contact: Broadcasting Support Services, 252 Western Avenue, London W3 6XJ. Tel: 01-992 5522

Looking for new products?

Parallell Printer Interface
- For every standard printer
- Easiest, fastest, cheapest!
- Plug into your computer
- Requires no changes to your program, no extra hardware required.
- Option built in 16kb high speed buffer
- 49.95

House Control
- Reliable Box
- Power Box
- Infra Red System
- Servo System
- 20.95

VIC-20
- 16kb Ram Pack
- 32kb Ram Pack
- 64kb Ram Pack
- 40/80 Column Card
- 102.95

CBM-64
- 80 Column/Graphic Card
- Including test processor
- Unlimited possibilities
- $5000 basic
- Further $5000 possibilities
- 76.95

VIC-20 + CBM-64
- $50000

Electronics
- 169 Kings Street
- 0792 403613

Zero Electronics
- GT Yardmouth NR30 2PA

Contact: Viking Press, Penguin Books Ltd., 536 King's Road, London SW10 0UH. Tel: 01-351 2393

Looking for new products?

Parallell Printer Interface
- For every standard printer
- Easiest, fastest, cheapest!
- Plug into your computer
- Requires no changes to your program, no extra hardware required.
- Option built in 16kb high speed buffer
- 49.95

House Control
- Reliable Box
- Power Box
- Infra Red System
- Servo System
- 20.95

VIC-20
- 16kb Ram Pack
- 32kb Ram Pack
- 64kb Ram Pack
- 40/80 Column Card
- 102.95

CBM-64
- 80 Column/Graphic Card
- Including test processor
- Unlimited possibilities
- $5000 basic
- Further $5000 possibilities
- 76.95

VIC-20 + CBM-64
- $50000

Electronics
- 169 Kings Street
- 0792 403613

Zero Electronics
- GT Yardmouth NR30 2PA

Contact: Viking Press, Penguin Books Ltd., 536 King's Road, London SW10 0UH. Tel: 01-351 2393

Looking for new products?

Parallell Printer Interface
- For every standard printer
- Easiest, fastest, cheapest!
- Plug into your computer
- Requires no changes to your program, no extra hardware required.
- Option built in 16kb high speed buffer
- 49.95

House Control
- Reliable Box
- Power Box
- Infra Red System
- Servo System
- 20.95

VIC-20
- 16kb Ram Pack
- 32kb Ram Pack
- 64kb Ram Pack
- 40/80 Column Card
- 102.95

CBM-64
- 80 Column/Graphic Card
- Including test processor
- Unlimited possibilities
- $5000 basic
- Further $5000 possibilities
- 76.95

VIC-20 + CBM-64
- $50000

Electronics
- 169 Kings Street
- 0792 403613

Zero Electronics
- GT Yardmouth NR30 2PA

Contact: Viking Press, Penguin Books Ltd., 536 King's Road, London SW10 0UH. Tel: 01-351 2393
Modifying of sorts

Dramatic differences can be made by modifying sorts so that they sort Pointers rather than the original data. M C Hart shows you how with two well-known sorts.

Most sorts, including the well-known QUICKSORT and SHELLSORT, work by comparing elements of an array and then exchanging them at some stage in the sort—after repeated exchanges the sort is eventually completed. This does have a disadvantage in the CBM machines which can generate a lot of redundant strings and the subsequent ‘garbage collection’ takes valuable time and reduces the efficiency of the sort.

Two well-known sorts have been modified so that whilst the elements of an array are compared, what is actually swopped is not the element of the string array itself but a pointer to the string (this mimics a little what happens in BASIC4 string handling). This can reduce sorting times considerably, particularly with arrays of 750+.

In the demo provided, 10 character random element strings are fed into an array X$() whilst an index number is fed into a supplementary array, X0(). The data in the original data is not disturbed at all but eventually the ‘pointer’ array will contain data which enables a sorted list to be printed out.

The table below gives some idea of the various timings that can be obtained (C-64). For smaller sorts, you may prefer the three line economy of the SHELLSORT whilst for much larger sorts the QUICKSORT (which uses a stack to continually partition the data) comes into its own. Notice in particular the dramatic differences between a QUICKSORT and a QUICKSORT+ POINTERS once we get arrays of 1000 strings.

<table>
<thead>
<tr>
<th>Type of Sort</th>
<th>No. of strings</th>
<th>Time (in seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHELLSORT + POINTERS</td>
<td>23</td>
<td>70</td>
</tr>
<tr>
<td>QUICKSORT</td>
<td>16</td>
<td>45</td>
</tr>
<tr>
<td>QUICKSORT + POINTERS</td>
<td>18</td>
<td>51</td>
</tr>
</tbody>
</table>

Timing Table — C-64

SHELLSORT/QUICKSORT..WI TH POINTERS

REM SHELLSORT/QUICKSORT..WITH POINTERS
2 REM ---WITH POINTERS---
3 REM
4 REM BY M. C. HART
5 REM
6 J=0:L=0:K=0:R=0:S=0:REM QUICKSORT
7 L=0:H=0:M=0:K=0:Z=0:A=0:J=0:REM SHELLSORT
8 : 
10 GOSUB200:GOSUB100:CLR:GOSUB200:GOSUB500:END
19 : 
20 REM FILL ARRAYS WITH 10-CHARACTER STRINGS
21 : 
30 N=20:DIM X$(N),X(N):J=RND(-1)
40 FOR J=1TO254:A$=A$+CHR$(65+RND(1)*26):NEXT
50 PRINT "ORIGINAL DATA...";PRINT
60 FOR J=1T0N:X=INT(RND(1)*240)+1
70 X$(J)=MID$(A$,X,10):PRINT J,X$(J)
80 X$(J)=J:NEXT:PRINT:PRINT "SORTING...";RETURN
90 : 

Commodore Computing November 1984
100 REM SHELLSORT + POINTERS
110 :
120 T1$="000000"
130 M=INT(N/2):FORA=-1TO0:FORJ=1TON-M:FORH=JTO0STEP-M:L=H+M
140 K=0:IFX$(X(H))>X$(X(L))THENZ=X(H):X(H)=X(L):X(L)=Z:K=H
150 H=K:NEXT:NEXT:M=INT(M/2):A=(M>0):NEXT
160 T=TI/60
170 PRINT:PRINT"SORTED DATA...":PRINT
180 FORJ=1TON:PRINTJ,X$(X(J)):NEXT
190 PRINT:PRINT"SHELLSORT TIME="T"SECS"
200 PRINT:RETURN
210 :
250 REM QUICKSORT + POINTERS
260 :
270 DIM ST(20,2):S=1:ST(1,0)=1:ST(1,1)=N:T1$="000000"
280 L=ST(S,0):R=ST(S,1):S=S-1
290 J=L:K=R:X$=X$(X((L+R)/2))
300 IFX$(X(J))<X$THENJ=J+1:GOTO550
310 IFX$(X(K))>X$THENK=K-1:GOTO560
320 IFJ<KTHENJ=J+1:K=K-1:GOTO550
330 IFJ<KTHENST(S+1)=ST(S,0):ST(S,1)=R
340 R=K:IFL<RTHEN540
350 IFS>0THENV530
360 T=TI/60
370 PRINT:PRINT"SORTED DATA...":PRINT
380 FORJ=1TO:N:PRINTJ,X$(X(J)):NEXT
390 PRINT:PRINT"QUICKSORT TIME="T"SECS"
400 RETURN
410 :READY.

If you have come across any useful hints and tips, why not share your knowledge with other CCI readers?
Or maybe you have written a program, either in Basic or Machine Code, that you feel is worthy of publication.
CCI welcomes contributions from readers. We will publish any suitable listings ... and pay you for it!
If you have something for publication, we require the program on cassette or disk, together with a printout of the listing and any additional information required.
Please enclose a S.A.E. if you wish to have your program returned to you.
The address to send it to is:
The Editor,
Commodore Computing International,
Finsbury Business Centre,
40 Bowling Green Lane,
London EC1R 0NE.
Don't forget, we welcome programs for the VIC and PETs as well as the 64.
Data Maker/Editor

Aviod the tedium of searching for errors with this program which establishes a general format for long and error prone data statements. It is written by Bob Davies who has also provided an accompanying data editor. Although written for the 64, the author sees no reason why the data maker/editor should not run on the VIC.

DATA MAKER
Easily create DATA statements from a specified block of RAM with this Data Maker routine. The DATA statements can be for machine code or sprite data etc. Once that entire block of RAM is read, the program deletes itself leaving you to add your own READ and POKE statements, and the rest of your program.

Type in the LISTING exactly, and then save it first BEFORE running. When run, four inputs are requested.

1. The first line number you want your DATA statements to start from. This number must not be less than 18 or the program will corrupt itself.
2. The increment between line numbers. This value must be 0 or exceed 255.
3. The first RAM location of your specified block. Enter this address in decimal.
4. The last RAM location of that block. Again, enter this in decimal.

The DATA statements will appear on the screen one at a time and when complete, lines 1 to 17 will be automaticallydeleted.

Twelve bytes of DATA are read and the thirteenth byte is a check sum of those twelve bytes. This check sum is included in that DATA statement so someone typing in your program using 'DATA EDITOR' has an instant line by line check.

You can now add your READ, POKE statements to place the DATA values into RAM. Remember every thirteenth DATA byte is a check sum which must not be poked to RAM. The following short program will do this for you.

10 RS = ??? : REM RAM START ADDRESS
11 RE = ??? : REM RAM END ADDRESS
12 FOR M = RS TO RE STEP 12
13 C = 0
14 READ D : POKE M + C, D
15 C = C + 1
16 IF C < 12 AND M + C = RE THEN 14
17 READ D : NEXT M

How It Works
2. Find current line number (LN) and increment (IN).
3. Find ram start (RS) and ram end (RE) addresses.
4. Initialise strings (RS and DS), count (C) and check sum (CS) variables.
5. Peek ram (P), convert value to string (PS) and find out length (L).
6. Add PS to DS, increment count, tot up check sum. Check if end of ram is reached (RE).
7. Continue for 12 consecutive ram locations.
8. Add check sum to DS. Print DS. Increment Line number.
10. Sets up blank line numbers to self & 11. delete.
12. Find high byte (%) and low byte (%) of number (NM).
13. Find values for LN, IN, RS, RE from array D(3). Store high, low byte values of &13 each variable.
14. Set up keyboard buffer for a cursor home and 9 returns.
15. DATA statements for user inputs.

DATA MAKER

1 PRINT"J"; FORM=8T03:READ$; PRINT"4"; D$; ; INPUT(M): NEXT: GOSUB13: IF LN<18 THEN STOP
2 LN=PEEK(822)+PEEK(823)*256: IN=PEEK(824): P$=STR$(LN): L=LEN(P$)
3 RS=PEEK(825)+PEEK(826)*256: RE=PEEK(820)+PEEK(821)*256
4 R$="RUN2": D$="J"+RIGHT$(P$, L-1)+" DATA ": C=1: CS=0
5 P$=PEEK(R$): P$=STR$(P$:): L=LEN(P$)
6 D$=STR$(P$)+RIGHT$(P$, L-1)+",": C+C: CS=CS+P: RS=RS+1: IF RS>RE THEN R$="RUN10": GOTO 8
7 IF C<13 THENS
10 PRINT"J": FORM=8T03: PRINT$: NEXT: GOSUB16: PRINT"RUN11": END
11 PRINT"J": FORM=9T017: PRINT$: NEXT: GOSUB16: END
12 H%=NM/256: L%=NM-H%*256: RETURN
14 NM=LN: GOSUB12: POKE822, LX: POKE823, H$: POKE824, IN
15 NM=RS: GOSUB12: POKE825, LX: POKE826, H$: RETURN
17 DATA START LINE NUMBER, INCREMENT, START RAM ADDRESS, END RAM ADDRESS

READY.
DATA EDITOR

How often have you sat down for hours and typed in long DATA statements from a listing, and eventually (after saving it, I hope) tried to RUN and saw messages like "OUT OF DATA ... ERROR!" or "ILLEGAL QUANTITY"? Dreadful, isn't it. I know the feeling. Well, this utility enables you to enter those long boring DATA statements easily, checking each DATA line as it is entered. Any error detected and the program will prompt you to re-enter that line. At the end you will have entered all those statements correctly with minimum fuss, but more importantly, they will be correct.

This program can be used to enter ANY 'DATA listing', provided a check sum is supplied at the end of each DATA line and the lines are numbered above 13.

Type in the program, EXACTLY and SAVE it first before running. When run, two inputs are required:

1. Line number: Enter the first line number of the DATA statements. Remember this number must be 13 or greater.
2. Increment: Enter the increment between those DATA statements.

The first line number and "DATA" will appear at the top of the screen. Enter the data values as normal (each value followed by a comma). After the check sum is entered, press the return key. This program then compares the sum of all those values just entered against the check sum. Any error detected and an 'ERROR' message is displayed. You can now see where you went wrong, pressing any key will return the same line number for you to re-enter again. A correct check sum will enter that line into the program and the next DATA statement is now ready to be entered. When all the DATA statements are entered, press the RUN/STOP key to stop the program. Now DELETE lines 1 to 12 and you will be left with just the DATA statements. Now you can enter the rest of the program and you are assured of a correct bunch of DATA statements.

```
1 INPUT "J LINE NUMBER, INCREMENT" : LN, IN : POKE 822, 0 : GO SUB 12 : POKE 822, IN
2 LN = PEEK (820) + PEEK (821) * 256 : A$ = STR$(LN) : D$ = RIGHT$(A$, LEN(A$) - 1) + " DATA " : CS = 0
3 A$ = "" : PRINT "": "": DS
4 GET K$ : IF K$ = "": THEN 4
5 IF K$ = CHR$(20) AND LEN(A$) > 0 THEN A$ = LEFT$(A$, LEN(A$) - 1) : PRINT K$ : GOTO 04
6 IF K$ = CHR$(13) THEN 10
7 IF K$ = "", "THEN D$ = A$ + K$ : CS = CS + VAL(A$) : GOTO 03
8 IF K$ = "0" OR K$ = "9" THEN 4
9 A$ = A$ + K$ : PRINT K$ : GOTO 04
10 IF CS = VAL(A$) THEN PRINT "** ERROR ** RE-ENTER" : POKE 198, 0 : WAIT 198, 1 : RUN
12 LN = LN + PEEK (822) : H% = LN / 256 : POKE 821, H% : POKE 820, LN - H% * 256 : RETURN

READY.
```

CHOMPER GRELIN

Sorry! A small error crept into the PET Chomper program published in our October edition of Commodore Games. The following lines should read:

```
6 REM
7 S = 0
```

We apologise for any problems this may have caused.
**MACHINE CODE**

**Keeping it secret**

If you've written a program and you want to conceal your own special techniques, you will be interested in this autorun routine for the 64 written by Bob Davies.

**AUTORUN & PROTECTOR**

You've written a program and want to give it to your uncle, auntie or friend to use. But you rather they did not list your program and spot those extra special routines you've spent so long creating.

Well, as many of us are now aware, there are several ways to overcome this. You can add a line to change the LIST vectors by a POKE 775,200 or you can disable the RUN/STOP and the RESTORE keys by a POKE 808,225.

The problem here is that to effect these pokes, the program itself has to be 'RUN' first, which of course defeats the whole object.

The answer then is to force the program to run the minute loading is completed and that is precisely what this utility will do for you. In fact, this program 'creates' an object.

If an error is detected, then the program will stop at that DATA line so you can recheck the numbers, and just over type that line and re-enter it.

Listing 1 is a BASIC loader for AUTO RUN & PROTECTOR. Type it in EXACTLY SAVE it first, which of course defeats the whole object.

The whole process can now be repeated as often as you wish.

To load your protected program from Cassette just type LOAD "NAME",1,1 or from Disk, type LOAD "NAME",8,1. You will see that your actual program (with the & sign added) is useless without the LOADER and vice-versa, therefore now providing you with a truly protected program. Of course you must not forget to include those special 'pokes' we talked about.

Listing 2 is a SOURCE listing for all you machine code buffs. It is written on a 'PAL' assembler, where the pseudo op-code '.ASC' is used instead of '.BYTE'.

**How it Works**

To satisfy members of 'GOSH' a detailed explanation is not provided!

The program is entirely in machine code occupying 541 bytes, starting from location 49152. After obtaining the 'NAME' and Device, a load and decode routine (containing its own name and device buffer) is generated to occupy address 679 onwards. This area of ram is then saved, named 'your name'. Your actual program is then encoded and saved, named 'your name + E'. Various pointers are then reset, and the program is ready for using again.

You then load your program by LOAD 'name',1,1. The secondary address of 'I' tells the computer to load the program into exactly where it was generated, ie. location 679 onwards. The AUTORUN LOADER is then loaded and in turn, it loads your program. When loading is complete your program is then decoded, restoring it to normal. A BASIC 'RUN' statement plus 'return' is forced to the keyboard buffer, thus causing your program to run.

Listing 2 is a SOURCE listing for all you machine code buffs. It is written on a 'PAL' assembler, where the pseudo op-code '.ASC' is used instead of '.BYTE'.

(continued on page 51)
Cult of the Programmer

Jumping on the Bandwagon
Games from TV, films and books

The latest news and Top Twenty

PLUS
Masses of reviews and listings

WIN
SEASIDE SOFTWARE, TEESHIRTS AND A HOLIDAY!!

NOVEMBER 1984
We're not the only people who think 'Art Master' and 'Picture Builder' are two quite exceptional computer graphics software programs.

Tony and Rolf do, too. Otherwise they'd never have agreed to put their name to them.

With both 'Art Master' and 'Picture Builder' you can create full colour pictures on your own T.V. screen.

And believe us when we say those pictures will match the best computer graphics you have ever seen.

Anywhere.

The pictures are drawn using either the keyboard or a joystick, and can be stored on either tape or on disk.

With 'Picture Builder' you are presented with a palette of 121 colour shades (more than enough for any budding Michaelangelo).

And a collection of character sets totalling over 250 shapes.

So you're hardly stumped for choice.

You simply choose your colours and characters, then 'build up' your picture. Just like any other artist.

With 'Art Master' you again get a choice of 121 colour shades.

But this time you can draw whatever shapes you like, creating your very own high resolution masterpiece from a blank screen.

It is even possible to draw circles, and store and then recall a back-up picture - which is more than you can do with other graphics programs.

Everyone, from the six year old right up to the 66 year old, will enjoy 'Art Master' and 'Picture Builder'.

Like all of our software, they have been specifically designed to get the best out of Commodore hardware.

That's why you can't choose better.

Commodore software: it costs no more, even though there's more to it.

PICTURE YOURSELF ON T.V.

- PICTURE BUILDER ON CASSETTE, ART MASTER ON CASSETTE OR DISK. EACH £9.99.
COMMODORING THE STONE

Yorkshire have lowered the range, including Jellybones price of all games in their Space Pirate at the same £1.50. Tel: 01-5332918.

The software package for the 64 gives clues towards solving the riddles in the book of the same name, written by author and artist John Worsley.

Actually, Spirit of the Stones is Worsley’s revenge, to some extent. Commodore say he believed that he’d cracked the elusive mystery of Kit Williams’ Golden Hare, and when he found he was wrong, he decided to create his own supernatural mystery.

Worsley’s hunt focuses on 40 diamond talismans and a larger one, the Great White Eye, hidden on the Isle of Wight, Worsley’s home. In the software adventure, the stones are hidden in 21 places, including mills, castles and other structures. Each building operates differently inside, with some walls housing hidden arrows and so forth. Outside, the island is scattered with the usual shrubbery, bridges and ruins. Worsley says this looks quite splendid with the help of the 64’s graphic capability.

The more complicated mysteries are solved with the uncovering of letters scattered about the island which form words.

A nicely bound and illustrated book comes with the package to give further clues in the form of rhymes and runes (secret writings), among other clever touches. It also tells the story behind the scattering of the stones.

While you may win one of the talismans or the Great White Eye, you also have the chance to win the contents of a kitty funded by 50p donated with each sale of the package, which retails for £14.99 in disk or cassette form.

Commodore hope this kitty will amount to £1m.

MIND GAMES

Educational games offering great fun for the learner are the priority for newly-formed Hill MacGibbon software publishers.

Led by Alan Hill and Hamish MacGibbon, formerly of Heinemann Educational Books Ltd, the company plans to expand their list of programs from elementary education to business and professional training and school programs.

The new software series is called “Games to Stretch the Mind” and includes titles like Car Journey (business skills for the young), Balloon (motor skills), Punctuation Pete (also vocabulary) and Special Agent (learning map of Europe). All these retail for £9.95.

Gun Dogs does not boast particular educational skills but, at £8.95, is said to be “irresistable”.

Contact: Hill MacGibbon, 2 St Bartholomew House, 92 Fleet Street, London EC4Y 1DH. Tel: 01-353 6482.

MORE TREASURE

At the same time Commodore is launching its Spirit of the Stones adventure, Haresoft Ltd have announced that the second of its Hare-raiser cassettes will be available before Christmas.

Haresoft players must locate the hidden treasure using clues and logic skills. The game was programmed in two stages, with the cassettes released in intervals. The first to find the treasure wins the Jewel of the Golden Hare or the £50,000.

Haresoft-Prelude and Hareraiser-Finale sell for £8.95 each.

Contact: Haresoft Ltd, PO Box 366, London NW1 7JD.

ANOTHER WORLD

It’s threatened to be “wrist breaking stuff” but great fun nevertheless and the title is “Orpheus in the Underworld”. With split screen scrolling and secret passageways through walls, Orpheus is the first installment of games from Sterling Software, the newly formed division of Sterling Publications Ltd.

A treasure search through 130 screens and a “really nasty collection of hazards” punctuate this game written by Steve Bak for the 64. The cost is £6.99 for cassette.

Contact: Sterling Software, Garfield House, 86/88 Edgware Road, London W2 2YW. Tel: 01-266 0066.

FUN ON A BUDGET

Two more companies are reducing prices on games software for the Commodore.

J Morrison Ltd of West Yorkshire have lowered the price of all games in their range, including Jellybones and Nightflight simulator games, to £3.95. Also for Commodore machines, you’ll only pay £7.95 for Edasm (editor, assembler, disassembler and monitor), BasicPlus or Spittermaster, and Zip will be down to £3.95.

Contact: J. Morrison Ltd, 4 Rein Gardens, Tingley, West Yorkshire WF3 1JR. Tel: 0353 537507.

Hertfordshire based Omega Software are coming out with a new budget line of high quality software. For the VIC 20, there is Gunslinger and for the 64, Apache Raid, Astral Attack and Mr Speedy, all at £1.99.

Space Pirate at the same price works on both machines, and the expanded VIC 20 will get Battle Ground, available for £1.99.

Contact: Omega Software, 121 London Road, Knebworth, Hertfordshire SG3 6BU. Tel: 0438 611730.

Contact: London Morrison Ltd, 4 Rein Gardens, Tingley, West Yorkshire WF3 1JR. Tel: 0353 537507.

Hertfordshire based Omega Software are coming out with a new budget line of high quality software. For the VIC 20, there is Gunslinger and for the 64, Apache Raid, Astral Attack and Mr Speedy, all at £1.99.

Space Pirate at the same price works on both machines, and the expanded VIC 20 will get Battle Ground, available for £1.99.

Contact: Omega Software, 121 London Road, Knebworth, Hertfordshire SG3 6BU. Tel: 0438 611730.

Sea, Earth and Sky

CRL Group has introduced four new titles for the 64 sports enthusiast.

With a deep-sea diving format, Glug-Glug offers several different levels of play. Cricket 64 and Handicap Golf let the player move fielders about the screen. Showjumping allows you to choose whether you want to jump against the clock or take all the time you want. European Cup 95.

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

Draw your own graphics on-screen, create melodies and sounds... That’s what Activation UK say you can do with their new Designer’s Pencil software package from Garry Kitchen. The device is said to work simply for children and adults “by virtually eliminating computer control and complex programming design”.

Managing Director Geoff Heath says, “It is impossible to enter a command the computer does not understand — every likely command is contained on the Command Menu and the user need only position a cursor arrow next to the command he or she wishes to input, and press the “Fire” button. In this way, you build up your own unique program”.

The Designer’s Pencil costs £11.99 on cassette or £19.99 on disk. A free offer from Activision is membership in the Activision Software Club. Members get a free colour magazine quarterly and the chance to enter competitions as well as getting on the roll of a worldwide pen-pal service.

Contact: Kathy Leonard or Lorraine Vick on Maidenhead (0628) 76171 or write to Activation Software Club, 5/7 Forlease Road, Maidenhead, Berks SL6 1RP.

MIND GAMES

Educational games offering great fun for the learner are the priority for newly-formed Hill MacGibbon software publishers.

Led by Alan Hill and Hamish MacGibbon, formerly of Heinemann Educational Books Ltd, the company plans to expand their list of programs from elementary education to business and professional training and school programs.

The new software series is called “Games to Stretch the Mind” and includes titles like Car Journey (business skills for the young), Ballooning (motor skills), Punctuation Pete (also vocabulary) and Special Agent (learning map of Europe). All these retail for £9.95.

Gun Dogs does not boast particular educational skills but, at £8.95, is said to be “irresistable”.

Contact: Hill MacGibbon, 2 St Bartholomew House, 92 Fleet Street, London EC4Y 1DH. Tel: 01-353 6482.

MORE TREASURE

At the same time Commodore is launching its Spirit of the Stones challenge, Haresoft Ltd have announced that the second of its Hare-raiser cassettes will be available before Christmas.

Haresoft players must locate the hidden treasure using clues and logic skills. The game was programmed in two stages, with the cassettes released in intervals. The first to find the treasure wins the Jewel of the Golden Hare or the £50,000.

Haresoft-Prelude and Hareraiser-Finale sell for £8.95 each.

Contact: Haresoft Ltd, PO Box 366, London NW1 7JD.

ANOTHER WORLD

It’s threatened to be “wrist breaking stuff” but great fun nevertheless and the title is “Orpheus in the Underworld”. With split screen scrolling and secret passageways through walls, Orpheus is the first installment of games from Sterling Software, the newly formed division of Sterling Publications Ltd.

A treasure search through 130 screens and a “really nasty collection of hazards” punctuate this game written by Steve Bak for the 64. The cost is £6.95 for cassette.

Contact: Sterling Software, Garfield House, 86/88 Edgware Road, London W2 2YW. Tel: 01-266 0066.

CONTENT

News .................................. 29
Cult of the programmer ........ 31
Feature games ..................... 34
Competition ......................... 12
Reviews ................................ 41
Games listing ....................... 46
Top Forty .............................. 49

Commodore Computing November 1984 29
PROGRAMMERS

WE ARE LOOKING FOR TOP QUALITY PROGRAMMES TO MARKET IN THE UK AND ABROAD. THE PROGRAMMES MUST BE OF TOP QUALITY AND IN MACHINE CODE WITH GOOD GRAPHICS AND SOUNDS AND ORIGINAL CONCEPT. WE ARE LOOKING FOR PROGRAMMERS TO CARRY OUT WORK ON NEW MACHINES SUCH AS THE C.B.M/16 AMSTRAD AND M.S.X. WE CAN SUPPLY THESE MACHINES TO CARRY OUT WORK FOR MIRAGE. WE ARE ALSO OFFERING £500 PRIZE FOR THE BEST PROGRAMME RECEIVED BY THE END OF FEBRUARY 1985 WHICH WE WILL DECIDE TO MARKET. WE OFFER AN OUT RIGHT PAYMENT OR 10% PLUS PAYMENT OR 20% ROYALTIES. FOR MORE INFORMATION CONTACT THE SOFTWARE MANAGER HE WILL BE GLAD TO LISTEN TO ANY QUESTIONS YOU MAY HAVE.

SOFTWARE HOUSES

WE ARE LOOKING FOR TOP SELLING PROGRAMMES TO DISTRIBUTE TO OUR WIDE RANGE OF OUTLETS THROUGHOUT THE UK AND GIVE YOU A VERY FAST SERVICE TO HELP WITH YOUR SALES AND TO MAKE THE MOST OF YOUR PRODUCTS. SEND A SAMPLE COPY OF YOUR PRODUCTS WITH RATES AND TERMS FOR A FAST ASSESSMENT. FOR MORE INFORMATION CONTACT THE SALES MANAGER HE WILL BE GLAD TO HELP AND ASSIST YOU.

DEALERS AND DISTRIBUTERS

DEALERS    WE HAVE THE BEST SELLERS FROM THE BEST PRODUCERS; WE ALSO OFFER VERY GOOD RATES AND TERMS TO HELP YOU AND US TO ACHIEVE THE BEST SALES AND SERVICE. FOR MORE INFORMATION CONTACT THE SALES MANAGER.
DISTRIBUTERS    HAVE YOU GOT THE MIRAGE RANGE ON YOUR SHELVES, IF NOT THEN CONTACT THE SALES OFFICE FOR SAMPLES AND RATES.

SALES MANAGER
T.C. SAPHIER

SOFTWARE MANAGER
C.A. SAPHIER
Famous names

You've read the book, seen the film, sat through the TV series... now play the game! Gearing up to the Christmas market, the latest genre emerging from the software houses are games based on books, film and TV. Sue Pearce and Viola Gienger investigate this phenomenon.

How many times have you watched a film based on a book you have read and come away thinking "it was nothing like the book". The strongest impressions of a story or character are usually gained by the first medium by which they are introduced to people whether it be in book form, film or television. In the case of books, everyone builds up their own picture of what the characters in the story look like, and this is bound differ. The software houses, then, have set themselves a challenging task in producing games that relate to books, film and TV series. In the case of films and television, people know what characters should look like, so programmers have to create graphics to live up to expectations.

How closely can a game relate to a popular story? Those stories based on war, be it on land, sea, in the air or in space, could be depicted by zapper arcade games. Other stories suit adventure game treatment. Then the decision has to be made on whether to stick close to the original story. If it is similar then those familiar with the story may find it too easy to predict moves while those unfamiliar with the story may miss obvious clues.

It is also arguable how many computer games are actually written for the title. Some bear so little resemblance that it suggests the title has just been stuck on a game which has a few similarities to the story. I remember when a video game of Jerry Anderson's Terrahawks was first released. It turned out to be a game put out under that name pure simply because a face that appeared vaguely resembled the evil Zelda. I trust that the version of Terrahawks expected to be launched for the 64 by CRL in the near future is better than that.

Ghostbusters — guaranteed success?

However, there are some interesting games coming out. One game that is guaranteed to attract a lot of interest is Ghostbusters, being released by Activision this month. With the theme tune to Ghostbusters already high in the charts, it is interesting to note that the game based on the much-hyped film is being released before the film itself.

Activision's managing director, Geoff Heath, says that the response prior to launching the game has been overwhelmingly with youngsters and retailers alike clammering for it. And he says the terms used in the games — ghosts being referred to as slimers and the bad guys as marshmallow men — won't be a problem despite the later release of the film, scheduled to hit the UK in early December.

"The thing with kids is that they are so switched on to it," Heath says. "They know what marshmallow men are... the game does stand up".

Activision is just one of the software houses jumping on this new bandwagon.

Melbourne House was one of the first with their immensely popular adventure game, the Hobbit, based of course on Tolkien's book of the same name. They have followed this success with the recent release of a Sherlock Holmes game based on the famous detective's cases.

Palitoy released Star Wars, enabling you too to battle against the mighty Darth Vader, the baddie you love to hate in this space-war extravaganza.

US Gold's soon-to-be released Quest For Dallas looks set to do well. Or if you prefer Kung-Fu to oil wells and stetsons, US Gold also has a Bruce Lee game.

DK'tronics is following up its release of Who Dares Wins, with an interesting batch of TV-based games. A Popeye game for the 64 is being released this month and games based on the popular TV series Minder. The Sweeney and Benny Hill are due out in early 1985.

In addition to acquiring the rights to TV puppet series, Terrahawks, CRL has a Magic Roundabout game due for release this month.

Sci-Fi Origins

I'm personally looking forward to Mosaic Publishing's book-based games. Stainless Steel Rat Saves The World (reviewed in this feature) is based on the book of the same name by Harry Harrison. Erik the Viking is based on the children's book written by Terry Jones of Monty Phython fame. Lastly Nomads of Time is a game based on sci-fi writer, Michael Moorcock's trilogy.

The superb 'horror' film, Evil Dead, directed by 21-year-old Sam Raimi, has been made into a computer game by Palace Software. If you read the games news in the September issue of Commodore Games, you will remember that it seems that the Evil Dead are still not at peace. Programmer Richard Leinfellner had mysterious problems with his disk drive while writing the program and the 64 in our office here at CCI started doing strange things while we were playing the game.

Popular film and TV series, The Fall Guy, is being released as a computer game this month by Twentieth Century Fox through the Elite label. The player replaces Lee Majors as a top Hollywood stuntman. Can you do better? Also coming from Elite is a game based on the Dukes of Hazard.

Back to cartoon-based games. Creative Sparks have two games based on the exploits of TV super-hero Danger Mouse and his side-kick Penfold.

Adventure International is releasing the second in its Questprobe series based on the marvel comic characters. Following on from The Incredible Hulk comes Spiderman.

As you can see, the list of book, film and TV based games is already growing fast. We will now take a look in more detail at some of the games mentioned above.
Feature games

GHOSTBUSTERS

It may be the cheer of the year. You’ve been looking at the logo for months. You’ve heard the theme song for weeks. Now, before you even get a peak at the movie, comes the inevitable – a Ghostbusters computer game.

Fortunately, it lives up to the hype. From the bouncy theme song to your personal Ghostbusters franchise account, Activision and programmer David Crane (of Decathlon and Pitfall I and II fame) have put together an entertaining package. Excess credits and such are gotten rid of during loading, which is quickened by the Flashload feature. At the beginning of the game you can sing along with the electronic music by following the bouncing ball along the lyrics on screen. Pressing the space bar yields the Ghostbusters’ cheer to punctuate the tune at the right places.

Your goal is to make as much money as possible by zapping ghosts and getting to the top of the tower of the dreaded Zuul before it’s too late. But rather than make you start from scratch, the game gives you a £10,000 loan with which you buy a vehicle and traps to catch the ghosts. The amount and quality of which depend on how much of your money you think you can recoup during play.

The account is one of the intriguing features. If you end a game with more money than you started with, Ghostbusters gives you an account keyed to your name and account number and it will start you out with the balance you had at the end of your last game. Sounds rather impossible until you realize that your account number changes each time your balance is different. Aha!

Although you may already have overindulged on Ghostbusters’ publicity, the game is well worth the jackéd-up price. It’s playable and enjoyable for the very young or old and graphics and sound touches make this game live up to its word.

Title: Ghostbusters
Programmer: David Crane
Company: Activision
Hardware: 64, cassette player or disk drive, joystick required.
Type of game: Arcade
Graphics: ****
Sound: ****
Playability: ****
Description: Make as much money as possible by trapping ghosts and win game by reaching top of Zuul Tower with at least two of your Ghostbusters.
Price: £10.99 cassette, £19.99 disk
CCI Rating: ****

EVIL DEAD

Evil Dead is one of my favourite films, which could explain why I was a mite disappointed with the computer game version. Not that the arcade-style game is not both entertaining and original, but I think the story-line of the film would give justice to an adventure game.

But arcade-style it is, and you are trapped with your friends in a log cabin persued by an evil force you have inadvertently released. Your task is to rush around the cabin shutting doors to keep the force out and battling against fiends which don’t die when you zap ‘em, but disintegrate into various parts of the anatomy and continue to chase you.

Doors don’t stay shut, so as you move around from room to room beware – the evil force may be creeping up on you. And you won’t impress your friends by shooting them by mistake. However, should the force reach your pals first, they too will turn into the Evil Dead and come after you.

Your only chance of survival is to find the ancient book. Activision say the game follows closely the film, calling ghosts “slimers” and the bad guys “marshmallow men”, vocabulary in the true tradition of the film’s stars, Bill Murray and Dan Ackroyd. Status reports of back-pack power, number of men and empty traps are crucial bits of information at your fingertips and the Ghostbusters’ cheer encourages you anytime you snare a slimer before he slimes you.

Ghostbusters’ sound features take advantage of the 64s SID chip, including slurping noises when your contraptions suck up a ghost and the theme song as background while you’re tooting along in your choice of compact, station wagon, hearse or high-performance vehicle. And if you lose, the laughter is humbling.

Though you may already have overdosed on Ghostbusters’ publicity, the game is well worth the jackéd-up price. It’s playable and enjoyable for the very young or old and graphics and sound touches make this game live up to its word.

Title: Evil Dead
Programmer: Richard Leinfellner
Company: Palace Software
Hardware: 64, cassette recorder, joystick optional
Type of game: Arcade

An aerial view of your surroundings is presented to you on screen and the graphics are simple, but effective. The shutting of doors results in a healthy ‘slamming door’ sound. (Don’t forget to shut each door as you go through it.)

Evil Dead is a fast-moving and addictive game that will get the adrenalin flowing.

Title: Evil Dead
Programmer: Richard Leinfellner
Company: Palace Software
Hardware: 64, cassette recorder, joystick optional
Type of game: Arcade

Description: Shut doors to keep the evil force out of the cabin long enough to find the book
Fast loader: None
Graphics: ***
Sound: **
Playability: ***
CCI Rating: ***
Price: £6.99

WHO DARES WINS

The dud award for the month must go to Who Dares Wins, a game that might have seemed quite nice in the dark ages of computer games but just does not compete in today’s world.

The game, available on cassette from diktronics, shows a red brick house (supposedly an American embassy, though I’ve never seen an embassy quite so plain) with heads bobbing in and out of the five windows. Your mission is to shoot without harming the hostages. Problem: how to figure out which are the bad guys and which the good?

The instructions included in the program
KALAH
One of the oldest games in the world! Originally played by Bedouins using pebbles and holes scraped in the desert sand, this strategy game has held the mind of man for thousands of years. Superb graphics and music, with a choice of levels and depth of search. Easy to learn, extremely difficult to beat.
Commodore 64 Cassette £7.95 Disk £9.95

LASER REFLEX
A new angle in space adventure. Against a brilliant backdrop of stars, you must defend your interstellar base from waves of approaching hostile ships. Your defense: a powerful laser deflected against a giant mirror. How long can you hold out before your defenses crumble?
BBC Model B Cassette £7.95 Electron Cassette £7.95

ARCHIPELAGO
Are you ready to venture into the ancient undersea labyrinths which link the Island to the Archipelago? Fabulous jewels await you here - but the guardians of the treasure mark every move, waiting to deal a swift and terrible vengeance. How long can you survive?
Commodore 64 (joystick needed) Cassette £7.95 Disk £9.95

WEST
An epic adventure game set in a ghost town in the Wild West. Your task: to flush out a gang of bank robbers and retrieve their loot - with only your trusty six-shooter to aid you! But be wary of your draw, your skill at cards, your powers of survival...
The first of a stunning series of adventure games from Alex Black, played in real-time.
Commodore 64 Cassette £6.95 Disk £12.95
BBC Model (best only) Cassette £7.95

SOFTWARE FROM SCOTLAND
Talent games should shortly be available from your local software retailer or post off the coupon now.
INSTANT CREDITCARD 24 HOUR ORDERING SERVICE TEL 041 552 2128

TO: TALENT COMPUTER SYSTEMS FREEPOST (no stamp required) GLASGOW G4 OHR
Please send me the following items

<table>
<thead>
<tr>
<th>COMMODORE 64</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>PANORAMA (H)</td>
<td>Cassette</td>
</tr>
<tr>
<td>WEST</td>
<td>Cassette</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BBC MODEL B</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>LASER REFLEX</td>
<td>Cassette</td>
</tr>
<tr>
<td>ELECTRON</td>
<td>Cassette</td>
</tr>
</tbody>
</table>

I enclose a PO/Cheque to the value of £

Name (block capitals)
Address
Signature

Please allow up to 28 days for delivery. We shall not accept your remittance until your order has been dispatched.

Curran Building, 101 St James Road
Glasgow G4 ONS Tel 041 552 2128
certainly don’t tell, so your only choice is trial and error — shoot somebody and find out whether it was a hostage if you get demoted.

One wonders what the next demotion below civilian could be — scum of the earth, by any chance? Even on a higher playing level, the figures only move faster over the windows, providing little more challenge and not a single thing new on the screen, quite dull to begin with. The only two sound effects are the firing of rifles and reloading, which reminds me distinctly of an elevator bell.

Might be quite suitable for the beginner. I only hope the film was made on a larger budget than the computer game.

Title: Who Dares Wins
Programmer: Kevin Moughtin
Company: dk Tronics, Shire Hill Industrial Estate, Saffron Walden, Essex CB11 3AX. Tel: 0799 26350
Hardware: 64, cassette recorder, joystick
Type of game: Arcade
Graphics: *
Sound: *
Playability: **
Description: Kill the terrorists inside the embassy without harming the hostages
Price: £5.95
CCI Rating: **

STAINLESS STEEL RAT SAVES THE WORLD

This illustrated text adventure comes complete with the Harry Harrison paperback book, Stainless Steel Rat Saves The World, on which the game is based.

It’s one of the fastest moving adventure games I have yet to come across — perhaps too fast. You’re thrown right in at the deep end. Even with the lack of opportunity to do any real thinking, the computer gives you a frequent notification of how you have to change into the Hulk to free yourself inside an orbiting laboratory which is quickly disappearing bit by bit into a time helix. If you don’t type in your first instruction within seconds, you too will die — woe betide you if you are a slow reader.

Not only do you have to make quick decisions, but it appears if you make the wrong decision you have very little opportunity for experiment. Often the computer comes up with ‘try another object’ and then proceeds to cast you into oblivion.

I’m loathe to criticise the game too heavily, as I am sure that the solution must be obvious. Also because I am a Harry Harrison fan and I am already addicted to finding the correct solution despite the fact my mission continually fails before it begins.

Reading the accompanying paperback book, we are told, is not essential but will provide clues. Just flicking through the first pages will help, but I would recommend reading the book first (it’s a great book anyway, so you won’t be wasting your time).

The graphics I have seen so far are very detailed and colourful. Sound comes in the form of bleeping noises as the computer replies and as you type in the usual two-word commands. Response is not that fast and I found it necessary to type slower than usual in order to avoid mistakes.

An addictive game which I hope to have more success with once I have read the book!

Title: Stainless Steel Rat Saves The World
Programmer: Sharid Software
Company: Mosaic Publishing, 187 Upper Street, London N1. Tel: 01-226 0828
Hardware: 64, cassette recorder
Type of game: Graphics Adventure
Fast loader: None
Graphics: ****
Sound: *
Playability: ***
CCI Rating: ***
Price: £9.95

THE INCREDIBLE HULK

Scott Adam’s Marvel characters have been a great success in all medias — in the Marvel comics, films, television and now as computer games.

The first in Adventure International’s Questprobe series, The Incredible Hulk, allows you to become Robert Bruce Banner, the physicist whose collinear structure was mutated by radio active particles during a test detonation of a nuclear weapon. On frequent occasions, he is transformed into the green-skinned super-human, known as The Hulk.

On beginning the game, you find yourself as Banner tied to a chair. Obviously you need to change into the Hulk to free yourself, but discovering how is your first challenge. Your task is to locate all the gems and find somewhere to store them, but you are not alone in your adventure. Characters in the form of friends and foes appear throughout the game. (The accompanying leaflet helpfully informs you who is on your side.)

An illustrated text adventure, the cartoon-like graphics are superbly realistic — detailed and colourful. In particular the transformation into the Hulk and the invading ants. The response time is also very fast, allowing you to make your next move without delay.

If you think you are going round in circles, a word of advice — don’t make assumptions. Follow adventure rule number one — look. Typing help may be of assistance, but more often than not the computer will reply “Sorry I can’t do that but ask for a Scott Adams hint book at your favourite store!”. If you get killed off don’t despair, by typing ‘down’ you are brought back down to the ground to continue your quest.

An excellent adventure incorporating much humour, accompanied by a leaflet giving adequate instructions to get you on your way and a history of the Hulk.

Title: The Incredible Hulk
Programmer: Scott Adams
Company: Adventure International, 119 John Bright Street, Birmingham. Tel: 021-643 5102
Hardware: 64, cassette recorder or disk drive
Type of game: Graphics Adventure
Description: Collect all the gems and find somewhere to store them
Fast loader: None
Graphics: ****
Sound: N/A
Playability: ****
CCI Rating: ****
Price: £9.99 (cassette). £13.95 (disk)

DANGER MOUSE IN THE BLACK FOREST CHATEAU

TV cartoon character, Danger Mouse, is the star of this adventure aimed at the young adventurer.

As Danger Mouse, you are given a brief of your mission by Colonel K who heads a department so secret he doesn’t know its name. It’s groan a minute humour as you learn that a pi-beam is zapping world leaders who are being sent bananas. A sticky situation and DM is relied on to get the world out of this jam!

Off you go to solve the problem with your trusty companion, Penfold. No typing skills are necessary as the computer gives you a set choice of action for each situation. By moving the joystick up and down you select your action and press the return key.

Creative Sparks claim the game will interest early adventurers of any age, but the lack of opportunity to do any real thinking will limit its attraction to the very young. More often than not the course of action I would take was not offered to me, which I found limited my progress.

Graphics are cartoon-like and realistic — Danger Mouse actually looks like his TV equivalent.

An interesting concept to teach the young adventurer to make decisions, but the game does not introduce the basic rules of an adventure such as look, examine and invent.

Title: Danger Mouse In The Black Forest Chateau
Programmers: Brian Belson, Edgar Belka, Kevin Buckner
Company: Creative Sparks, Thomson House, 296 Farnborough Road, Farnborough, Hants. Tel: 0252 543333
Hardware: 64, cassette recorder, joystick
Type of game: Graphics Adventure
Description: Track down the fiendish pi-beam operator
Fast loader: None
Graphics: ***
Sound: N/A
Playability: **
CCI Rating: **
Price: £7.95

Feature games

THE INCREDIBLE HULK

Scott Adam’s Marvel characters have been a great success in all medias — in the Marvel comics, films, television and now as computer games.

The first in Adventure International’s Questprobe series, The Incredible Hulk, allows you to become Robert Bruce Banner, the physicist whose collinear structure was mutated by radio active particles during a test detonation of a nuclear weapon. On frequent occasions, he is transformed into the green-skinned super-human, known as The Hulk.

On beginning the game, you find yourself as Banner tied to a chair. Obviously you need to change into the Hulk to free yourself, but discovering how is your first challenge. Your task is to locate all the gems and find somewhere to store them, but you are not alone in your adventure. Characters in the form of friends and foes appear throughout the game. (The accompanying leaflet helpfully informs you who is on your side.)

An illustrated text adventure, the cartoon-like graphics are superbly realistic — detailed and colourful. In particular the transformation into the Hulk and the invading ants. The response time is also very fast, allowing you to make your next move without delay.

If you think you are going round in circles, a word of advice — don’t make assumptions. Follow adventure rule number one — look. Typing help may be of assistance, but more often than not the computer will reply “Sorry I can’t do that but ask for a Scott Adams hint book at your favourite store!”. If you get killed off don’t despair, by typing ‘down’ you are brought back down to the ground to continue your quest.

An excellent adventure incorporating much humour, accompanied by a leaflet giving adequate instructions to get you on your way and a history of the Hulk.

Title: The Incredible Hulk
Programmer: Scott Adams
Company: Adventure International, 119 John Bright Street, Birmingham. Tel: 021-643 5102
Hardware: 64, cassette recorder or disk drive
Type of game: Graphics Adventure
Description: Collect all the gems and find somewhere to store them
Fast loader: None
Graphics: ****
Sound: N/A
Playability: ****
CCI Rating: ****
Price: £9.99 (cassette). £13.95 (disk)

DANGER MOUSE IN THE BLACK FOREST CHATEAU

TV cartoon character, Danger Mouse, is the star of this adventure aimed at the young adventurer.

As Danger Mouse, you are given a brief of your mission by Colonel K who heads a department so secret he doesn’t know its name. It’s groan a minute humour as you learn that a pi-beam is zapping world leaders who are being sent bananas. A sticky situation and DM is relied on to get the world out of this jam!

Off you go to solve the problem with your trusty companion, Penfold. No typing skills are necessary as the computer gives you a set choice of action for each situation. By moving the joystick up and down you select your action and press the return key.

Creative Sparks claim the game will interest early adventurers of any age, but the lack of opportunity to do any real thinking will limit its attraction to the very young. More often than not the course of action I would take was not offered to me, which I found limited my progress.

Graphics are cartoon-like and realistic — Danger Mouse actually looks like his TV equivalent.

An interesting concept to teach the young adventurer to make decisions, but the game does not introduce the basic rules of an adventure such as look, examine and invent.

Title: Danger Mouse In The Black Forest Chateau
Programmers: Brian Belson, Edgar Belka, Kevin Buckner
Company: Creative Sparks, Thomson House, 296 Farnborough Road, Farnborough, Hants. Tel: 0252 543333
Hardware: 64, cassette recorder, joystick
Type of game: Graphics Adventure
Description: Track down the fiendish pi-beam operator
Fast loader: None
Graphics: ***
Sound: N/A
Playability: **
CCI Rating: **
Price: £7.95
The faces behind the games

In our continuing series, Sue Pearce talks to programmers about their computing careers.

Andy Walker — Taskset

Andy Walker quit the Civil Service in order to start writing computer games. "I became interested in computers quite a long time ago", comments Andy. "When micros first became available I was working for the Government and various models would pass across my desk, but I could never lay my hands on one".

Knowing that he wanted to write games, Andy went straight into Binary and Machine Code. He says: "I don't know any Basic at all. For games writing that's an advantage, but not for programming in general. Machine Code is also great when you want to control anything and in my book that also means controlling the video and SID chip".

Now heading up software house, Taskset, Andy has a team of in-house programmers constantly working on new ideas. "Everything we do is written by a team", says Andy. "Everybody here is good at programming, but obviously some people are better at certain things. For example we employ a graphics artist to produce interesting sprites and background using his own utilities and it would be daft to ask him to write a whole game".

Nobody at Taskset, says Andy, has ever worked a 9-5 day. "In the last month of Pipeline", he comments, "We had two or three people working 12 hours a day, sometimes 18. That includes Saturdays and Sundays. "If a job needs doing", Andy continues, "We'll get it done". Whatever the time of day, it would be unusual to find the Taskset offices empty. If somebody thinks up an idea, more often than not they will make their way to the office to try it out while it's fresh in their mind.

"We invest about six to eight man months in each game", says Andy. "An awful lot of time is spent on the rules of the game - what happens if this or that is done. Probably the best device we have here is not a machine", he continues, "But a white board. All ideas are written up on there and talked about. We only like to write original games. A lot of stuff is written and then thrown away".

All programming problems are worked out on paper rather than on screen. "It's necessary when you're programming 50/60K Machine Code", says Andy.

Andy French — DK'Tronics

Author of dk'tronics Popeye game being released this month, Andy French, started his career in programming on data processing. "I got bored with that", says Andy. This was four and a half years ago when the games market seemed to be the 'in thing'. "I was in at the start of video games, which seemed to promise a future", he continues.

Andy gets his ideas for games from everyday occurrences and as an example he quotes things going wrong around the home and people coming round to fix them. With Popeye, however, Andy had a fixed character to work with. He comments: "The problem with working on Popeye is that people tend to be more critical as they know what the character should look like".

Andy has found the Popeye game to be very memory consuming. Written on the 64, the game has taken longer to write than previous games. "People now want better games", says Andy. "This means that extra work has to be put into a game".

A self-taught programmer, Andy believes that easiest way to learn programming is to teach yourself. Tending to plan his programs on bits of paper rather than directly onto the screen, Andy says: "It tends to be easier to work on paper. There are some parts of a game that you can do straight away using routines you have worked out in previous programs."

Commodore Computing November 1984 35
"It is also very useful to have full documentation of the program you are working on."

Work hours vary according to whatever stage the program is in. Andy explains: "It's getting towards 24 hours a day, three days in a row and then collapsing for a couple of days! Normally I work flat out for two or three weeks to get the basis of the game down and then get onto the hard slog of actually programming it into the computer, which I like to do from 9 to 5."

Mark Cale - System 3

Team spirit is in evidence at software house, System 3. The team consists of Mark Cale, Emerson Best and Byron Coke - all self-taught programmers who work together on each game.

The three knew each other from their school days. Mark Cale says that it took around one and a half years from learning the idea for a game is conceived and further developed. A game fanatic himself, Mark used to spend a lot of time in the arcades before computer consoles came out. "I prefer arcade games", says Mark. "Especially the shoot 'em up games. Programming adventures take a long time to write and can be tedious."

System 3 utilize a story board for each game. Once the idea for a game is conceived it is developed and further developed.

"You can keep perfecting a game until the cows come home", says Mark.

"It certainly does save time writing it all down on paper first and it helps to eliminate any bugs. If you are working on the screen you have to keep getting listings. "Once you start doing the graphics, you improve the screen and redevelop it", he continues.

The time taken to write a game depends on the complexity of the program. Mark comments: "A game really shouldn't take much more than three months to write. However games are increasingly becoming more complex which takes up more time."

As you can imagine, after a few months of programming a game the programmers are sick of the sight of it.

Mark says: "The thing with a game that you have written yourself is that you know what's round the corner. There's no element of suspense which you usually get when you are battling to get onto the the next screen. "We usually start playing our games again after a few months"; he continues. "Within the first night you can always see ways in which the game could have been improved. The most successful aspect about a game is not to make it too hard, but hard enough to make it challenging."

---

**FREE - CBM-64 Dust-cover when you order direct from DACC**

** the simulation specialists**

**747 FLIGHT SIMULATOR**

(over 15,000 sold already)

- fast 100 % machine code
- full colour high-resolution graphics
- real engine sound and audible alarms
- instrument landing system (ILS)
- cockpit instrumentation
- joystick optional
- full, four-engine instrumentation
- 21 real flights plus many other indicators

LOOK at these features on our CBM-64 version.

* • flow-chart template £1.95
* • Commodore-64 Accessories £11.95
* • Commodore-64 Accessories £11.95

Available direct from DACC Ltd.

Cassette £9.95

Disk £11.95

... all prices include VAT, P&P

Despatch within 48 hours by first class post

Special Offer - order 747 F/S and receive dust-cover or any other accessory absolutely FREE!*

* order from DACC Ltd. (Dept. CIS 2)

23 Waverley Road, Hindley, Wigan, Lancs. WN2 3BN.

---

**FLIGHT SIMULATOR** Original for 64!

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.

**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.

**YANTZEE**

Play this very skillful old Chinese dice game, either by yourself or with your family and friends. (Up to 4 players). Great family game for Xmas.

Order any 2 games and receive our excellent ASSEMBLER FREE worth £6.95.

Help yourself to learn how to write, read and copy your own machine code programs.

**LIFETIME REPLACEMENT GUARANTEE**

To order just complete the coupon and mail it to us with your remittance.

[Complete coupon details]
GREAT NEWS FOR COMMODORE 64 OWNERS

HAVE YOU EVER THOUGHT THAT PERHAPS YOUR MACHINE IS CAPABLE OF GIVING YOU A LOT MORE THAN YOU ARE GETTING FROM YOUR CURRENT SOFTWARE?

CHECK OUT ANY OF THE PROGRAMS BELOW AND YOU'LL WISH WE'D BEEN AROUND A LOT SOONER! ORDER NOW FOR XMAS AND AVOID THE RUSH.

UTILITIES

EXTENDED BASIC FOR THE CBM 64 WITH BUILT-IN 2/3 PASS ASSEMBLER

This excellent programmers aid includes a 60 page reference manual explaining in detail the 51 extra multifunctional commands AND 10 CONTROL FUNCTIONS made available to you which include: GRAPHIC, SOUND, PROCEDURE, RENUMBER, PROGRAM LINE DELETION, DISK DRIVE ACCESS, SCREEN DUMP ONTO 1525 PRINTER & FUNCTION KEY DEFINING. Although this program is 16K long it is located in such a way as to leave 35.5K available for storing a BASIC program.

CASSette £19.50 (DISK £21.50)

2/4 PASS MACHINE CODE ASSEMBLER

An undated version of the assembler contained in the Extended BASIC above. Comes complete with manual.

CASSette £5.50

"EPSON MAGIC" CENTRONICS INTERFACE

This program is a must for every owner of EPSON printers with dot addressable graphics (MX-80 upwards) with these great features:— PRINTS COMMODORE CHARACTER SET; PRINTS USER DEFINED CHARACTER SET; HIGH & LOW RES SCREEN DUMPS; BASIC WORKS WITH ANY CENTRONICS PRINTER; CABLE IS COMPATIBLE WITH AUDIENICS OR SUPERSOFT; CAN BE LOADED WITH OUR EXTENDED BASIC.

CASSette AND MANUAL £5.50

ONE METRE CABLE £15.50

TOGETHER £19.50

GAMES

SUPER SCRAMBLE

A great deal of effort went into the writing of this game, resulting in imaginative sprite and graphic design and beautifully smooth scrolling action. Not being satisfied with creating a superb version of the ever popular arcade game, the writer has gone on to add some extra features. Suitable for JOYSTICK or keyboard.

CASSette £6.50

DUNE BUGGY

Advanced programming techniques give you amazingly realistic background scrolling, the writer having split the screen no fewer than 7 times! Other techniques including multi-testing have been used in this game where you must race your buggy over the desert with the local customs militia determined to prevent your getaway. Fast action using JOYSTICK or keyboard.

CASSette £6.50

PRICES INCLUDE VAT & P&P: OVERSEAS ADD £1

PLEASE MAKE YOUR CHEQUES PAYABLE TO:—

MUSHROOM SOFTWARE

194 ROMMANY ROAD, LONDON SE27 9PR

PHONE 01-670 3533 ANYTIME

TRADE & EXPORT ENQUIRIES WELCOME
Level 9 Computing specialise in high, pun-ent 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 superb design of this new time travel adventure through the ages of world history. Chill to the ice-age, go romin' with Caesar's legions, shed light on the Dark Ages etc etc.

---

**REVIEW**

"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."

"Dungeon Adventure is recommended. With more than 200 locations, 70 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 denizens... 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."

"Lords of Time. This program, written 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." - Which Micro?, Feb 84

---

**LEVEL 9 COMPUTING**

Dept 1, 229 Hughenden Road, High Wycombe, Bucks HP13 5PG
Take your mind off the cold winter months with this month’s competition sponsored by Taskset. Sun, sea and surf are the flavour of Taskset’s new game Seaside Special.

The game
You play the hero Radium Rodney down at the beach. The tide comes in bringing with it radioactive seaweed. Your task is to collect 10 pieces of seaweed. It’s not as easy as it sounds with the danger of drowning – not to mention crabs, jellyfish and clams, all out to stop you. And if Rodney stays on the beach too long, he too will become radioactive and die!

Once you’ve collected 10 pieces of seaweed you move onto the next stage and find yourself outside 10 Downing Street. Here you have to lob your seaweed at polytikians (politicians – geddit?). However the evil polytikians retaliate by lobbing back chairs, pillows – whatever they can lay their hands on.

From there it’s back to the beach to collect more ammo.

The competition
On this page we have listed 10 coastal places which are all famous for something, but can you tell us what?

Well, if you think that’s easy, complete the last line in your tie-breaker limerick. Make your answers as witty as you like, but keep it clean!

The prizes
Our overall winner will receive a holiday voucher from Taskset to the value of £100 which can be used at a well-known travel agent towards the holiday of your choice. Plus a range of Taskset games (including Seaside Special of course), T-shirts, posters and other goodies.

Ten runners-up will also receive a selection of Taskset games, T-shirts and goodies.

Fill in the form and complete the limerick

COASTAL PLACES

Blackpool
Southend
Cowes
Beachy Head
Whitstable
Sellafield
Dover
Holy Loch
Lundy
The Wash

FAMOUS FOR...........

Closing date for competition is 31 November. The Editor’s decision if final.

CCI Limerick

A Commodore computer it’s true will do what you want it to do.
You can key in your name – play any game
(we’ll leave the last line up to you)

Name: ______________________
Address: ____________________
## TOP TWENTY

<table>
<thead>
<tr>
<th>GAME TITLE</th>
<th>CHANGE</th>
<th>COMPANY</th>
<th>PRICE (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Jet-Set Willy</td>
<td>NEW</td>
<td>Software Projects</td>
<td>7.95</td>
</tr>
<tr>
<td>2  Summer Games</td>
<td>NEW</td>
<td>Quicksilva</td>
<td>14.95</td>
</tr>
<tr>
<td>3  Pitfall II</td>
<td>(up)</td>
<td>Activision</td>
<td>9.99</td>
</tr>
<tr>
<td>4  Zaxxon</td>
<td>(up)</td>
<td>Synesoft</td>
<td>9.95</td>
</tr>
<tr>
<td>5  Havoc</td>
<td>Holding</td>
<td>Dynavision</td>
<td>9.95</td>
</tr>
<tr>
<td>6  Zim Sala Bim</td>
<td>(up)</td>
<td>Melbourne House</td>
<td>9.95</td>
</tr>
<tr>
<td>7  Daley Thompson's Decathlon</td>
<td>(down)</td>
<td>Ocean</td>
<td>7.90</td>
</tr>
<tr>
<td>8  World Cup 64</td>
<td>NEW</td>
<td>Artic</td>
<td>6.95</td>
</tr>
<tr>
<td>9  Quo Vadis</td>
<td>NEW</td>
<td>The Edge</td>
<td>9.95</td>
</tr>
<tr>
<td>10 High Noon</td>
<td>(down)</td>
<td>Ocean</td>
<td>7.90</td>
</tr>
<tr>
<td>11 Decathlon</td>
<td>(down)</td>
<td>Activision</td>
<td>9.99</td>
</tr>
<tr>
<td>12 Psytron</td>
<td>(up)</td>
<td>Beyond</td>
<td>7.95</td>
</tr>
<tr>
<td>13 Flak</td>
<td>NEW</td>
<td>Funsoft</td>
<td>9.95</td>
</tr>
<tr>
<td>14 Jack and the Beanstalk 64</td>
<td>(up)</td>
<td>Thor Computing</td>
<td>6.95</td>
</tr>
<tr>
<td>15 Boulder Dash</td>
<td>NEW</td>
<td>Statesoft</td>
<td>8.95</td>
</tr>
<tr>
<td>16 NATO Commander</td>
<td>NEW</td>
<td>Microprose</td>
<td>9.95</td>
</tr>
<tr>
<td>17 Falcon Patrol II</td>
<td>(down)</td>
<td>Virgin</td>
<td>7.95</td>
</tr>
<tr>
<td>18 Snookie</td>
<td>NEW</td>
<td>Funsoft</td>
<td>9.95</td>
</tr>
<tr>
<td>19 Halls of the Thing</td>
<td>NEW</td>
<td>Design Design</td>
<td>8.50</td>
</tr>
<tr>
<td>20 Toy Bizarre</td>
<td>(down)</td>
<td>Activision</td>
<td>9.99</td>
</tr>
</tbody>
</table>

## BUBBLING UNDER

<table>
<thead>
<tr>
<th>Game</th>
<th>CHANGE</th>
<th>Company</th>
<th>Price (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghostbusters</td>
<td>NEW</td>
<td>Activision</td>
<td>10.99</td>
</tr>
<tr>
<td>Eureka</td>
<td>NEW</td>
<td>Domark</td>
<td>14.95</td>
</tr>
</tbody>
</table>
SEND SAE FOR LARGE ANCIPITAL MAP

£7.50
COMMODORE 64 BIZARRE ACTION

NEW CBM 64 DISCS
REVENGE ANCIPITAL
HOVER BOVVER
SHEEP IN SPACE
£9.50

ANOTHER GREAT ORIGINAL FROM LLAMASOFT

HOVER BOVVER
YOU'VE NEVER PLAYED A GAME LIKE THIS BEFORE
CBM 64 ALSO ATARI 32K
£7.50

METAGALACTIC LLAMAS
BATTLE AT THE EDGE OF TIME
VIC 20 ALSO CBM 64
£5.50

ATTACK OF THE MUTANT CAMELS
CBM 64 ALSO ATARI 16K
£6.00 £7.50

SHEEP IN SPACE
CHALLENGING, WITTY, ABSORBING
£7.50

REVENGE OF THE MUTANT CAMELS
£7.50

PLEASE SEND 50p P&P WITH EACH ORDER

49 MOUNT PLEASANT, TADLEY, BASINGSTOKE, HANTS.
MACBETH
THE COMPUTER ADVENTURE

A package of four completely different adventures plus four character analysis programs.

Step into the leading role in one of the most complex and intriguing webs of murder, treachery and witchcraft ever conceived.

Uses graphics as an integral part of the problem solving.

Written by a highly qualified team of experts.

Even the most experienced adventurers will find something new and challenging.

Let your computer stretch your imagination.

FOR COMMODORE 64
£14.95

CREATIVE SPARKS

Available from
All good computer software stockists.

Send me (tick as required)
☐ My local stockist's address
☐ Your full list of games
☐ _____ copy/ies of this game

TNEE 293 at £14.95 each £ : p
+ single P&P sum £ : p
Total to send £ : p

Method of payment
By cheque or PO (no cash) made payable to TECs
☐ By Access or
☐ Barclaycard

Enter card no.

Sign below:

Credit card sales: UK buyers only. Response within 21 days.

Creative Sparks,
Department MO,
296 Farnborough Road,
Farnborough, Hampshire, GU14 7NF.
Telephone: (0252) 518364.

Name

Address

CC1184
Spirit of Adventure

Our opinions on a selection of new arcade and adventure games, including Commodore's new Spirit of the Stone tale set in the smuggling past of the Isle of Wight.

ZIM SALA BIM
Desert thieves, a beggar, palace guards - the makings of Zim Sala Bim, a clever, challenging new logic game from Melbourne House.

It will have you bleary-eyed at 3am as your little mind struggles to recover the treasure from the Sultan’s bedroom and bring it back to your starving village. But first you must get into the palace, quite a feat in itself. And you must be careful not to become weak from hunger, because food is not easily had. Neither is murder a simple way out. Zim Sala Bim is great fun, though, and very addictive, since each move makes you think you are oh so close.

The game comes with detailed 3D scrolling graphics of each scene - desert, palace wall, market, palace interior - all in colourful detail. A catchy eastern tune cheers you for the next round. The player types in two-word instructions on the keyboard and the program responds with clues, refusals or a clever phrase here and there. Zim Sala Bim is suitable for the beginner as well as the more experienced who fancies brain teasers. Melbourne House says the game, available on cassette, takes several days to complete and I would guess that allows time to rest and refresh the mind, hopefully coming up with new ideas. The program uses Pavloda software to speed up the loading process, which takes less than three minutes. The conditions of the game vary from try to try, so boredom won’t come quickly.

Title: Zim Sala Bim
Programmer: Kyle Hodgetts
Company: Melbourne House Software Publishers, Castle Yard House, Castle Yard, Richmond, Surrey TW10 6TF. Tel: 01-940 6064.
Hardware: 64, cassette recorder, joystick optional
Type of game: Graphic adventure
Description: Find your way into the palace and recover the stolen gold for your village
Fast loader: Pavloda
Graphics: ****
Sound: ****
Playability: ****
CCI Rating: *****
Price: £9.95 cassette

SPIRIT OF THE STONES
Over the downs and through the copse on the Isle of Wight, you the traveller are in search of the valuable Great Wight Eye (or you wouldn’t be playing the game, would you?)

The forests, quarries, fields and bays of the island are just the surface in Spirit of the Stones, the graphic extravaganza in more ways than one. Featuring a colourful, imaginative book to go along with the computer game, Spirit of the Stones is Commodore’s latest bid at a share of the games software market. (see story page 29 for more details.) We’re happy to report the effort lives up to the packaging. Inside is a detailed scrolling map of the Isle of Wight to start you on your way through the game. An array of bridges, trees, rivers and buildings challenge you to cross, go under, go in and so forth. Once inside one of the mills, castles, forts, lighthouses or various other habitats, you’re promptly skewered by arrows that shoot out from wall or projectiles plummeting from the ceilings — unless, of course, you manage to avoid them.

And on it goes. Most of the structures look quite a bit alike inside, but each has its little surprises waiting for you and 40 of the places house one of the precious diamond talismen you need to find to get the big prize. Overall, Spirit of the Stones, is an excellent offering to the software goods.

Title: Spirit of the Stones
WHERE’S MY BONES?

Ghosties and ghoulies and things that go bump in the night ... but you’d better not bump anything here or you’ll be forced to go right back where you started from.

Interceptor Micro’s Where’s My Bones is an addictive bit of arcade fun as you try to manoeuvre a dead monk, Brother Jeffrey, through the bowls of the earth in search of his bones, which have been scattered by the jealous nasty who killed him. You begin with nine monks each with nine shields and creep through the caverns without touching anything. Each time you retrieve a pile of bones, you get bonus points.

The vertical scrolling, cave walls and bone piles are very nice touches in this one and, though it takes a bit of skill with the joystick, Where’s My Bones is just encouraging enough to lead you on. The game, which comes on cassette for the 64, becomes more difficult the farther along you get, so it still provides a challenge for the more experienced.

Title: Where’s My Bones
Programmer: Lee (Valentino) Braine
Company: Interceptor Micros, Lindon House, The Green, Tadley, Hants. Tel: 07356 71145
Hardware: 64, cassette recorder, joystick
Type of game: Arcade
Description: Avoid cave walls and other obstacles while collecting the monk’s bones
Fast loader: Ultra Load
Graphics: ***
Sound: **
Playability: ****
CCI Rating: ***
Price: £7 cassette, £9 disk

STOCKADE

Big, bad Jake has found the loot from Billy the Kid’s bank raid in an old army fort and now he has to get out before he’s killed by the Indians. But what good will pieces of the fort’s gate do him, for that is what he is looking for in Stockade.

Just one of many questions that pop up in this frustrating arcade game. For one thing, all instructions fit on one third of one side of the cassette inlay card with borders. Need I say more? Well, I will.

Available on cassette for the 64, the game goes very quickly and doesn’t seem to be equipped with levels of experience, so the player has little choice. A sensitive joystick or quick fingers on the keyboard are a must in this one and it can be quite fun once you get the hang of it. In addition to collecting pieces of the gate, you can pick up fruit and blast indians with your shotgun for points. The only bits of sound are gun shots and a 10-note background tune that pops up occasionally and can get rather tiresome after a time.

Title: Stockade
Programmer: Huw Ford
Company: Wordlight Ltd, Caedu House, 35 Fenton Place, Porthcawl, Mid Glam CF36 3DW. Tel: 0656 714830
Hardware: 64, cassette recorder, joystick optional
Type of game: Arcade
Description: Collect pieces of gate and fruit and shoot indians before you’re killed
Fast loader: none
Graphics: ***
Sound: *
Playability: ***
CCI Rating: ***
Price: £8.95 cassette

PIXIE PETE

You’ve killed Desmond the evil Dragon but he comes back to haunt you as Gorgo the Ghost so you’ve got to get him a second time and this time it won’t be as easy. And watch it, you — Pixie Pete — only have three lives.

Pixie Pete by Merlin Software has levels of difficulty up to 15, but even level five doesn’t give Pete much of a chance once the ghost comes after him. And at one point on level 10, the ghost appeared on top of Pete, giving no opportunity for escape whatsoever. I must say, I find the method of killing monsters, pumping air into them until they blow up, a bit offensive.

Graphics on Pixie Pete are colourful as the landscape and abodes for 40 diamonds and the Great Wight Eye. Though it takes a bit of skill with the joystick, you can get to the monsters before they get to you and ignore the fact that the “carrots” in the instructions look suspiciously like strawberries.

Title: Pixie Pete
Programmer: Jason Perkins

BEAMRIDER

The space age is upon us in Beamrider, an Activision game for the 64 using 3D graphics and sound slightly reminiscent of Space Invaders, one of the first successful arcade games.

As the Beamrider, your mission is to destroy enemy saucers in various sectors and eventually clear the restricted shield surrounding the earth. Each sector is more difficult to conquer and once you become a pro, higher levels of play start you out at more difficult sectors.

Hints from programmer Dave Rolfe help you along, but basic instructions leave something to be desired. Trial and error seems to be the method of figuring out that the F1 button restarts the game and Run/Stop pressed along with restore gets you back to title page. For future reference, apparently all Activision games use this function. (Wouldn’t it be nice to be told?) Most avid computer game fans will be able to play this and most any joystick will do well to move you from one beam to another. Sound effects include one that sounds eery like a nuclear warning. All great fun. The only catch is the seven to eight minute loading time.

Title: Beamrider
Programmer: Dave Rolfe
Company: Activision UK Ltd, 15 Harley House, Marylebone Road, London NW1. Tel: 01-486 7388
Hardware: 64, cassette recorder, joystick
Type of game: Arcade
Description: Destroy enemy saucers in each sector by moving from one beam to another
Fast loader: none
Graphics: ****
Sound: ***
Playability: ****
CCI Rating: ****
Price: £9.99 cassette

Reviews
EUREKA!

Leave yourself plenty of time for this one—about 15 months...that's the amount of time Domark say it might take to crack this graphic adventure. But it may be worth your hours because a prize of £25,000 lies at the end of the rainbow. And even if you don't make it, everyone else may be in the same shoes in which case the prize will eventually be divided among all registered owners of Eureka!

Unfortunately, CCI doesn't have 15 months to spend on a game, we looked at one of the five parts "Roman Times". Relatively simple boxed graphics bely the messages underneath, which may require a Latin dictionary to decipher—quite sensible when you consider that the setting is ancient Rome. Luckily the only portions not in English are those when subjects such as lost men or palace guards speak to you—apparently some of the riddles, clues and puzzles that are the basis of Eureka!

Copies of the actual instructions that come with the game were not available at press time, so we can't tell you whether they are adequate. The game is not easily conquered in any case, but you might find it a healthy brain teaser.

The package of five adventure games pulls the player through five eras of history from the dinosaur age to the Caribbean of the 20th century. A secret telephone number at the end of the adventure will yield the grand prize for the first person who calls it.

Title: Eureka!
Programmer: Andromeda Software
Company: Domark, 228 Munster Road, London SW6, Tel: 01-460 6000
Hardware: 64, cassette recorder or disk drive
Type of game: Graphics adventure
Description: Five adventure games of clues, riddles and puzzles leading to a secret telephone number
Fast loader: Novaload
Graphics: ****
Sound: ***
Playability: ***
CCI Rating: ***
Price: £14.95 (cassette) £16.95 (disk)

STAR EGGS

Whether you are a raw, hard or eggspert gamester, Star Eggs will keep your attention for some time as you flit about the hatchery killing alien creatures before they grow into adult monsters.

The game gives you two ways of killing the new borns—tapping the eggs while they hatch or shooting the newly hatched creatures. Once you've cleared the hatchery you must chase the escaped monsters in your space ship.

Including a high score table and eight different screens for the game itself, Star Eggs makes good use of graphics for escalators, a lift and hatching eggs and the player's tapping on the eggs is one of the sound features. Unfortunately, each time I tried to chase the escaped villains the game ended. Perhaps you can do better. Happy tapping!

Title: Star Eggs
Programmer: Andrew Pohl
Company: Mirrorsoft, Mirror Group Newspapers Ltd., Holborn Circus, London EC1P 1DQ, Tel: 01-822 3913
Hardware: 64, cassette recorder, joystick
Type of game: Arcade
Description: Kill alien creatures hatching from eggs in the hatchery
Fast loader: Speedy Loading
Graphics: ***
Sound: **
Playability: ***
CCI Rating: ***
Price: £6.95 cassette, £9.95 disk

CATASTROPHES

If making the headlines of The Daily Mirror is your dream, Catastrophes at least makes you think you did.

Whether the coverage is favourable or not, however, depends on your talents as a construction worker. The object of Catastrophes is to construct a six-story building by placing bricks with a helicopter crane, moving them from barges to the precise position on the building. If you miss, the block falls with a mighty splash into the water surrounding the building (what???) and if you don't build in the right places at the right time, one of several possible catastrophes will strike down parts of it.

Graphics are best when the elements—wind, rain, lightning, earthquake—wreak destruction. Sound effects include white noise for a hurricane and music that alternates with helicopter blades buzzing.

Equipped with a demonstration game, Catastrophes also requires a rather sensitive joystick to position the bricks. You may have to take several tries at the instructions which flash quickly on and off the screen. Otherwise, an entertaining game for most age levels and the headline and story at game's end reflect your success. Let us only hope the writing in The Daily Mirror is not as bad as that in Catastrophes.

Title: Catastrophes
Programmer: L Balint
Company: Mirrorsoft, Mirror Group Newspapers Ltd., Holborn Circus, London EC1P 1DQ, Tel: 01-822 3913
Hardware: 64, cassette recorder or disk drive, joystick
Type of game: Arcade
Description: Build six-story structure while trying to lessen damage from various natural catastrophes
Fast loader: Speedy Loading
Graphics: Speedy Loading
Sound: **
Playability: ***
CCI Rating: ***
Price: £6.95 cassette, £9.95 disk

APICAL

"The Ancipital life-form evolved on a little-known planet out on the edge of the Galaxy. In the flesh it resembles a cross between a human and goat, walking erect but possessing long, curving horns and a thick, shaggy coat of white hair."

So begins the tale (and the instructions) for Ancipital by story master Jeff Minter, published by Llamasoft. The same sense of imagination that wrote that goes throughout the game with the Ancipital doing energetic jump-turns from one wall to another as it shoots targets that then fall onto a wall, weave through and eventually open it. One clumsy move and it walks ungraciously into a wall (fatal) or draws snide comments from the programmer, ever present in text at the top left of the screen.

The player is allowed to practice the agile gymnastics, performed with a joystick of course, on an easy demo screen. The
flashing graphics are included in the entertaining introduction and Novaload makes loading the program from the cassette a quick task.

Warning, though ... one might need a bit of background with Jeff Minter games to figure out how his mind works. A generous supply of time and patience will also be of value, but Ancipital is well worth the effort.

**Title:** Ancipital

**Programmer:** Jeff Minter

**Company:** Llamasoft, 49 Mount Pleasant, Tadley, Hants RG26 6BN. Tel: 07356 4478

**Hardware:** 64, cassette recorder, joystick

**Type of game:** Arcade

**Description:** Damage walls in each of 100 rooms within the maze, getting as many points as possible

**Fast loader:** Novaload

**Graphics:** ***

**Sound:** ***

**Playability:** ****

**CCI Rating:** ***

**Price:** £7.50 cassette, £9.50 disk

---

**STORM WARRIOR**

The Storm Warrior is put through his paces in twelve scenes of this new K-Tel game.

With only the help of his light lance, the Storm Warrior must pass the first screen by deflecting an energy sphere, the second by striking down the Barbarian with a stab under the arm and so on through the first four screens. Next, Storm Warrior must survive the Catacombs, including the chasm of doom and the chamber of jeopardy in order to reach the Sacred Skull and destroy it.

It's a challenging game and offers five levels of play, each of which goes through every screen (if you prevail). Once again, you'll need a sensitive joystick to adeptly move the light lance at different angles. Each screen offers a different situation and more strange creatures. Graphics design is detailed and colourful, and organ-like, somewhat funeral background music takes good advantage of the 64's sound capabilities.

**Title:** Storm Warrior

**Programmer:** Terence Watts

**Company:** K-Tel International UK Ltd, 620 Western Avenue, London W3 OTU. Tel: 01-992 8055

**Hardware:** 64, cassette recorder or disk drive, joystick

**Type of game:** Arcade

**Description:** Find and destroy the Sacred Skull by going through light barriers, oceans and caverns

**Fast loader:** None

**Graphics:** ****

**Sound:** ****

**Playability:** ***

**CCI Rating:** ***

**Price:** £7.95 cassette, £8.95 disk

---

**HIGH NOON**

You gotta be quick awwn the draw to git dem gangsteus.

As the sheriff, you must shoot the outlaws who come through your small western town and make certain they don't get away with the gold or the saloon girls -- a familiar theme to any film buff. Once you saunter out of your office door, the action starts with the gangsters sneaking into town on foot or horseback, depending on your level of play.

You can make the outlaws pause by hiding in the bank or the neighbouring Saucy Sue's Saloon, complete with swinging doors. More nice graphics touches come with the undertaker, suspiciously named Riga Mortis, who comes out of his building to gather and drag off any dead bodies lying around. A fun game all around with some clever amusements for young or old, though it may not present the greatest challenge of skill to the very experienced.

**Title:** High Noon

**Programmers:** Steve Wiggins and Andrew Spencer

**Company:** Ocean Software, Ocean House, 6 Central Street, Manchester M2 5NS. Tel: 061-832 6633

**Hardware:** 64, cassette recorder, joystick

**Type of game:** Arcade

**Description:** Shoot outlaws to prevent them taking gold and saloon girls

**Fast loader:** Novaload

**Graphics:** ****

**Sound:** ****

**Playability:** ***

**CCI Rating:** ****

**Price:** £7.90

---

**Join the CCI review panel**

As games reviews are to a large extent dependent on personal preference, you may sometimes disagree with our reviewers. Next month we are giving you an opportunity to voice your opinion.

Send us a review of your favourite computer game of 1984. It could be an adventure or arcade, for the 64 or the VIC. We will publish the best reviews in our December issue.

Your review should be approximately 150 words written in CCI style and send it to:

**Readers' reviews,**

Commodore Computing International, Finsbury Business Centre, 40 Bowling Green Lane, London EC1R ONE.

1985 will see the introduction of a CCI review panel made up of readers. The panel will be selected from the writers of the best reviews submitted for our Favourite Game of 1984 readers' pages.

**What's in it for you?**

Well, in addition to having your reviews published in CCI regularly, you can build up a library of free software from the games we send to you for review purposes.

Put pen to paper NOW if you want your review to reach us in time for inclusion in the next issue!
Beam me up Scotty!

A taster to Richard Franklin’s 64 game inspired by the crew of the Starship Enterprise. Due to it’s length, more follows next month ... it’ll be worth the wait!

```plaintext
3 POKE3281,7:POKE3280,6:PRINT"*
1 PRINT"**STAR TREK**
3 OPEN2.0:I9=RND(0)
3 PRINT"*BE CAREFUL AND HAVE A GOOD TIME"
4 DIM O$(10),F$(12)
5 DIM G(8,8),O(10,10),I(8),K(10,3),N(3),C(9,2)
5 DIM C0(8,8)
7 COSUB1148
3 PRINT"TO PLAY SHORT VERSION,";
3 PRINT"**TYPE 1 ---"
10 PRINT"TO PLAY REGULAR VERSION, **TYPE 2 ---"
11 PRINT"TO PLAY CHALLENGE VERSION, **TYPE 3 ---"
12 INPUT#2,V$:PRINT:V=VAL(V$)
13 I=V*100
14 IFV>0ANDV<4ANDV=INT(V)THEN16
15 GOTO8
16 E=5000:PRINT
17 E=E0:PO=13:P=13:S9=300:N1=1:R8=1:B7=0
18 DEF FNO(F)=SQR((K(F,1)-S1)*2+(K(F,2)-S2)*2)
19 GOSUB732
20 F=1:T0=INT(RND(1)*50+20)*100:T=T0
21 T9=25+INT(RND(1)*11)
22 FORI=1TO7:D(I)=0:NEXT
23 S1=INT(RND(1)*10+1)
24 S2=INT(RND(1)*10+1)
25
26 B9=0:E4=0:W3=0:C5=0
27 Z$="DOWN":A9=3000:K9=0:L8=8
28 IFV<1THEN31
29 PRINT"*YOUR SHORTENED GALAXY IS 6 BY 6"
30 L8=6:T9=14+INT(RND(1)*11)
31 FORI=1TO8
32 FORJ=1TO8
33 IFV=2THEN47
34 IFV=3THEN46
35 R=RND(1)*36
36 IFR<1.25THENK3=5:GOTO44
37 IFR<2.5THENK3=4:GOTO44
38 IFR<3.75THENK3=3:GOTO44
39 IFR<5.0THENK3=4:GOTO44
40 IFR<6.25THENK3=0:GOTO44
41 IFR<7.5THENK3=2:GOTO44
42 IFR<9.0THENK3=1:GOTO44
```
Commodore Computing November 1984

Games Listing

43 K3=0
44 K9=K3+K3
45 GOTO62
46 R8=1.85
47 :
48 R=RND(1)*64
49 IF R<.10*R8 THEN K3=9: GOTO 59
50 IF R<.25*R8 THEN K3=8: GOTO 59
51 IF R<.5*R8 THEN K3=7: GOTO 59
52 IF R<1*R8 THEN K3=6: GOTO 59
53 IF R<1.5*R8 THEN K3=5: GOTO 59
54 IF R<3*R8 THEN K3=4: GOTO 59
55 IF R<6.28*R8 THEN K3=3: GOTO 59
56 IF R<9*R8 THEN K3=2: GOTO 59
57 IF R<14.28 THEN K3=1: GOTO 59
58 K3=0
59 K9=K3+K3
60 B3=RND(1)
61 IF B3>9.9 THEN B3=1: C0(I,J)=.11: GOTO 63
62 B3=0: C0(I,J)=.01
63 B9=B9+B3
64 S3=INT(RND(1)*S+1)
65 G(I,J)=K3*100+B3*10+S3
66 NEXT J, I
67 K9=K9
68 IF B9>0 THEN 74
69 I=INT(RND(1)*L8+1)
70 J=INT(RND(1)*L8+1)
71 G(I,J)=G(I,J)+10
72 C0(I,J)=.11
73 B3=1
74 P2=1
75 G1=INT(RND(1)*L8+1)
76 G2=INT(RND(1)*L8+1)
77 PRINT"PLEASE TYPE A SECRET PASSWORD : ";
78 INPUT#2,X$:
79 N1=0: N3=0: N7=0: AP=0:
80 :
81 J=INT(4.5*RND(1)*R8+1)
82 J1=INT(J/2)
83 IF J1=0 THEN 92
84 FOR I=1 TO J1
85 R1=INT(RND(1)*L8+1)
86 R2=INT(RND(1)*L8+1)
87 M7=G(R1,R2)+100
88 IF M7>999 THEN 85
89 C(I, I)=R1: C(I, 2)=R2
90 G(R1,R2)=G(R1,R2)+100
91 K9=K9+1: K0=K9: NEXT I
92 FOR I=J1+1 TO J
93 R1=INT(RND(1)*L8+1)
94 R2=INT(RND(1)*L8+1)
95 IF G(R1,R2)<100 THEN 93

Commodore Computing November 1984
Games listing

36 C(I, 1) = R1: C(I, 2) = R2
37 M7 = G(R1, R2) + 100
38 IF M7 > 999 THEN 93
39 G(R1, R2) = G(R1, R2) + 100
40 K9 = K9 + 1: K0 = K9: NEXT I
41
42 H1 = 0: H2 = INT (RND(1) * 5)
43 GOTO 1276
44
45 K3 = 0: B3 = 0: S3 = 0
46 IF Q1 THEN 115
47 IF Q1 THEN 115
48 IF Q2 THEN 115
49 IF Q2 THEN 115
50 X = G(Q1, Q2) / 99.99
51 B3 = INT (X - K3) + 10
52 S3 = G(Q1, Q2) - INT (G(Q1, Q2) / 9.999) + 10
53 FOR I = 0 TO 10: FOR J = 0 TO 3: K(I, J) = 0: NEXT J, I
54 FOR I = 0 TO 10: FOR J = 0 TO 10: Q(I, J) = 0: NEXT J, I
55 IF K5 = 0 THEN 140
56 FOR I = 1 TO K5
57 GUB 1271
58 Q(R1, R2) = 6
59 K(K5, 1) = R1
60 K(K5, 2) = R2
61 K5 = K5 - 1
62 NEXT I
63 IF K5 <= 0 THEN 140
64 FOR I = 1 TO K5
65 GUB 1271
66 Q(R1, R2) = 2
67 K(I, 1) = R1
68 K(I, 2) = R2
69 K(I, 3) = S3
70 NEXT I
71 IF B3 < 1 THEN 1271
72 FOR I = 1 TO B3
73 GUB 1271
74 Q(R1, R2) = 1
75 B1 = R1
76 B2 = R2
77 NEXT I
78 IF B3 < 1 THEN 1271
79 FOR I = 1 TO B3
80 GUB 1271
81 Q(R1, R2) = 3
82 B1 = R1
83 B2 = R2
84 NEXT I
85 END
LAZY JONES

A new games concept for the CBM 64

Play LAZY JONES and become the laziest and most skilled shirker in the Hotel business. Your hotel has 18 rooms most of which have their own computer game. You must play LAZY JONES, playing each game, but avoid being caught by the irate manager.

Each game in the Hotel is displayed on a split screen and is the first TERMINAL SOFTWARE game to incorporate its own fast loader - Temilload. RRP £7.95

Terminal Software Games are available from -

International
Tial - Sweden
Ozisoft - Australia
Alpine - New Zealand
S.P.I.D. - France

Retail
John Menzies
Dixons Software Express
Makro
Selected Lewis's & Co-op Stores

Distributors
Bulldog
Centrosort
ESD Electronics
Gordon Howson
Lightning
LVL

Micro Dealer
PCS
Prism
R & R Computer Games
SDL
Solomon & Peres
Tiger Distribution
Twang

Terminal Software, Derby House, Derby Street, Bury BL9 0NW, England. Tel. 061-761-4321
MACHINE CODE

210 DATA 245,173,30,194,141,236,2,162,0,189,32,194,1598
220 DATA 157,239,2,232,236,31,194,208,244,169,52,157,1961
230 DATA 239,2,232,142,237,2,160,0,177,43,153,253,1640
240 DATA 2,169,0,145,43,200,192,3,208,242,169,157,1508
250 DATA 141,2,3,169,2,141,3,3,173,30,194,170,1031
270 DATA 32,169,255,169,167,133,251,169,2,133,252,169,1921
280 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
290 DATA 32,189,255,169,167,133,251,169,2,133,252,169,1921
300 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
310 DATA 32,189,255,169,167,133,251,169,2,133,252,169,1921
320 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
330 DATA 32,189,255,169,167,133,251,169,2,133,252,169,1921
340 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
350 DATA 32,189,255,169,167,133,251,169,2,133,252,169,1921
360 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
370 DATA 32,189,255,169,167,133,251,169,2,133,252,169,1921
380 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
390 DATA 32,189,255,169,167,133,251,169,2,133,252,169,1921
400 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
410 DATA 32,189,255,169,167,133,251,169,2,133,252,169,1921
420 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
430 DATA 32,189,255,169,167,133,251,169,2,133,252,169,1921
440 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
450 DATA 32,189,255,169,167,133,251,169,2,133,252,169,1921
460 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
470 DATA 32,189,255,169,167,133,251,169,2,133,252,169,1921
480 DATA 251,162,4,160,3,32,216,255,173,277,2,162,1657
490 DATA 173,237,2,162,239,160,2,32,189,255,1422
500 DATA 173,237,2,162,239,160,2,32,189,255,1422
510 DATA 32,213,255,134,45,153,252,169,131,141,2,3,1303
520 DATA 169,164,141,3,3,169,162,141,119,2,169,117,1279
530 DATA 141,126,2,169,13,141,121,2,169,3,133,196,1212
540 DATA 160,0,185,253,2,145,43,200,192,3,208,246,1637
550 DATA 32,96,96

READY.

PAL (C) 1979 BRAD TEMPLETON

22

110: C1D8 .OPT P4.00

;AUTORUN & PROTECTOR

;break

150: C1D8 SETLFS = $FFBA
160: C1D8 SETNAM = $FFBD
170: C1D8 LOAD = $FFD5
180: C1D8 SAVE = $FFD8
190: C1D8 CHROUT = $FFD2
200: C1D8 CHRIN = $FFCF
210: C1D8 GETIN = $FFE4
220: C1D8 MAINCODE = $C000
230: C1D8 AUTOCODE = $C1D8
240: C1D8 DEVICE = $C21E
250: C1D8 NAMLEN = $C21F

Commodore Computing November 1984 51
<table>
<thead>
<tr>
<th>Address</th>
<th>Opcode</th>
<th>Machine Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>260:</td>
<td>C1D8</td>
<td>NAMBUF = $C220</td>
<td></td>
</tr>
<tr>
<td>270:</td>
<td>C1D8</td>
<td>AUTODEV = $02EC</td>
<td></td>
</tr>
<tr>
<td>280:</td>
<td>C1D8</td>
<td>AUTOLEN = $02ED</td>
<td></td>
</tr>
<tr>
<td>290:</td>
<td>C1D8</td>
<td>AUTOBUF = $02EF</td>
<td></td>
</tr>
<tr>
<td>300:</td>
<td>C1D8</td>
<td>CODESTR = $02FD</td>
<td></td>
</tr>
<tr>
<td>310:</td>
<td>C1D8</td>
<td>KEYBUF = $0277</td>
<td></td>
</tr>
<tr>
<td>320:</td>
<td>C1D8</td>
<td>BUFSIZE = $00C6</td>
<td></td>
</tr>
<tr>
<td>330:</td>
<td>C1D8</td>
<td>*= AUTOCODE</td>
<td></td>
</tr>
<tr>
<td>340:</td>
<td>C1D8 AD EC 02 AUTO</td>
<td>LDA AUTODEV</td>
<td></td>
</tr>
<tr>
<td>350:</td>
<td>C1D8 AA</td>
<td>TAX</td>
<td></td>
</tr>
<tr>
<td>360:</td>
<td>C1DC A8</td>
<td>TAY</td>
<td></td>
</tr>
<tr>
<td>370:</td>
<td>C1DD 20 BA FF</td>
<td>JSR SETLFS</td>
<td></td>
</tr>
<tr>
<td>380:</td>
<td>C1E0 AD ED 02</td>
<td>LDA AUTOLEN</td>
<td></td>
</tr>
<tr>
<td>390:</td>
<td>C1E3 A2 EF</td>
<td>LDX #$AUTobuf</td>
<td></td>
</tr>
<tr>
<td>400:</td>
<td>C1E5 A0 02</td>
<td>LDY #$AUTobuf</td>
<td></td>
</tr>
<tr>
<td>410:</td>
<td>C1E7 20 BD FF</td>
<td>JSR SETNAM</td>
<td></td>
</tr>
<tr>
<td>420:</td>
<td>C1EA A9 00</td>
<td>LDA #$00</td>
<td></td>
</tr>
<tr>
<td>430:</td>
<td>C1EC 20 DS FF</td>
<td>JSR LOAD</td>
<td></td>
</tr>
<tr>
<td>440:</td>
<td>C1EF 86 2D</td>
<td>STX #$2D</td>
<td></td>
</tr>
<tr>
<td>450:</td>
<td>C1F1 84 2E</td>
<td>STY #$2E</td>
<td></td>
</tr>
<tr>
<td>460:</td>
<td>C1F3 A9 83</td>
<td>LDA #$83</td>
<td></td>
</tr>
<tr>
<td>470:</td>
<td>C1F5 AD 02 03</td>
<td>STA #$0302</td>
<td></td>
</tr>
<tr>
<td>480:</td>
<td>C1F8 A9 A4</td>
<td>LDA #$A4</td>
<td></td>
</tr>
<tr>
<td>490:</td>
<td>C1FA AD 03 03</td>
<td>STA #$0303</td>
<td></td>
</tr>
<tr>
<td>500:</td>
<td>C1FD A9 52</td>
<td>LDA #$52</td>
<td></td>
</tr>
<tr>
<td>510:</td>
<td>C1FF AD 77 02</td>
<td>STA KEYBUF</td>
<td></td>
</tr>
<tr>
<td>520:</td>
<td>C202 A9 75</td>
<td>LDA #$75</td>
<td></td>
</tr>
<tr>
<td>530:</td>
<td>C204 AD 78 02</td>
<td>STA KEYBUF+1</td>
<td></td>
</tr>
<tr>
<td>540:</td>
<td>C207 A9 0D</td>
<td>LDA #$00</td>
<td></td>
</tr>
<tr>
<td>550:</td>
<td>C209 AD 79 02</td>
<td>STA KEYBUF+2</td>
<td></td>
</tr>
<tr>
<td>560:</td>
<td>C20C A9 03</td>
<td>LDA #$03</td>
<td></td>
</tr>
<tr>
<td>570:</td>
<td>C20E AD 85 C6</td>
<td>STR BUFSIZE</td>
<td></td>
</tr>
<tr>
<td>580:</td>
<td>C210 AD 00</td>
<td>LDY #$00</td>
<td></td>
</tr>
<tr>
<td>590:</td>
<td>C212 BA FD 02 CODE</td>
<td>LDA CODESTR,Y</td>
<td></td>
</tr>
<tr>
<td>600:</td>
<td>C215 AD 91 2B</td>
<td>STA ($2B),Y</td>
<td></td>
</tr>
<tr>
<td>610:</td>
<td>C217 C8</td>
<td>INY</td>
<td></td>
</tr>
<tr>
<td>620:</td>
<td>C218 C0 03</td>
<td>CPY #$03</td>
<td></td>
</tr>
<tr>
<td>630:</td>
<td>C21A AD 00 F6</td>
<td>BNE CODE</td>
<td></td>
</tr>
<tr>
<td>640:</td>
<td>C21C 60</td>
<td>RTS</td>
<td></td>
</tr>
<tr>
<td>650:</td>
<td>C000</td>
<td>*= MAINCODE</td>
<td></td>
</tr>
<tr>
<td>660:</td>
<td>C000 AD 02 00</td>
<td>LDX #0</td>
<td></td>
</tr>
<tr>
<td>670:</td>
<td>C002 AD FE CO LOOP</td>
<td>LDA MSONAM,X</td>
<td></td>
</tr>
<tr>
<td>680:</td>
<td>C005 AD 20 D2 FF</td>
<td>JSR CHROUT</td>
<td></td>
</tr>
<tr>
<td>690:</td>
<td>C008 AD 08 E8</td>
<td>INX</td>
<td></td>
</tr>
<tr>
<td>700:</td>
<td>C009 AD 00 1E</td>
<td>CPX #$30</td>
<td></td>
</tr>
<tr>
<td>710:</td>
<td>C00B AD 00 F5</td>
<td>BNE LOOP1</td>
<td></td>
</tr>
<tr>
<td>720:</td>
<td>C00D AD 02 00</td>
<td>LDX #$00</td>
<td></td>
</tr>
<tr>
<td>730:</td>
<td>C00F AD 20 CF FF GETNAME</td>
<td>JSR CHRIN</td>
<td></td>
</tr>
<tr>
<td>740:</td>
<td>C012 AD 00 00</td>
<td>CPX #$13</td>
<td></td>
</tr>
<tr>
<td>750:</td>
<td>C014 AD 00 08</td>
<td>BCS MAXLEN</td>
<td></td>
</tr>
<tr>
<td>760:</td>
<td>C016 AD 9D 20 C2</td>
<td>STA NAMBUF,X</td>
<td></td>
</tr>
<tr>
<td>770:</td>
<td>C019 E8</td>
<td>INX</td>
<td></td>
</tr>
<tr>
<td>780:</td>
<td>C01A AD 00 C9 0D</td>
<td>CMP #$13</td>
<td></td>
</tr>
<tr>
<td>Line</td>
<td>Opcode</td>
<td>Address</td>
<td>Code</td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td>---------</td>
<td>------</td>
</tr>
<tr>
<td>790</td>
<td>C01C</td>
<td>D0 F1</td>
<td>BNE</td>
</tr>
<tr>
<td>800</td>
<td>C01E</td>
<td>CA</td>
<td>DEX</td>
</tr>
<tr>
<td>810</td>
<td>C01F</td>
<td>08 E1</td>
<td>STX</td>
</tr>
<tr>
<td>820</td>
<td>C022</td>
<td>A2 00</td>
<td>LDX</td>
</tr>
<tr>
<td>830</td>
<td>C024</td>
<td>BD C1</td>
<td>LOOP2</td>
</tr>
<tr>
<td>840</td>
<td>C027</td>
<td>0D 20</td>
<td>JSR</td>
</tr>
<tr>
<td>850</td>
<td>C02A</td>
<td>E8</td>
<td>INX</td>
</tr>
<tr>
<td>860</td>
<td>C02B</td>
<td>E0 23</td>
<td>CPX</td>
</tr>
<tr>
<td>870</td>
<td>C02D</td>
<td>D0 F5</td>
<td>BNE</td>
</tr>
<tr>
<td>880</td>
<td>C02F</td>
<td>20 E4</td>
<td>JSR</td>
</tr>
<tr>
<td>890</td>
<td>C032</td>
<td>C9 54</td>
<td>CMP</td>
</tr>
<tr>
<td>900</td>
<td>C034</td>
<td>F0 19</td>
<td>BEQ</td>
</tr>
<tr>
<td>910</td>
<td>C036</td>
<td>C9 44</td>
<td>CMP</td>
</tr>
<tr>
<td>920</td>
<td>C038</td>
<td>D0 F5</td>
<td>BNE</td>
</tr>
<tr>
<td>930</td>
<td>C03A</td>
<td>A2 00</td>
<td>LDX</td>
</tr>
<tr>
<td>940</td>
<td>C03C</td>
<td>BD C3</td>
<td>LOOP3</td>
</tr>
<tr>
<td>950</td>
<td>C03F</td>
<td>20 D2</td>
<td>JSR</td>
</tr>
<tr>
<td>960</td>
<td>C042</td>
<td>E8</td>
<td>INX</td>
</tr>
<tr>
<td>970</td>
<td>C043</td>
<td>E0 20</td>
<td>CPX</td>
</tr>
<tr>
<td>980</td>
<td>C045</td>
<td>D0 F5</td>
<td>BNE</td>
</tr>
<tr>
<td>990</td>
<td>C047</td>
<td>A9 08</td>
<td>LDA</td>
</tr>
<tr>
<td>1000</td>
<td>C049</td>
<td>D0 C2</td>
<td>STA</td>
</tr>
<tr>
<td>1010</td>
<td>C04C</td>
<td>4C 61</td>
<td>JMP</td>
</tr>
<tr>
<td>1020</td>
<td>C04F</td>
<td>A2 00</td>
<td>LDX</td>
</tr>
<tr>
<td>1030</td>
<td>C051</td>
<td>BD C5</td>
<td>LOOP4</td>
</tr>
<tr>
<td>1040</td>
<td>C054</td>
<td>20 D2</td>
<td>JSR</td>
</tr>
<tr>
<td>1050</td>
<td>C057</td>
<td>E8</td>
<td>INX</td>
</tr>
<tr>
<td>1060</td>
<td>C058</td>
<td>E0 20</td>
<td>CPX</td>
</tr>
<tr>
<td>1070</td>
<td>C05A</td>
<td>D0 F5</td>
<td>BNE</td>
</tr>
<tr>
<td>1080</td>
<td>C05C</td>
<td>A9 01</td>
<td>LDA</td>
</tr>
<tr>
<td>1090</td>
<td>C05E</td>
<td>BD C2</td>
<td>STA</td>
</tr>
<tr>
<td>1100</td>
<td>C061</td>
<td>A2 00</td>
<td>LDX</td>
</tr>
<tr>
<td>1110</td>
<td>C063</td>
<td>BD C7</td>
<td>LOOP5</td>
</tr>
<tr>
<td>1120</td>
<td>C066</td>
<td>20 D2</td>
<td>JSR</td>
</tr>
<tr>
<td>1130</td>
<td>C069</td>
<td>E8</td>
<td>INX</td>
</tr>
<tr>
<td>1140</td>
<td>C06A</td>
<td>E0 5D</td>
<td>CPX</td>
</tr>
<tr>
<td>1150</td>
<td>C06C</td>
<td>D0 F5</td>
<td>BNE</td>
</tr>
<tr>
<td>1160</td>
<td>C06E</td>
<td>20 E4</td>
<td>JSR</td>
</tr>
<tr>
<td>1170</td>
<td>C071</td>
<td>F0 FB</td>
<td>BEQ</td>
</tr>
<tr>
<td>1180</td>
<td>C073</td>
<td>C9 03</td>
<td>JMP</td>
</tr>
<tr>
<td>1190</td>
<td>C075</td>
<td>D0 01</td>
<td>CMP</td>
</tr>
<tr>
<td>1200</td>
<td>C077</td>
<td>60</td>
<td>BNE</td>
</tr>
<tr>
<td>1210</td>
<td>C07A</td>
<td>A2 00</td>
<td>LDA</td>
</tr>
<tr>
<td>1220</td>
<td>C07D</td>
<td>BD C1</td>
<td>LOOP8</td>
</tr>
<tr>
<td>1230</td>
<td>C080</td>
<td>2D A7</td>
<td>STA</td>
</tr>
<tr>
<td>1240</td>
<td>C080</td>
<td>E8</td>
<td>INX</td>
</tr>
<tr>
<td>1250</td>
<td>C081</td>
<td>E0 45</td>
<td>CPX</td>
</tr>
<tr>
<td>1260</td>
<td>C083</td>
<td>D0 F5</td>
<td>BNE</td>
</tr>
<tr>
<td>1270</td>
<td>C085</td>
<td>AD C2</td>
<td>LDA</td>
</tr>
<tr>
<td>1280</td>
<td>C088</td>
<td>BD EC</td>
<td>STA</td>
</tr>
<tr>
<td>1290</td>
<td>C08B</td>
<td>A2 00</td>
<td>LDX</td>
</tr>
<tr>
<td>1300</td>
<td>C091</td>
<td>BD C2</td>
<td>LOOP9</td>
</tr>
<tr>
<td>1310</td>
<td>C090</td>
<td>9D EF</td>
<td>STA</td>
</tr>
</tbody>
</table>
MACHINE CODE

1320: C093 E8 INX
1330: C094 EC 1F C2 CPX NAMLEN
1340: C097 D0 F4 BNE LOOP9
1350: C099 A9 5C LDA "6"
1360: C09B 9D EF 02 STR AUTOBUF,X
1370: C09E E8 INX
1380: C09F 8E ED 02 STX AUTOLEN
1390: C0A2 A0 00 LDY #$00
1400: C0A4 B1 2B LOOP10 LDA (#2B),Y
1410: C0A6 99 FD 02 STA CODESTR,Y
1420: C0A9 A9 00 LDA #$0
1430: C0BA 91 2B STA (#$2B),Y
1440: C0DA C8 INY
1450: C0DA C8 INY
1460: C0B0 D0 F2 BNE LOOP10
1470: C0B2 A9 R7 LDA #$R7
1480: C0B4 8D 02 03 STA #$0302
1490: C0B7 A9 02 LDA #$02
1500: C0B9 8D 03 03 STA #$0303
1510: C0BC AD 1E C2 AUTOSAVE LDA DEVICE
1520: C0BF AA TAX
1530: C0C0 A0 01 LDY #$01
1540: C0C2 20 BA FF JSR SETLFS
1550: C0C5 A0 1F C2 LDA NAMLEN
1560: C0C8 A2 20 LDX #NAMBUF
1570: C0CA A0 C2 LDY #NAMBUF
1580: C0CC 20 BD FF JSR SETNAM
1590: C0CF A9 R7 LDA #$R7
1600: C0D1 85 FB STA #$FB
1610: C0D3 A9 02 LDA #$02
1620: C0D5 85 FC STA #$FC
1630: C0D7 A9 FB LDA #$FB
1640: C0D9 A2 04 LDY #$04
1650: C0DB A0 03 LDA #$03
1660: C0DD 20 D8 FF JSR SAVE
1670: C0E0 AD ED 02 LDA AUTOLEN
1680: C0E3 A2 EF LDX #AUTOBUF
1690: C0E5 A0 02 LDY #AUTOBUF
1700: C0E7 20 BD FF JSR SETNAM
1710: C0E9 A9 2B LDA #$2B
1720: C0EC A6 2D LDX #$2D
1730: C0EE A4 2E LDY #$2E
1740: C0F0 20 D8 FF JSR SAVE
1750: C0F3 A9 83 LDA #$83
1760: C0F5 8D 02 03 STA #$0302
1770: C0F8 A9 A4 LDA #$A4
1780: C0FA 8D 03 03 STA #$0303
1790: C0FD 60 RTS
1800: C0FE 93 11 20 MSGNAM ASC "ENTER NAME (MAX 12 CHARACTERS):"
1810: C11C 92 13 11 MSGDEV ASC "SELECT: STAPE OR DMOUSE"
1820: C13D 13 11 11 MSGDISK ASC "** DISK **"
1830: C15C 13 11 11 MSGTAPE ASC "** TAPE **"
1840: C17B 13 11 11 MSGSAVE ASC "PREPARE TO SAVE***"
1850: C184 20 20 20 ASC "** HIT ANY KEY TO CONTINUE OR STOP TO ABORT**"
1860: C1AC 11 11 48 ASC 

Commodore Computing November 1984
HINTS AND TIPS

Five for your drive

Steve Mickelson has sent us the following five programs designed for the Commodore disk drive. Before running any of these programs be sure you have saved them on a safe disk.

NEW FILE NAME
This program changes a file name so that it looks the same in the catalog but will not load or scratch. To load or scratch the file, add a question mark at the end of the file name.
Example: LOAD "filename?", 8.

```
5 REM NEW FILE NAME
10 POKE53281,0:POKE53280,0
20 INPUT"ENTER FILE NAME: ":N$
30 OPEN1,8,15:PRINT#1,"R0:"+N$+CHR$(34)+"=0:"+N$
40 INPUT#1,A,A$:PRINTAT$:CLOSE1
```

NO DIRECTORY
This program changes the catalog so when you LOAD "$", 8 then LIST, you will see nothing. It does this by replacing the header with three CHR$(20) (deletes), a CHR$(141) (shift-return), two CHR$(145) (cursor-ups) and then three nulls indicating the end-of-file marker to the LIST command. Files can still be Loaded and Saved and Scratched as normal.

```
5 REM NO DIRECTORY
10 POKE53281,0:POKE53280,0:PRINT"ENTER DISK, PRESS RETURN"
20 GETA$:IFA$<CHR$(13)THEN20
30 OPEN1,8,15:"I0":OPEN5,8,5,"#"
40 PRINT#1,"U1 5 0 18 0"
50 FORX=144TO168:READB
60 PRINT#1,"B-F:5""X:PRINT#5,CHR$B;""NEXT"
70 PRINT#1,"U2 5 0 18 0":INPUT#1,A,A$:PRINTAT$:PRINT#1,"I0":CLOSE1:CLOSE5
80 DATA20,20,20,141,145,145,0,0,0,0,0,255,
90 DATA20,20,20,20,20,20,20,20,20,20,20
```

NEW DISK NAME
This program lets you input up to a 16 character name then changes the header of the catalog. So when you LIST the catalog, the screen clears, the new name is printed in reverse at the top of the screen and all the files are listed below. This is also a good antidote to fix a disk on which you ran program number two, NO DIRECTORY.

```
5 REM NEW DISK NAME
10 POKE53281,0:POKE53280,0
20 INPUT"ENTER DISK NAME ":N$
30 D$=CHR$(20)+CHR$(20):N=LEN(N$):IFN<10
40 IFN>16THEN20
40 IFN<13THENN$=LEFT$(N$,13)+D$+D$+MID$(
```
HINTS AND TIPS

This will change the catalog so it will loop around endlessly. This is done by changing the link pointers at the end of the catalog to point to the beginning. Thus when you LOAD "$", the disk drive will continue to spin until you hit the RUN/STOP key. If you then try to LIST you will see only garbage. The effects of this program are not reversible unless you reformat the disk, and you will now not be able to SAVE programs on this disk.

If you have loaded the DOS WEDGE program on the Test/Demo disk, using the @$ command will show you the catalog looping around.

This changes the DOS id number on a disk. On a 1541 formatted disk it is normally 65. By changing this to any other number, the DOS will not allow any writing to the disk, including SAVE "filename", or "SO:filename" (scratch), or "NO:diskname" (new), although any file can still be read off the disk.

The only way to fix this is to re-format the entire disk, "NO:diskname, id". By doing this you will lose all data on the disk, so be sure you have backed-up any files you need.

ENDLESS

PROTECT

This changes the catalog looping.
The Offer of the year
For the whole year long!

The Commodore 1985 Reference Diary — created by Jim Butterfield — is a must for anybody with a Commodore computer. The 1985 Reference Diary is packed with information and useful material relevant to everything from the whole range of Commodore Computers, their peripherals and all the tricks to get the best out of your machine. All of it in a clear easy to read style and with the authority that only Jim Butterfield — universally regarded as the world's leading expert on all aspects of Commodore — can provide. In addition, of course, the Diary has all the usual diary features and details. The 1985 Commodore Diary is unique in providing the comprehensive coverage of any information you might need throughout the year — an ideal companion for Commodore Computing International — the premier magazine in the field.

Special Readers' Discount
The usual price for the 1985 Commodore Reference Diary is £3.95 but Commodore Computing International's readers can buy this really useful aid for just £2.95, including postage & packing — more than 25% reduction. You can order as many diaries as you wish at that price. They make ideal gifts!

Special Subscription Offer!
Commodore Computing International is making a special subscription offer. If you send a Special Subscription Offer Coupon with payment no later than 19th November 1985, you can buy the 1985 Commodore Reference Diary for just £1. This means that you get the next 12 issues of Commodore Computing International delivered to your door plus the Diary for a total of only £16 — a saving of nearly £3 for a whole year's enjoyment and information.

Please Note
The demand for the 1985 Diary is already heavy. To avoid disappointment or delay, order your copy or copies at once. Use the coupon below and post it today.

[Special Offer Form]
UNISTAT

STATISTICAL PACKAGE

MULTIVARIATE REGRESSION: Main output consists of estimated coefficients, t-stats, standard errors, R², corrected R², standard error of regression, F-stat, and Durbin-Watson stat. Further output options: multiple correlation matrix, variance-covariance matrix, ANOVA of regression, residuals, plot of residuals, interpolation. Data options: Log/in option for each variable, no-constant regression, choice of dependent variable, selection of independent variables, auto-omission of linearly dependent variables.

ANALYSIS OF VARIANCE, SCATTER GRAPHS AND TIME SERIES PLOTS: One-way and two-way (without interaction) ANOVA tables, scatter diagrams of paired data and time series plots, with auto-scaling.

STATISTICAL TESTS: CORRELATION COEFFICIENTS AND PROBABILITY DISTRIBUTIONS: Basic stats on each column of data (size, sum, mean, variance, std. dev.). Chi-square (contingency table), t (one sample, two sample, paired), F, Mann-Whitney U and Wilcoxon signed rank tests. Pearson’s, Spearman’s rank and Kendall’s rank cor. coefs. Chi-square, t, F, binomial, Poisson and normal (std. non-std.) distributions. Results of tests and corr. coefs. are displayed with significance levels.

DESCRIPTIVE STATISTICS, FREQUENCY DISTRIBUTIONS AND HISTOGRAMS: Analysis of raw data or data with frequency counts. Raw data sorted and grouped. Choice of lower bounds and class intervals. Absolute, cumulative and relative frequencies. Histograms with up to 200 classes. Output displays sum, mean, mean deviation, median, variance, std. dev., 3rd and 4th moments, skewness, kurtosis, range, etc.

All programs are datafile compatible with Matrix Operations program in UNIMAX package. Data matrix capacity examples (columns by rows): CBM-64: 2x1250, 5x700, 10x380, BBC-B: 2x750, 5x400, 10x200, 48K Spectrum: 2x1800, 5x900, 10x500. CBM-64 (disk/cass): £85, BBC-B (disk/cass): £85, 48K Spectrum (mdvcart/cass): £60.

UNIMAX

LINEAR PROGRAMMING PACKAGE

LINEAR PROGRAMMING: A powerful and instructive optimisation program capable of handling all sorts of linear programming problems (min/max, any combination of < =, >= constraints and x< =, x> = sign constraints). Primal, canonical, dual and their solutions are displayed in standard mathematical form. Unbounded problem and no feasible solution prompts. Edit option for all inputs. Capacity examples (variables by constraints): CBM-64: 10x35, 25x30, 40x25, BBC-B: 10x25, 20x20, 48K Spectrum: 10x45, 25x35, 30x25.

MATRIX OPERATIONS: Inversion, transposition, determinant, pre- and post-multiplication, scalar multiplication, addition and subtraction of matrices and vectors. Any output can in turn be used as the input of the next operation without re-typing. Matrices can be saved or loaded at any stage. Datafile compatible with UNISTAT package. Capacities: CBM-64: 35x35, BBC-B: 25x25, 48K Spectrum: 45x45.


NEW THE COMPOSER 64

One of the most sophisticated music Composer/Synthesiser packages available today; utilising every facility of the Commodore 64. Now with this revolutionary package anyone can enjoy music. Even if you know nothing about music, the Composer 64 allows you to create a tune or copy directly from sheet music by writing notes onto the staves.

Pre-Programmed Instruments:
- ORGAN
- PIANO
- VIOLIN
- VIOLONCELLO
- HARP
- ACOUSTIC DRUMS
- or make up your own instrument sounds.

Features Include:
- 3 completely independent voices
- Up to 1500 notes possible
- Range of 5 octaves
- Time signatures
- Repetitions
- Rhythms
- Nameable tunes
- Full sound editability
- Variable tempo
- Variable waveforms: sawtooth, noise, white noise & any combination to produce up to 16 different waveform forms.
- Full editing & merge facility
- Tempo control
- Notes can be copied from one voice to another
- Full colour high resolution screen with changeable note colours
- Full lead-in lead-out facility on tape or disc
- Full range of notes from semi-semi quaver to semiquaver.

How to Order:
Send cheque or postal order for £6 with your two selections or large sse for further details to:

MIDLAND COMPUTER LIBRARY
31 Evenlode Close, Lodge Park
Redditch B98 7NA
Telephone 0527 23584
Creative opportunities

Sue Pearce has hours of fun experimenting with Mirrorsoft's Games Creator. The program is simplicity itself, with absolutely no knowledge of programming needed at all to create original colourful games.

Written by the Darling brothers Richard (16) and David (18), Mirrorsoft's Games Creator is based on a compilation of various editors designed to help speed up the games writing process, which the brothers developed while writing many computer games.

User-friendly is definitely the key to this package. On-screen instructions and a step-by-step booklet enable you to successfully create your own games. Games Creator includes three ready made games illustrating the different effects you can produce.

All you need to start you off is your 64, the Games Creator (on cassette or disk), cassette recorder or disk drive, television or monitor, a joystick if you choose, and blank cassettes or disks to save your own creations.

Once the program has loaded, the main menu appears on the screen. By moving the flashing cursor (by joystick or cursor keys) you can choose your option: play, change, load or save. If you opt for change you are faced with the further choice of: alien - movement or rules; sound - tune or effects; graphics - scenery or sprites. In any game there are up to eight sprites (moveable objects), each having a number of animations. The sprites are player, player bullet, aliens 1-5, and alienbullet.

The first thing I did was to design me - that is the character that the player controls. Like me you will probably start off by creating something relatively simple (see the photograph above of my creation!) and then get more adventurous as you get to grips with it. The sprite is displayed enlarged on the left of the screen and normal size on the right to give you a clear picture of your results.

You make your own choice of three colours, plus a background colour. The flashing cursor can be moved around the large sprite in the normal way. Pressing fire or the space bar changes the pixel to the current cursor colour indicated at the side of the screen.

Creating a tune to go with my graphical masterpiece was also great fun and very simple to do. You can create a tune using different length notes and rests totalling up to seven pages in length. If you're not musically minded don't despair. Even if you don't note what a certain note sounds like, by positioning the cursor under the word play and pressing space or fire, the tune will play.

You can also choose from a variety of instruments - trumpet, piano, guitar, recorder and trombone.

I could go on for pages about features of the Games Creator, but the best way to learn is to take a look at it yourself. At £12.95 for cassette and £15.95 for disk, you really can't go wrong.

Contact: Mirrorsoft, Holborn Circus, London EC1. Tel: 01-822 3913.
FREE LIGHTPEN
WITH EVERY GRAPHKIT
PACKAGE IF YOU USE
THIS COUPON NOW

Yes a free lightpen! With every GRAPHKIT! Graphkit is the ultimate in drawing!, designing! or painting! (using the lightpen of course, which incidently has a full 3 year warranty!) Graphkit will amongst other things allow you to:
* Draw free handed on the screen anything from a Micky Mouse to your latest integrated circuit! with all fill colour and erase facilities of course!
* Save/load your latest masterpiece to/from the disk/tape drive
* Or directly copy the drawing on the screen to the printer! and keep it for ever or send to a friend as a post card!
* Design your own colourful sprites and characters
* Play the games in the package! or use the lightpen in your own games/education/business programs

GRAPHKIT is available on disk and tape, tape version is £15.95 and disk version (recommended) is £19.95.

All you 1540/1541 disk users DMON! is here at last. DMON is the disk monitor you have been waiting for it will allow you to:
* Read/write blocks from/to the disk
* Display and edit blocks on the screen
* Display and send disk messages/commands
* Transfer your programs from tape to disk or disk to disk or even disk to tape!* and more!
DMON comes on DISK at only £9.95.

Do you use tapes? Are you sick and tired of waiting for your programs to be Loaded/Saved from/on the tape? then you need a TORNADO!! Tornado allows you to Save/Load/Verify your Basic/machine code programs faster than a CBM 1541 disk drive does!! Due to popular demand! Tornado now comes with new and more powerful commands plus extra instructions to assist you in making fast versions of your existing machine code/Basic programs. Tornado is available on tape for CBM 64 and 8K + Vic 20.

Do you use your Run/Stop and Restore keys often fail? Do you want to come out of those crashes?! Or get into those unbreakable programs?! Then what are you waiting for, get yourself a BREAKER!! Reset switch and let your computer know who is the boss!! Breaker can be connected to your machine in seconds, no soldering. Included with the Breaker reset switch is basic recovery software on tape. Breaker is now available for any CBM 64 or Vic 20. Available for CBM 64 and the Vic 20 now is the ROM-FILE which contains a complete disassembly of CBM 64 and Vic 20 ROM with comments! As well as a complete description of all 6502/6510 instructions and addressing modes + a complete listing of a machine code monitor!

Please send me DMON at £9.95
** Graphkit at £15.95 (tape) + my free Lightpen
** Graphkit at £19.95 (disk) + my free Lightpen
** Lightpen at £11.95
** Tornado at £9.95 + my free Breaker
** Breaker at £7.95
** Romfile at £7.95

Please make cheques/PO payable to:
BSF COMPUTER SERVICES LTD
DEALERS AND GENERAL ENQUIRIES
TEL: 0293-510020
I enclose cheque/PO/cash to the sum of £ ........................................
Name ........................................ Computer ..................................
Address ..............................................................

Please use this form and block letters only. All prices are inclusive of p&p (mail order only, add £2 if outside UK). Please post to:
BSF CSL, 82 FURNACE DRIVE, CRAWLEY, W. SUSSEX RH10 6JE
### Strictly Business

#### Expanded software

Seven new business software packages, including accounts receivable and accounts payable management programs, are on offer from Time Works.

Business Systems of Chicago.

Company President Mark Goldberg says the packages are new, expanded versions that are "faster, more efficient and more versatile than the earlier versions". Costing £59.95 and designed for the 64, the programs are Inventory Management, Sales Analysis Management, Accounts Receivable Management and Invoicing, Accounts Payable Management and Checkwriting, Payroll Management, Cash Flow Management and General Ledger. Each is sold separately.

Goldberg says each system is simple enough to operate without previous computer or accounting knowledge but still provides complete information. Password protection prevents unauthorized access.

#### Crucial histories

Investment Research of Cambridge and Lombardy Associates have provided a new financial databank to reveal price histories of shares, currencies and stock market indices at the touch of a 64.

Called IRLA (the initials of the two companies involved), the software is designed to run from January 1981 to date on a floppy disk and the date can be either weekly or daily, depending on what is needed.

As a private or professional investor, you could buy weekly historical data on standard disks for £35 per disk, covering major UK shares, 40 major indices and all 41 of the Financial Times Actuaries Indices, currency rates including cross rates, all UK traded option shares or your own selection of items. A daily data version retails for £65 per disk. All are available for use with the 64.

IRLA also allows you to manipulate the information in tabular or chart form, letting you detect trends over various time periods.

Contact: Lombardy Associates Ltd., 121 High Street, Berkhamstead, Herts HP4 2DJ. Tel: 0442 724247

### Planning ahead

Information managers are invited to a one-day seminar on using business databases for long range and strategic planning.

To be held Friday, 7 December at Novotel London in Hammersmith, the workshop begins with a brief introduction to the procedures, techniques and terminology of planning. Pertinent business databases and the retrieval and analysis of data on various information systems are also on the roster.

The seminar is hosted by Learned Information Enterprises, a company specializing in training seminars for computer users, and Professor Michael Koenig of the School of Library Science and Graduate School of Business at Columbia University in New York City.

Contact: Jean Mulligan, Learned Information (Europe) Ltd, Bessesleigh Road, Abingdon, Oxford OX13 6LG. Tel: 0865 730275

### Large incentives

Micro database software maker Compsoft is looking for a share of the market in large organization schemes by offering discount and training incentives.

Companies who enter the Large Organisation Scheme at Compsoft will be entitled to progressive volume discounts and two days of free training at the Surrey training centre. Membership in the scheme also includes access to the Compsoft Hotline, a direct line to a customer services department.

Normally, membership in the scheme is charged at £100 per year, but Compsoft now offers membership to any company buying more than 25 DMS Diamond database packages for the PET range. Each package costs £395.

Contact: Compsoft Ltd, Hallams Court, Shamley Green, Nr Guildford, Surrey GU4 8QZ. Tel: 0483 898545

### Rewrite

We correct a misprint in the September issue for the address of Dataview Wordcraft Ltd, the result of a merger between Dataview, a software publisher, and Wordcraft, a word processing system. The correct address is Dataview Wordcraft Ltd, Radix House, East Street, Colchester, Essex CO1 2XB.

### Plots to print

Datifax is boasting its new colour printer/plotter as "the first to offer A4 paper handling capability for under £200 RRP.

The Sakata SCP-800, with a 210mm paper roll option, is the first offering from Datifax since it began distributing for the Japanese company Sakata Shokai. It is compatible with both the 64 and the Vic 20. Offering capability for graphics and listings, the SCP-800 prints at 6 or 12 characters per second and allows 13 different graphical commands.

Contact: Datifax Ltd, Datifax House, Bounty Road, Basingstoke, Hants RG21 3BZ. Tel: 0256 464187.
SUPERBASE 64
TRANSFORMS THE COMMODORE 64 INTO A FULL FEATURED PROFESSIONAL DATABASE SYSTEM, WITH UP TO 1000 CHARACTERS PER RECORD ON UP TO 4 SCREENS AND UP TO 108 ITEMS PER RECORD, DEFINABLE AS KEY, TEXT, NUMERIC, CONSTANT, RESULT OR DATE. SUPERBASE 64 EVEN HAS A SPREADSHEET AND CALCULATOR FUNCTIONALITY, EASY EDIT FROM WORDPROCESSOR OR DATA FILES, BOTH MENU-DRIVEN AND PROGRAM ORIGINATING, SORTING/SEARCHING, FULLY DEFINABLE OUTPUT. SUPERBASE 64 IS ESSENTIAL IF YOU WANT TO GET THE MOST FROM YOUR 64 SUPPLIED ON 1541 DISK WITH EXCELLENT TUTORIAL/REFERENCE MANUAL PLUS AUDIO LEARNING TAPES. AND THERE'S A WIDE CHOICE OF "GET-YOU-GOING" APPLICATION STARTER PACKS AT ONLY £9.95 EACH!
OUR PRICE £34.95 £38.00

FIGARO 64
AT LAST, AN EASY-TO-USE NUMERIC DATABASE, WITH A FULL RANGE OF BUILT-IN STATISTICAL FUNCTIONS, PLUS PREDICTION, INTERPOLATION AND MIXED TEXT/GRAPHICS SUPPLIED ON DISK WITH CLEAR, COMPREHENSIVE MANUAL. FUNCTION KEY OVERLAY, DEMO PROGRAM.
OUR PRICE £34.95 £37.00

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 PRINTHEAD WITH A COMPREHENSIVE AND EASY-TO-FOLLOW USER REFERENCE MANUAL.
VIZAWRITE IS THE ULTIMATE PERSONAL COMPUTER WORD PROCESSOR! AVAILABLE ON CARTRIDGE (£49.95 £73), DISK (£54.95 £68) OR WITH VIZASPELL (£69.95 £80.80)

PRICES INCLUDE 15% VAT AND ARE CORRECT ON GOING TO PRESS.
ORDER BY POST OR PHONE USING CHEQUE/ACCESS/BARCLAY CARD OR OFFICIAL ORDER. DISPATCH IS BY SAME-DAY 1ST CLASS POST. PREPAID ORDERS FREE. PRODUCT DATA AVAILABLE ON REQUEST. REF A3D

ARROW MICRO SERVICES
- Commodore 64 -

ARROW TURBO-SAVER
Fed up with waiting for those programs to load? Well you need Turbo-Saver, easy to use and faster than the 1541 disk drive, programs reload independent of Turbo-saver..............£7.00

ARROW DISKOPY
This selective disk copier will copy both PRG and SEQ files faster than 1541 back-up and you don't need to copy all the disk, very user friendly and easy to use.................£7.00

ARROW TRANSFER
Transfer your favourite games to disk with multi-part and Auto Run, works with most software........£7.00

ARROW DISK-MOVER
Now you can recover scratched files easily, edit any byte on any block in Hex or Alpha, alter programs, edit the directory, format disks........£8.00

ARROW MICRO SERVICES
20 Portmeadow Walk
London SE2
Good connections are something we all wish we had more of and the same applies to computers. Your Commodore just can't get through to many important peripherals without good connections.

In the hardware world, interfaces are your connections and the increasing number of interfaces available on the market offer a wider choice of compatible peripherals such as printers and plotters.

How many times have you found yourself staring at your printer wondering when it will finish its clicking and clacking and let you get on with your work on the computer? If the waiting game isn't your game, investing in a printer interface buffer may be a wise move.

A buffer cuts down the amount of time your computer is tied up during printing because you simply send your material to the buffer, which holds it and feeds it to the printer at the rate it can accept it. The result — you don't sit around waiting to use your computer and the printing goes on as usual.

Another advantage to having a buffer is that you can opt for a slower printer of better quality without sacrificing your time.

Buying an interface of any sort, however, can be confusing with various companies boasting specifications that often mean very little to the average personal computer user. You may not want to become an expert on polarity, addresses, stop-bits, etc. You just want "one of those".

Avoiding technicalities on this subject is rather difficult, however, and you'll need to be able to make an educated choice when interface shopping.

The reason for having an interface at all is to allow you to use various types of peripherals with your Commodore, although they may not ordinarily be compatible with Commodore machines.

The three major types of connections are IEEE, RS232 and Centronics. An interface, then, could connect IEEE to RS232 or RS232 to Centronics, IEEE to IEEE, etc. One end of the attachment plugs into a port at the back of your Commodore and the other end is attached to the peripheral.

Some interfaces simply change the voltage level between, for example, a VIC 20 and a printer which may have a higher voltage level than the VIC.

Interfaces also run between compatible equipment for different reasons. That is where the buffer comes in. The buffer interface is used as a go-between, so to speak, to accept your input for delivery to the printer.

Your first decision then is what you want the interface to do. Then determine what type of equipment you want to connect and (continued on page 65)
AMAZING NEW SPEECH SYNTHESISER FOR YOUR COMMODORE 64

ALLOPHONE BASED SPEECH WITH AN UNLIMITED VOCABULARY

- New basic commands give full control over all speech functions - Approximately 200 predefined words built-in - Speech may be produced simultaneously with graphics and sound - Extended Basic commands are very powerful and are well proven on our other speech synthesisers - This must be one of the most advanced and comprehensive speech synthesisers available today.

Rarely has anything been so easy to use on a Commodore 64.

Order now by sending cheque, P.O., Access number to:-
J.C.B. (MICROSYSTEMS), 29 Southbourne Road, Bournemouth, Dorset. BH6 5AE.
Tel. (0202) 423973.

Dealers—please contact us now.
Never have our terms been better.

SPECIAL OFFER
XMAS ONLY
£24.95
LIMITED OFFER
ORDER NOW FOR XMAS

J.C.B. (MICROSYSTEMS)

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

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, Kernel in every bank.
- Design and add your own BASIC extensions.
- Extra RAM in system bank.
- Comprehensive manual.

Available now, price £120.00 + VAT.

WORD PROCESSORS AND ASSEMBLERS FOR CBM 600/700

Please phone us for more details and prices for these products.

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.

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

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

+ 75p p&p. VAT. incl.
Splitter lead for use with monitors £1.50.
whether you want a buffer. For that, you'll need to know whether the connections on your hardware are IEEE, RS232 or Centronics; specifications found in your user manual.

From there, you will have a choice of memory size within the interface if it is a printer buffer. This determines how much of what you input can actually be stored at one time. Most buffers come with standard memory sizes such as 16K, 48K or 96K. If you have a 16K buffer, for example, and you try to input 40K, your computer will not be free until the last 16K is in the buffer.

**INTERFACE SYSTEMS**

Printer Interface Adaptors

Interface Systems have launched a low cost range of printer interface adaptors to supplement their printer buffer products. Called Microway, the adaptors come as RS232C to Centronics, Centronics to RS232C, IEEE to Centronics, IEEE to RS232C and Centronics to IEEE. The range claims to cater for almost any combination of the three major interfaces, saving the cost of expensive hardware modifications for each new peripheral.

The adaptors come buffered or unbuffered and sit between the computer and the printer. Complete with cabling, retail cost is £78.

Printer Interface Buffer

The Sussex based company also produces an interface buffer, ranging in memory size from 16K to 48K and 96K. Each comes with optional character/escape code conversion and a one year warranty.

The RS232-RS232 allows selectable Baud rates (rates at which material goes through the interface) from 300 to 19200 Baud.

Character length, parity and stop bits are selected by an internal switch.

IEEE-IEEE is compatible with all Commodore 2000, 4000 and 8000 series computers and peripherals.

Centronics-Centronics has standard 8 bit data for input and output and offers option of high drive output components among other features.

IEEÉ-Centronics has the Commodore compatible input interface with a 36 way Centronics plug at the other end. Options include an alternative primary connection. RS232-Centronics has an RS232-RS232 buffer and acknowledge option on the input interface and acts as a Centronics buffer at the output end.

Centronics-RS232 has the acknowledge function at the input end with an option for it at the output end.

Prices are £140 for 16K buffers, £176 for 48K buffers and £272 for the 96K, excluding packing, posting and VAT. Interface Systems say they are planning full duplex RS232-RS232 and IEEE-RS232 for the future.

Contact: Interface Systems, Interface House, 17 Eversley Road, Bexhill-on-Sea, East Sussex TN40 1HA, Tel: 0424 225683.

Rod Wellburn of the dealer support division at Commodore's Corby plant says a 16K memory interface will handle about one hour 20 minutes of printer work, depending on the application. A 48K buffer handles up to four hours - quite a timesaver if you rely heavily on a printer. The maximum memory size available is 96K. From there, things get more detailed depending on how particular you are about your interface. Manufacturers often give specifications for seven or eight bit data, even or odd parity, serial or parallel interfaces, etc. Your best bet is to consult an experienced dealer or go directly to an interface manufacturer to determine how much any of these variables matters in your particular case.

We have included baud rates for interfaces when available for our descriptions, baud rate determining how quickly your input goes through the interface.

Wellburn says the standard interface drives at 300 baud, allowing about 30 characters per second. But the rates do vary from product to product and, in some cases, you can change the baud rate with an internal or external switch.

**DYSON INSTRUMENTS**

Scientific interfacing devices are among the variety of interfaces available from Dyson Instruments. The more than 20 different interfaces listed in their catalogue give you the choice of linking with a laboratory instrument, an external logic system, sound synthesiser or a colour printer. Listed here is just a brief survey of a few products.

Digital-Analogue

These are crucial if you want to send your computer's digital signals to a peripheral that "speaks" analogue or vice versa. Dyson produces both D/A and A/D types of interfaces, software controlled, for £75 each. Both offer the user a selection of voltage ranges and in the case of the D/A, the board is fitted with a loudspeaker for synthesised sound.

Link-Up

The Link-Up Bus Management System is a firmware (ROM) package allowing several Commodore micros to be connected to one disk drive and printer for use in the classroom, for example. Called the Inter Pet, it costs £125 and works with the 3000, 4000 and 8000 series Commodores.

Junior Rexagan

For those who want to make a wider use of their Commodore at home, the Junior Rexagan allows the user to adjust it to a variety of uses by modifying the software to meet specific needs. Ray Karrigen of Dyson says the interface is a smaller version of the Rexagan, which has been used, for example, to control lights over a billiard room. The Junior Rexagan is an interfacing teaching tool and, with the correct programming, is a combination of data acquisition system and controller. Conceivably, you could control lighting, heating, even a burglar alarm system through the computer and the JR. Consider the investment, however - £195.

Rexagan

Rexagan will link up to the PET and the VIC 20 and can do several jobs at once because eight signal boards can be slotted in to the master unit at once. You can get a Pulse Counter (£120) which can be used as a clock or the Watchdog (£120) which can ring a
bell, cut off power or activate alternative devices if something goes wrong with the computer or the interface. The master unit will mean £240 out of your pocket. Dyson also offers an advanced version of Rexagan, the Super Rexagan.

**RS232C**

This one is located inside the computer and is compatible with communications systems using modems. At a cost of £175, it enables the Commodore to be used with a wide range of high quality printers. It has a baud rate of 9600 and additional peripherals can be added.

**CHEETAH MARKETING**

Interpod

One of the better values on the interface market is the Interpod, now reduced in price to £59.95 (incl. VAT) from £125 by Cheetah Marketing, who acquired the sole marketing and manufacturing rights from Oxford Computer Systems.

Originally made by Parc Electronics, which now owns Cheetah, the Interpod is a multiple interface housing both RS232 and IEEE and is said to be completely compatible with available software. Interpod does not use the 64's cartridge slot so does not reduce the computer's available memory. The interface allows PET owners to supplement their system with the 64 without concern about printer and disk drive accessibility.

**CONTACT**

Dyson Instruments, Sunderland House, Station Road, Hetton, Houghton-Le-Spring, Tyne & Wear DH5 0AT. Tel: 0783 260452.

**COMPUTAPIX**

IEEE-488

Designed for the 64 and VIC 20, it works with a variety of software such as Simon's Basic and EasyScript and all Commodore Easy programs. It is compatible with all IEEE equipment and, in the case of the 64, the code can be entirely relocated within the memory. Including a full 12 months guarantee to cover parts and labour, the cost for interfacing either the VIC 20 is £62.10 (incl. VAT).

Contact: Computapix Ltd, Cores Road, Kirkby Industrial Estate, Liverpool L33 7UA. Tel: 051-547 2741.

**INTELLIGENT INTERFACE**

**SYSCON 6**

Intelligent Interfaces has developed the Syscon 6 to connect even more Commodore peripherals to the BBC microcomputer. The new model allows the Commodore 8250 floppy disk unit to be used with the BBC, expanding the range to all Commodore dual floppy disk units and most Commodore dot matrix and daisy-wheel printers.

Contact: Intelligent Interfaces Ltd, 43B Wood Street, Cooks Alley, Stratford-Upon-Avon, Warwickshire CV37 6JQ. Tel: 0789 296879.

**DIGITAL DESIGN AND DEVELOPMENT**

The 64 is coming into rather sophisticated use with an interface from London based 3D Ltd.

Designed for professional use and costing £700, the GP1 is no toy. 3D's Alan Mills says one customer is using the interface to connect a 64 with various monitoring systems to record and control conditions in fermentation rigs for biological experiments.

It comes with manual, demonstration diskette and appropriate cabling and acts as a digital to analog or A/D converter with an eight channel digital power driver and eight channel digital input.

Contact: Digital Design and Development Ltd, 18/19 Warren Street, London W1P 5DB. Tel: 01-387 7388.
**DUP Magnum Ltd**

**MANUFACTURER AND SUPPLIER**

**FREE**

**LIBRARY CASE WITH EVERY 10 DISKS** *(INC. P. & P. & V.A.T.)*

**FLOPPY DISKS**

- 5½” Single Sided, Single Density .......................... £1.65
- 5½” Double Sided, Double Density .......................... £1.85
- 5½” Double Sided, Quad Density ........................... £2.50
- 8” & 3” DISKS ALSO AVAILABLE

**(PRICES ON APPLICATION)**

Send Cheque or Postal Order for immediate supply.

Trade enquiries welcome

16 Grosvenor Road
Aldershot, Hants.
0252 316409

**ZOOM PASCAL.** Powerful structured compiler, producing 6502 micro

**ASSEMBLER 64.** professional development tool. Full assembler/disassembler

**DATABASE 64.** menu driven database. Max 30000 records, 255 bytes/record, 15

**ULTRABASIC 64.** 50 extra commands-High res/multi colour (DOTT, DRAW,BOX,CIRCLE,FILL), Sprites (SPRITE, PLACE, ROTATE, OFF), Sound

**SUPER DISK UTILITY 64.** Copy 1541 disk in 4 ways - TOTAL, BAM, FILE, SYNTHY 64. Turns your 64 into a music & sound synthesizer, a piano, banjo flute,

**DATABASE 64.** Menu driven database. MAX 30000 records, 255 bytes/record, 15

**ANATOMY OF THE 1541 DISK DRIVE.** 300+ page book. Technical guide of

All prices include VAT. Post and Packing. Dealer enquiries welcome. Ring

**COMMODORE 64**

**16 & Plus/4 PRINTER INTERFACE**

with full

**COMMODORE GRAPhICS**

- Easy installed — fit & forget.
- No extra supply power needed.
- Plugs into serial port leaving cartridge port free.
- Full dot and tabbing facility.
- Built in status-set test report.

order MW350 .......................... £89.95 inc VAT

If you don’t need the unique Commodore graphics set then this is your

order MW302 .......................... £66.95 inc VAT

price for load . . Leaves cartridge and user port free.

**EXPANSION UNIT**

- 3 slot switched motherboard.
- Made from top quality military grade fibreglass circuit board.
- All 3 slots fully switchable.
- All systems + in daily use throughout

**ROM EXPANSION UNIT**

- Fully casad.
- Accepts 2732 or compatible masked ROM.
- Full technical details included.
- Only £15.95 inc VAT

**80 COLUMN SCREEN**

- Takes over video display.
- Expands screen to 80 columns.
- Takes either 4x2732 or 8x2764 EPROM.
- Full technical details included with each cartridge.
- Only £49.95 inc VAT

**V.I.P. SMART TERMINAL MODEM CONTROL PROGRAM**

- A key to the world of communications
- Communicate with any host or micro with RS232 capabilities
- 80 column display...
- 20 programmable keys
- 16 entry auto dial telephone directory
- Built-in alarm clock and terminal emulator
- Sends and receives in ML or BASIC
- BAUD rate from 50 to 2400
- All this for only £49.95 inc VAT

All prices include VAT, Post and Packing. Dealer enquires welcome. Ring 01-900 0999 quoting your ACCESS or VISA card now — or send your order to

**IMPEx SOFTWARE LTD.**

Metro House, Second Way, Wemley, Middlesex HA9 0TY
Attention all Commodore 64 owners with a 1541 disk drive

MPS TOOLKIT

ONLY £13.95

- Single Drive 3-Pass Disk Backup — or individual tracks.
- File Copy — transfer any number of files at once, up to 232 blocks long.
- Disk Error Locator — also checks for proper header, DOS, ID's & catalog, with printer option.
- Error Corrector — makes 20, 21, 22, & 23 errors, necessary for proper backup of protected disks.
- Disk Drive Monitor — address the drive's internal ROM & RAM.
- Disk Doctor — dozens of uses, read and change sectors, recover lost data.
- DOS Changer — protect your own disks.
- Disk Log — displays all files on a disk, including start & end address, beginning track and sector, with printer option.
- Loading Address Relocator — Disk Test
- File Recovery — Compressor
- Plus many more useful features!

Beware of imitations! MPS TOOLKIT is the only disk utility for sale in the UK which includes all this at such a low price. Comes complete with instructions and easy to use.

ONLY £13.95 including P&P.

Send cheque or P.O. to:

MPS SOFTWARE
36 ALEXANDRA GROVE, LONDON N4 2LF
Telephone: 01-800-3592

PET CONVERSIONS & UPGRADES

Here's it at a NEW low low price! Don't throw out your old 9" PET. The MICROPORT 80 column conversion board for the 9" PET/COMMODORE 4.0, or supplied complete with full fitting instructions, or fitted free of charge if brought direct or programmed mode. Any MICROPORT converted machine is also upgradable to 8096 specification with our 64K add-on board. £250.00

WINDOW, lower case, graphics mode & DELETE 40 to 80 column switchable (two machines in one!) £98.00

It's here at a NEW low low price! I Don't throw out your old 9" PET. The Full money back guarantee within 14 days if not delighted. £125.00

Externally mounted switching unit for above (40/80 column switchable) £15.00

External 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

MICROPORT 80 column conversion board for the 9" PET/COMMODORE 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 8022. Compatible with 8032 software and add-on ROM utilities. Supplied complete with full fitting instructions, or fitted free of charge if brought direct or programmed mode. Any MICROPORT converted machine is also upgradable to 8096 specification with our 64K add-on board. £250.00

MICROPORT 80 column conversion board for the 9" PET/COMMODORE 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 8022. Compatible with 8032 software and add-on ROM utilities. Supplied complete with full fitting instructions, or fitted free of charge if brought direct or programmed mode. Any MICROPORT converted machine is also upgradable to 8096 specification with our 64K add-on board. £250.00

SIPOD is supplied complete with interface lead and instructions. £29.00

SIPOD is a serial IEEE to parallel IEEE software interface allowing you to use all the space is consumed within the 64 as SIPOD loads and executes within the PET.

SIPOD is a serial IEEE to parallel IEEE software interface allowing you to use all the space is consumed within the 64 as SIPOD loads and executes within the PET.

ZOOM. An excellent machine code monitor for the 64 £10.00

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

MICROPORT 80 column conversion board for the 9" PET/COMMODORE 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 8022. Compatible with 8032 software and add-on ROM utilities. Supplied complete with full fitting instructions, or fitted free of charge if brought direct or programmed mode. Any MICROPORT converted machine is also upgradable to 8096 specification with our 64K add-on board. £250.00

MICROPORT 80 column conversion board for the 9" PET/COMMODORE 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 8022. Compatible with 8032 software and add-on ROM utilities. Supplied complete with full fitting instructions, or fitted free of charge if brought direct or programmed mode. Any MICROPORT converted machine is also upgradable to 8096 specification with our 64K add-on board. £250.00

ZOOM. An excellent machine code monitor for the 64 £10.00

VICTREE . All Toolkit & BASIC 4.0 commands plus a lot more £49.00

VIZAWRITE 64. Text formatting word processor. Disk or cartridge £39.95

We will be pleased to quote for any hardware - software package to meet requirements at a good saving.

For further details please contact Brendan Conroy at:-
85 Upper Drumcondra Road, Dublin 9, IRELAND.

CLUB64

THE INTERNATIONAL USER GROUP
For CBM64/1541 Users

If you are a CBM64 user and you have a disk drive you are invited to join CLUB64

CLUB64 is a unique user group and as one of our aims is to make quality Public Domain software available at the lowest possible cost every member may order free of charge any 3 disks from our excellent library.

Most disks feature between 10 and 30 programs. There are many excellent utilities such as DISKVIEW which may be used to examine the contents of a disk modify sectors, recover scratched files or scratch Protect files. FAST BACKUP may be used to backup a disk in less than 5 mins. We also have Games, Educational, Tutorial, Graphics, Music and COMAL disks.

Annual membership... £12 UK and Ireland.
£15 Mainland Europe and £20 all other countries. We will accept cheques and Postal orders and it should be noted that we supply the blank disks.

INTERNATIONAL MEMBERSHIP AT THE REASONABLE PRICES OF £30 for the first disk and £15 for each additional disk. Can be ordered by cheque, Postal Order or Credit Card. Prepayment is POST FREE.

MIDDLESEX COMMODORE CENTRE
(Officially approved Commodore Home Micro and Business Systems dealers)

Vic 20 Starter Pack £99.99
Commodore 44 Computer £199.00
SIO2 Portable + Software £44.00
Commodore 1541 Printer £199.00
Commodore 1541 Disk Drive £199.00
Commodore 1541 Data Cassette £44.00
WPS 802 Printer £345.00
MC 801 Printer £399.00
DPS 1101 Daisywheel £399.00
CBM 1519 Colour Monitor £219.00
Commodore Interface £49.00
IEEE Interface £68.00
Zoom Pascal (Disk) £29.95
Zoom Pascal (Disk) £29.95
Stock Control (Disk) £34.95
Dialog Datalabel/Mail Labels (Disk) £24.00

Send large S.A.E. for our comprehensive list of programming, business, educational and recreational software.

We will be pleased to quote for any hardware - software package to meet requirements at a good saving.

ScreenS MICROCOMPUTERS
(A Division of Mayfair Computer Services Limited)
6 MAIN AVENUE, MOOR PARK, NORTHWOOD, MIDDLESEX, ENGLAND.

TEL: NORTHWOOD (09274) 2066
TELEX: 923574 ALACOL G

MIDDLESEX COMMODORE CENTRE
(Officially approved Commodore Home Micro and Business Systems dealers)

Vic 20 Starter Pack
Commodore 44 Computer
SIO2 Portable + Software
Commodore 1541 Printer
Commodore 1541 Disk Drive
Commodore 1541 Data Cassette
WPS 802 Printer
MC 801 Printer
DPS 1101 Daisywheel
CBM 1519 Colour Monitor
Commodore Interface
IEEE Interface
Stock Control (Disk)
Dialog Datalabel/Mail Labels (Disk)

Send large S.A.E. for our comprehensive list of programming, business, educational and recreational software.

We will be pleased to quote for any hardware - software package to meet requirements at a good saving.

ScreenS MICROCOMPUTERS
(A Division of Mayfair Computer Services Limited)
6 MAIN AVENUE, MOOR PARK, NORTHWOOD, MIDDLESEX, ENGLAND.

TEL: NORTHWOOD (09274) 2066
TELEX: 923574 ALACOL G

MIDDLESEX COMMODORE CENTRE
(Officially approved Commodore Home Micro and Business Systems dealers)

Vic 20 Starter Pack
Commodore 44 Computer
SIO2 Portable + Software
Commodore 1541 Printer
Commodore 1541 Disk Drive
Commodore 1541 Data Cassette
WPS 802 Printer
MC 801 Printer
DPS 1101 Daisywheel
CBM 1519 Colour Monitor
Commodore Interface
IEEE Interface
Stock Control (Disk)
Dialog Datalabel/Mail Labels (Disk)

Send large S.A.E. for our comprehensive list of programming, business, educational and recreational software.

We will be pleased to quote for any hardware - software package to meet requirements at a good saving.

ScreenS MICROCOMPUTERS
(A Division of Mayfair Computer Services Limited)
6 MAIN AVENUE, MOOR PARK, NORTHWOOD, MIDDLESEX, ENGLAND.

TEL: NORTHWOOD (09274) 2066
TELEX: 923574 ALACOL G
GAMES LISTING

149 GOSUB 1271
150 Q(R1,R2)=4
151 NEXT I
152 A=-1
153 IF P2=1 THEN 157
154 GOSUB 608
155 IF P<0 THEN 653.
156 GOTO 210
157 P2=P2+1
158 T8=S1-1
159 U=S1+1
160 M=S2-1
161 N=S2+1
162 IFT8<1 THEN T8=1
163 IF U>10 THEN U=10
164 IF M<1 THEN M=1
165 IF N>10 THEN N=10
166 FOR I=T8 TO U
167 FOR J=M TO N
168 IF C(I,J)<>0 THEN 174
169 IF J=M TO N
170 IF G(I,J)<>3 THEN 174
171 C$="DOCKED";POKE 53280,1
172 GOSUB 1050
173 GOTO 183
174 NEXT J
175 NEXT I
176 IF K<>0 THEN 180
177 IF E<>0 THEN 182
178 C$="GREEN";POKE 53280,5
179 GOTO 183
180 C$="RED";POKE 53280,2
181 GOTO 183
182 C$="YELLOW";POKE 53280,7
183 FOR I=0 TO 185
184 GOSUB 608
185 IF P<0 THEN 653
186 IF D(J)>0 THEN 190
187 PRINT "SHORT RANGE SENSORS ARE OUT"
188 PRINT
189 GOTO 210
190 PRINT "------------------"
191 C0(Q1,Q2)=0(Q1,Q2)
192 FOR I=1 TO 10
193 FOR J=1 TO 10
194 PRINT Q$="Q(I,J)""
195 NEXT J
196 GOSUB 200
197 NEXT I
198 PRINT "------------------"
199 GOTO 210
200 IF I=1 THEN PRINT "STARDATE " INT(T):RETURN
201 IF I=2 THEN PRINT "CONDITION " C$ : RETURN
202 IFI=3THEN PRINT"QUADRANT ""Q1""=""Q2: RETURN
203 IFI=4THEN PRINT"SECTOR ""S1""=""S2: RETURN
204 IFI=5THEN PRINT"ENERGY =INT(E): RETURN
205 IFI=6THEN PRINT"TORPEDOES:"P: RETURN
206 IFI=7THEN PRINT"KLINGONS:"K9: RETURN
207 IFI=8THEN PRINT"SHIELDS:"Z"" INT(A9): RETURN
208 PRINT
209 RETURN
210 IFN9<0 THEN 214
211 GOSUB 1101
212 IFN7=1 THEN 558
213 N9=2
214 PRINT"COMMAND:";
215 INPUT#2,A$: PRINT: A=VAL(A$)
216 IFC#<"DOCKED" THEN 218
217 GOSUB 1050
218
219 IF A>16 THEN 227
220 IF A<0 THEN 227
221 IF A>10 THEN 226
222 IF A=1 THEN PRINT"O";
223 IF A>5 THEN 225
224 ON (A+1) GOTO 230, 158, 367, 392, 434, 581
225 ON (A-5) GOTO 1153, 919, 1065, 1082, 840
226 ON (A-10) GOTO 1220, 1193, 741, 816, 822, 1311
227 PRINT"INVALID COMMAND!"
228 PRINT
229 GOTO 210
230
231 PRINT"COURSE:";
232 INPUT#2,C1$: PRINT: C1=VAL(C1$)
233 IF C1=0 THEN 210
234 IF C1<1 THEN 214
235 IF C1<3 THEN PRINT"REL: GOTO 231"
236 PRINT"WARP FACTOR (0-12):";
237 INPUT#2, W1$: PRINT: W1=VAL(W1$)
238 IF W1<0 OR W1>12 THEN 214
239 IF W1<.25 OR W1>1 THEN 243
240 PRINT"WARP ENGINES ARE DAMAGED. MAXIMUM"
241 PRINT"SPEED = WARP .25"
242 GOTO 231
243 C$="MOVING": POKE 53280,12
244 GOTO 952
245 E=E-W1*C5/4-C5/4
246 IF E<0 THEN 553
247 IF W1<.2 THEN 249
248 W9=RND(1)
249 IF W1=12 THEN 540
250
251 GOSUB 608
252 IF N9=1 THEN 210
253 IF E<0 THEN 555
254 FDR1=1/07

Commodore Computing November 1984
Commodore 64 for sale including C2N cassette unit, 1541 disk drive, centronics printer interface, plus loads of software, books including titles such as "The Hobbit" and "Manic Miner". Also Tech reference manuals for 64 & disk drive. Cost over £1000, will sell £650. Phone 01-697 4433 eves.

Scottish CBM 64 owner would like to exchange software, hints and tips with an American or Canadian 64er. Write to S. McMenemy, 11 Victoria Road, Larbert, Stirlingshire, Scotland FK5 4NA. Tel: (0324) 562318.

Vic 20 + 16K + cassette & Road Race, Apple Panic, Outworld & Sargon II cartridges & books & cassette games (lots) & Intro to Basic 2. Offers around £170. Tel: Sheaman, Co Durham 818454, England.

Commodore 64 + 1541 disk drive & Teco m/c monitor. Lots of games on disk. 3 months old. £400 o.n.o. Tel: Adamon Camberley (0276) 29588.

Commodore 64 games to swap for any application or utility programs. Write to Finn Choong, 11 Winleigh Road, Handsworth Wood, Birmingham B20 2HN or phone (021) 551-5420.

Vic 20 + 16K switchable & over £750 of software & 2 cassette boxes & information file & 3 books & Intro to Basic 1, & C2N tape recorder & 35 magazines all boxed. £250 o.n.o. Tel: 061-643 5868.

Over 100 assorted magazines (mostly Hone Computing Weekly) £12 — buyer must collect. Please phone Cuffley 875683 for details.

For sale, CBM 4032, integral screen, Basic 4, Pic chip, superchip, command-o-chip £295. Datasette £20; 2031 disc drive and extensive software/manuals (ICL ass/disc-comal/compler/games etc) £195, Epson printer RX80 with i/f £195, all items in excellent condition, total discount price £625. Call (0224) 867484 after 6 pm.

1541 DISK MANAGEMENT

For the Commodore 64. A menu driven 30 function disk management utility. Features include Edit Track/Sector, Disk Back-Up, Protect and Unprotect programs plus enhanced and normal disk commands. Possibly the only disk utility you will ever need. For the absolute beginner and expert user. Supplied with comprehensive booklet on a quality disk for only £8.75 inc. Cheque/P.O. or SAE for details, to: CLARK KENT SOFTWARE (Dept. CBM) 26 NORTH CAPE WALK, CORBY NORTHANTS NN18 9NQ

Simons Basic £30, Scrabble £8, others include Soccer, Blumax, Hobbit, Miner etc. Wanted cash or swaps for CBM 64 Epson Blower and Eraser etc. Tony 047482-4155 after 7.30 pm.

Vic 20 games, 50 pounds worth plus joystick — will sell for £25.00. Top games; Arcadia, Games Designer, Gridrummer and Tornado. Please write to Aidan Griffin, 32 Cuffley Hill, Goffs Oak. Herts, EN7 5EU or Phone Cuffley 875675.
2 Books for sale. "Machine code graphics and sound for the CBM 64" and "The complete CBM 64 ROM disassembly" Asking only £3 and £2 respectively. Also "Commodore 64 Exposed" only £3. Approx 150 computer magazines also. Offers? Phone Strathaven (0357) 21221. After 5.00pm and ask for Steve.

English Commodore 64 user wishes to swap software with users from USA & Germany. I have 500 programs and have access to new British software. Write to A. Yagub, 160 Edward Road, Birmingham B12 9LX England.

Commodore Executive computers SC64 with speech synthesizer. Little used £650. Phone evenings Blackmore 823434.

Commodore 64 for sale including 1541 disc drive, Sekooha GP100 printer, four way connector, dust cover, Hardly used, still under guarantee £450 o.n.o. Phone 01-286 0096 evs. or 01-378 6791 ext. 237 day.

The Last One — unwanted gift — £50 or swap for Simons Basic or Practica 64 (Disk). Also crible £4, Lazarian £5, Gin Rummy £5, Hobbit £7. Intro to Basic Part I (Disk) £7. D. Corden (0908) 317764.

For sale: C64 games (A.O.) Donkey Kong, Jungle Hunt, Time Runner, Packman, Motor Mania, Cactus, Poor Billard, Neutral Zone, Jumpman Jr., Chopfitter, Moon Buggy. All £2 — Write to A.R. Kohnstamm, 38 Kerstraat, 5581 BA Waalre, The Netherlands, Holland.

Commodore 64 software for sale or exchange. Many titles on disk or cassette. Mr. J. Hall (Camberley) 36251.

Vic 20 + C2N cassette recorder, 16K switchable rampack & Sinclair printer & interface and five rolls of paper, joysticks, books and magazines. Lots of software incl. 7 cartridges and over 15 cassette games including Jet Pack, Snooker and Computer War. Only £250 o.n.o. Phone Rayleigh 774294. Ask for Jason.

Commodore 64 games at half price or swap. Aztec Challenge, Manic Minor, Encounter, Solo Flight, Killerwatt, Pipeline, Beachhead, Hover Bouwer, Hulk and many others. Tel: 01-318 4880 after 6pm.

Vic 20 starter pack 16K/3K RAM pack, 50 software programs, dustcover, home computer course mags all 24. £140 o.n.o. Arari VCS £30. Tel: (0603) 405130.

Commodore 64 owner wishes to exchange software and tips with CBM users in Europe, USA and Canada (all disk programs). Send list to 15 Mailborough Road, Smethwick, Warley, West Midlands B66 4DN England.

Commodore 64 owner wishes to exchange software with a penpal. Contact: Alan Renwick "Marfauk" 4 Langlands Rd., Harwick, Scotland TD9 7EF.

Software for sale, titles include Boogaboo, Space Pilot, Bath Time, and others. S.A.E. to Mr A Garrard, 90 Southsea Avenue, Leigh On Sea. Essex. (All tapes).

Help! Tell me how to use wedges, extending basic and I'll give you my function key editor for the Vic 20 (includes machine code, full instructions) No jokers! Paul, 34 Sheldon Close, Bransholme, Hull.

CBM 64 9 months old, C2N data recorder, £150 worth of games, intro to basic part 1 £215. Phone 01-363 9178 or write 67, Link Side, Enfield EN2 7QU.

CBM 64 - unwanted disk and tape software all originals; easy script, future finance, Simons Basic, Shamus, suspended, Adman speech, many more at than half price; also wanted strategy simulation, adventure, utility software. Tel: Pete (0482) 851195.

British CBM 64 user wants to exchange software with someone in USA or Canada (disk or cassette) send list to D. Gallacher, 91 Maidencastle, Blackthorn, Northampton, England or Tel: (0604) 413064.


I wish to exchange my copy of Simons Basic (boxed) for an 80 column card or good w/p software. Write only to T. Beale, Moorlands Cottage, Drum lithie, Kincardineshire, Scotland.

Wanted 'softswitch' cartridge copier for Commodore 64. I will pay full price + p&p. Write to M.S. Seed, 182 Fenthom Road, Aston, Birmingham B6 6LX, England.

For sale, Vic 20, cassette deck, 16K RAM, Quicksht, Intro to Basic 1 + 2, Reference guide, Assembler tutorial, software, dust covers £120 o.n.o. Tel: Aldridge 54484.

I have over 150 programs for my commodore 64. I am looking for software to swap or buy. I have games/educational programs. Telephone 051-423 5493 after 6.30 pm.

Commodore 64 wanted. Any programs to swap or sell? On disk or tape. I have CB Radio items to track for good software. Please write/send programs to Taff Hutchings, PO Box 48, Derby DE6 6OP or phone Derby 511343.
### ADVERTISERS DIRECTORY
#### NOVEMBER 1984

<table>
<thead>
<tr>
<th>Adcomp</th>
<th>67</th>
<th>Impex Designs</th>
<th>67</th>
<th>Talent Computer Systems</th>
<th>33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amplicon</td>
<td>2</td>
<td></td>
<td></td>
<td>Terminal Software</td>
<td>50</td>
</tr>
<tr>
<td>Anger Productions</td>
<td>32</td>
<td>JCB</td>
<td>64</td>
<td>Triptych Publishing</td>
<td>6 7</td>
</tr>
<tr>
<td>Aniroq</td>
<td>75</td>
<td>JCL</td>
<td>64</td>
<td>Trogan Products</td>
<td>21</td>
</tr>
<tr>
<td>Arrow Micro Services</td>
<td>62</td>
<td>Level 9</td>
<td>37</td>
<td>Unisoft</td>
<td>58</td>
</tr>
<tr>
<td>Audiogenic</td>
<td>76</td>
<td>Llamasoft</td>
<td>40</td>
<td>Viza</td>
<td>20</td>
</tr>
<tr>
<td>BSF</td>
<td>60</td>
<td>Microport</td>
<td>68</td>
<td>Vulcan</td>
<td>58</td>
</tr>
<tr>
<td>Calco</td>
<td>62</td>
<td>Midland Computers</td>
<td>58</td>
<td>Zero</td>
<td>21</td>
</tr>
<tr>
<td>Cascade games</td>
<td>37</td>
<td>Mirage Computer Software</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chromasonic</td>
<td>4</td>
<td>M.P.S.</td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Club 64</td>
<td>68</td>
<td>Mushroom Software</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commodore</td>
<td>10</td>
<td>Pitman Publishers</td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creative Sparks</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DACC</td>
<td>32</td>
<td>Screens Microcomputers</td>
<td>68</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Design Design</td>
<td>62</td>
<td>64 Supplies Co.</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D&amp;P Magnum</td>
<td>67</td>
<td>Stack</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamite Software</td>
<td>67</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynavision</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### HERE’S MY CLASSIFIED AD

I make this ________ words, at ________ per word so I enclose £ ________ for trade advertisements.

Please continue on a separate sheet of paper for trade advertisements.

Name

Address

Telephone

Send your classified entries to:

Classified Department,
Commodore Computing International Magazine,
40 Bowling Green Lane,
London EC1R
Tel: 01-278 0333 ext 286

Private readers—Free (max. 32 words)
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.
This diagonally scrolling maze game features superb 3D graphics, brilliant sound effects, and requires 100% concentration to successfully manoeuvre your helicopter through unknown hazards in order to complete Zaga Mission and live to play another day — Commodore 64 — £7.95

Also available on Disk at £9.95
JUST PICTURE IT - BEING ABLE TO DRAW YOUR OWN HIGH RESOLUTION GRAPHIC DESIGNS ON YOUR COMPUTER SCREEN WITHOUT HAVING TO WRITE A PROGRAM . . . !

Well, now you can - with the amazing Koala Pad from Audiogenic!

The Koala Pad touch tablet provides the direct link between you and your screen! It plugs into your Commodore 64 and lets you paint directly onto the screen with a selection of brush sizes and a choice of 16 colours and 16 shades from your software pallette.

But that's just the beginning - because every Koala Pad package includes the incredible Koala Painter software which makes it child's play to . . .

- Fill outlines with a colour!
- Draw straight lines!
- Make frames!
- Draw circles!
- Plot radiants from a point!
- Move objects around!
- Copy shapes!
- Create mirror images!
- Zoom in on an area!
- Swap shapes between two pictures!
- Save your pictures to disk or tape!

The program is controlled entirely from the tablet by moving a cursor arrow around to the different menu option. An optional Programmers Guide is also available to tell you how to incorporate Koala Pad pictures into your own programs.

Now you don't have to be an experienced programmer to produce real high resolution graphics on your computer - the Koala Pad from Audiogenic makes it as easy as a pencil and paper. Just picture it!

Available with Cassette or Disk software for the commodore 64

From all good computer shops - or direct from Audiogenic - just fill in the coupon!

Please send me ......................... (QTY) Koala Pad Disk/Cassette*. I enclose cheque/P.O. for .........................

Commodore 64 Disk or Cassette £79.95†

THE KOALA PAD IS A PRODUCT OF

Koala Technologies Corporation

Exclusive distribution in U.K. and Eire by

Audiogenic LTD

P.O. BOX 88, READING, BERKS.
Business
...the biggest game in town
Can Commodore stay among the winners?

8296/PLUS 4/700-8000 SERIES/COMMODORE 64 Packages/Peripherals/Communications

ALL YOU NEED TO KNOW AND NEVER KNEW WHERE TO ASK
Rockfort Disk Storage System

M.F. 10 Floppy Disk Box
Holds 10 - 5 3/4" Disks
£2.45 Incl. VAT, Post & Packing

M.F. 50 Floppy Disk Box
Holds 50 - 5 3/4" Disks
£9.50 Incl. VAT, Post & Packing

M.D. 12/30 Micro Disk Box
Holds 12 to 30 - 3 3/8" Disks according to thickness
£7.85 Incl. VAT, Post & Packing

Rockfort Diskfile Range of products not only offer an easy reference and attractive disk filing system but also offer complete protection from damaging dust particles. Post for your order today!

Rockfort Diskfile Storage
Manufactured by Projectron Ltd — Trade inquiries invited

ROCKFORT PRODUCTS — Member of the Vignesh Group, 30 Topsfield Parade, London, N8. Tel: 01-348 0543

PLEASE FORWARD THE ROCKFORT DISK BOX/S AS INDICATED ABOVE. I ENCLOSE CHEQUE VALUE £

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>DESCRIPTION</th>
<th>QTY.</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.F. 10</td>
<td>5 3/4&quot; DISK BOX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.F. 50</td>
<td>5 3/4&quot; DISK BOX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.D. 12/30</td>
<td>MICRO DISK BOX</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL

NAME
ADDRESS
POSTCODE
In this issue:
First Impressions, the new 8296D ...
Battle of the Business Micros ...
Disk Drives ...
Word Processing, a Checklist ...
Business Packages ...
Commodore Profiles — Gail Wellington and Nick Green ...
and the New Communication Revolution ...

Contributors:
Andrew Harris ...
Teresa Geneva ...
Peter Gerrard ...
Anthony Max.
Research: Pippa Hammond, Jeannie Lawrence
Consultant: B.J. Lewis MSc, A.C.A.
Published by Croftward Limited,
Finsbury Business Centre,
40 Bowling Green Lane, London EC1

First Impressions

The new 8296D is being widely advertised but is noticeable for its absence for retail buyers. Even CCI had difficulty in obtaining a model to review. When it arrived we were not a little impressed. It is an attractive object of design. We decided however to give the full examination of the computer a realistic form by making use of it in our normal routine — it is often unfair to seek out faults or virtues that would not be usually noticed in our standing working environment. Our in depth working test will appear in the next issue of Commodore Business. In the meantime here are our first impressions.

The 8296D would shame no rising executives desk. Designed by Porsche — yes the car company — it has confident style and an agreeably futuristic look, especially the screen.

The disk drives are not so up-to-date, indeed have a rather old fashioned sealing, the keyboard has a crisp attractive look and is ergonomically well-designed with room to rest the hands. The keys themselves are "unsculptures" — against the fashion today and although the numbering and letters are clear and bold, the typestyle in proslac and they tend to be noisy and clatter slightly in use.

The "Insert/Delete" seems to close the Run/Stop key and could be a problem for careless typer. And, while the screen has brightness, it has no contorl control.

Our impression is that it is one of the most attractive business micros on the market and the coveats are minor. We were impressed. Whether it works as well as it looks well, read the next installment...

The Battle for the Business Micro

In business, nothing is dearer than yesterday. Or yesterday's computer. In the highly competitive world of business, the demand for the latest model, the most efficient system, that extra edge of software cost-effectiveness is brutally Darwinian; even the newest or the fittest has to struggle furiously to survive. Today's publicised launch can turn so quickly into tomorrow's discreet wake.

Commodore — the creator of the first business micro, the 700 series PET — has launched a major marketing campaign to recapture its original place. It will spend more than £6 million over the next year — a substantial proportion devoted to business — to keep and increase its market share.

The spearhead of its business drive is the new 8296D — covered on this page. But is the 8296 a machine that can put Commodore up with the winners in the fiercely competitive, if highly profitable, business game? Or is the 8296, as some detractors claim, a "yesterday" machine — too slow, too small and too late?

Commodore is basing its marketing strategy on "knocking copy" — comparisons; a technique widely used in the car business. Its 8296 advertisement points out a checklist against the IBM PC, the Apricot and the Apple Macintosh. They clearly show the Commodore 8296, at around £1500.00 including software, substantially better value.

However a major new factor in the game is the just announced IBM PC/AT computer which has shaken up the whole business micro field, leaving no-one certain what will emerge as the winning formula.

There is no denying that when IBM moves the whole computer world shakes and we could see a whole series of related changes.

New Factor

However a major new factor in the game is the just announced IBM PC/AT computer which has shaken up the whole business micro field, leaving no-one certain what will emerge as the winning formula.

There is no denying that when IBM moves the whole computer world shakes and we could see a series of related changes that could push the small business micro — the 8296 field — down below the £1000.00 mark.

What has happened is that IBM AT has caused the price differential of the floppy and hard disk based systems to be dramatically reduced and the knock-on effect will be that the floppy systems must become cheaper either through manufacturers setting lower prices or simply market forces bringing heavier discounts.

The scenario is that the IBM PC/AT is a 16 bit, floppy and hard disk based system with 256KB of memory, 1.2MB of floppy disk and 20MB of hard disk capacity, selling at around £4500.00, which will bring the earlier IBM PC down to around £2000.00 and make a standard CPM or MS DOS retail for about £1500.00 at which the 8296 is presently priced.

Why should Commodore come down in price? Because the 8296 technology is not the newest; it is an 8 bit, floppy disk with about 1/10th the capacity of the new IBM. Another problem is the relatively limited amount of software presently running on it.

Superb Marketing

Nevertheless, don't jump to the conclusion that the 8296 will not be a success. Commodore has proven a superb marketing organisation — you don't sell 6.3% of the world's computers by chance. It may well convince the business public, as it has the home market, that its machines suit not just their budgets but also have the capacity and speed they want.

No-one, not even IBM, is presently certain about the supply or the price of the new AT. The Intel 80286 chip used in it is in very short supply and Big Blue is having to produce its own. Whether the AT can be supplied in reasonable quantities before well into 1985 seems doubtful and IBM, famous for its marketing muscle, seems to be more fallible recently. It had a disaster with the failure of its Peanut micro to sell in the U.S.

The key to the battle may be with the software that Commodore can get for its 8296 and the support it provides.

Business software is very much more than just a network of dealers vending boxes. It requires close attention to training, service and maintenance; all especially important to first-time business buyers. How will Commodore approach these aspects and can it equate the product with businessmen's needs that are by no means the same as its usual market?

Undoubted excellence of product, acute judgement of timing and price and its superb marketing have kept Commodore a major winner. But slugging it out with IBM in the fight for the business micro market is a big step up in class. As Commodore no doubt realises, a large chunk of its future is resting on the 8296. The risks are great but the prizes are even greater.
The type of printer that you buy should be determined by the work for which you require it.

If its use is to be primarily private, producing listings and internal reports, the chances are that you will be able to get away with buying nothing more than an ordinary dot matrix printer. The quality of the output will not be outstanding, but will certainly be legible; and a good dot matrix should be able to whizz along at speeds well in excess of 100 characters a second.

If the printed material is to be seen by anyone other than yourself; for instance, in a company using the printer as part of a word processing system, you will probably have to spend rather more money and be prepared to put up with a slower but higher quality, daisy wheel printer.

As ever, you pay your money and take your choice.

Commodore's own printers range from a relatively inexpensive dot matrix printer to a more expensive daisy wheel printer. The speed of the latter device has left some people thinking that they could type faster themselves.

Early Commodore computers, before the Vic 20 and the 64, had an unusual version of an IEEE interface which linked to many standard printers.

Owners of Commodore 64s and Vic 20s today are in a less fortunate position; the interface provided on those two computers is compatible with nothing other than Commodore's own peripherals.

If you don't want to go to the expense of buying various interfaces, but don't want to use Commodore printers, look at Ibek Systems. They have just brought out a daisy wheel printer called the Sanpier Daisy Step 2000 which plugs directly into the 64.

IBEK. Tel: 0203 661162.

Dot matrix printers

Few printers, other than Commodore's own, will allow you to reproduce the graphics character sets found on the actual computer, although most of them will allow you to define characters and produce, for
example, dot by dot copies of the screen.
However, this requires some software to be written by you, the user, so we'll stick to straightforward printers, starting with the DRH 136, which can operate in either RS232 or Centronics modes.
The DRH 136, distributed by Triumph Adler (27 Coswell Road, London EC1, on 01-2501717), is a 120 characters per second (abbreviated from now on to CPS) printer, with the ability to print bi-directionally. The number of characters printed per line is software selectable, and can range from 136 to 224, although this latter mode is the type that requires an extremely powerful magnifying glass.
Many character sets are available with this printer, but at a price of £675, you may care to take a look at the slower, but cheaper, DRH 80/81.
Again from Triumph Adler, this is down to 80 CPS, but only costs £540. Apart from only having a 140 column line at maximum, the only real difference between this machine and its big brother, the DRH 136, is the print speed, and, of course, the price.
Cheaper still, at £498, is the Facit 4510 from Facit-Addo Limited (Maidstone Road, Rochester, Kent ME1 3ON. Telephone 0634 401721). This is a 120 CPS dot matrix printer, with a column width of up to 80 characters, which is switchable down to 12 columns, should you so desire it.
There is a broad range of character sets available, and also a number of different print modes, including condensed and compressed. This can be linked up to either Centronics or RS232 interfaces.
Epson have long held a reputation for producing good, cheap, dot matrix printers, and the latest printers from them have done nothing to harm a hard-earned reputation. The RX-80-FT is a 100 CPS printer with a variety of typefaces and sizes, supplied with a Centronics interface (although this can be converted into either IEEE or RS232 if required), and capable of taking either friction feed or tractor feed.
At just £319, this is worth considering, as is its slightly more expensive big brother the FX80.
This costs £438, but has the ability to print at almost twice the speed (160 CPS), and produce near letter quality output.
Epson (Dorland House, 388 High Road, Wembley, Middlesex HA9 6UH. Tel: 01-902 8892).
The price of speed
Possibly the fastest dot matrix printer that is readily available for any Commodore computer is the DRS 250, again from Triumph Adler. This races along at 250 CPS, and comes complete with either an RS232 or a Centronics interface.
However, if the computer that you own is a Vic 20 or a Commodore 64, there seems little point in paying around £200 for a computer, and then paying out another £1,495 for the printer to go with it.
If you're extremely rich, obviously the DRS 250 has a lot to recommend it. If you're like the rest of us...

Small Systems Engineering are innovators in the field of microcomputer technology and enhancement products. We now offer a multi-user hard disk system for Commodore business micros. Commodore users can now share resources, share data and share costs.

WORKING ADDITION

The Sunol range of Winchester disk drives from Small Systems offers 8, 16, 25, 40, 65 or 92 Mbytes of usable storage capacity to Commodore business micros. The system operates with existing programs, appearing to the Commodore as a high speed, high capacity floppy drive.

Compatibility with the Commodore is achieved by means of the Small System Hardbox controller. With a hardbox at each work station, up to 16 Commodores can share a single drive, with each user having separate secure work areas and the ability to pass files between micros.

Interfaces are available to allow not only Commodore business micros but also most other popular micros to share the same disk drive. Micros currently supported include Apple Macintosh, Apple II and III, IBM PC and compatibles, Epson QX, TI, Victor/Sirius, Future, Zenith and Apricot.

For further information on the Sunol range of Winchester disk drives, phone Jane Teather or Simon McCarthy on 328 7145, or just fill in the coupon.

Putting Wisdom to Work

Small Systems Engineering Limited

Small Systems Engineering

Name

Company (type of business)

Address

Telephone Number

If you are interested in distribution opportunities please tick box.

Small Systems Engineering Limited,

2-4 Canfield Place, London NW6 3BT Telephone: 01-328 7145, Telex: 264538.
Epson FX-100 is the latest and greatest dot matrix printer to come out of the Epson stable, certainly if the specification sheets hold true.

has, including the 160 CPS print speed, optional interfaces of every kind, and superb graphic facilities. It also has a much wider carriage.

A sleek little number that should sell by the thousand.

The Integrex CX 80, which looks like an early Commodore printer, prints at 55 lines per minute (although to be fair it can print at 125 CPS in certain special cases, such as printing line after line of the same character), and with a Commodore-compatible IEEE interface will set you back some £845.

As a pure graphics printer it has many advantages over other conventional dot matrix printers, for it has a choice of printing in seven different colours, and a dot-addressable print facility (try also Commodore’s own graphics printer). However, program listings in high resolution printed in seven different colours tend to look a little weird. (D.N. Computer Services, West Croft Industrial Estate, Manchester Old Road, Rhodes, Middleton, Great Manchester M24 4PI, or telephone 061-643-0016.)

Mannesman Tally produce, among others, the MT80, which is a £217 Commodore-compatible 80 CPS dot matrix printer. They seem to have gone all out to be compatible with anything else currently available, as it can handle all the Epson codes, as well as having a number of its own. Any one of many different interfaces can be hooked up to this one. It is also very quiet, a boon for many small offices. (Tel: 0734 791619.)

Daisy Wheel Printers

Triumph Adler, produce possibly the cheapest daisy wheel, the TRD 170-S, which costs £725. This is not the fastest of printers, at just 17 characters a second, but it is of a high quality, and it is also quiet. A maximum of 198 extremely small characters can be printed across a line, and with a whole range of optional interfaces, covering Centronics, Qume and RS232, it should be able to be linked up to just about anything.

Faster, at 55 CPS, but more expensive at £1,675, is the DWP 5055, from the same company. Many advanced features, including double print, bold print, underlining, printing up to 163 characters per line, and so on, make this a versatile and fast daisy wheel printer. Not many models under £10,000 will print as fast as this one.

A company producing a whole range of daisy wheel models, including one at just £475 is Geveke Electronics. However, the Getex D-14 won’t win any sprints, as it produces its letter quality output at the yawn-inducing rate of 13 CPS. Still, you can print in either red or black, and a large print buffer compensates somewhat for the slow speed by freeing the computer to get on with more work while everything is being printed out.

Geveke Electronics (Vale Farm Road, Woking, Surrey GU21 1DW, or telephone 04862 26331), also produces the Diablo 620 RO at £975 and the Diablo 630 API at £1,650. These two are fairly similar, printing at 25 CPS and 40 CPS respectively, and include various font sizes, character widths, margin controls, and so on. RS232 interfaces are available on both models, but the latter scores in its graphic abilities, using Diablo’s Hyplot vector plotting. Useful for business programs with bar charts and histograms.

Quick Round Up

There are many other daisy wheel printers available, including the Olympia ESW 3000 RO, from Intelligent Interfaces Ltd. (436 Wood Street, Stratford-on-Avon, Warwickshire CV37 6IQ, or telephone 0789 296879) at £1,136.

Smith Corona are another commonly encountered name, and their extremely cheap (£346) 120 words a minute TP-1 model has already earned them many friends. (Discom Trading Company, Dresden House, 51 High Street, Evesham, Worcestershire WR11 4DA, or telephone 0386 3591.)

At a shade under £400, is the Bytewriter from the same Discom Trading Company. This normally comes with a Centronics interface, however you can get a Commodore-compatible IEEE interface fitted if desired. Although it has a slow print speed of just 8 to 12 CPS, it has one feature which, at this price, is truly amazing. It is also a typewriter, having a full travelling keyboard fitted to it. Since it only weighs 21 pounds, it also becomes portable rather than transportable! And finally, just on the market is the letter quality IBICO LTR-1 which is compatible with the Commodore 64. This is a delightful little machine which, though not designed for heavy duty would suit many small businesses or home use, very well indeed. Especially from the price viewpoint. At £199, it looks to be the bargain printer around. Recommended. (IBICO, 181 Spring Grove Road, Isleworth, Middlesex. Tel: 01-568 2379/82.)

To conclude

We’ve covered a reasonable range of printers, from the surprisingly cheap to the eyebrow-raising expensive, with print speeds going from snail’s pace to lightning fast. Decide the purpose and then make the choice.
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.

Northern Dealer: Interface Systems (Derby),
Norman House, Heritage Gate, Derby DE11 DD.
Tel: 0332 364 303.

Suitable for: Commodore · IBM · Digital Equipment Corp · Apple · Epson · Ricoh · Grid Diablo · Anadex · ACT Apricot · ACT Sirius · TeleVideo · Torch · Superbrain · N.E.C. · Sharp Corona · Morrow Designs · Sage · Olivetti · Triumph Adler · Tandy and many more.
There are two disk drives for the Vic and 64 which plug directly into the serial port of the machine. Both are available from Commodore.

The 1540 was for a long time the only one available, and this is a 170K single unit, with, it is claimed by Commodore, an access time to anywhere on the disk of just two seconds. Well, it may find it in two seconds but it takes a much longer time to load it.

The 1540 was also intended to be the disk drive for the Commodore 64, but consternation reigned when it was found that the drive simply would not work. The 64, being a delicate machine, had been told to switch the screen off whenever it was loading or saving any information to tape. This had the side effect of, when attempting to use the 1540 disk drive, getting the information in much too quickly, and the poor old chips just could not decode it in time.

In the end, Commodore brought out the 1541 drive specially for the 64, and this works without any screen blanking, but again works very slowly. Commodore are promising a newer disk drive to fall in line with the Plus 4, and this is to be known as the 1542.

Faster disk drives can be used with an IEEE interface, but the only other disk drives which anyone should seriously consider are Commodore’s own earlier drives for the PET range of microcomputers.

All of these (with the exception of the 2031 drive) are double disk drives, and on the 8050 model can hold up to half a megabyte on one disk. However, since the 8050 is about four times the price of a 64, it makes little sense to buy it unless you’re a serious, and wealthy, computer user.

The Vic and the 64 can link up to a 7.5 megabyte hard disk, using one of the IEEE interfaces, at a cost of some £2,495. Now that is computing gone mad!

Other manufacturers

Audiogenic are talking about bringing out a fast tape system, and it’s worth dropping them a line to find out their latest developments. P.O. Box 88, Reading, Berkshire.

Also talking along similar lines are Cumana. Describing their unit as a ‘floppy tape’, Cumana can be found at Pinnes Trading Estate, Broad Street, Guildford, Surrey.

For the other Commodore machines, you can easily use the aforementioned 8050 and 8250, but they may be a little hard to find.
Teach Your Commodore 64 Some New Tricks

Many Commodore 64 owners are missing out on the many capabilities of this machine. Simply because of its lack of built in BASIC. The language it uses to understand your needs. Imagine your secretary not being able to speak your language. Or a Porsche with a mini engine!

The Mushroom Software "Extended Basic" will give you 51 extra commands; 10 extra control functions; a 60 page reference manual and a 2/3 pass machine code assembler!

All this for under £20 (inc. VAT)

These commands include: GRAPHIC, SOUND, PROCEDURE, RENUMBER, PROGRAM LINE DELETION, DISK DRIVE ACCESS, SCREEN DUMP ONTO 1525 PRINTER & FUNCTION KEY DEFINING. Despite the fact that this program is 16K long, it loads itself into "Hidden RAM" thereby leaving you 36361 BASIC bytes free.

Business applications can include the making of BAR CHARTS which are very useful at meetings etc. where tons of paper can sometimes be a nuisance. The extra commands, you will find, are quite powerful: e.g. RENUMBER will also renumber GOTO's & GOSUB'S. Give your '64 a new lease of life and buy the MUSHROOM EXTENDED BASIC NOW.

The Extended Basic package on cassette is just £19.50 (DISK £21.50)

Attention "Epson" "Centronics" Printer Users!

Does your Commodore 64 to CENTRONICS INTERFACE offer you these features?

★ Print the Commodore Character Set
★ Printer User Defined Character Set
★ High & Low Resolution Screen Dump
★ Basic will Work with any Centronics Printer
★ Cable Compatible with Audiographics & Supersoft
★ 'B' Side version will load with our extended Basic (Above)

This package provides a Centronics interface for EPSON printers with dot addressable graphics (MX-80 upwards)

It is suitable for any commercial lead which uses "PA2" to STROBE the printer & "FF" as the ACKNOWLEDGE.

Characters can be WIDE (7.5 characters per inch), MEDIUM (10 c.p.i.) or NARROW (15 c.p.i.). Several printer files (up to the 64's limit of 10 OPEN files at any time) can be open concurrently.

Cost of this Cassette with Manual just £5.50!

Including lead = £19.50

Please send me…………….. tapes. I enclose a cheque money order etc* for ……………… Please send me further details without obligation.

NAME ________________________________
ADDRESS ________________________________

* Cheques etc payable to Cotswold Software Mail Order Only

---

Superbase 96

The complete information storage and control system. Superbase 96 transforms Commodore 8086 or 8088 into a full featured professional database system with up to 1,000 characters per record or up to 500 screens, and up to 200 items per record, definable as key, text, numeric, constant, result or date. It includes up to 16 character calculation capability, calendar functions, multiple criteria report and search. Easy input from word processors/data files, both internal and program defined, batch and transaction processing, fully definable outputs. Superbase 96 is essential if you want to cut your Commodore 64 down to size. Now only £250.

---

Superscript II

This is the ultimate Commodore character set and will make your Commodore 64 look like no other. It is compatible with AudioGenics, SuperSoft, Epson EPSON and many other professional machines. Superscript II is the ultimate professional character set. Now only £175.

---

Master

The complete program development package for the Commodore 8086/8089, used by both novice and professional programmers. Master 8086 gives you the ability to design your own interface and provides a Centronics interface for EPSON printers with dot addressable graphics (MX-80 upwards). Master 8086 is fully compatible with AudioGenics. Now only £225.

---

Calco Software

The complete information storage and control system. Superbase 96 transforms Commodore 8086 or 8088 into a full featured professional database system with up to 1,000 characters per record or up to 500 screens, and up to 200 items per record, definable as key, text, numeric, constant, result or date. It includes up to 16 character calculation capability, calendar functions, multiple criteria report and search. Easy input from word processors/data files, both internal and program defined, batch and transaction processing, fully definable outputs. Superbase 96 is essential if you want to cut your Commodore 64 down to size. Now only £250.

---

Word Processor cum LETTER WRITER for Commodore 64

Full Screen Editing

- Upper and lower case
- Insert and delete characters
- Add, move, delete lines
- Search and change strings
- Centreing facility
- Tab facility
- Screen 24 lines by 40 columns
- Text up to 98 lines by 80 columns
- View + edit any 24 lines by 40 columns

U.K.

Special Introductory Price only £8.85

Other Countries Sterling or local currency at current exchange rates

Original Software from Cotswold Software

8 Monks Park, Milbourne, Malmsbury, Wilts SN16 9JF.

To Cotswold Software

Please send me…………….. tapes. I enclose a cheque money order etc* for ……………… Please send me further details without obligation.

NAME ________________________________
ADDRESS ________________________________

* Cheques etc payable to Cotswold Software Mail Order Only

---

Trade & Export Enquiries Welcome
I well remember the time when Gail Wellington came to join Commodore Business Machines. The software department at Commodore had been going through a strange period: disk drive sales were booming, Commodore was very big on the business side of things, but for some months cassette based software had been outselling disk based stuff, and most of those cassettes were games as well.

The software department in those days was rather like a football team of talented individuals without a leader. Plenty of people from that department have gone onto great things, some sat it out and are still there now, but what the department didn't have for a long time was that leader figure. Mike Whitehead had tried, and then left to help make the Bristol Software Factory a great success with Silicon Office. Rod Wellburn had tried, although he now seems to concentrate more on communications packages rather than straightforward software.

Then along came Gail. She didn't join as software manager. At first her role was to write and help supervise the production of manuals. She produced one massive manual, the size of War and Peace, which was all about manual writing, and sent several copies out to other writers for their opinions. After the fashion of Commodore then (but not now) I believe she got just one back.

Undaunted, the manuals began to appear, and Commodore's love affair with a program called The Manager began at the same time. The Manager manual was Gail's first effort, and sad to say she and I fell out over that because I thought it was dreadful, and said so in a magazine article in an early issue of Commodore Computing International.

Happily, after a recent meeting up at the Personal Computer World Show, we seem to be talking again!

Gail became software manager, and many changes were made. Some people (whom it would be unkind to name) were made to work a darn sight harder than they had been doing, and gradually things fell into line. Products began to appear, and the U.K. branch of Commodore is now the leading software department of any branch of Commodore in the world. Not bad for a couple of year's work.

None of the software produced by Commodore is written in-house. Under Gail's watchful eye, all the programs that are submitted on tape or disk are checked for suitability, and if found lacking returned with an evaluation sheet detailing the faults.

If successful, and only about 5 per cent of programs are, then the Commodore marketing machine goes into action, and the program hits the streets. Many different types of programs come in, from strategy and adventure games to educational and business packages.

Business world

The signs are now that, after a couple of years in the doldrums in the business world, Commodore are planning a comeback, with new software and new machines.

The first software item that heralded this change was the Magic Desk, Commodore's software answer to Apple's Lisa. Seen only in prototype form so far, and likely to be released as Magic Desk II when it's finally ready, this program should go a long way to getting Commodore back where they want to be: on top.

Certainly if Gail has anything to do with it we'll be seeing better business software for the new Plus 4 than is currently included with it.

With Gain in charge, we can hope for better things, soon, for this and other machines. She's a busy woman, and no doubt going to get a lot busier in the months to come!
There’s nothing worse than waiting for your program to load. And good though the Commodore 1541 is, speed isn’t exactly its biggest feature. Hook up the new 1541 Express from RAM, though, and you’ll be up and running like lightning.

This ingenious add-on speeds up data transfer from the 1541 and new 1542 disk drives to your Commodore 64. So much so, that you’ll wonder how you ever found the patience to wait before.

With the Express you can load programs in a third of the normal time. That means less frustration and less time wasted. (You can fit it yourself in minutes, too—and disconnect it just as easily).

The new 1541 Express from RAM. To shift your drive into top gear call into your nearest dealer today.

Or call our credit card hot line on 02514-25252. (Access and Visa welcome). Or complete the coupon below and send it today to: Dept CCI, Ram Electronics (Fleet) Ltd, 106 Fleet Road, Fleet, Hampshire, GU13 8PA.

24 Hr despatch for credit cards and postal orders. The new 1541 Express from RAM.

Please send me:

_________ 1541 Express High Speed Disk Loading Cartridge(s) at £49.95. + £1 p&p (overseas orders £3 p&p)

I enclose cheque/postal order or charge Access/Visa for £_________

[ ]

Name
Address

Tel.________ Post Cd.

To: Dept CCI, Ram Electronics (Fleet) Ltd, 106 Fleet Road, Fleet, Hampshire GU13 8PA.

Trade and export enquiries welcome.
Below in this business magazine you'll find a word processor checklist that covers most of the popular word processors available at present. You might see, if you look through it, that the word processor that you're using at present doesn't have all the features of some of the rest, and feel sorely tempted to ditch your current program and rush out and buy something else.

I have personally been using the same word processing package for almost two years, and in that time there have no doubt been improvements to it, and equally likely there have been new programs released that far outshine it in terms of performance and capability.

Reasons to be cheerful

Like any serious user of word processors, I have built up a vast collection of disks and tapes with word processor files on them, and one major reason for not changing would be that any new program I might acquire is extremely unlikely to be able to load and process these old files: two years work up the creek.

Also, the word processor that I use has many features on it that I'm likely to miss by going to another program. For instance, part of my work involves creating indices for books, and as everyone knows indices have to be in alphabetical order.

Similarly, there are many times when using the program I would like to perform a simple mathematical sum. Short of switching off the machine, working out the answer, switching it back on again, loading in the word processor and starting all over again, many programs would require you to go out and buy a calculator.

There are other things that I would like to see in the program. Additional and subtraction are one thing, but it can't cope with multiplication or division (well, not easily anyway). However, if I were to change programs and go to one that could do this, I'm sure that there are many other features that I take so much for granted that I can't even think of them which would be sorely missed.

Conclusion

The point of this little tale is that if you're happy with the program you're using, don't feel tempted to rush out and change it for another, newer one. Like a man swapping his favourite old car that he knows inside out for a new one that he doesn't, you're almost bound to regret it.

Word Processing — Comparing Packages

<table>
<thead>
<tr>
<th>PAGEWRITER</th>
<th>PAPERMATE +</th>
<th>SUPERSCRIPT</th>
<th>WORDPRO 4</th>
<th>SIMPLY WRITE</th>
<th>WORD WIZARD</th>
<th>WORDCRAFT 40</th>
<th>THE WORD</th>
<th>VIZANWRITE</th>
<th>EASYSCRIPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRICE</td>
<td>£30 + Vat</td>
<td>£45 + Vat</td>
<td>£250 + Vat</td>
<td>£250 + Vat</td>
<td>Tape £35</td>
<td>Disc £45</td>
<td>£50</td>
<td>£100 + Vat</td>
<td>£79.95 (disc)</td>
</tr>
<tr>
<td>AVAILABLE AS</td>
<td>SUPERDISK</td>
<td>PRECISION SOFTWARE</td>
<td>PROFESSIONAL SOFTWARE</td>
<td>INC/NEC/CO</td>
<td>TAPE OR DISK</td>
<td>DISK</td>
<td>TAPE</td>
<td>BE ROM</td>
<td>DISK</td>
</tr>
<tr>
<td>SUPPLIED AS</td>
<td>2K ROM</td>
<td>TAPE OR DISK</td>
<td>DISK</td>
<td>DISK</td>
<td>DISK</td>
<td>DISK</td>
<td>DISK</td>
<td>DISK</td>
<td>DISK</td>
</tr>
<tr>
<td>BASIC 32+</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Max. TEXT (34)</td>
<td>3 pages</td>
<td>5 pages</td>
<td>5 pages</td>
<td>5 pages</td>
<td>8 pages</td>
<td>5 pages</td>
<td>8 pages</td>
<td>1 page</td>
<td>20 pages</td>
</tr>
<tr>
<td>TEXT LINKING</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>MEMORY COUNTER</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>PRINTER</td>
<td>CBM</td>
<td>Any</td>
<td>Any</td>
<td>Any</td>
<td>ASCII</td>
<td>Most</td>
<td>Any</td>
<td>Any</td>
<td>Any</td>
</tr>
<tr>
<td>PRINTER COMMANDS</td>
<td>Fiddly</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>A4 PAGE SIZE</td>
<td>Only</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>PAGE NUMBERING</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>DOUBLE SPACING</td>
<td>Manually</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>MARGINS</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>R. JUSTIFYING</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>TABULATION</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CENTERING</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>KEYBOARD DEFINABLE</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>EDITING</td>
<td>Camelot</td>
<td>Fiddly</td>
<td>V. Good</td>
<td>V. V. Good</td>
<td>Good</td>
<td>V. Good</td>
<td>Excellent</td>
<td>V. Good</td>
<td>Excellent</td>
</tr>
<tr>
<td>UNIX WITH REPEAT</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>FIND WITH CHANGE</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>MOVE TEXT BLOCK</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>WORDWRAPPING</td>
<td>No</td>
<td>Sometimes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>TEXT SAVED AS</td>
<td>Basic Prng</td>
<td>Basic Prng</td>
<td>Basic Prng</td>
<td>Basic Prng</td>
<td>Basic Prng</td>
<td>Basic Prng</td>
<td>Basic Prng</td>
<td>Basic Prng</td>
<td>Basic Prng</td>
</tr>
<tr>
<td>NUMBER OF COMMANDS</td>
<td>Low</td>
<td>V. High</td>
<td>High</td>
<td>High</td>
<td>Moderate</td>
<td>V. High</td>
<td>V. High</td>
<td>V. High</td>
<td>V. Good</td>
</tr>
<tr>
<td>EASE OF USE</td>
<td>Good</td>
<td>Fair</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>KNOWN BUGS</td>
<td>None</td>
<td>Stock overflow</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Table shows word processors with data base & mail merge.
The Financial Spread Sheet for the
COMMODORE 64
A disk and cartridge based program which will answer
all your financial and number crunching questions

£99.00
Inc. VAT

Calc Result Easy
Calc Result Advanced
Stat 64
Disk Games

Handic Software, 5, Albert Road, Crowthorne, Berks. RG11 7LT
COM. INT. 11/84

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:
Croftward Limited

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,
40 BOWLING GREEN LANE,
LONDON EC1R 0NE TEL 01-278 0333 TELEX 267247 FINSEC
## Business Package Checklist

<table>
<thead>
<tr>
<th></th>
<th>COMMODORE</th>
<th>CODEWRITER LTD</th>
<th>AUDIOGENIC</th>
<th>DIALOG SOFTWARE</th>
<th>GEMINI MARKETING</th>
<th>ELECTRONIC AIDS</th>
<th>KEMP LTD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SALES LEDGER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numbering Structure</td>
<td>No Limit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balance Forward or Open Item</td>
<td>Open Item</td>
<td></td>
<td>Open Item</td>
<td></td>
<td>Open Item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produces Statements</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produces Commission Statements</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produces Aged Debts</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produces Day-book Listings</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produces VAT Listings</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produces Name &amp; Address Labels</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produces Full Customer Print</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Produces Analysis Reports</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td>YES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Customers per Disk</td>
<td>Depends on Memory</td>
<td>75 per File</td>
<td></td>
<td></td>
<td>200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Transactions per Disk</td>
<td>Unlimited</td>
<td></td>
<td></td>
<td></td>
<td>750</td>
<td></td>
<td>1,200</td>
</tr>
<tr>
<td>Number of Invoices Held</td>
<td>Unlimited</td>
<td></td>
<td></td>
<td></td>
<td>1,200 Inc. Invoices</td>
<td></td>
<td>3,500</td>
</tr>
<tr>
<td><strong>PRICE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>£91.95 Codewriter. £28.95 BF System £34.95 Fires.</td>
<td>£40</td>
<td></td>
<td>£119.50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### STOCK CONTROL

|                        |           |                |            |                |                 |                |          |
| Name:                  |           |                |            |                |                 |                |          |
| Numbering Structure    | Alpha Numeric | No Limit | Alpha Numeric | No Limit | Alpha Numeric | No Limit | Alpha Numeric | No Limit | –            | 16 Digit Alpha Numeric | Alpha Numeric | Alpha Numeric |
| Number of Prices that can be Listed per Item | 2 cost and selling | No Limit | 2 cost and selling | No Limit | 2 cost and selling | No Limit | 2 cost and selling | No Limit | 2 cost and selling | 2 cost and selling | 2 cost and selling | 2 cost and selling |
| Capacity for Description | 35 characters | No Limit | 20 characters | No Limit | 20 characters | No Limit | 20 characters | No Limit | – | Doesn’t Distinguish |
| Unit(s) of Measure     | Not Pre-set | No Limit | £ Value & Quantity | No Limit | £ Value & Quantity | No Limit | £ Value & Quantity | No Limit | – | Doesn’t Distinguish |
| Capacity for Supply Numbers | YES | Yes | YES | Yes | YES | Yes | YES | Yes | NO | NO | NO | NO | YES |
| Capacity for Supplies Reference | YES | Yes | YES | Yes | YES | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| Capacity for Last Cost Price | YES | Yes | YES | Yes | YES | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| Capacity for Balance at Start of Period | YES | Yes | YES | Yes | YES | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| Capacity for Balance at End of Period | YES | Yes | YES | Yes | YES | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| S.C. Capacity for Current Activity | YES | Yes | YES | Yes | YES | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| Capacity for Year to Date Movements | YES | Yes | YES | Yes | YES | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| Number of Transactions per Disk | Unlimited |                | 1,500 Stock Items – unlimited transactions |                | 128 products per file – unlimited transactions |                | 220 | 500 stock lines | – |
| **PRICE**              |           |                |            |                |                |                |          |
|                        | £75.00 Included in Sales Ledger | £39.95 incs. Database | £30.00 | £19.95 | £40.00 | £27.95 cassette £29.95 disk. |          |

### INVOICING

<p>| | | | | | | | |
|                        |           |                |            |                |                 |                |          |
| Name:                  |           |                |            |                |                 |                |          |
| Generates System Numbers | YES | Yes | YES | Yes | YES | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| Calls Up Delivery Addresses | YES | Yes | YES | Yes | YES | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| Number Of Lines Per Invoice | No Limit |                | 15 | No Pre-Set | 6 |               |                |          |
| Discounting Done By Line or Invoice Total | EITHER | TOTAL | EITHER | TOTAL | EITHER | TOTAL | EITHER | TOTAL |          |
| Provides for Settlement Discounts | YES | Yes | YES | Yes | Yes | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| Provides for Carriage and Postage Charges | YES | Yes | YES | Yes | Yes | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| Has Message Facility   | YES | Yes | YES | Yes | Yes | Yes | Yes | Yes | NO | NO | NO | NO | YES |
| Number Of Transactions Per Disk | Unlimited |                | 500 | 1,200 | 600 |               |                |          |
| <strong>PRICE</strong>              |           |                |            |                |                |                |          |
|                        | Included in Sales Ledger | £30.00 |                | Included in Sales Ledger | £30.00 | Included in Sales Ledger | £30.00 | Included in Sales Ledger &amp; Stock Control |          |</p>
<table>
<thead>
<tr>
<th>Feature</th>
<th>Precision Software</th>
<th>Impex Designs</th>
<th>Pegasus Software Ltd</th>
<th>Computer Services Midlands Ltd</th>
<th>L &amp; J Computers</th>
<th>M.A.S Software Ltd</th>
<th>Accounting Software</th>
<th>Anagram Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part of 'Stepping Stones'</td>
<td>Compy-Tac 1/2/3</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5 Digits</td>
<td>6 Digits</td>
<td>4 Digits</td>
<td>1 Alpha 3 Numeric</td>
<td>5 Digits</td>
<td>1-32,000 up to 10 million</td>
<td>6 Digits</td>
<td>64 or 8000+700</td>
<td></td>
</tr>
<tr>
<td>Balance Forward</td>
<td>Open Item</td>
<td>EITHER</td>
<td>EITHER</td>
<td>EITHER</td>
<td>EITHER</td>
<td>EITHER</td>
<td>OPEN ITEM</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>550</td>
<td>5,000</td>
<td>2,400</td>
<td>1,000</td>
<td>1,000</td>
<td>220</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>2,000</td>
<td>10,000</td>
<td>7,500</td>
<td>2,500</td>
<td>1,200</td>
<td>13 inv. per customer</td>
<td>15 inv. per customer</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>500</td>
<td>5,000</td>
<td>7,000</td>
<td>1,300</td>
<td>1,300</td>
<td>220</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td>£9.95</td>
<td>£98.95</td>
<td>£300</td>
<td>£350 + VAT</td>
<td>£300 + VAT</td>
<td>£395 + VAT</td>
<td>+ other functions</td>
<td>£75</td>
<td>£299</td>
</tr>
<tr>
<td>8 Digit Alpha Numeric</td>
<td>9 Digit Alpha Numeric</td>
<td>8 Digit Alpha Numeric</td>
<td>12 Digit Alpha Numeric</td>
<td>3,000 items</td>
<td>14 Characters</td>
<td>✓</td>
<td>✓</td>
<td>64</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
<td>2 cost &amp; selling</td>
<td>6</td>
<td>2 selling &amp; cost</td>
<td>9999</td>
<td>2 cost &amp; selling</td>
<td>2 cost &amp; selling</td>
<td>2 cost &amp; selling</td>
</tr>
<tr>
<td>255 characters</td>
<td>30 characters</td>
<td>30 characters</td>
<td>40 characters</td>
<td>24 characters</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Whatever</td>
<td>Can set up to 9</td>
<td>Numeric</td>
<td>Not Preset</td>
<td>Whole Units</td>
<td>Whole numbers inc. fractions</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>Year &amp; period to date</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>500</td>
<td>2,000</td>
<td>5,000 Stock Items</td>
<td>5,000 Stock Items</td>
<td>9,999 Items Stock Level 10,000</td>
<td>As for Sales Ledger</td>
<td>✓</td>
<td>✓</td>
<td>550 Stock Items</td>
</tr>
<tr>
<td>£9.99</td>
<td>£189.99</td>
<td>£300</td>
<td>£350 + VAT</td>
<td>£300 + VAT</td>
<td>£75</td>
<td>£399</td>
<td>£75</td>
<td>£399 + VAT</td>
</tr>
<tr>
<td>✓</td>
<td>J</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>30</td>
<td>19</td>
<td>12</td>
<td>No Limit</td>
<td>20</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>EITHER</td>
<td>EITHER</td>
<td>EITHER</td>
<td>EITHER</td>
<td>EITHER</td>
<td>EITHER</td>
<td>EITHER</td>
<td>EITHER</td>
<td>EITHER</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>2,000</td>
<td>Links with Stock Control &amp; Sales Ledger</td>
<td>Links to Sales Ledger</td>
<td>As for Sales Ledger</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Included in Sales Ledger etc.</td>
<td>Included in Sales Ledger</td>
<td>£200 + VAT</td>
<td>£300 + VAT</td>
<td>¥800 - ¥599</td>
<td>¥700 - ¥699</td>
<td>¥700 - ¥699</td>
<td>¥700 - ¥699</td>
<td>¥700 - ¥699</td>
</tr>
</tbody>
</table>

**Notes:**
- **Superbase @ £99.95** must be purchased separately.
- **£95 + VAT** and **£299** are included in the software costs.
- **£75** and **£299** are additional costs for setup and installation.
- **£300 **is included in the software cost for all the mentioned features.
- **£399 + VAT** is the additional cost for setup and installation.
- **£75** is the cost for setup and installation.
- **£200 + VAT** and **£300 + VAT** are additional costs for setup and installation.
- **£399 + VAT** is the additional cost for setup and installation.
- **£75** is the cost for setup and installation.
- **£200 + VAT** and **£300 + VAT** are additional costs for setup and installation.
- **£399 + VAT** is the additional cost for setup and installation.
- **£75** is the cost for setup and installation.
The Commodore 1985 Reference Diary - created by Jim Butterfield - is a must for anybody with a Commodore computer. The 1985 Reference Diary is packed with information and useful material relevant to everything from the whole range of Commodore Computers, their peripherals and all the tricks to get the best out of your machine. All of it in a clear easy to read style and with the authority that only Jim Butterfield - universally regarded as the world's leading expert on all aspects of Commodore - can provide. In addition, of course, the Diary has all the usual diary features and details. The 1985 Commodore Diary is unique in providing the comprehensive coverage of any information you might need throughout the year - an ideal companion for Commodore Computing International - the premier magazine in the field.

**Special Readers’ Discount**
The usual price for the 1985 Commodore Reference Diary is £3.95 but Commodore Computing International’s readers can buy this really useful aid for just £2.95, including postage & packing — more than 25% reduction. You can order as many diaries as you wish at that price. They make ideal gifts!

**Special Subscription Offer!**
Commodore Computing International is making a special subscription offer. If you send a Special Subscription Offer Coupon with payment no later than 19th November 1985, you can buy the 1985 Commodore Reference Diary for just £1. This means that you get the next 12 issues of Commodore Computing International delivered to your door plus the Diary for a total of only £16 — a saving of nearly £3 for a whole year long’s enjoyment and information.

**Please Note**
The demand for the 1985 Diary is already heavy. To avoid disappointment or delay, order your copy or copies at once. Use the coupon below and post it today.
I was originally going to entitle this article 'Nick Green: Man, Myth or Maniac', a phrase I first came across when it was used to describe Brian Wilson of the Beach Boys. Like Brian, Nick is one of those rare, endangered species that any company should hold on to.

Nick Green has been many things in his days at Commodore, from Software Manager in the days when there wasn't any software about, to his current role as chief mediator between Commodore and CompuNet, of which more later.

Along the way he was in charge of the education department, a role which seemed to mystify Commodore as much as it mystified anyone else, since he was soon moved from there and put in charge of the Special Projects Group. This gave him scope to do pretty much as he liked, which wasn't always to Commodore's liking.

He had a reputation for seemingly loaning out more computer equipment than has yet been produced by the factory at Corby, and for being blessed with a wonderful disregard for the immense amount of paperwork that we (yes, I used to work there as well) had to fill out in those days. Nick professes a great interest in Cybernetics, Artificial Intelligence, and anything to do with the legendary Seymour Papert and 'Mindstorms'.

I remember on one now famous occasion when Nick attempted to prove Einstein wrong. This wouldn't be too bad in a classroom full of academics using computers, but this was in a pub using beermats to work out the reasoning. After half an hour, Nick triumphantly waved his fourth beermat into the air, convinced that he'd done it, Einstein was wrong and history would have to be re-written! Even when someone pointed out that the equation on which he had based his whole argument

**SERIOUS 64 SOFTWARE**

Dr. Watson Basic Course (Honeyfold) t.
Dr. Watson Assembly Course (Honeyfold) t.
Assembler Development Pack (Commodore) d.
Mastercode Assembler (Sunshine) t.
MON64 (Handic) r.
Programmers Utilities (Commodore) d.
Easyscript (Commodore) d.
LOGO (Commodore) d.
CPM (Commodore) r & d.
Simons Basic (Commodore) t.
Petspeed 64 Basic Compiler (Commodore) d.
Easyspell (Commodore) d.
Calc Result Easy (Handic) r.
Calc Result Advanced (Handic) r & d.
Superbase 64 (Precision) d.
Easystock (Commodore) d.
MicroMagpie (Audiogenic) d.
Transact, Book-keeping (Dialog) t/d.
Invostat, Invoice & Statements (Dialog) t/d.
Cashbook & VAT Accounts (Gemini) t/d.
Final Accounts (Gemini) t/d.

£10.50 £12.50 £28.95 £14.95 £37.95 £14.99 £34.95 £49.95 £44.95 £59.95/64.95

£10.50 £12.50 £28.95 £14.95 £37.95 £14.99 £34.95 £49.95 £44.95 £59.95/64.95

t = Tape d = Disk r = Cartridge
(Send a SAE for a list of our full range)

**PLUS—THE PRICE YOU SEE IS ALL YOU PAY**

* FREEPOST (no stamp needed) for ordering *
* FREE postage, packaging and insurance *
* 14 Day MONEY BACK guarantee *

ACT NOW, by sending cheque or postal order to:

**COMMODORE 64 DATABASE — DATATILE**

Powerful options include: print all/selective records, delete, amend, save, load, copy, alphanumeric sort, user defined fields, memory check, total numeric fields, multi field interrelational, global and between limits searches, etc. Fully menu driven with comprehensive easy to use instructions.

CBM 64 (compiled) cassette £7.45
CBM 64 (compiled) disk £10.45

**COMMODORE 64 WORDPRO — TEXTFILE**

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

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

All programs with full documentation and guarantee and can be used with all direct connect CBM 64 printers including 1520 printer/plotter. Also most centronics (with suitable hardware interface). Price includes VAT, packing and fast delivery by first class post. Cheques/PO's to:

A & C SOFTWARE
51 Ashtree Road, Tividale, West Midlands B69 2HD
WASN'T \( E=MC \) (squared) but \( E=MC \) (squared) + \( \frac{1}{2} M \) (squared) \( C \) (to the power four), Nick remained undaunted and a pint of cider was drunk to celebrate changing history.

I mentioned earlier that Nick now liaises between Commodore and Compunet, and the people who started the whole thing off, namely ADP and Ariadne Software (remember PETNET, from Commodore Computing International April/May 1982?). So, what exactly is Compunet?

**Compunet**

Compunet is the latest in a long line of computer communications projects, and has finally got off the ground after months and even years when it appeared unlikely that it would.

It is similar in design to the rather more well-known Prestel and Micronet. It is a service that enables you to communicate with other computer users, and with the added advantage of being able to communicate with a massive mainframe computer as well.

It is the mainframe that is the real power behind Compunet.

Using the Commodore modem (and at present this service and modem is available only on the Commodore 64, although it should grow to other machines as they appear), you can send information to and retrieve information from that mainframe.

On the mainframe is a veritable host of other programs, mainly educational at the moment, that you can 'download' into your computer and save onto tape or disk for subsequent re-use.

Also on the mainframe is a collection of commercial packages which can be used (at a price) but not copied, since the modem also has built into it a series of security systems. How long before they get cracked, I wonder?

At present the use of Compunet is free (apart from the cost of 'phone calls and any software you might rent or buy), as you get a year's free subscription to the service when you buy the Commodore modem. From then on, it's thirty pounds a year, and judging by the efforts going into developing this system, it looks like Nick Green is going to be very busy for some time to come.
Communications

No, IBM & BT, it was a good try but you are not going to get away with it....

The British Government has just turned down an attempt by IBM and British Telecom to set up a joint data communication company. The two organisations, the government claims, would have blocked out competition in what is believed now to be the business with greatest potential for the coming decades, electronic communication. The two giant corporations have realised what has become clear to many in the field: that the computer will no longer stand alone with an enthusiast tapping & zapping away. It will link up with many others; it will receive and transmit and it will stretch out its user's reach to an almost unlimited distance. The age of electronic communication has arrived.

Go back a few years and remember huge IBM-style number crunchers standing in lonely eminence - computers then spewed out massive data but could not communicate with anything else except their DP masters. Now nearly all telephone lines have been laid with two separate facilities: one for acoustic (speech) and one for data transmission. Suddenly computers could talk to each other. Only the mainframes and minis, at first, along private networks like Ethernet. They used PSS - packet switching; sending squeezed-up lumps of data flashing along the networks or even better in the gaps in our conversations.

At about the same time Videotex arrived. Videotex is the generic name for Viewdata; systems like BT's Prestel and also Teletext; the BBC's Ceefax and the IBA's Oracle. These simply combine the technologies of the large computer, the telephone (or broadcasting) and the TV set.

Mass Market

Now the telecommunication, data processing, publishing and information businesses have begun to merge and there is, all predictions indicate, a mass market fast coming into being.

We are seeing dramatic changes in the way people obtain information, communicate with each other and conduct transactions - buying, selling and consuming goods and services. With millions of micros in homes and businesses and cheap modems becoming a reality, electronic communication is not just a buzzword for trendy corporate executives but a growing and relevant factor in all our lives. It promises to be as general as the telephone and as influential on the way we manage our lives as that now seemingly indispensable instrument. No wonder BT and IBM wanted to grab a lions' share of the market.

The main thrust on the new communication is through public networking. Public networking, connecting micros to such services as BT's Prestel, Micronet, Telecom Gold - a business message/telex service; and Compunet, Commodore's own recently launched network is growing fast in popularity. The key to this particular breakthrough is the modem (Modulator-Demodulator) - the small piece of hardware that connects your micro into the telephone network. A modem converts the signals in a computer from digital to analog so that they can flow down a telephone line; and, of course, receiving analog signals, it converts them back again. The modem needs the computers' parallel bytes to be converted into serial ones. For this you need a serial interface, for Commodore an IEEE. Modems are uncomplicated and becoming very inexpensive. Their prices are falling fast and are beginning to come down towards the £50.00 mark.

Some modems have very interesting features. Commodore is proud that theirs, in addition to letting you connect directly to Prestel, Micronet and Compunet, also includes a built-in security system which eliminates unauthorised use by anyone but the registered owner.

This can be very useful as a major drawback with networking can be the cost. If you restrict yourself to cheap call times it can be economical - each log-on is, of course, a telephone call too - and connect to databases which offer a local call access mode i.e. reaching a distant service through your own local exchange. These accesses are charged at local rate. If you have special interest, you can subscribe to the packet switching services which let you dial and access around the world at cheaper than normal rates.

But what do you want electronic communication for? What can you do with it? There are four main areas of advantage. Information retrieval; messages and mail; interactive and commercial services; and software up and down loading.

Commodore Business November 1984
If, like so many people, you've become frustrated by the limitations of your micro, then take a look at what Tandata have to offer.

A Tandata smart auto-dial modem will add a new dimension to your micro, opening up a whole host of possibilities. Add in the appropriate Tandata micro pack and you have the complete package – matched software, user manual and even all the right cables.

You can access the massive Prestel database, including Micronet 800 and Viewfax. Shop by post and carry out home banking. Download software programmes – many of them free of charge. Communicate with other micros. Send and receive messages and much, much more.

And, with prices from just over £100 to around £400, there's a Tandata smart modem package that's right for you.

For further details, complete the coupon or phone 06845 68421.

Send to Tandata Marketing Limited, Albert Road North, Malvern, Worcs WR14 2TL.
COMMUNICATIONS
(continued)

Information Retrieval
The main frame computers which hold the huge amounts of data offered by services like Prestel and Compunet can vastly outperform micros. They process millions of instructions per second and are ideal for organising enormous amounts of text-based information. You can just tap into these boxes to track information you need quickly and easily. Very convenient for small business use.

Messages and Mail
With services like Telecom Gold, you can have a mailbox to send and receive messages. The charm of this is that at any time convenient to you, you can draw off messages and send them to any number of mailboxes simultaneously at no extra cost. It is cheaper and a great deal more convenient than sending telexes.

Interactive Facilities
Home banking in the U.K., with Nottingham Building Society and the Bank of Scotland; shopping and many other commercial operations are now available. Virtually all major travel agents have Prestel booking facilities and so, for example, do the Royal Shakespeare Theatres. You can get free flight and weather information and teleshopping lets you flick through pages as you might a catalogue — only without leaving your TV set or micro. Cable will bring even more facilities.

Software
The networks are nearly all offering software that you download and charge to your telephone account. One computer company lets you access their head office computer and download new versions of their software. You can even sell your own software onto the systems by announcing it and providing it for payment, if you wish.

Communication developments are only limited by the imagination of the users. One recent idea was to move the electronic games world out of the single lonely fanatic syndrome and games suitable for groups of players connected over the networks are now available. Micronet offers a galactic strategy game which can involve 1000 players simultaneously nationwide with the computer assimilating the moves once a day.

Bulletin Boards
A close idea to this is Electronic Bulletin Boards which are achieving the kind of vogue enjoyed a few years ago by CB. Most bulletin boards are menu driven and easy to use. They all have different special interest sections. You can buy a package and set one up yourself. The most popular package is CBBS and is used by a large number of boards throughout the world.

In the U.S. there is a communication facility called The Source, especially for micro users. It has a bulletin board that can be searched by keyword — an advantage in time and money over the page jumping tree structures mostly used in the Prestel-style services. A growing trend with these services is SIGs — Special Interest Groups — essentially electronic clubs for particular topics. Some of these are machine specific.

An interesting development in one facility in the U.S., Compuserve, is a magazine section where computer and electronics publications put out computerized versions of their magazines. Now wouldn't you like to know what you can read in CCI next month or better still read some of it in advance? I am not revealing any secrets when I say that CCI is actively pursuing such a development for itself.

Communications Revolution
What we are seeing in the communications fields is the beginning of a revolution — a radical change in the way we regard many functions of our world. Just as the telephone, the car, the radio, the TV, needed comparatively simple technological advances like the refining of oil or the manufacture of valves before they became highly influential factors in our lives, so the modem can bring out the latent forces of telecommunication; linking our micros in a simple-to-use two-way, highly economical connection to a whole range of far reaching opportunities. No wonder IBM and BT tried to swallow up this exciting market, they realise that it is the next stage in our increasingly technology-based lives and that vast sums of money will be made by those who can exploit this new revolution in communications.
Safety Fast

The fast way to get 20 Mbytes safely tucked away is with Alpha 10. Using a compact cartridge, data is transferred 10 times faster than floppies and as fast as any Winchester — but portable.

Alpha 10 Removable Cartridge Mass Storage Unit

You're looking at the best value, highest performance 10 + 10 Mbyte disk cartridge system on the market — The Alpha 10. With its twin 10 Mbyte cartridges in either stacked or sideways configuration, the Alpha 10 adds real storage power to your microprocessor, whilst its speed of data transfer takes the waiting out of data duplication for back-up purposes.

Not only this, but its very high resistance to shock, vibration and contamination makes the Alpha 10 the most reliable removable cartridge disk drive around. As well as the IBM PC, the Alpha 10 is compatible with most micros, including Act Sirius and Apricot, Apple II, Commodore, and DEC 11.

You might think you would have to pay more for a 10 + 10 storage unit with so much going for it. You'd be wrong. Surprisingly, the Alpha 10 is one of the lowest price 20 Mbyte disk cartridge systems you will find.

- Simple copy across
- Both cartridges removable
- Operating systems supported are PC-DOS™ MS-DOS™, CP/M-86™
- High capacity storage - 20 Mbytes formatted
- Access time equals Winchester Disk systems
- Data transfer rate greater than 1Mb/Sec.
- Robust, low-cost, cartridge protected media
- More reliable than floppy disk
- Simple to service
- Available in 10, 20, 30 & 40 Mb configurations

London area distributor:
Computo Processing, 77 Bedford Court Mansions, Bedford Avenue, London WC1 3AE.
Tel: 01-631 3253, Telex: 23586.

APSTOR LTD
Unit 5, Victoria Road Trading Estate, Portslade, Brighton, Sussex.
Tel: (0273) 422512 Telex 87351.
SOFT ON YOUR POCKET
TOUGH ON OUR COMPETITORS

DFM Database
Easy-to-use, Big-System Features, Printed Reports, Mail Labels Option. Available for CBM 64 • BBC • Spectrum. £24.00 Disk or tape/ SPECTRUM £14.95/DFM + Labels £30.00.

Home Accounts
Bank Account, 20 Expense Headings, Name & Address File, Loan/Forecasts. Available for CBM 64 • BBC • Spectrum. £14.95 Tape/£16.95 Disk.

Transact
Book-keeping System, All Day Books, Journal, Nominal Ledger, VAT. Available for CBM 64 • BBC 'B'. £30.00 Disk or Tape.

Invostact
Invoice & Statement Generator, Automatic Creation from Sales Product Table. Available for CBM 64 • BBC B'. £30.00 Disk or Tape.

Stock-Aid
Stock-Control System, Extensive On-Screen & Printed Reports. Available for CBM 64. £30.00 Disk or Tape.

Electronics
Study with Course Tutor to City & Guilds Standard. Available for CBM 64. £14.95 Disk or Tape.

• All disk software has now been improved—the Commodore Disc range has now been written in machine code.
• Spectrum software is now microdrive compatible.
• All our software has been re-packaged—this means that the boxes are smaller and there is more descriptive copy about the program on the back of the box.
• Buy directly from us—alternatively if you write or telephone (Address and Telephone number are at the bottom of this advertisement). We will send you an informative Dealer Pack.

• Watch out for our OL Sinclair Software! It will be available sooner than you think.

The entire software range is available from
Micro Dealer UK
Telephone Welwyn Garden City
07073 28181
and select title ranges are available from
Websters Software. Tel. Guildford 0483 62222

PCS Distribution. Tel. Darwen 0254 691211 and all Boots outlets

PLEASE SEND ME FURTHER DETAILS OF YOUR COMPLETE RANGE OF PROGRAMS FOR

☐ CBM 64 ☐ BBC ☐ SPECTRUM

NAME ____________________________
ADDRESS ____________________________

TELEPHONE ____________________________

DIALOG SOFTWARE
293 Copperfield, Limesfarm Estate, Chigwell, Essex. Telephone: 01-501 0799
Barclaycard and Access accepted.
BUSICALC 3
- the sophisticated spreadsheet!

Easy to learn, easy to use - something that can't be said of many business programs. But it's true of all the programs in the BUSICALC series.

BUSICALC 3 can handle all sorts of jobs - budgets, expenditure analysis, stock lists, price lists, and product costing are just a few of the possibilities. Three-dimensional formulae automatically access data stored on disk, so that you can easily pull together information from several different sheets and summarise or manipulate it.

It's simple to transfer data to other programs such as Easy Script. And you can use virtually any printer with BUSICALC 3, whether dot matrix or daisy wheel, Commodore or non-Commodore.

For the CBM 64 and PET/CBM 4000 & 8000 series.

Available through dealers or from:
**Supersoft, Winchester House, Canning Road, Harrow HA3 7SJ**

**Phone 01-861 1166 for more details and a free catalogue.**